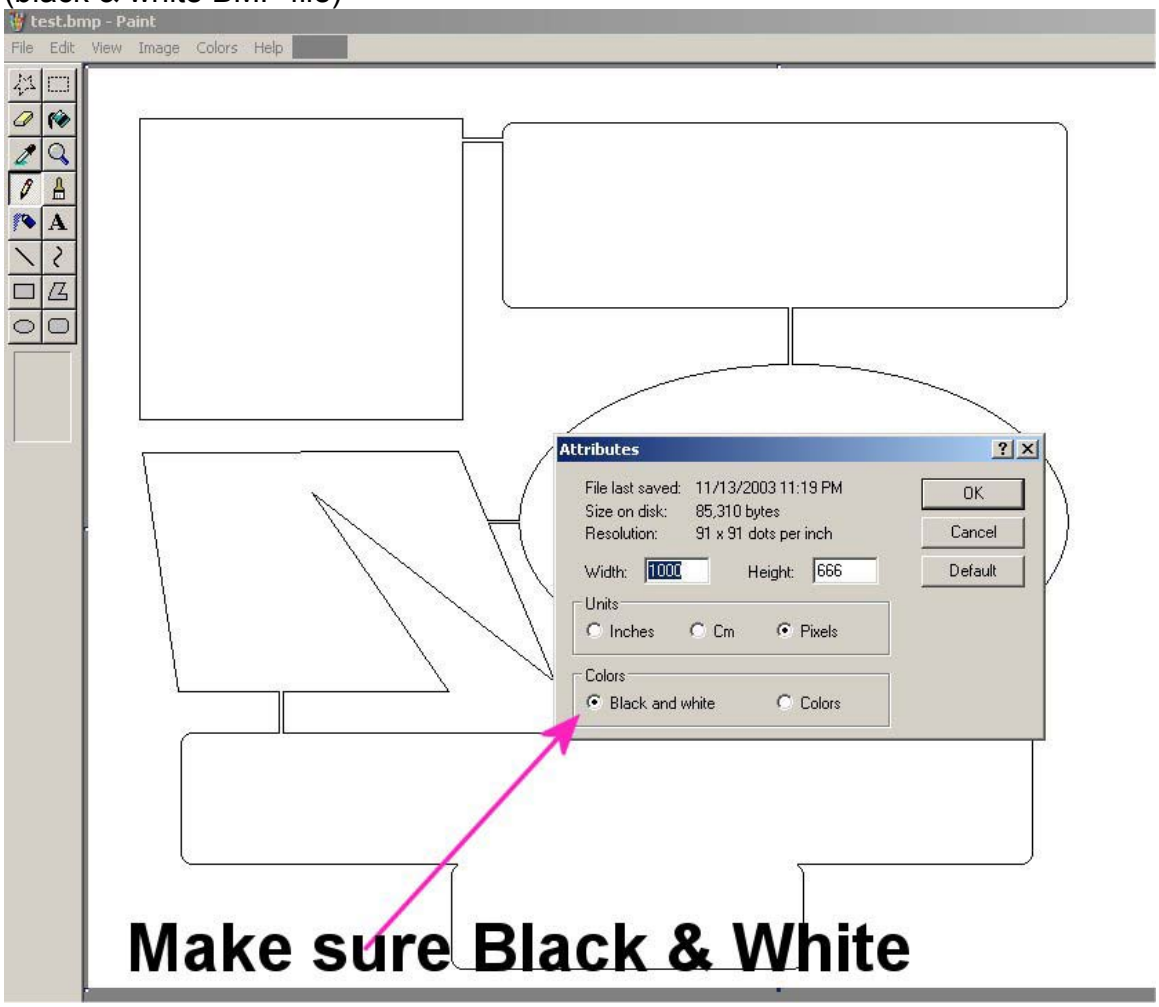
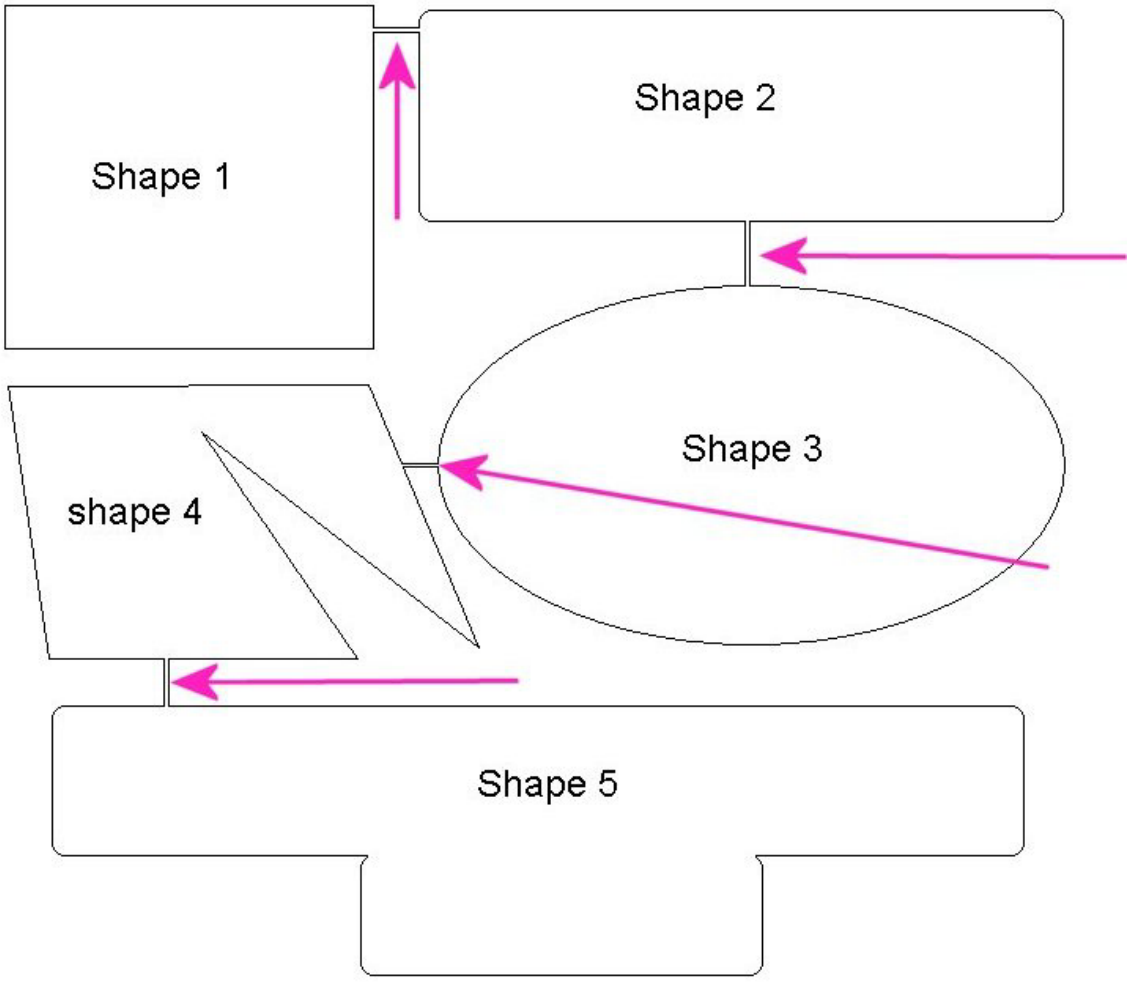
This document describes how to cut multiple shapes out of a single piece of foam

In the picture below shows a few shapes that are connected between each-other.

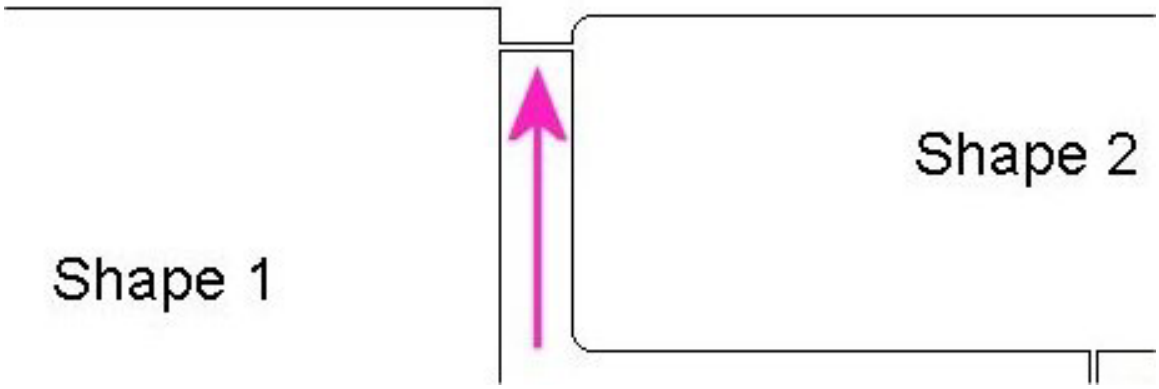
The 1st step is to draw the shapes and save the file as a single bit (black & white BMP file)



The image below shows where each shape is connected to the next.

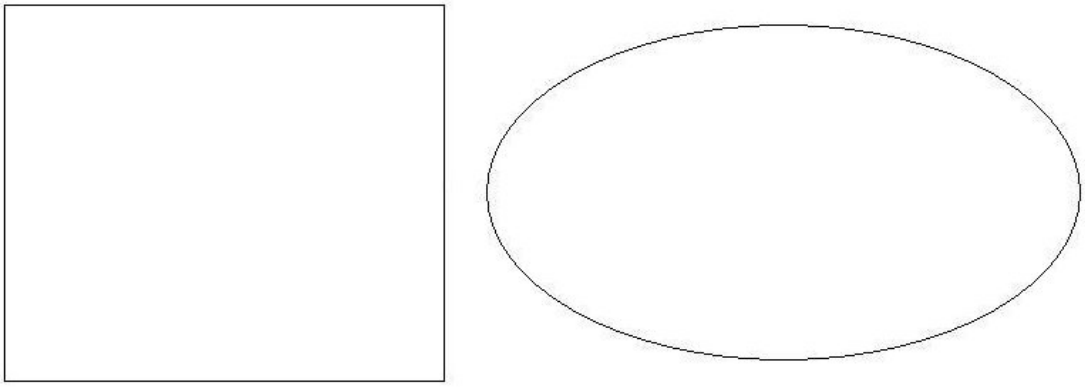


In the picture below the connection between each shape is shown up-close.

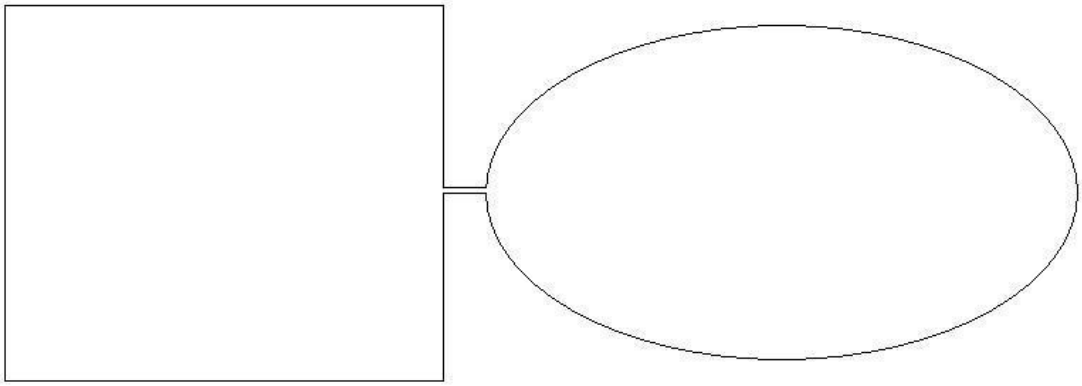


The goal here is to make sure that the how wire has a place to enter the shape and exit.

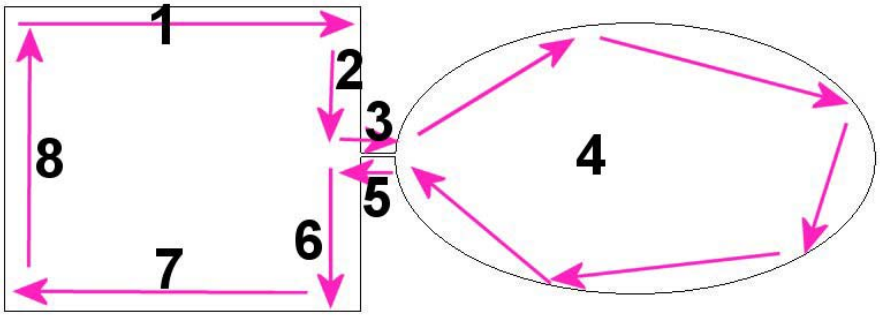
For an example: Lets take two simple shapes:



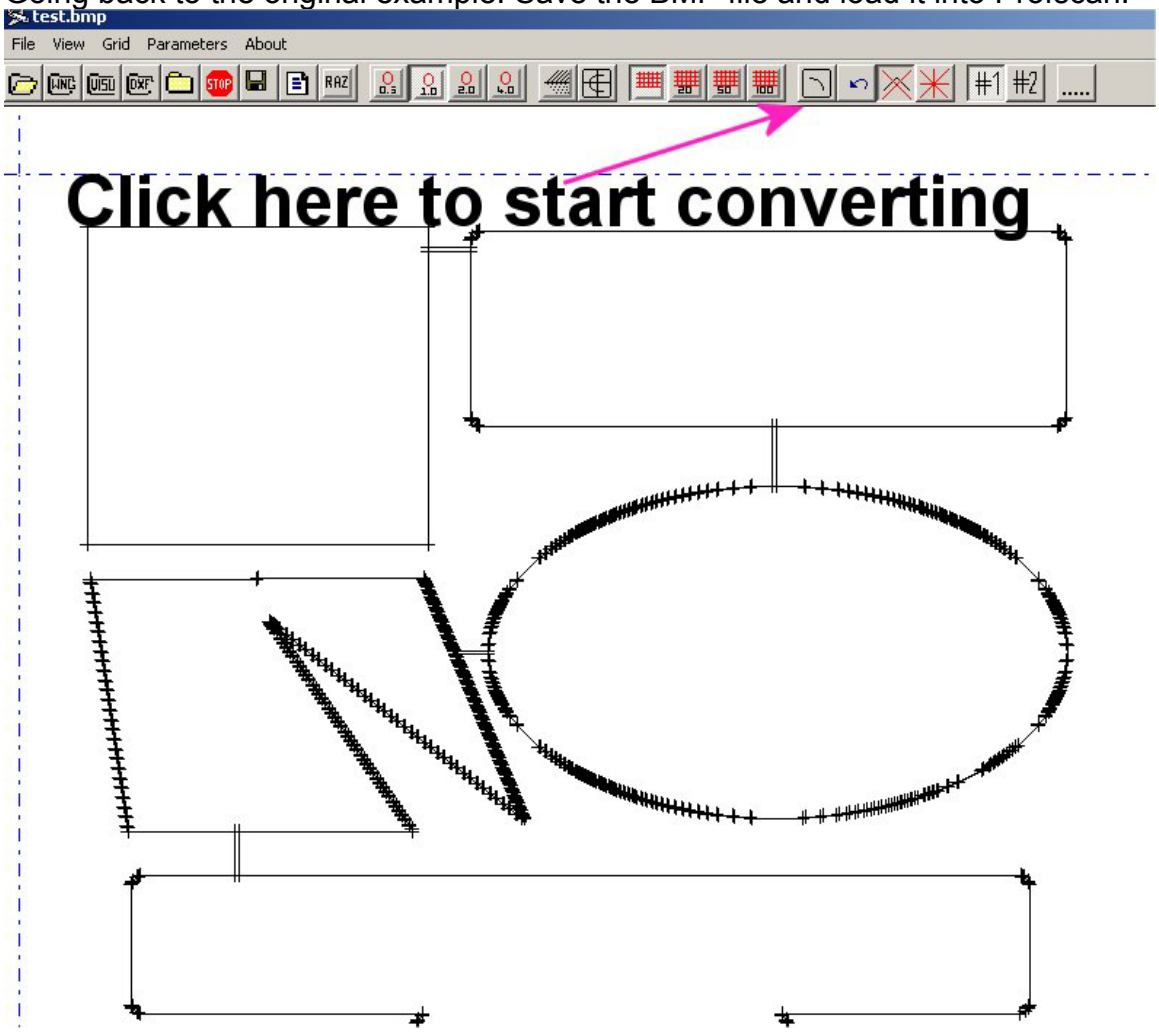
Now, lets draw the lines that connect between the two shapes. These two lines are where the wire will exit the 1st shape and enter the 2nd shape.



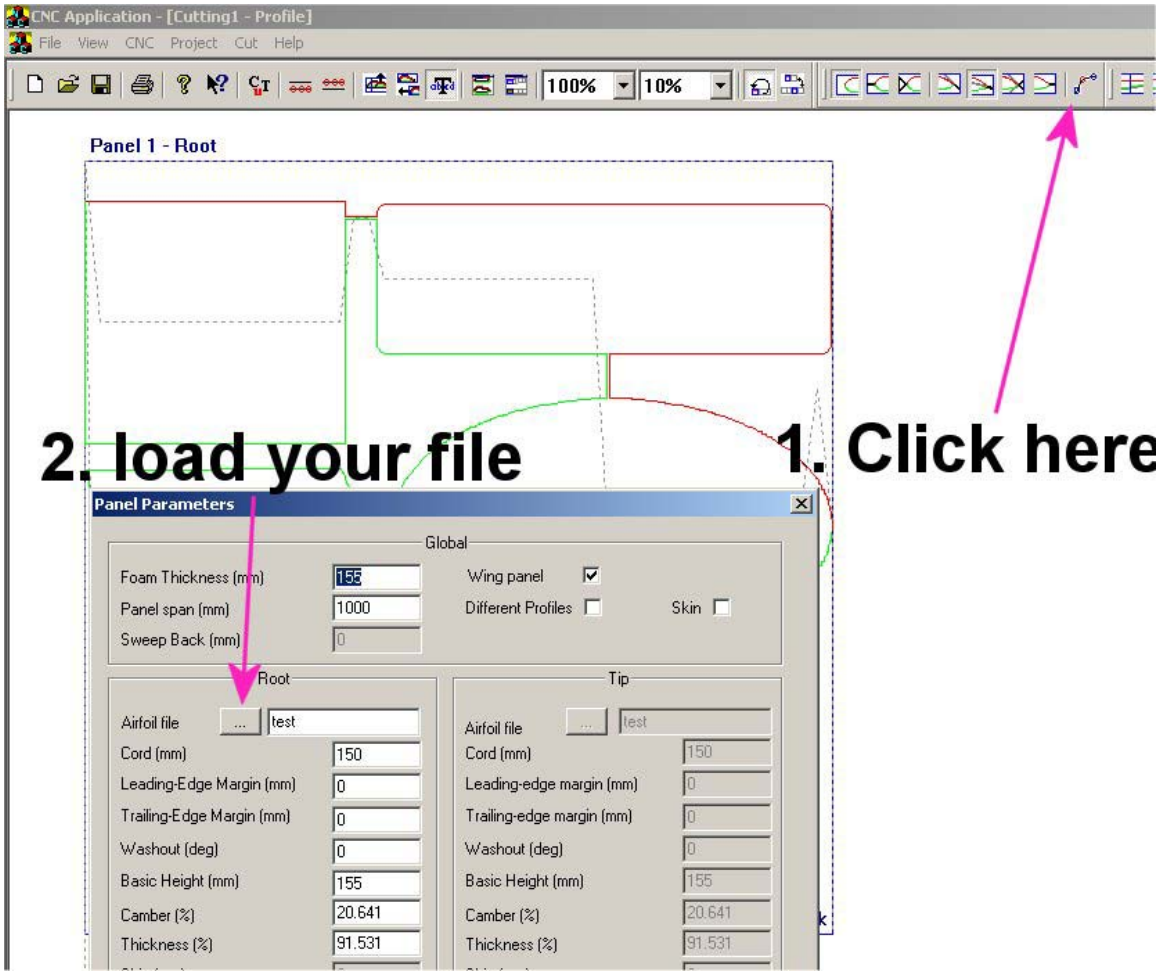
In the picture below we show the hot wire path

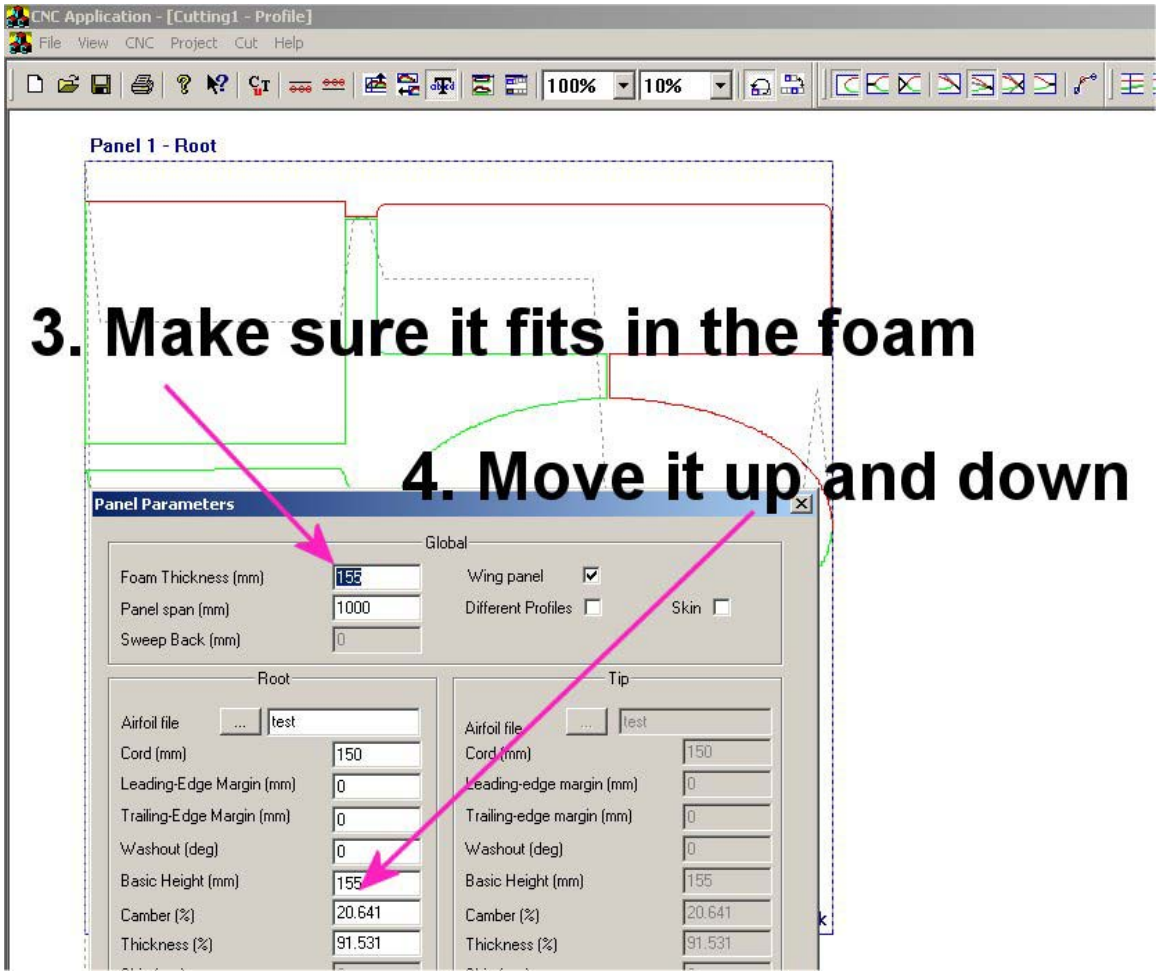


Going back to the original example: Save the BMP file and load it into Profscan.

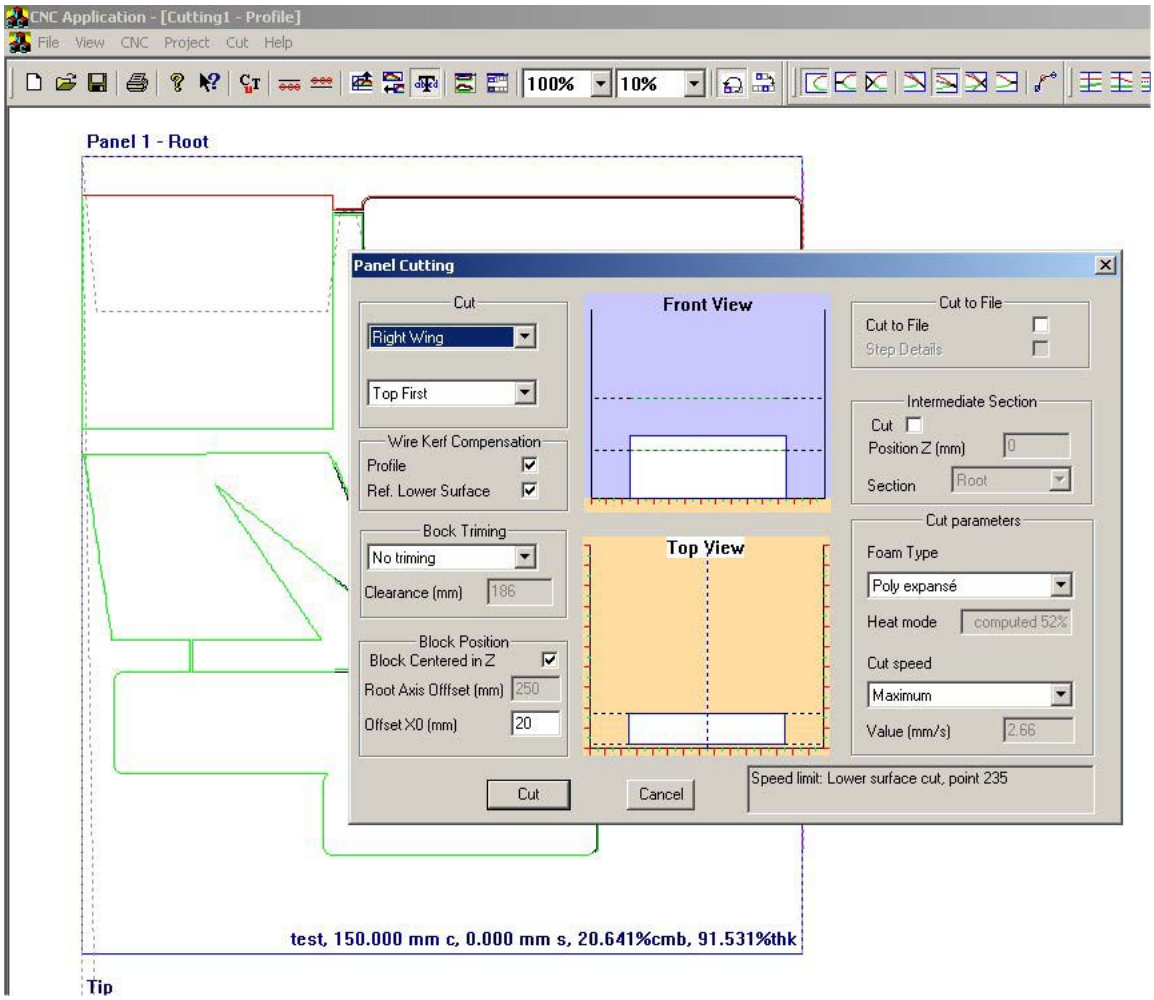


Once the conversion is done, save the DAT file and load it into the Gilles CNC cutting software.


CNC Application - [Cutting1 - Profile]
File View CNC Project Cut Help
100%
10%
Panel 1 - Root
2. load your file
1. Click here
Panel Parameters
Global
Foam Thickness (mm)
155
Wing panel
Panel span (mm)
1000
Different Profiles
Skin
Sweep Back (mm)
0
Root
Tip
Airfoil file
...
test
Cord (mm)
150
Leading-Edge Margin (mm)
0
Trailing-Edge Margin (mm)
0
Washout (deg)
0
Basic Height (mm)
155
Camber (%)
20.641
Thickness (%)
91.531
Leading-edge margin (mm)
Trailing-edge margin (mm)


CNC Application - [Cutting1 - Profile]
File View CNC Project Cut Help
100%
10%
Panel 1 - Root
3. Make sure it fits in the foam
4. Move it up and down
Panel Parameters
Global
Foam Thickness (mm)
155
Wing panel
Panel span (mm)
1000
Different Profiles
Skin
Sweep Back (mm)
0
Root
Airfoil file
...
test
Cord (mm)
150
Leading-Edge Margin (mm)
0
Trailing-Edge Margin (mm)
0
Washout (deg)
0
Basic Height (mm)
155
Camber (%)
20.641
Thickness (%)
91.531
Tip
Airfoil file
...
test
Cord (mm)
150
Leading-edge margin (mm)
0
Trailing-edge margin (mm)
0
Washout (deg)
0
Basic Height (mm)
155
Camber (%)
20.641
Thickness (%)
91.531

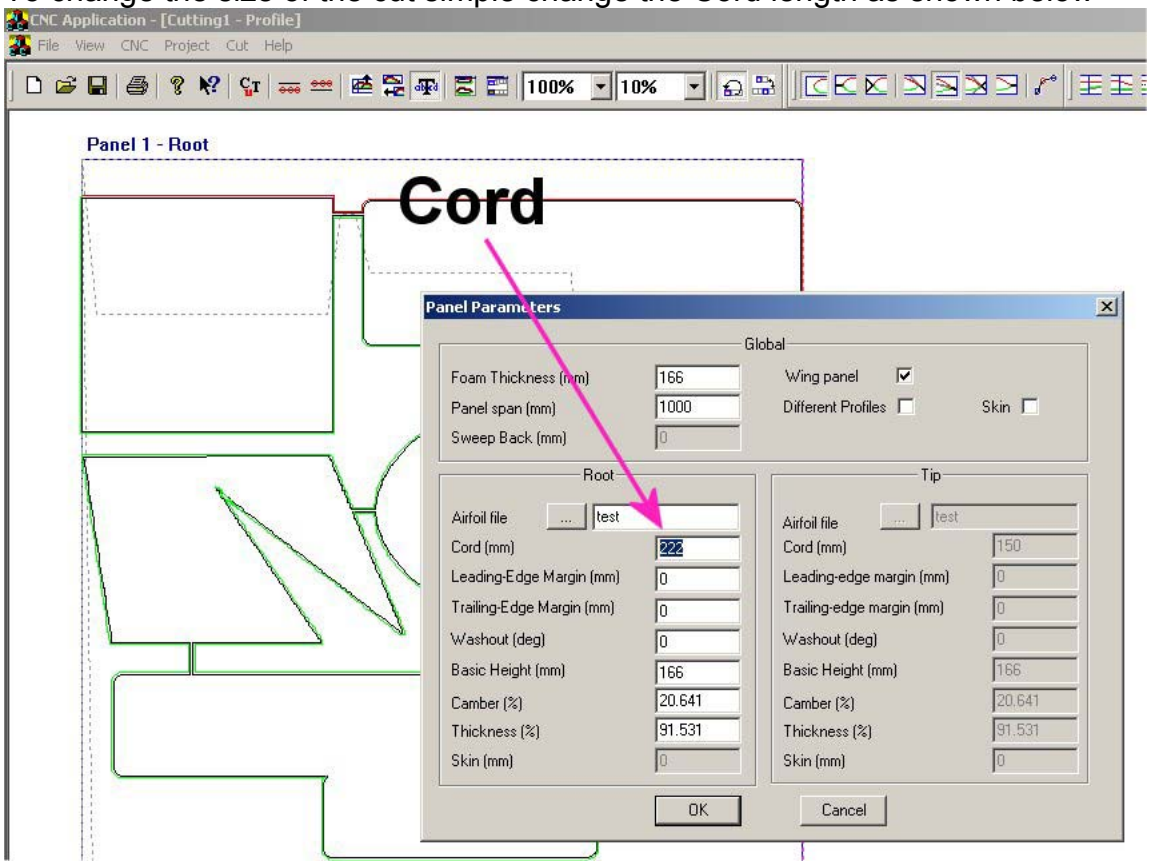
Make the cut


CNC Application - [Cutting1 - Profile]
File View CNC Project Cut Help
100%
10%
Panel 1 - Root
Panel Cutting
Cut
Right Wing
Top First
Wire Kerf Compensation
Profile
Ref. Lower Surface
Bock Triming
No triming
Clearance (mm)
186
Block Position
Block Centered in Z
Root Axis Offfset (mm)
250
Offset X0 (mm)
20
Front View
Top View
Cut to File
Cut to File
Step Details
Intermediate Section
Cut
Position Z (mm)
0
Section
Root
Cut parameters
Foam Type
Poly expansé
Heat mode
computed 52%
Cut speed
Maximum
Value (mm/s)
2.66
Cut
Cancel
Speed limit: Lower surface cut, point 235
test, 150.000 mm c, 0.000 mm s, 20.641%cmb, 91.531%thk
Tip

Below is a picture of the cut:

** Heat was a bit too high in this cut!!

Suppose you found out that the cut was too small (or too large)
To change the size of the cut simple change the Cord length as shown below



Here is a picture of the 2nd cut – a bit larger