

EURLAB

EUROPEAN

ROBOTIC

LABORATORY

LASER CUT

USER MANUAL



PRESENTATION

Laser Cut

Mechanical specifications laser JA-100	
Travel range X	1000 mm
Travel range Y	600 mm
Travel range Z	250 mm
Max speed	1000 mm/s
Repeatability	0.01 mm



LASER CUT AND ACCESSORIES

Air compressor



Laser Cut



Filter station



fluid cooler



SECURITY

For your security, these materials are forbidden

- Polyninylchloride **PVC**, **vinyl**, Polyvinyl butyral **PVB** and all materials containing chlorine
- Polytétrafluorethylene **PTFE**, well known "**Teflon**" (toxic gas emanations)
- Polyurethane **PUR**
- Polyoxymethylene **POM**
- polystyrene **PS** (fire hazardous)
- L'**époxy** (résine) included in composite materials as carbon fibre and fiberglass (toxic gas emanations).

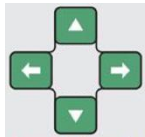
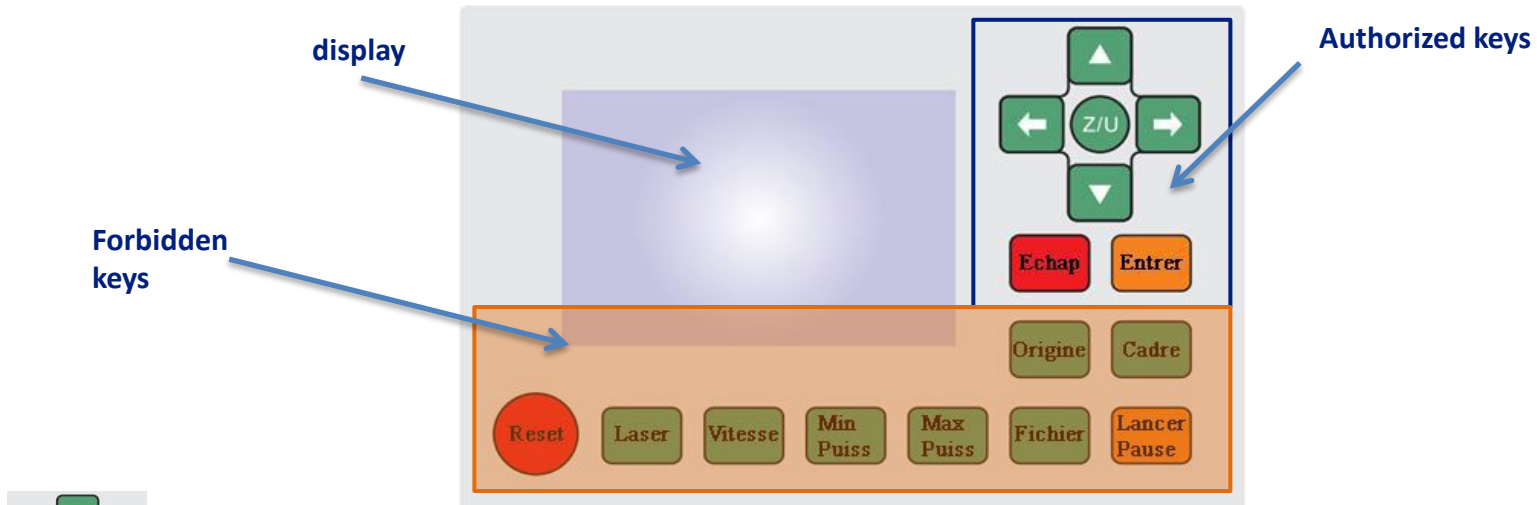


For your security, the door has to be closed to launch an operation using the laser

OPERATIONS PANEL

Operations panel is used to do many tasks.

For your security, only the keys in the blue area are authorized



- 4 directionnal arrows are used to move in the control menu



- Key to configure Laser Cut



- Key to cancel a selection



- Key to validate

HOW TO START

1-Turn on the switch behind the Laser Cut

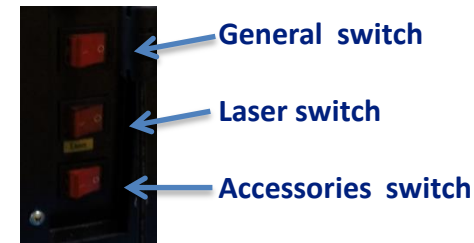
2-Turn on the 3 switches on the right side of the Laser Cut

3- Check that the «switch laser » is turned right (left is only to simulate process)

4-Open the door

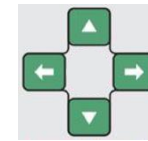
5- Put the slab on small steel rulers. (at least 3)
Check the stability of the slab

6-Do the focus : operation allowing to adjust precisely the focal distance of the lens. It defines the quality of the cut and the results. (cf. next slide)

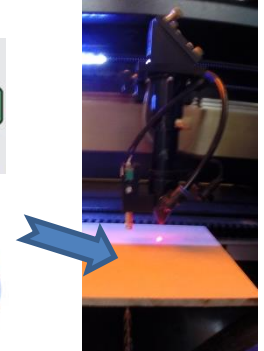


DO A HAND OPERATED FOCUS

- 1-Put the slab on small steel rulers alongside axis X
- 2- with the directionnal arrows, put the laser sensor over a small ruler.
- 3- select Z/U configuration key, then autofocus with the directionnal arrows (up and down).
Select Enter key.
Laser engine begins to move down on Z axis in order to adjust focal distance.



Play Video



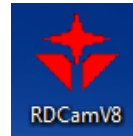
Play Video

CHECK LIST TO ENGRAVE AND CUT











1-Switch on the computer and connect to the high school network.










login : eurlab – password : eurlab

2-Launch RDCAM software



3-Open the file **parameters.rld** in **C:\RDCamV8**
All the cut and engraving parameters are in this file

-  MDF Medium Density Fibreboard - 3 mm - cutting
-  MDF Medium Density Fibreboard - 6 mm - cutting
-  MDF Medium Density Fibreboard - 8 mm - cutting
-  MDF Medium Density Fibreboard - 10 mm - cutting
-  All MDF Medium Density Fibreboards - engraving
-  All MDF Medium Density Fibreboards - scanning
-  high-impact polystyrene PS - 2 mm - cutting
-  high-impact polystyrene PS - 3 mm - cutting
-  All high-impact polystyrene PS - engraving
-  Transparent PMMA - 3mm - cutting

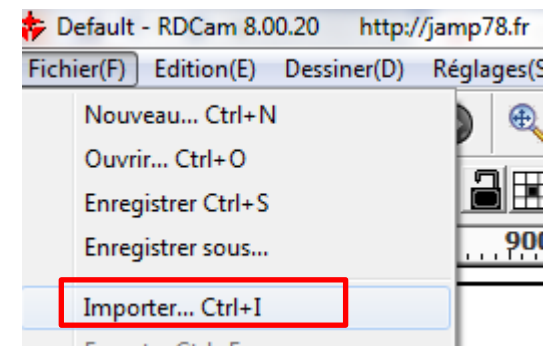
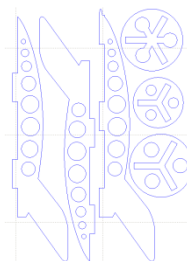
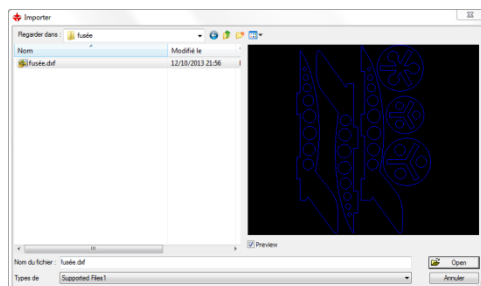
Calque	Mode	Vitesse	Puissa...	Sortie
	Couper	30.0	100.0	Yes
	Couper	102.0	30.0	Yes
	Couper	100.0	30.0	Yes
	Couper	100.0	30.0	Yes
	Couper	250.0	30.0	Yes
	Balayage	800.0	30.0	Yes
	Couper	100.0	30.0	Yes
	Couper	100.0	30.0	Yes
	Couper	100.0	30.0	Yes

4-Create a new file



IMPORT DXF FILE 1/3

- 1-Import dxf file (select import in file menu)
- 2-open the exemple on the following link :
C:\RDCamV8\Exemples\fusée.dxf



This rocket is made in 3 mm Medium Density Fibreboard slab.

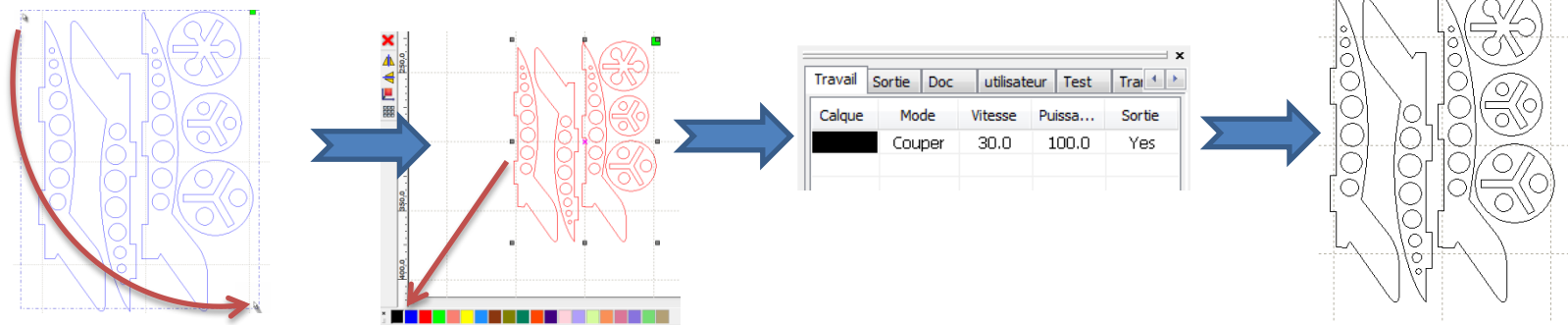
3-The first step is to define the **cut outlines** and the **engraved outlines**.

 Medium - 3 mm - Découpe

 Tous Mediums - Gravure

Select and surround all the outlines with 

Choose the black color in layer color (**Medium Density Fibreboard 3 mm cut**)



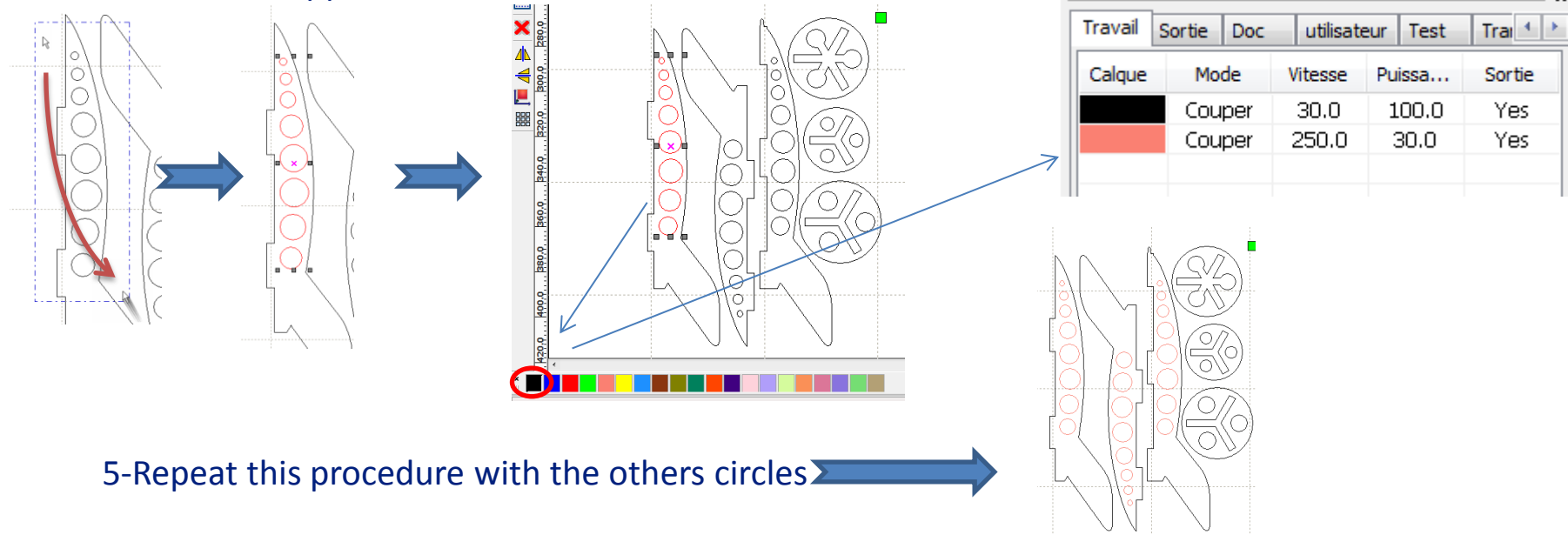
IMPORT DXF FILE 2/3

4-Define the engraved outlines :

The 8 circles are engraved. Corresponding color is : 

You have to select this color in the layerColor.

It should be appeared in the worktab

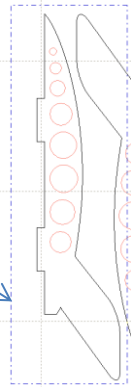


5-Repeat this procedure with the others circles

IMPORT DXF FILE 3/3

6- The 8 circles and the cut outline of one part of the rocket are not gathered. Use the following procedure to do gather and move them :

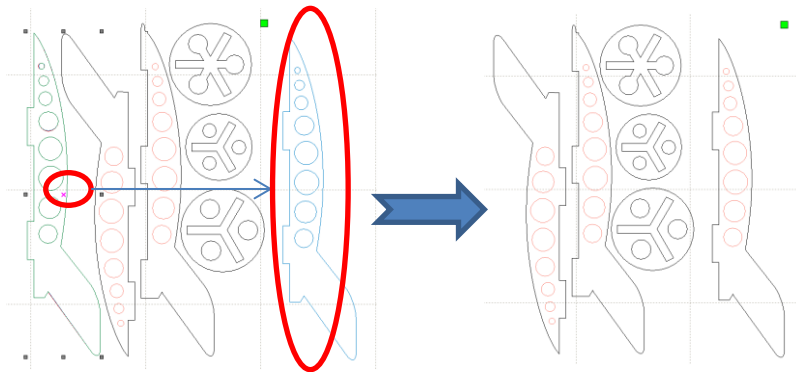
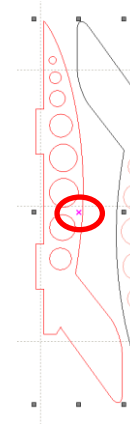
Select the left area



Select the gather button



Select the area and move it with purple cross.

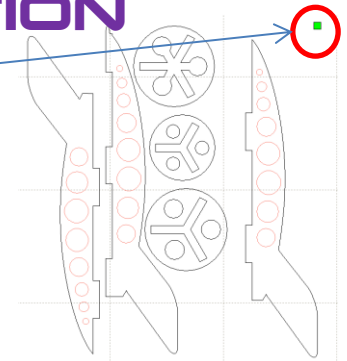


7-The file is done to be sent to the Laser Cut.

CUTTING AND ENGRAVING PREPARATION

The green point defines the Origin point of the program.

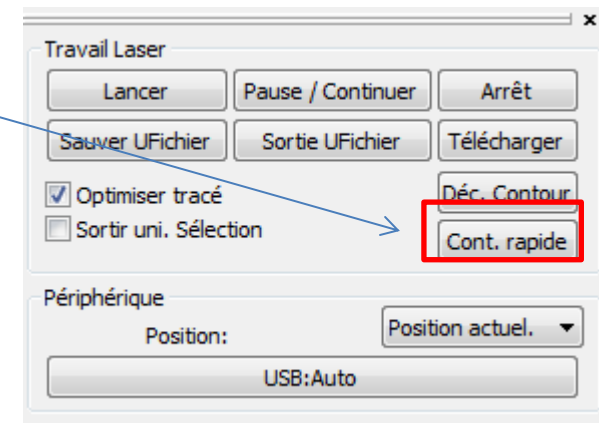
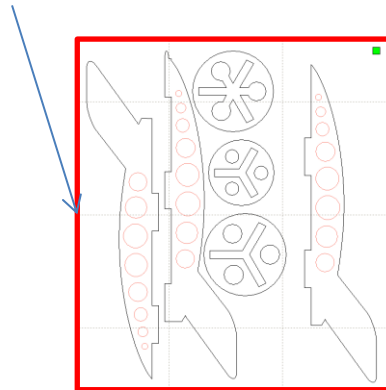
It defines the starting point of the work. (Use the function « Rapid outline » in order to check if the slab is enough large (or well placed) for cutting work. Rapid function moves the laser all around the area work.



1-Select the rapid outline button.

2-Enter 50 mm/s

The engine laser moves all around the area work.



3-Adjust the slab in order that the laser stays on it. Move it if necessary.

4-Check with the teacher to validate.



HOW TO LAUNCH LASER CUT AND STOP

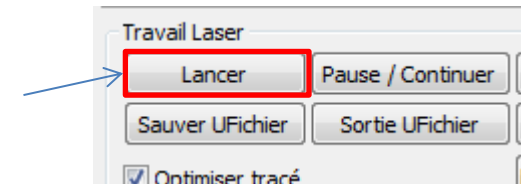
1-Switch on the filter station.

With the permission of the teacher :



2-Close the door of the lasercut.

3-Launch the cutting and/or engraving task with the button « Start ».



At the end of the work :

4-Open the door.

5-Remove the wood or plastic offcuts located into the lasercut.

6-Throw them in the corresponding garbage.

7-Clean the small rulers with a rag.