Example Artwork

Shown below are the steps involved and points to consider when creating an artwork for the Etching process.

Front view of the part

Back view of the part

The above images show the final result in stainless steel, in this example there is surface etch detail on the front and on the back of the part, the steps below describe how this is achieved and the best way to present this in a file for etching.
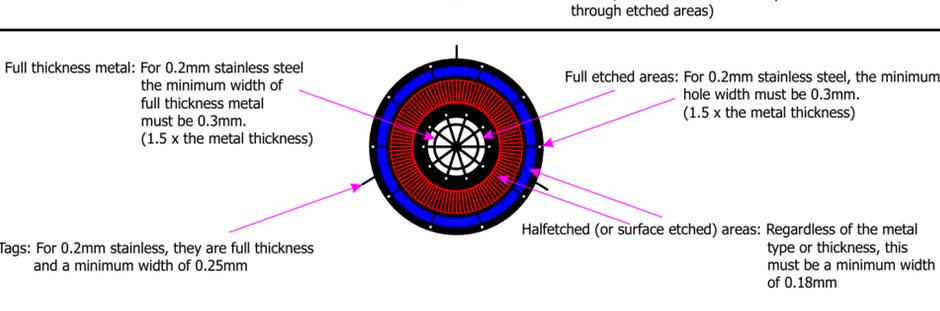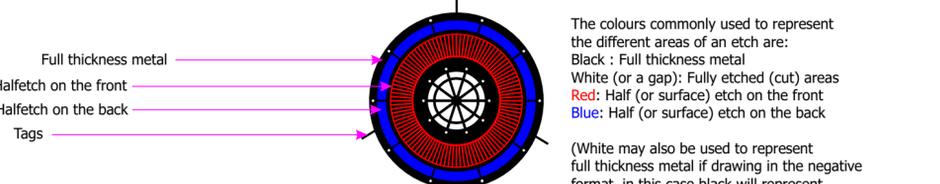
Step 1. - Draw the component

To achieve the highest possible quality of etched part it is important that a vector format drawing is created. At PPD we use CorelDraw, Adobe Illustrator and AutoCAD. But regardless of which programme you use you should follow the same basic steps as below.

Create separate layers to differentiate the aspects of the etch, our suggestion is:

Full thickness metal
Halfetch Front
Halfetch Back
Tags

To ensure that the component will etch successfully on the metal type and thickness selected it's vital that you refer to our 'Drawing Tolerance & Tags' PDF File, you can find this on our 'Artwork Guide' page.

In our example, the metal type is Stainless Steel and the thickness is 0.2mm.

Full thickness metal
Halfetch on the front
Halfetch on the back
Tags

The colours commonly used to represent the different areas of an etch are:
Black : Full thickness metal
White (or a gap): Fully etched (cut) areas
Red: Half (or surface) etch on the front
Blue: Half (or surface) etch on the back

(White may also be used to represent full thickness metal if drawing in the negative format, in this case black will represent through etched areas)

Full thickness metal: For 0.2mm stainless steel the minimum width of full thickness metal must be 0.3mm. (1.5 x the metal thickness)

Fully etched areas: For 0.2mm stainless steel, the minimum hole width must be 0.3mm.

Tags: For 0.2mm stainless, they are full thickness and a minimum width of 0.25mm

Halfetched (or surface etched) areas: Regardless of the metal type or thickness, this must be a minimum width of 0.18mm

## Step 2. - Select the sheet size and layout

Assuming the part is less than 300mm in one dimension, set the sheet size to a width of 300mm, the length of the sheet should be set based on the following considerations:

The longest part that is greater than 300mm
The number of repeat sheets you may want to order in the future
The total number of parts that you would like to order

In general, unless the part exceeds 600mm in length, the sheet length should be set to between 150mm and 600mm, it's no problem for us to create a sheet exceeding these sizes but it will incur oversize tooling and sheet charges.

We recommend allowing a minimum of 1mm between the parts on a sheet, in the example case we decided to create a sheet at 300mm x 300mm with 36 parts per sheet. Remember to include a full thickness frame around the 4 edges of the sheet of minimum width of 10mm.

The image below shoes the arrayed part within our sheet.
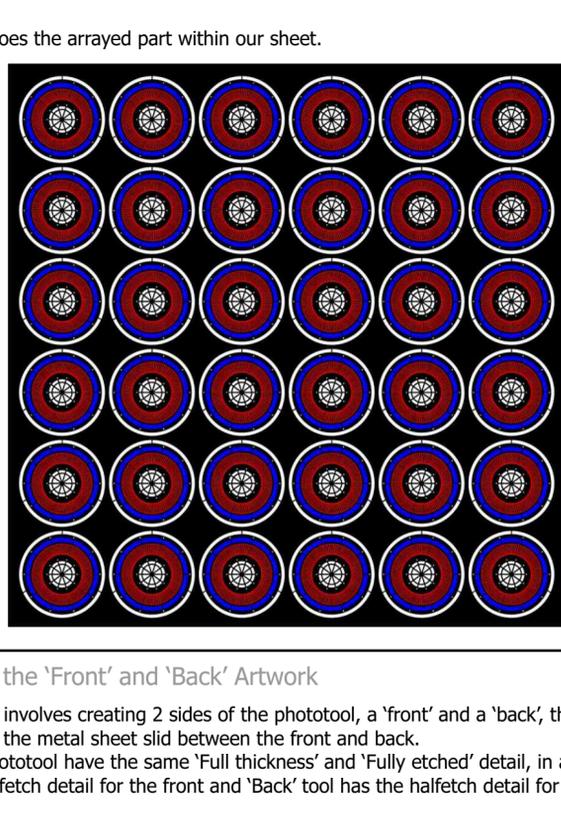
## Step 2. - Create the 'Front' and 'Back' Artwork

The etching process involves creating 2 sides of the phototool, a 'front' and a 'back', these are joined in register with each other and the metal sheet slid between the front and back.
Both sides of the phototool have the same 'Full thickness' and 'Fully etched' detail, in addition to this, the 'Front' tool also has the halfetch detail for the front and 'Back' tool has the halfetch detail for the back.

To enable us to print the films for the 'Front' and 'Back' we need these to be separate artworks, if the separate layers have been setup correctly, this separation should be relatively straightforward, in our example the result is:
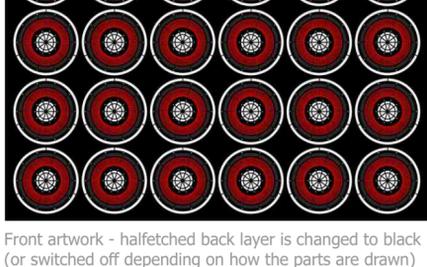
Front artwork - halfetched back layer is changed to black (or switched off depending on how the parts are drawn)
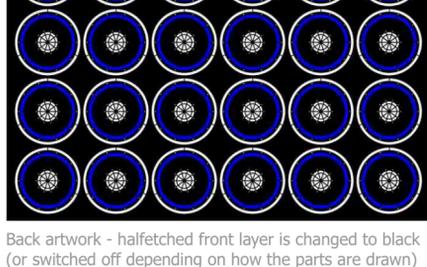
Back artwork - halfetched front layer is changed to black (or switched off depending on how the parts are drawn)

You can see that the left hand image has the back halfetched detail converted to black and on the right hand image which is the back artwork that the front halfetched layer has been converted to black.

In this example the tags are full thickness and therefore appear on both the front and back artwork, if this sheet was to be etched from a thicker metal, halfetched tags would have been used instead, making it easier to remove the parts from the sheet, in terms of the difference in the artwork, the tags would only be shown on one side of the phototool, usually the 'back' artwork.

Step 3. - Conversion to black and white

The final step in this example involves converting the halfetch detail on both the front and back artwork to white, again if the layers have been created correctly this should be straightforward, the result is shown below:


Front artwork - halfetched front layer is changed to white
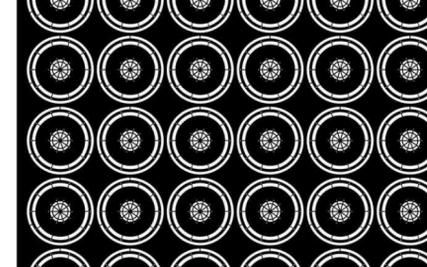
Back artwork - halfetched back layer is changed to white
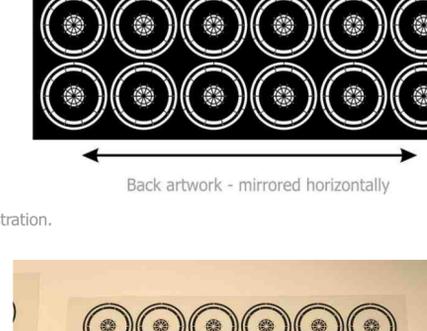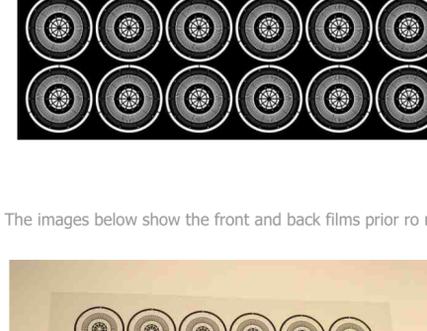
Step 4. - The 'Back' artwork is mirrored

The final step in the process is to 'mirror' the back artwork, this is required so that when we print the two sides of the phototool that the emulsion of the film on each side of the artwork is in contact with the metal sheet.
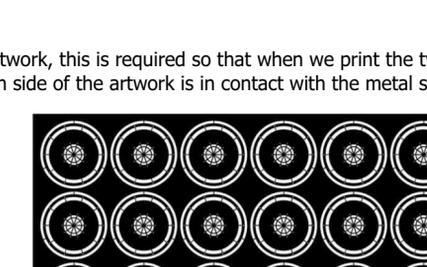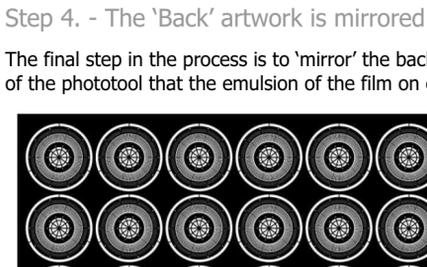
Back artwork - mirrored horizontally

The images below show the front and back films prior ro registration.

The above image shows the front and back taped on two sides in register ready to be used in the next step of production.

Step 5. - Email the file

Once the above steps are complete the file is ready to send, we recommend that a measure bar is drawn on the file in case there are translation issues when we open the drawing in our software, it can also be useful to include a PDF file of the drawing for comparison.

The software we use is
CorelDraw
AutoCAD
Adobe Illustrator

Using these programmes we can use file with extension: cdr / dwg / dxf / ai / eps / dgn / pdf