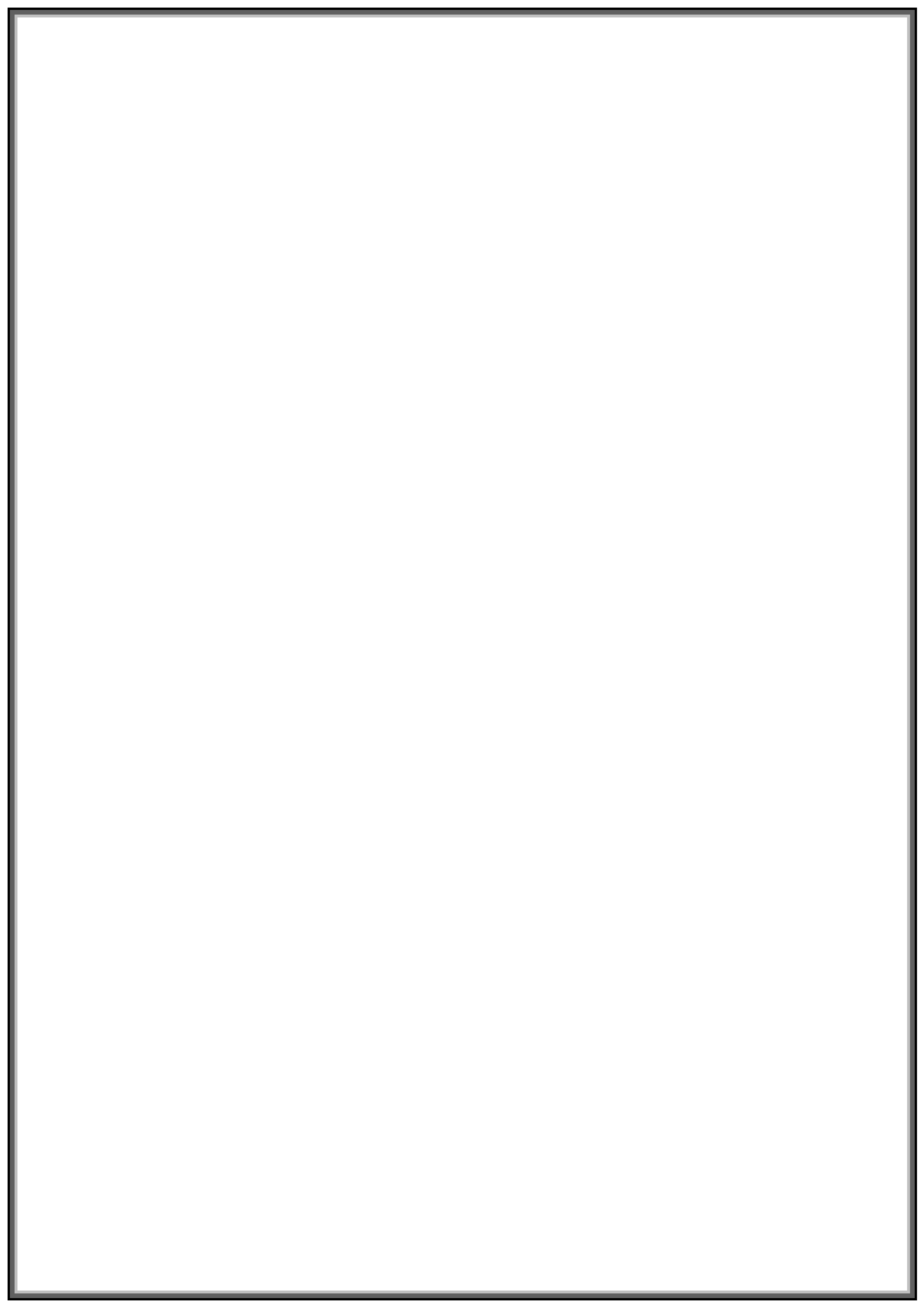


Getting Started with PhotoVCarve



Tutorial 1
Carving Faces

Vectric



PhotoVCarve

Disclaimer

All CNC machines (routing, engraving, and milling) are potentially dangerous and because Vectric Ltd has no control over how the software described in this manual might be used. Vectric Ltd or any associated Resellers cannot accept responsibility for any loss or damage to the work piece, machine or any individual, howsoever caused by misusing the software. Extreme care should always be taken and the output from the software thoroughly checked before sending it to a CNC machine.

The information in this manual may be subject to change without any prior notice. The software described in this manual is supplied under the terms and conditions of the software license agreement and may only be used in accordance with the terms of this agreement.

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Introduction

Many businesses use their CNC machine for simply cutting out flat letters and shapes from plastic sheet, or engraving standard badges and nameplates, which are all based on simple 2D machining strategies. This manual will show you how to use your CNC machine to route and engrave jobs that include decorative 3D designs that will be more interesting and hopefully more profitable if you run a business.

The manual takes you step-by-step through an illustrated tutorial that shows and explains exactly how to use the PhotoVCarve Software. Tips and tricks have also been included that will help you get the most from your CNC machine.

We hope you enjoy using the software.

What is V-Carving?

V-Carving produces a constantly varying and flowing 3D carved effect on the job, which is similar to how a craftsman would carve by hand. Imagine a 'hand-carver' cutting letters into a piece of wood or stone, starting at a sharp corner, pushing the chisel deeper where the font stroke gets wider and pulling the tool out to form precise, sharp corners. V-Carving, also known as 3D Engrave or Intaglio engraving allows a V shaped or engraving tool to cut at varying Z depths that are directly linked to the width of the geometry in which the cutter is moving.



PhotoVCarved design

What the software allows you to do

PhotoVCarve can be used in the following industries to add decoration to objects and products such as,

Sign making	House signs, Business, Restaurants, Pubs, Gold Leafed and Gilded
Engraving	Commemorative Brass plaques, Company logos,
Woodworking	Kitchen cabinet doors, Chairs, Doors, Table tops
Gifts	Key rings, Personalised gifts
Stone cutting	Memorials, Commemorative engravings

What file formats can be used?

PhotoVCarve will open files that have been saved in the following formats.

JPG, BMP, TIF, PNG, GIF



If the design is being edited using a paint package to remove the background the finished design should be saved as a BMP or TIF file as this retains the exact colours. The JPG format will feather the colours removing any sharp edge boundaries.

Getting Help

If you need assistance when using the software there are 5 primary places to look.

1. **Program Help File** - From the Main menu select Help
2. **Video Tutorials** - These are supplied on the installation CD or can be downloaded from the Vectric website.
3. **User Forum** - The Vectric user forum at www.vectric.com/forum is a very useful resource for information on PhotoVCarve along with materials, cutters etc. and also to share knowledge and experiences.
4. **E-mail Support:** - The Vectric Support Team at support@vectric.com
5. **Frequently Asked Questions (FAQ)** - The support area on the Vectric web site at www.vectric.com maintains a list of the most frequently asked questions along with the answers.

Watch the supporting tutorial videos



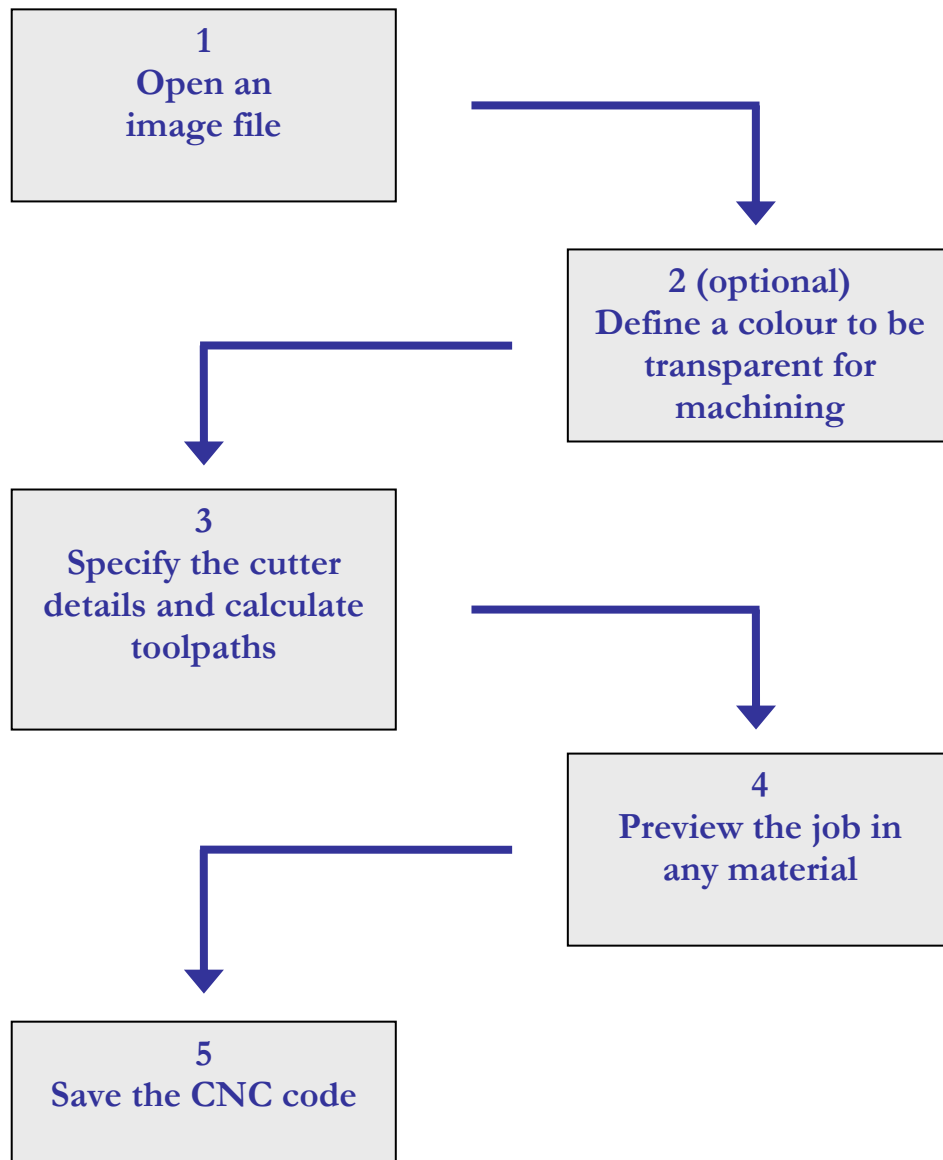
The video camera icon indicates there is a video file for that particular section of the manual.

The tutorials have associated video footage that will make learning to use this software more interesting and enjoyable. These are on the installation CD or Downloadable from the web site. Windows Media Player is required to view the video files.

If you experience problems running these files or need assistance please visit the technical support area on the web site and follow the links.

The PhotoVCarve Logic







PhotoVCarve has been developed specifically to open digital images such as photographs and image files and calculate perfect 3D V-Carve / 3D Engrave toolpaths as quickly and easily as possible. The general work flow logic to apply to most jobs is explained in the diagram below.



View Controls

The View Control options available when working in the 3D Preview window are,

3D Window

	3D Twiddle	Click and drag Left mouse button in the 3D window
	Zoom	Right mouse button – Push / Pull Mouse with Middle Wheel – Push / Pull
	Pan	Click and drag Right mouse button + Ctrl Click and drag Right and Left mouse button
	Plan View	Looks directly down the Z axis onto the design in 3D window
	Zoom to Fit	Scales the design displayed in the 3D window
	Isometric View	Shows the model in a 3D isometric view in the 3D window



We recommend that you watch the **5 minute Video** for this Tutorial before proceeding. The video can be found on the installation CD or downloaded from the web site at www.vetric.com

Introduction

This tutorial will show you how to carve / engrave the Baby's Face shown below in Figure 1, which is approximately 2.5" high (63mm) by 2.1" (53mm) wide. The artwork for this sign was taken using a digital camera and then edited in Adobe Photoshop to remove the background.

We estimate that this tutorial should take you approximately **15 minutes** to complete.



Figure 1. The Engraved picture

There are 4 key stages in opening and preparing toolpaths for this sign.

1. Open the image file
2. Select the background colour
3. Calculate the 3D PhotoVCarve toolpath
4. Preview the completed job
5. Save the Toolpath

The file required for this tutorial are installed on your PC in the folder,

C: Program Files\PhotoVCarve\Samples\Baby.gif

1. Opening Image

1. Click the **Load Image** icon.



2. Navigate to the folder - **C: Program Files\PhotoVCarve\Samples**
3. Select the file named – **Baby.gif** and click the **Open** button

The design shown below in Figure 2 will now be displayed in the 2D window and the Material Setup form is opened.

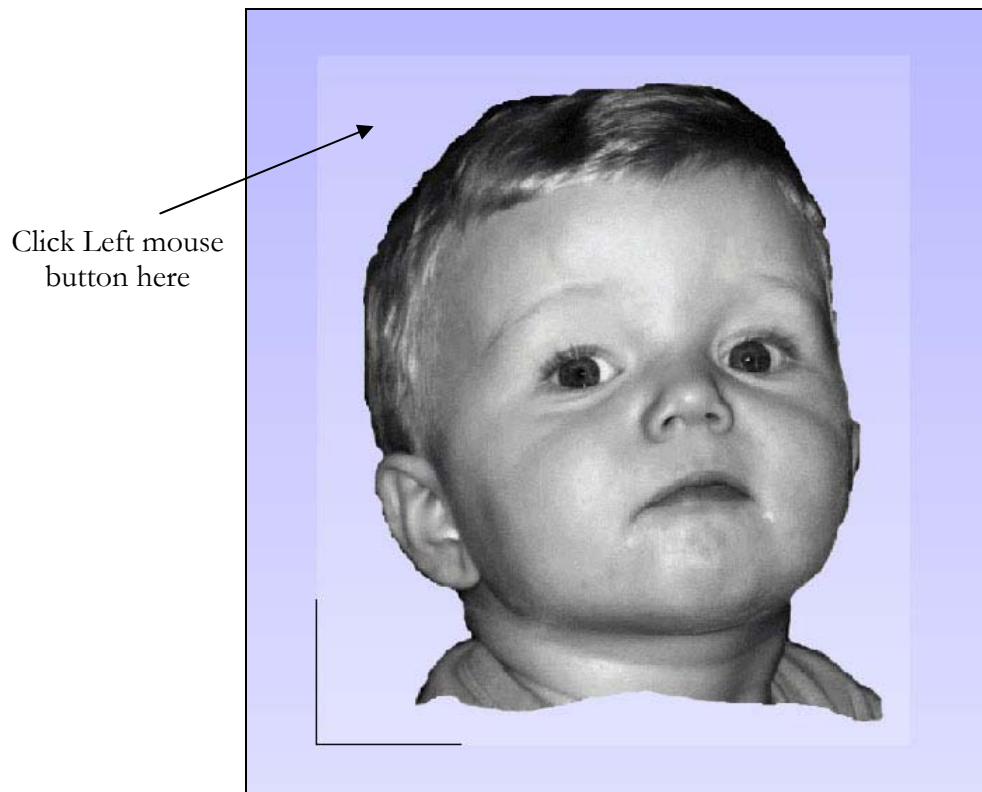


Figure 2 Original photograph with the background painted yellow

4. Next make the Yellow background region transparent.



Check the box **Make Color Transparent**, move the cursor over the **Yellow** area and click the **Left mouse** button.



The solid yellow area will turn transparent and will not be machined

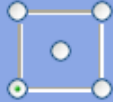
2. Set the Material Size


Click on the Set Image Size and complete the form as shown below

5. Enter the Height of the job to be 2.5" and the Width will automatically be completed.

2 Set Material Size

Image Size
 Width (x): 2.1518 inches
 Height (y): 2.5 inches

XY Origin Position

 X: 0.0
 Y: 0.0

Material Thickness and Z Origin

 Thickness (z): 0.1 inches

Units
 inches mm

Apply

Specify the Job size, XY & Z origins and Material thickness

Click the **Apply** button to move onto **Step 3**.


3. Set Cutting Parameters

Click Set Cutting Parameters and complete the form as shown below.

3 Set Cutting Parameters


V-Bit (60 deg 0.25")
 Feed/Plunge Rate: 100/30 inches/min
 Spindle Speed: 16000 r.p.m.
 Select ... Edit ...

Carving Max. Depth: 0.015 inches
 100% 200%

Line Spacing  110 %
 Number of Lines: 131
 Distance between lines: 0.019 inches
 Number of passes in Z: 1 (0.015 inches)

Line Angle: 22.5 Cross Hatch

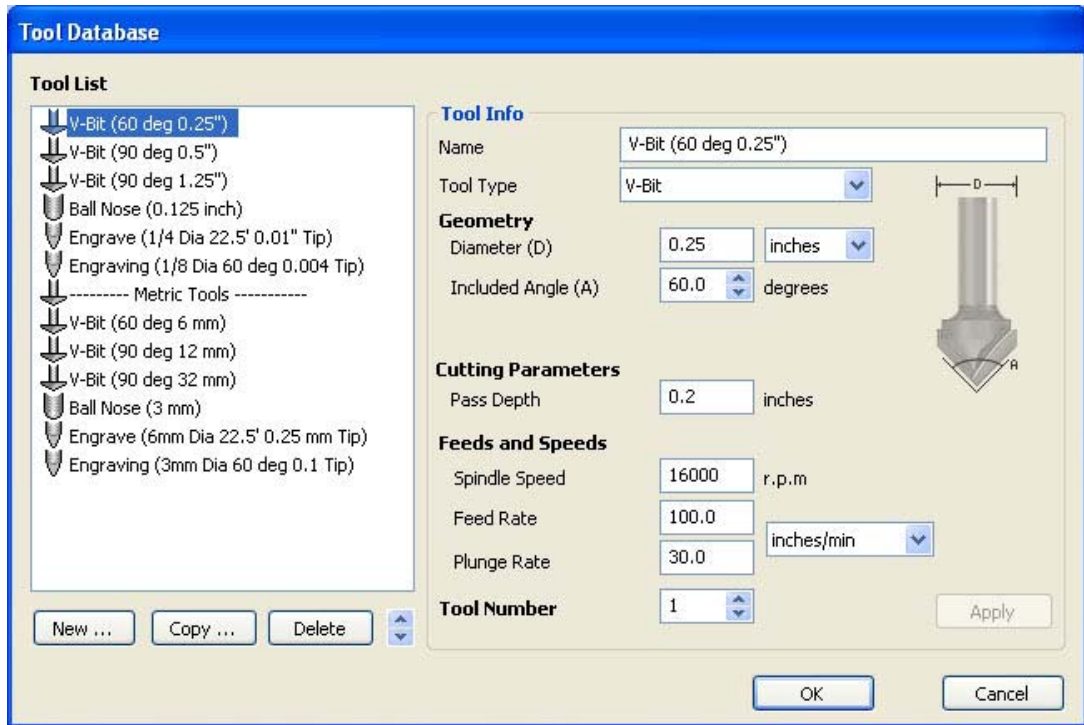
Invert light / dark areas
 0% 100%

Increase Contrast  0%

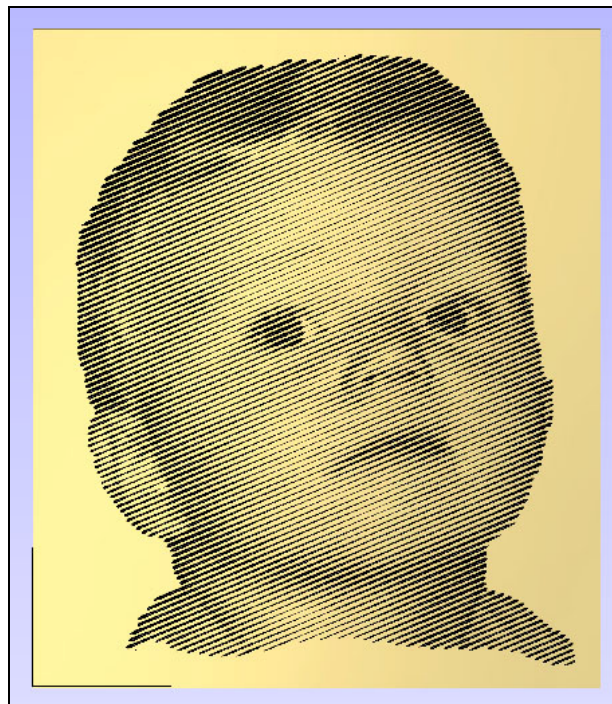
Rapid clearance gap: 0.1 inches

Calculate

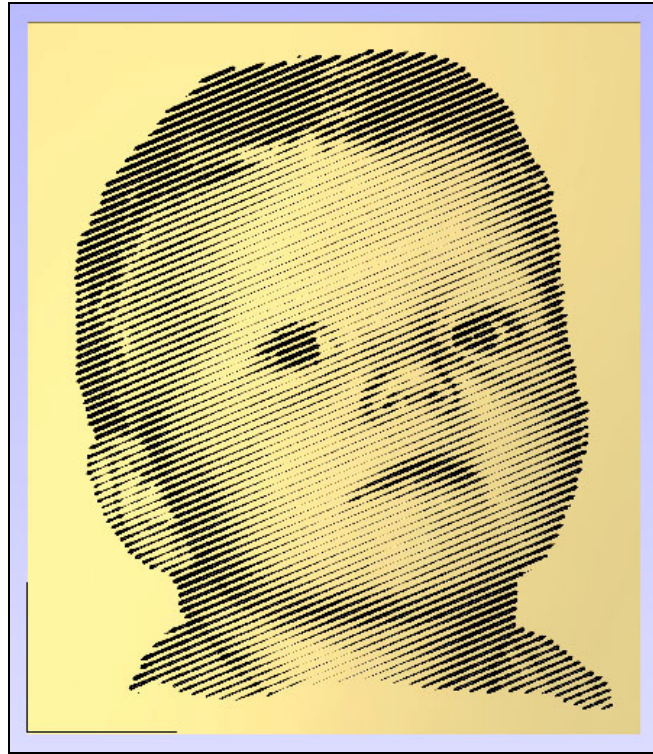
- In this example we are using a 60 degree included angle engraving cutter, engraving to a depth of 0.015" with a diagonal cut direction of 22.5 degrees.



- Click the **Calculate** button and the toolpath will be calculated and previewed as shown below.



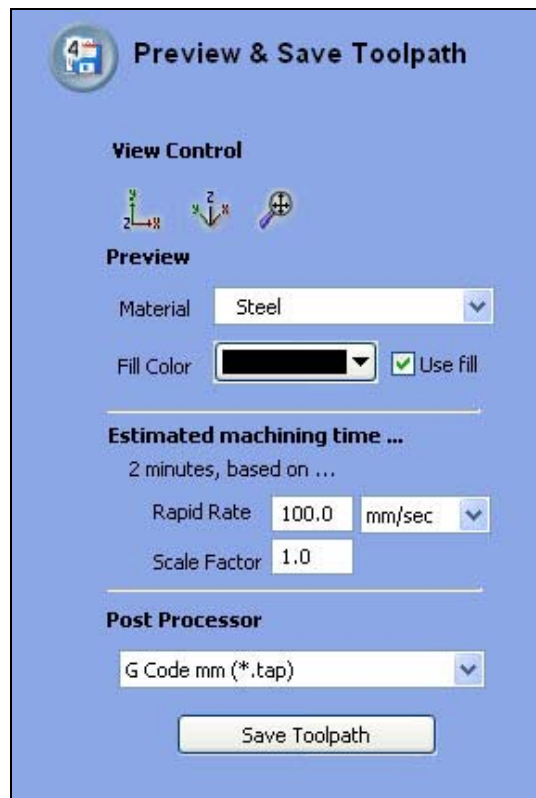
- Experiment with different Line Spacing and Contrast settings to obtain the result you require. For example the image below shows the job engraved with a 150% Line Spacing and 80% contrast.



Click on the **Preview & Save Toolpath** to move the final **stage 4**.

4. Preview & Save Toolpath

Experiment with different Material types and Fill Colors



Job Preview and Save options

10. The Estimated machining time is shown and should only take a couple of minutes to engrave this 2.5" high design 2.5".
11. Select the **Postprocessor** for your CNC machine from the pull-down list.
12. Click the **Save Toolpath** button and give the file a suitable name.

5. Save the File

13. The complete design can be saved as a .PVC format. This includes the image, toolpath and settings all stored for future editing and use.

From the Main menu select File > Save and enter a suitable name.