

Creating raised lettering on the laser printer

The Aylesbury North signal box has a nice sign on the front with raised letters. Gary drew the sign in CAD but wanted the laser cutter to produce the raised lettering. Unfortunately, you can't do that from a CAD drawing.

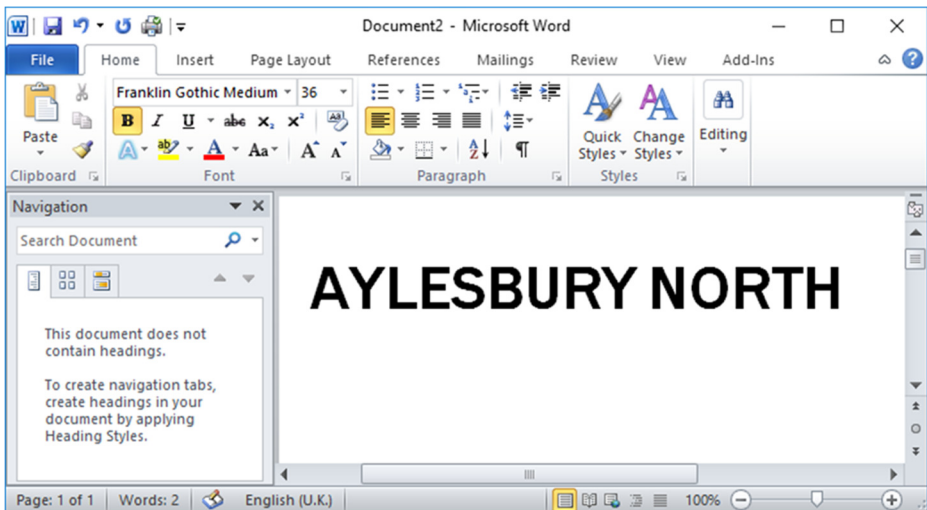
The laser cutter has two modes of lasering. One is cut mode, where the laser cuts a line. The second is engrave. The latter works with a bitmap. Once the bitmap is loaded to the laser cutter, it scans the bitmap and each scan burns away a small amount of the surface of the plastic.



So, how do you produce the above?

Step 1.

Create the lettering in a suitable package such as Word. Use whatever font you need to produce the letters you require.



In this example, the font is Franklin Gothic Medium, in bold.

Step 2.

You need the lettering as a bitmap, so zoom it as big as possible on your screen and press ALT Print Screen. This will copy the screen image to the clipboard. Then load a paint package and paste the image above into it. I use Paint.net which can be downloaded from the internet at the following address:

<https://www.getpaint.net/download.html#download>

Paint.net does not work on Windows XP or earlier.

Once you have the whole of the Word window in Paint.net just cut out the lettering you need so you end up with this:

AYLESBURY NORTH

Step 3.

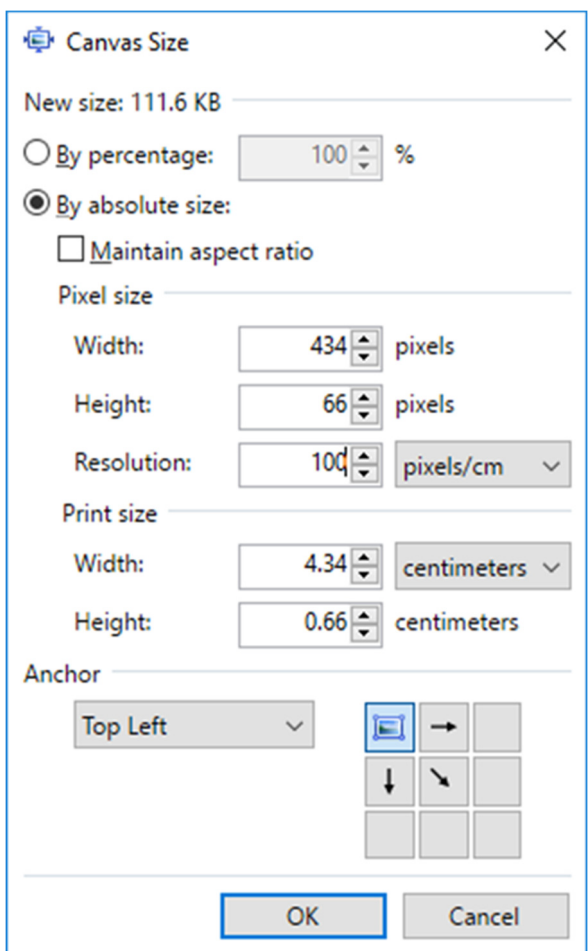
The laser will cut the black and leave the white, so to get raised letters you will need to invert the colours. Paint.net has a menu option to do this. Use “adjustments” and “invert colours” to get this:

AYLESBURY NORTH

Step 4.

It may be that the sign is quite a bit larger than the area occupied by the letters, so you may need to extend the black area. Use the menu option “Image” “Canvas size” to change the size of the canvas. The dialogue looks like:

It is really useful to change the resolution of the image to 100 pixels per cm. Immediately, you can see exactly how big the image is. Make it about 1mm higher and 1mm longer than you need. Once you have the image the right size, use the package tools to fill any new space with black and move the lettering to the middle of the image.



AYLESBURY NORTH

If the image is proportioned correctly, but still too small or too large, use “Image” “Resize...” to change the overall size of the image but maintaining the proportions. Save the bitmap to a suitable file. Make sure you save it as a 24 bit colour bitmap. Yes I know it is only black and white, but the laser cutter software will not load a file saved as black and white! I don’t know why.

Step 5.

You now have the bitmap finished. You will need a cut outline. Use the CAD package

to draw the rectangle you want to cut out. Because the black colour will be used for the engraving, make the rectangle a different colour like red. Save the cut outline as a DXF file.

Step 6.

Run the laser cutter software, and import the bitmap. Press CTRL Y to centre it in the work area. This is an essential step. Then import the cut outline and centre that too using the same command. The bitmap and the outline will now overlay each other. Now define that the black is to be engraved at a setting of 100mm/s and a power of 30%. Set the red line to be a cut, with suitable speed and power for the material thickness being used.

Step 7.

Download the data to the laser cutter and cut out your sign. Clean with Meths and a stiff brush. All done.

James