

MANUAL_Laser cutter

MATERIALS

You are able to cut materials such as: Plywood, HDF, balsawood, cardboard, paper, textile, felts, leather, acrylic, ABS plastic and styrene.

Du may NOT cut in materials such as: PVC, vinyl and other plastics that contain chlorine compounds.

...Are you in doubt - just ask us.

YOU CAN

- Cut objects up to 1200 x 600 mm.
- Cut in approved materials up to about a thickness of 1 cm.
- Cut and engrave in very thin materials such as crepe paper or mylar.
- Cut holes down to a size around 0.25 mm in diameter (thickness of the laser beam).

YOU CAN NOT

- Cut in metals
- Ingrave any metals other than anodized aluminum.
- Cut or engrave rock, glass, carbon fibre and other hard materials (there are however certain types of rock that can be engraved, like marble and slate).
- Cut or engrave in PVC, vinyl and other platics containing chlorine compounds.
- Cut in glass.

CUTTING/ENGRAVING

There are all in all three things you can do with a laser cutter.

All definitions are found in the 'Graphic Styles' palette.

1) VECTOR CUTTING

Cuts a line in the object, following the vectors of the drawing (vector based lines).

Red stroke (0,025mm): R=255 , G=0 , B=0

2) VECTOR ENGRAVING

Draws a line in the object which is as thing as the laser beam, but without cutting through.

The depth of the cut is defined before starting the job.

Blue stroke (0,025mm) : R=0 , G=0 , B=255

Green stroke (0,025mm) : R=0 , G=255 , B=0

Yellow stroke (0,025mm) : R=255 , G=255 , B=0

Magenta stroke (0,025mm): R=255 , G=0 , B=255

Cyan stroke (0,025mm) : R=0 , G=255 , B=255

Orange stroke (0,025mm) : R=255 , G=102 , B=0

3) RASTER ENGRAVING

This function creates a pattern of dots which creates an impression of greys (just like an ordinary laser printer). This enables the laser cutter to create engraved images and surfaces.

Black box: R=0 , G=0 , B=0

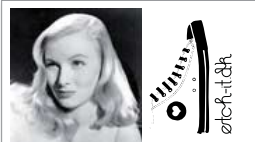
NB! This type of engraving takes quite a bit longer than a vector engraving. It is therefore a good idea to have the laser cutter calculate an estimated time for the job, before the press play.

Ex. Raster engraving



Acryl, rastergraving

Det øverste eksempel her, er lavet med rastergraving i sort acryl. Bemærk at man skal huske at invertere billeder før man graverer dem, når man laver billeder på materialer hvor laserens punkt bliver lyst...



Original tegning



Acryl, reliefgraving.

Det nederste eksempel her, er lavet som reliefgraving i sort acryl. Her er de mørkeste områder graveret dybest og gummi-skoen er derfor næsten graveret 1mm ned i materialet.



SETUP

FILE TYPES

The file has to be in one of the following formats.

- AI (Adobe Illustrator)
- SVG (Scalable Vector Graphics)
- EPS (Encapsulated Postscript)

AutoCAD:

- DWG (Drawing)
- DXF (Drawing Exchange File)

CUTTING/ENGRAVING AREA

The lasers cutting board has the dimensions 1200 x 600mm.

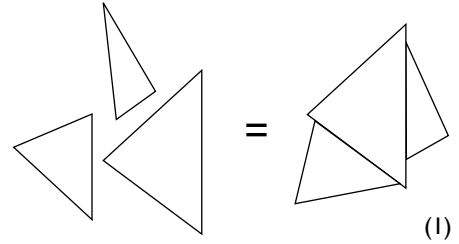
Since Illustrators zero-point and the laser cutters zero-point are never exactly the same, it is important that you leave a safety margin around the edges of the art board (min. 1-2 cm).

TIPS & TRICKS

OPTIMIZED CUTTING

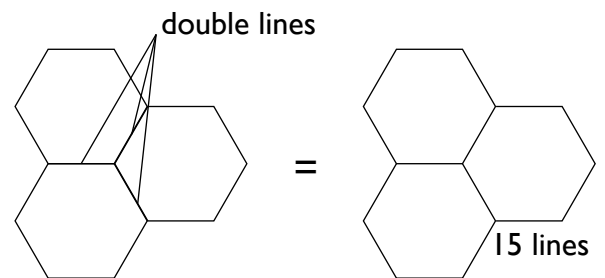
1) Share cutting lines.

If it's possible, it's a good idea to let your objects share lines. This will drastically reduce cutting time.



2) Erase overlapping (double) lines.

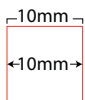
Make sure that the double lines that occur when f.ex. geometric shapes are put together. It will not only increase the cutting time, it will also cause a more burned/melted look, in the areas where the material has been cut more than once.



3) Be aware of 'disappearing' material.

Because the laser beam has a thickness of about 0,2mm, some of the material will naturally disappear. On top of that some

Ex. Materialeforvinden



Original tegning



Eksempel på snittets bredde.

Laseren skærer et kvadrat på 10x10mm, men på grund af det hårde paps brændbarhed, bliver snittet næsten 0,4mm bredt. Forvent samme effekt i Acryl og andre materialer. Flyt yderste kant på det skårne emne for en bedre pasform, f.eks. med "Offset Path" eller lignende funktion. Test på dit materiale først og noter hvor meget du skal justere med.

STEP BY STEP GUIDE

ILLUSTRATOR

1) Open template in Illustrator **New from template** (TEMPLATE_skabelon).

2) Copy/paste your file to TEMPLATE_skabelon.ait.

3) Control that your file doesn't contain groups (Object / Ungroup)

4) Use **Graphic Styles** to mark what to cut and what to engrave*.

Red line = cutting

Blue line = engraving

Black box = raster-/bitmap engraving

5) Send to print (Ctrl+p), then press print once more in new window (...and nothing else).

ULS Universal Laser System

6) Open **Settings**

7) Click **Manuel Control**

8) Click on **Presets** and choose material, then press **Open**

9) Click on **Use** and then **OK**

10) Press **Start (Big green button)**