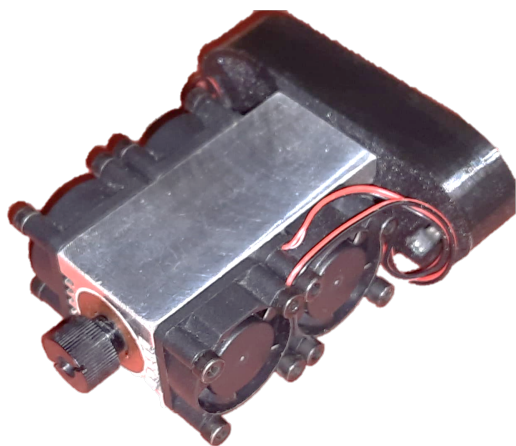




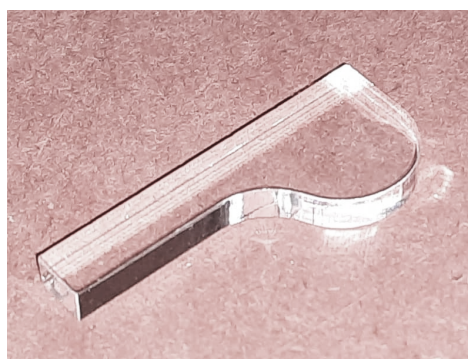
## Laser Accessory User Guide

## Items included in the package

- 1x Laser module for Red Fox 2



- 1x 50 mm focusing tool



- 1x Laser safety glasses



## What is this accessory and what is it used for?

The laser accessory for the Red Fox 2 allows the CNC milling machine to engrave vector drawings onto wooden surfaces using a laser.

It enables the engraving of either outer contours or solid fills in this type of file.



Example of contour engraving.



Example of fill engraving.

Raster engraving of photographs or jobs that require rapidly changing laser power –such as on a per-pixel basis– is not currently supported, due to technical limitations of the existing software.

This functionality may be enabled in a future firmware update for the machine.

## Specification Table for the Red Fox 2 Laser Accessory

Laser Optical Power	4 W
Focusing Distance (measured from the bottom of the laser module, excluding the lens)	50 mm
Minimum Spot Size	0,15 mm
Minimum Required Firmware Version for Red Fox 2	V2.8.2

## Inserting the laser module into the machine

The following steps explain the correct procedure for installing the laser module into the Red Fox 2.

1. With the machine powered on, raise the Z-axis to ensure there is at least 10 cm of clearance between it and the material or machine base.
2. Power off the machine. Ensure it is completely disconnected from any power source before proceeding to the next step.
3. Insert the laser module into the front slot of the spindle head, as shown in the images below. Make sure the front side of the laser module is facing forward –otherwise, it will not fit properly–. The magnets will hold the module securely in place.



4. Once correctly installed, it should look like this:





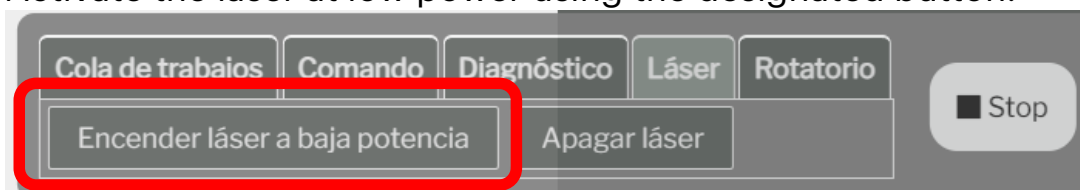
## Working with the laser in 7 simple steps

1. Connect the laser module to the machine, only when this one is powered off.

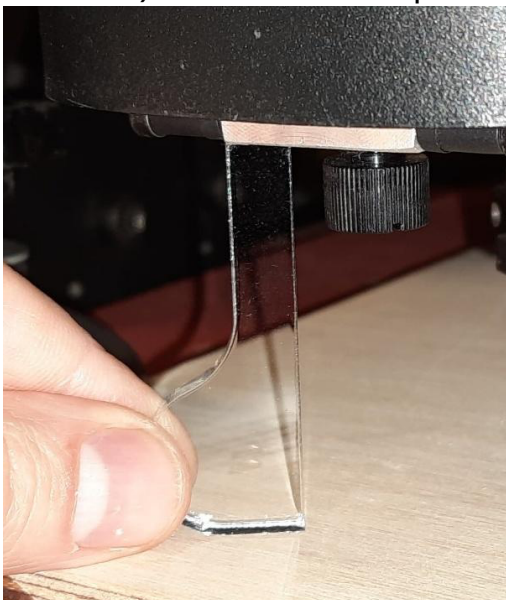


**Caution:** Do not connect or disconnect the laser while the machine is powered on to avoid damage to the laser module.

2. Turn on the machine.
3. Activate the laser at low power using the designated button.



4. Move the machine to the origin of the design and set the XY zero point.
5. Adjust the Z-axis height to the correct distance (50 mm between the material and the laser module). Use the included focusing tool as shown in the image (positioned between the aluminum heatsink and the material). Set the Z zero point at this position.



6. Put on the laser safety glasses.
7. Load the job in .gcode format, just like any regular milling task, and press the "Start Job" button.

## Which Software Can Be Used to Generate Laser Jobs?

Laser engraving jobs are very similar to standard milling tasks. However, instead of moving the Z-axis to plunge the tool into the material, only the X and Y axes are moved, combined with “on” and “off” commands to control the laser at the appropriate power levels at specific times.

Several software programs are capable of generating this type of job:

### Inkscape

NomadTech offers a free plugin for Inkscape that allows users to create milling jobs (profiling and pocketing). Starting from version **v3.5.0**, the plugin also supports generating laser-compatible G-Code for this accessory. Instructions for using this plugin are provided in the following pages.

### Other Software

It is also possible to generate laser jobs using software other than Inkscape; however, such usage is beyond the scope of this guide.

- **Vectric software** (Aspire, V-Carve, etc.): works involving contours or solid fills can be generated, provided the **Laser Module add-on** has been purchased. The post-processor for Red Fox 2 included in Vectric’s online database already supports this functionality.

For more information about the add-on, visit:

<https://www.vectric.com/es-es/productos/modulo-laser/>

- **Lightburn software:** laser jobs can be generated by configuring a Marlin-type device using **M106/M107** as control commands and **255** as the maximum power value. A dedicated configuration for this program will be available in the future for direct use with Red Fox 2.



**Caution:** These programs are capable of generating “raster”-type G-Codes for engraving photographs, with laser power variations at each pixel.

Currently, the Red Fox 2 machine is unable to correctly execute this type of task, and at resolutions below 0,25 mm and speeds exceeding 800 mm/min, it may exhibit incorrect behavior.

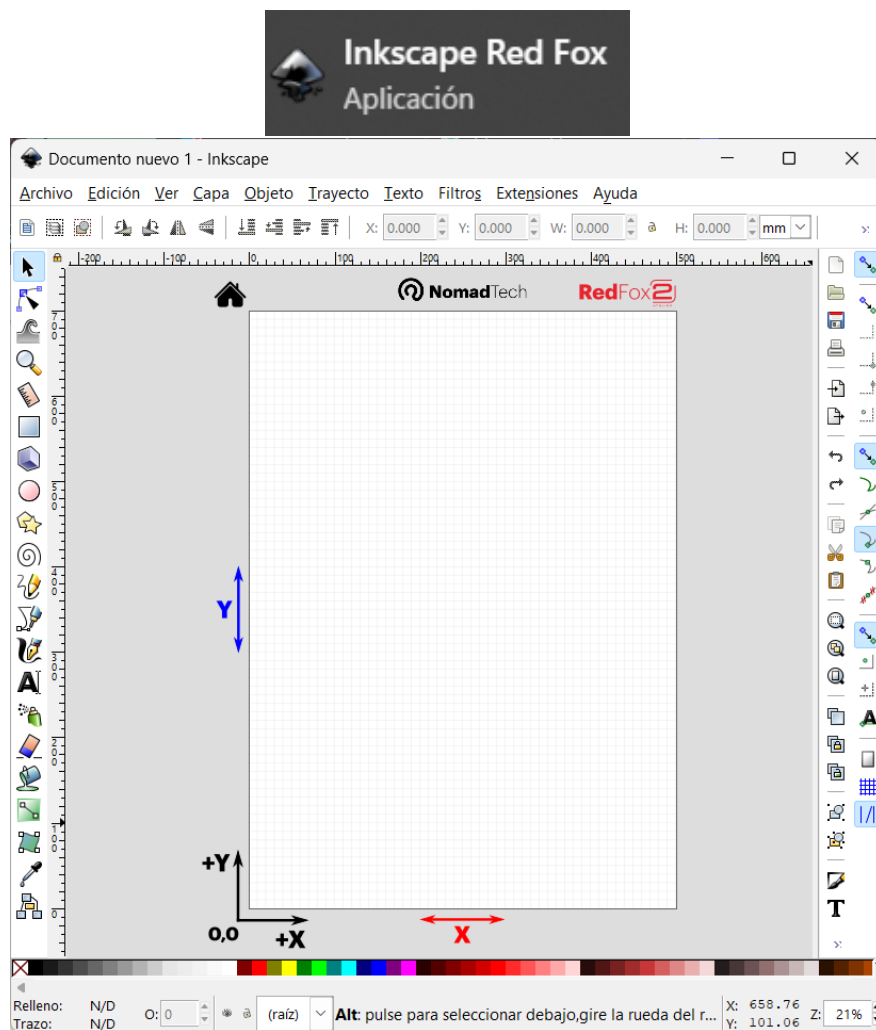
Only contour or solid fill jobs should be generated with these programs to ensure proper operation.

## Preparing the Job in Inkscape

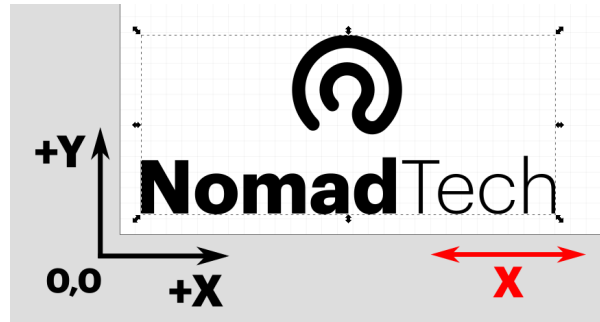
1. Download and install the design software for Red Fox / Red Fox 2 (version 3.5.0 or later) from our downloads page:

<https://nomadtech.es/descargas>

2. Open the program:



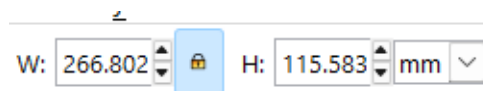
3. Load a Vector Drawing via "File > Import":



4. The corner marked as 0,0 (the bottom-left of the drawing) will serve as our reference point for positioning the job on the material.

For easier placement, it is recommended to keep the drawing close to this corner, as shown in the previous image.

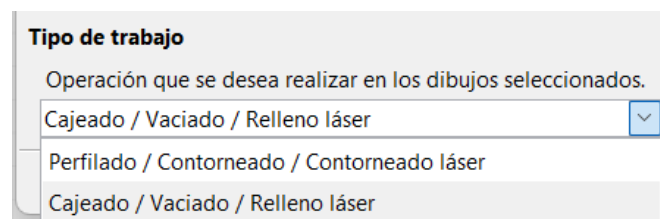
5. You can scale the drawing to the desired size by dragging the arrows around the selected object, or by entering the desired dimensions in the following fields:



6. Next, run the “Drawing Preparer” from the menu:

**Extensions > Red Fox / Red Fox 2 > Prepare Drawings.**

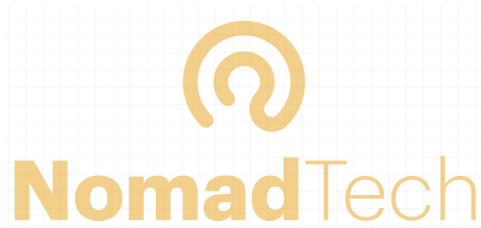
7. In the Drawing Preparer, choose the desired job type under “Job Type”: the first option is for contour-only engraving; the second option is for filling the interior as well.



8. With the drawing selected and the correct option chosen in the Preparer, click “Apply.”

The drawing will change color to indicate it has been prepared for either outer contour engraving or solid fill, based on the selected option.

You can prepare multiple drawings with different settings to export them in the same G-Code job.

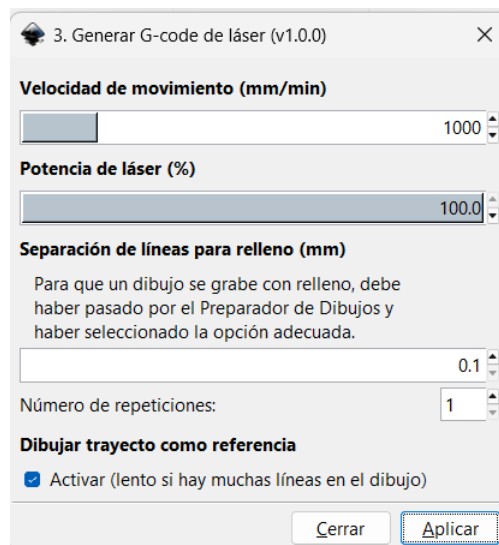


Drawing prepared for contour engraving only.



Drawing prepared for fill engraving.

9. Once prepared, run the “Generate Laser G-Code” plugin.



Typically, you will choose a “movement speed” between 100 and 1.000 mm/min, 100% power and a line spacing for fill of 0,2 mm.

10. Once the G-code file has been exported, you can load it into the machine just as you would with any standard milling job.

## Different use ideas

- Engraving a logo or custom branding on parts previously milled.
- Marking serial numbers or reference codes.
- Marking drill points or guides for subsequent manual operations.
- Combining with a rotary accessory for more creative or original projects.
- Adding details to a 3D carving by following its surface relief (only available when using Aspire or V-Carve software, with the “Project toolpath onto 3D model” functionality).



## Additional recommendations and clarifications

- It is not recommended to leave the laser connected to the machine for extended milling sessions, as dust from the milled material may accumulate on the laser lens. In such cases, the lens should be cleaned using a soft cloth and glass cleaner, taking care to avoid leaving fibers or residue on the lens.

This type of cleaning is recommended to be performed periodically.

- The laser module lens should not be manually rotated by the user, as doing so will alter the factory-calibrated 50 mm focal distance for which the included focusing tool has been designed. Maintaining the correct focal distance is essential for accurate engraving.
- The laser control G-code command is "M106 Sx", where "x" is a number between 0 and 255, and decimal values are allowed. For example, "M106 S127.5" will turn the laser on at 50% power, and "M106 S0" will turn it off.



**NomadTech**

**RedFox2**  
ATELIER