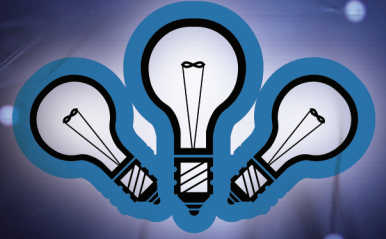


How To Create 3D Sculptures



Using Cutting Paths to Create 3D Sculptures On Your Laser System

Overview

In this presentation you will learn how to create a cutting path around a digital image or photograph that you can use to cut out a 3D sculpture on your laser system. A cutting path is used to cleanly separate an image from its background. Many graphic programs offer the ability to generate cutting paths, including CorelDRAW®, Adobe® Photoshop and Illustrator. In this exercise we will create the cutting path around the outline of the incredible Spider-Man™ in CorelDRAW and then output the image to a laser system to create a 3D photo sculpture.

Getting Started

Before you create a cutting path, you'll want to prepare the digital image for printing to a color printer or other output device. Import the image into CorelDRAW and scale it to the exact size you want for the finished sculpture. Next, using the "text" tool, create two or more registration marks to line up the image when printing. The "+" symbol works fine as shown in Figure 1. Print the image, then laminate it to 1/8 inch clear acrylic (or whatever substrate you choose to use as backing).



FIGURE 1

Using Cutting Paths to Create 3D Sculptures On Your Laser System

Creating a Cutting Path

Now you are ready to create a cutting path. Use the same-size image with registration points that you just printed. Using your Freehand, or Bézier tool, pick a point that would make a good beginning and end point, such as the tip of Spider-Man's boot. Begin the path by clicking a start point, then click again at the next area of inflection. Don't try to create a path by holding down a mouse button – it's difficult if not impossible. You can go back later and adjust the curves to match the graphic. Note that if you use the Freehand tool, you will need to double click at each stop and start point, but this will allow you to constrain at 15 percent, or at any predefined angle. You should end up with a trace line similar to the one shown in Figure 2, which are essentially straight lines between each point. Keep in mind that the fewer points you create, the better.



FIGURE 2

Now select the trace line with the Shape tool. This will allow you to select all nodes and convert the trace from straight lines to curves. Now you can grab a line at any point and reshape it to conform to the contours of your image. Note that you can adjust the “handles” from each node to fine tune the curves. After fine tuning, you should have created a cutting path similar to the one shown in Figure 3. Now simply convert the CorelDRAW cutting path into a hairline thickness red vector cutting path and you're ready to output the file to create a 3D sculpture.

Outputting the Image

Now you're ready to vector cut the Spider-Man image that was laminated to acrylic. Place the laminated acrylic on the engraving table. Don't worry too much about exact placement as you will make the final adjustments using the red dot pointer on your laser system. Position the red dot over the upper left registration mark, then drag both vertical and horizontal guidelines to the coordinates displayed on the laser system's front panel or VersaLaser's VCP control panel. Repeat the same procedure for the registration mark in the bottom right corner of the image. Now move the image in CorelDraw to match up with the cross sections of the guidelines on both registration points. Use the “nudge” tool to accurately align the graphic. Once everything is lined up, dry-run the file using the red dot pointer to verify registration. If you've followed these steps carefully, everything should be OK and you can use the laser to cut out your custom 3D photo sculpture.



FIGURE 3