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## Trotec Speedy 500 Laser Cutting and Engraving

### Guide to Contract Services Offered by NextFab Studio

#### Overview

The Trotec Speedy 500 can cut items up 27.5" wide by 48" long, with a laser kerf of 0.01". Material thickness capacity varies depending on material.

To request contract laser cutting / engraving services:

1. Submit your design to NextFab Studio. We have specific file guidelines listed below in the File Setup section. We also offer a file creation service to take a sketch from paper and turn it into a digital file; more information is in the File Preparation Services section.
2. We will estimate job setup and machine time and provide a quote for your approval. Included in this quote is an estimate for material. We can provide a PDF of the item and layout for approval.
3. Upon approval, we will run the job and will notify you when the items are ready for pickup. See below for payment terms.

Email questions, files and laser cutting contract work to [quotes@nextfabstudio.com](mailto:quotes@nextfabstudio.com).

#### Materials Acceptable for Cutting or Engraving

- Acrylic up to 0.5" thick
- Chipboard
- Cork
- Delrin
- Felt
- Leather
- MDF up to 0.25" thick
- Melamine
- Paper
- Plywood up to 0.25" thick
- Rubber
- Some textiles
- Veneer

The acrylic we supply comes in 24"x48" units. Larger sheets can be ordered, but consider the sheet size of the material you plan to use when laying out items.

#### Materials Acceptable for Engraving or Marking Only

- Anodized Aluminum
- Ceramics
- Glass
- Painted Metal
- Stainless Steel
- Stone

#### Materials Not Appropriate for Cutting or Engraving

- Anything that contains chlorine, including PVC, vinyl and Moleskine notebooks
- Carbon fiber
- Polycarbonate (Lexan)

#### A Note About Metals:

Metals must be marked with a Laser Marking Material (LMM) prior to processing. This material costs \$0.10 per square inch in addition to the file setup and processing fee. The LMM must be oversprayed, meaning the square-inch amount of LMM used will be greater than the square-inch area of the engraving. A border of LMM is required, approximately 3 square inches. Please note that the laser does not engrave metal in a true sense – when the laser hits metal, it marks the surface and causes discoloration.

#### Please include the following information in your request for contract work:

- A file containing the appropriate information (see the file setup guidelines);
- The material you want your parts cut from, and whether you will supply that material
- The date parts are needed by; typical job turnaround is 3-4 business days, but can sometimes be 5-6 days. Keep in mind that we are currently closed on Mondays. Rush service is available for a fee.

## File Setup

We accept vector-based files for cutting or vector engraving. For raster engraving, we need a raster or bitmap file placed within a vector file format – for example, importing a .jpg into a .pdf, or placing a .png file into an artboard in Adobe Illustrator. The software that controls the laser will only etch the bitmap file; if you need the bitmap cut out of the material, a vector cut-line must be drawn around the image.

Set the vector as small as possible (.25 pt in Illustrator or Hair-line in CorelDraw). If the vector is too wide the laser will interpret the line as a region to be engraved. Make sure the color profile of the document is set as RGB. For cut lines, set the colors to Black (R=0, G=0, B=0), Red (R=255, G=0, B=0) or Blue (R=0, G=0, B=255). We can program up to 16 different colors in our software; contact us with your specific request. The chart shows the sequence of colors and their RGB values.

If your parts are small and precision is a concern, consider the kerf of the laser. The laser removes about 0.01” of material and it cuts down the center of the vector. Either side of the cut will lose 0.005” as a result. Adjust the dimension in the drawing to accommodate this if needed. A 2.005” square drawn in vector format will result in a 2” square part and a 2.01” hole in the material.

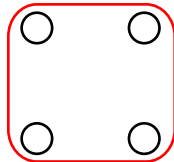
There is a template file available on NextFab Studio’s website, which includes the bed size and the RGB colors. Arrange your parts in this file and include a copy of your parts outside the bed layout. If your software has a grouping function, group parts that have interior cuts or engraving. Please do not group all of the parts together or group the parts laid out in the bed.

Please leave a 0.25” margin around your parts and the edge of the sheet. It is also a good idea to leave 0.25” between parts. If the parts are from a thinner material, the material thickness is an acceptable margin.

### Acceptable file formats:

- .ai
- .svg
- .pdf
- .cdr
- .dxf

An example of ordered cut lines



## Pricing / Payment Terms

The job setup fee includes file verification, part layout, and machine setup. Machine time and setup time can be broken into increments as small as 15 minutes. Machine time depends on several factors, including material, material thickness, and path length. Job Setup and Machine Time do not include the cost of materials. Jobs over \$500 require 25% deposit prior to initiation of work. Payment due in full upon delivery. All major credit cards accepted.

## File Preparation Services

File preparation services are available for \$50 per hour. NextFab Studio can transform a sketch on paper or a description of the parts needed into a vector file suitable for laser cutting and a variety of other processes. In a written description, be sure to include dimensions, material type, and any special directions when requesting a quote. If you would like a sketch transformed into a vector file, scan the drawing into a .pdf, .jpg, .tif, .psd, .gif or .bmp file format. The scan should be at 300 dpi and the smallest dimension should be no less than 6”. High-contrast gray-scale images convert to vector files the most reliably. Include dimensions of the laser-cut part.

## RGB Color Values for Vector Ordering

	Red	Green	Blue
Black	0	0	0
Red	255	0	0
Blue	0	0	255
Country Blue	51	102	153
Bright Blue	0	255	255
Bright Green	0	255	0
Kelly Green	0	153	51
Hunter Green	0	102	51
Army Green	153	153	51
Brown	153	102	51
Chocolate	102	51	0
Purple	102	0	102
Electric Purple	153	0	204
Pink	255	0	255
Orange	255	102	0
Yellow	255	255	0

## Laser Cutting and Engraving Tips

- Large intricate parts are more fragile and will take longer to cut. When cutting thin parts, ensure that part dimensions are greater than the material thickness.
- Lasers come into and out of focus in the shape of a cone. As a result, all laser cut parts will have a slight taper on the edge. This is especially important for those concerned with tolerances and precision.
- The laser cuts and engraves by burning or melting material. In some materials (wood, paper, textiles, cork) a charred or burned edge will remain.