

# Instructions AutoCAD



Download the template for AutoCAD on [www.laserbeest.nl/instructies/](http://www.laserbeest.nl/instructies/)

## 1. [Download](#) and use the Autocad template

Layers and available sheet sizes are already pre-set in the template.

## 2. Use layers

There are 3 kinds of processes possible with the laser cutting machine: cutting, engraving lines and engraving surfaces (rastering). On the material page you can check how the results look like on different materials. The difference of the processes is being made by assigning the lines to the appropriate layer. Assign all objects in your drawing to one of these layers:

S...	Name	On	Freeze	Lock	Color	Linetype	Lineweight	Transparency	Plot Style	Plot
0	0				white	Continuous	0.05 mm	0	Color_7	
01_CUTTING	01_CUTTING				red	Continuous	0.05 mm	0	Color_1	
02_ENGRAVING LINES	02_ENGRAVING LINES				blue	Continuous	0.05 mm	0	Color_5	
03_ENGRAVING SURFAC...	03_ENGRAVING SURFAC...				white	Continuous	0.05 mm	0	Color_7	
04_SHEET OUTLINE	04_SHEET OUTLINE				green	Continuous	0.05 mm	0	Color_3	
05_REMARKS	05_REMARKS				254	Continuous	0.05 mm	0	Color_254	

- 01\_CUTTING: Make sure you keep 1mm in between cutting lines, if the material between the lines needs to be kept. A cutting line will be about 0.2mm thick, depending on material and thickness.
- 02\_ENGRAVING LINES: Make sure you keep 0.7mm in between engraving lines, for a nice result. An engraving line will be about 0.1-0.2mm thick.
- 03\_ENGRAVING SURFACES: If you draw a closed shape and assign it to this layer, everything within this boundary will be engraved (rastered). If you draw within this shape another closed shape in the same layer, everything within there will be left blank, etc. Make sure there are no overlaps of the shapes. F.i. for this result: , draw this . Or for this result: , draw this . Don't use any "hatches". Make sure shapes are 100% closed and that there are no overlaps of the shapes. Note: To make an engraved surface the laser has to pass the material line by line. Large surfaces can therefore be time consuming.
- 04\_SHEET OUTLINE: Use this layer to indicate the sheet size or the object you want to engrave. For our standard sizes this has already been done in the template.
- 05\_REMARKS: Use this layer for additional comments next to the sheets. Mention the desired material and thickness, any special wishes and number the sheets.

The 0 layer is not to be used.

Make sure all lines are 'color by layer', 'linetype by layer' and 'lineweight by layer'.

If you are finished drawing, check with the LAYER PROPERTIES MANAGER (using the lamp icons) if all lines are in the right layer. You can also use the handy LAYISO / LAYUNISO commands.

### 3. Draw your sheet outline

There are four standard sheet sizes in stock: 900x600mm, 600x450mm, 450x300mm and 300x200mm. The smallest fits in a parcel suited for your mail box. The standard sizes are drawn in the template. Take into account a margin of 5mm (dotted line) at all sides, making the area to be processed by the laser slightly smaller. [Click here](#) for requirements regarding sizes of materials or objects that you want to provide yourself. Sheet sizes up to 1300x900mm on request, we have bigger machines for large size projects.

### 4. Number your sheets

Put all sheets in one file by copying the sheet outlines of the template and deleting the ones you don't need. Mention next to all sheets the desired material, thickness and number the sheets. Preferably, put sheets of the same material and thickness next to each other.

### 5. Draw scale 1:1

Your drawing will be laser cut scale 1:1, 1 unit in your drawing is 1mm in reality.

### 6. Text: make outlines of text or use a line font

Text needs to be submitted as outline in the layer engraving surfaces, or use a line font (such as `romans.shx`) in the engraving lines layer. An easy way to create outlines is by using Adobe Illustrator.

### 7. Hatches/ Patterns: convert to lines

Patterns such as brick or striped line patterns have to be converted to engraving lines or engraving surfaces, according to your wish and the situation.

### 8. Draw only lines. Double lines means double cutting

If you followed the instructions so far, your drawing consist of lines only. Hatches, patterns and text are all converted to lines. For the best result draw continuous lines. Use POLYLINE instead of LINE. You should join lines by using the JOIN command. Delete all lines that are (partly) overlapping each other, they will be cut or engraved twice too. That gives a bad result and costs more laser time and money. OVERKILL can remove double lines. Check very carefully though if the command worked well and did not delete desired lines.

### 9. Check your drawing

- Make all layers visible, zoom extents (double click middle mouse button) and check if only the sheets to be lasered remain. Delete everything else.
- Select all and set all lines to 'colour by layer', 'line type by layer' and 'line weight by layer'.
- Delete all layers other than those from the template. Manually or using PURGE.
- **Explode blocks** if those are in the drawing. Select all blocks and use EXPLODE. If there are many blocks, they can be selected at once using the QSELECT command. BEDIT can help checking if there still are blocks in your drawing, PURGE deletes unused blocks.
- Don't use groups, blocks, regions, trimmed ellipses, fills, hatches and 3D polylines.
- Save your file as \*.dwg version Autocad 2016 or earlier.

### 10. Upload: on the website

If your drawing is finished, you can request a price or put an order through the button [Nieuwe opdracht / offerteaanvraag](#), at the right top of the website. We want to ask you to submit your drawing in this way instead of sending it by mail.