Work Example — Cutting Acrylic (Adobe Illustrator)

RSD-SUNMAX Series

SUNMAX LASER

About this document: This is an English translation of the Japanese original prepared by SUNMAX LASER for reference purposes. In case of any discrepancy, the Japanese original shall prevail. Specifications are subject to change without notice.

Work Examples — Cutting Acrylic (Adobe Illustrator Edition)

- This document assumes that the laser machine has been set up correctly.
- This document assumes that LaserWorkV6 (hereafter "LaserWork"), the control software for the RSD-SUNMAX series, has been installed correctly.
- This document uses Adobe Illustrator CS6.

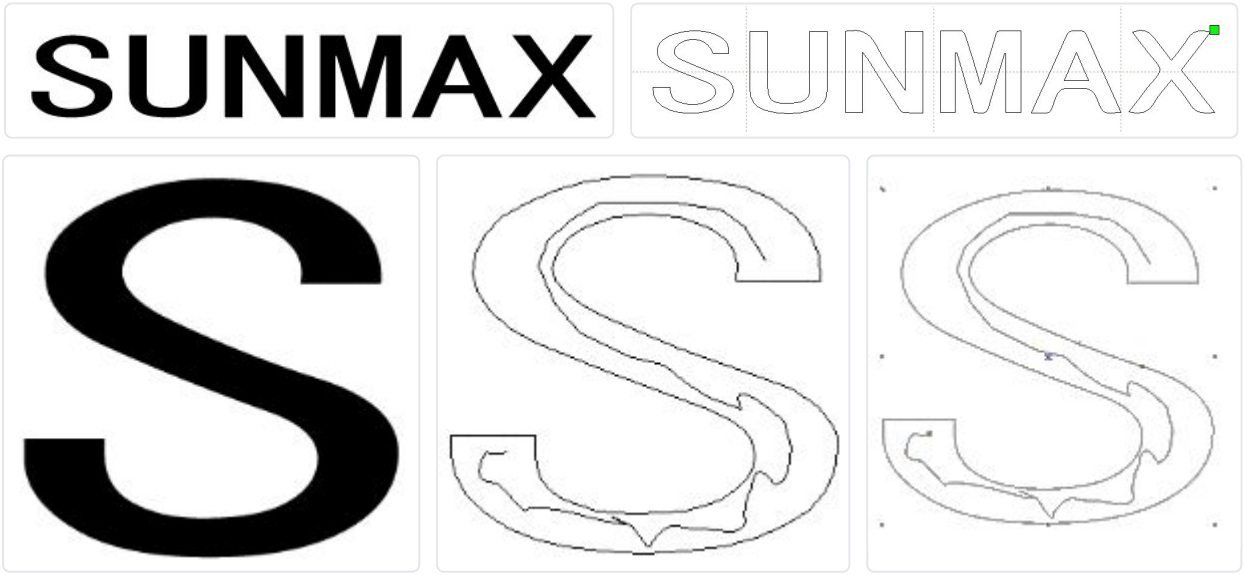
1. Notes on Creating Data

When creating cutting data with Adobe Illustrator, pay attention to the following points.

Note 1: Only outline paths become data.

a) Fills are ignored. Only paths are recognized as data.

b) If paths are hidden behind a fill, the hidden path data will also be processed when the file is imported into LaserWork.



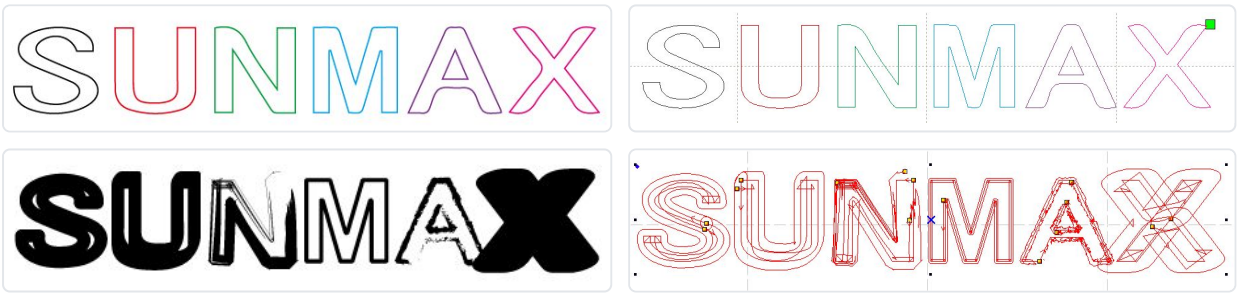
Paths are hidden inside the fill. When the file is loaded into LaserWork, the hidden lines appear. (Illustrator data / imported into LaserWork)

c) Pasted image data is not recognized. Only outline paths are recognized.

d) Convert text to outlines.

(Illustrator data / imported into LaserWork)

Note 2: If line colors differ in Illustrator, the data is split into separate layers.



Note: When the file is imported into LaserWork, the layer colors are replaced with similar colors.

Note: This applies not only when the file is saved as an Illustrator file (*.ai) but also when it is exported as a dxf file. Note, however, that the replaced layer colors may differ between *.ai and *.dxf.

Note 3: Illustrator brushes are treated as paths.

Note 4: Do not add guides.

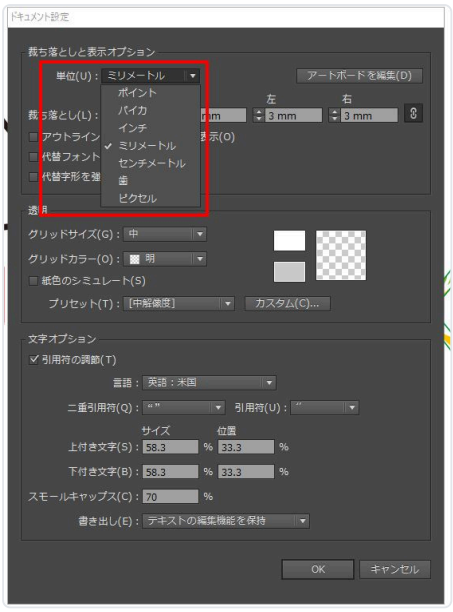
If guides are present, the file may not load correctly.

(Illustrator data / imported into LaserWork)

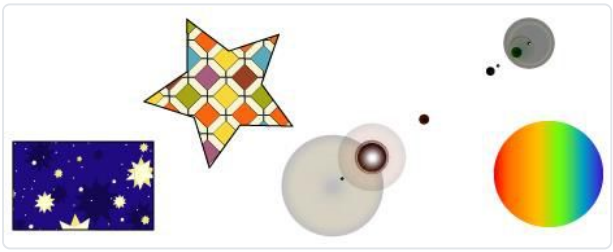
Note 5: Create your data using millimeters as the unit.

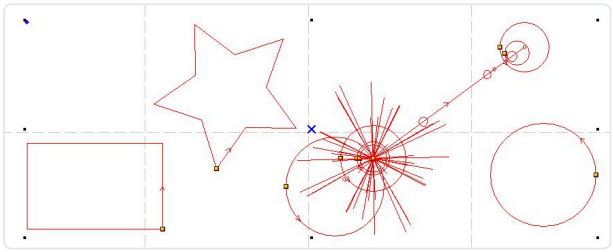
LaserWork imports data using [mm] as the unit. Data created in a unit other than millimeters may not be loaded at actual size.

The unit in Illustrator is set in "Document Setup."



Note 6: Swatches used to fill shapes and other objects are not treated as paths.





However, a pattern swatch is treated as a path when it is placed on its own.

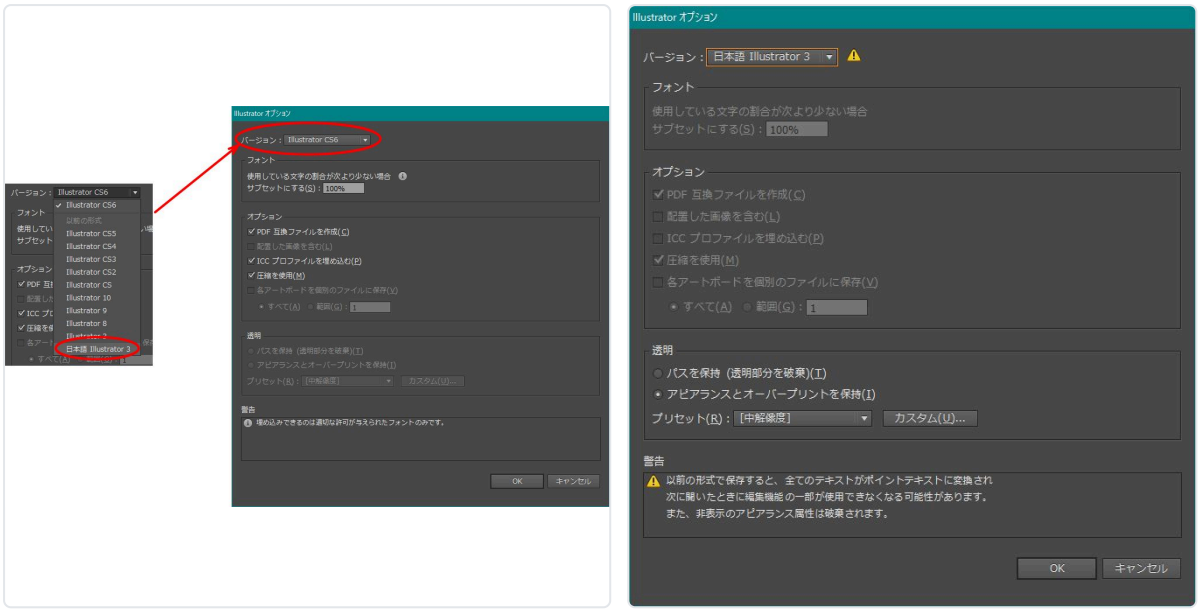
For symbols, the various other tools, and so on, check the paths to determine whether the data can be imported.

(Illustrator data / imported into LaserWork)

2. How to Save Illustrator Data

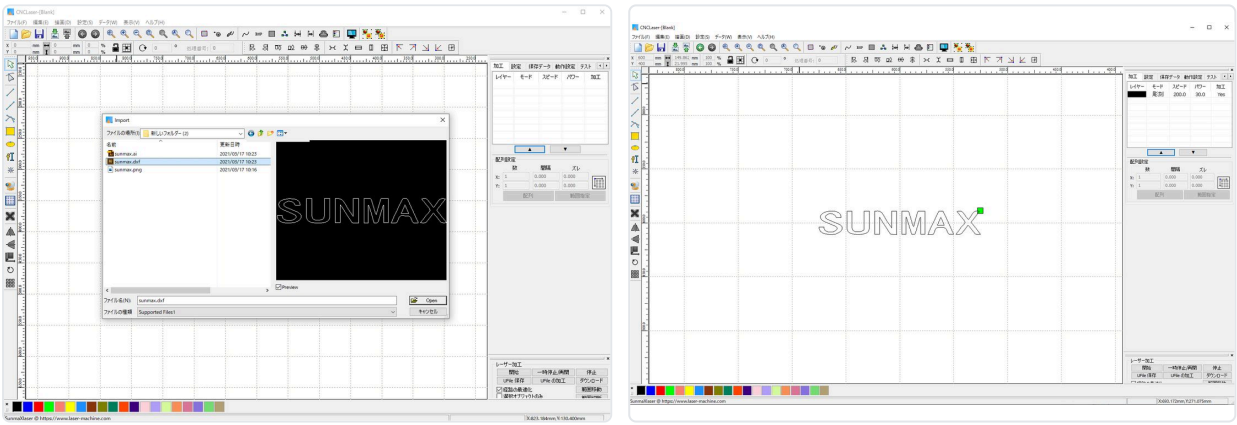
For cutting work, the file format LaserWork can import is *.ai (exporting to dxf is also acceptable).

In the "Illustrator Options" dialog shown when saving, set the version to "Japanese Illustrator 3."



3. Importing the Data File

Click the "Import" button on the LaserWork standard toolbar.



The "Open File" dialog appears. Select the *.ai file created in Adobe Illustrator.

The data created in Illustrator is displayed.

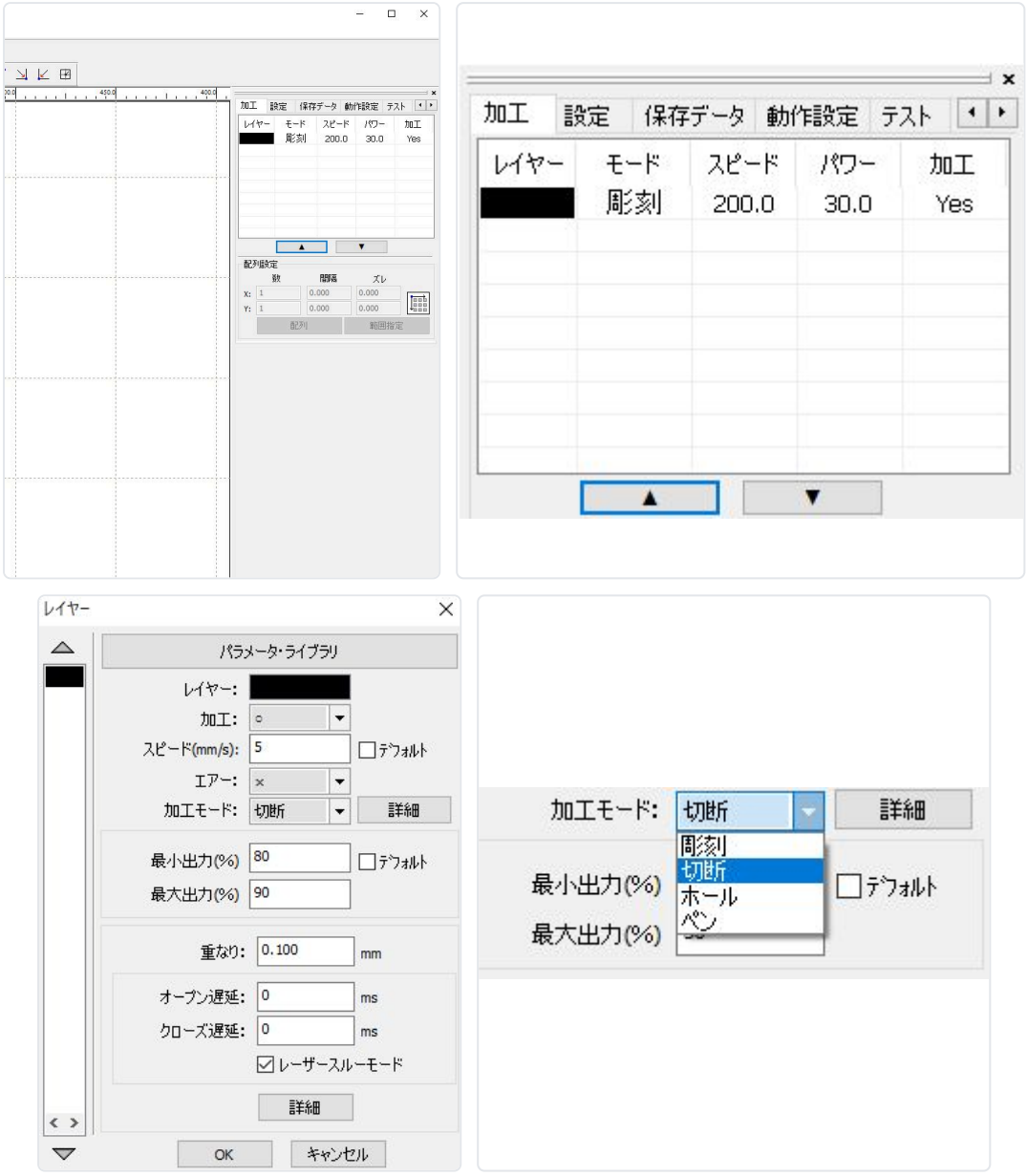
Preview checkbox
Preview pane: when you select a file, its contents are displayed.

4. Selecting and Configuring the Processing Mode

Select and configure the processing mode for cutting. The processing mode is selected and configured in the processing settings pane.

Note: The "Mode" column shows the engraving mode in the figure below, but a different mode name may be displayed depending on the state of LaserWork.

Note: The settings for each mode are remembered, so the values set most recently are displayed as the defaults the next time you create data.



Double-click an entry in the layer list to open the Layer dialog. Change the processing mode to "Cut."

A list of modes is displayed; select "Cut." (Double-click.)

The processing details can be set in the "Layer" dialog (the initial settings differ from the figure below).

Set the "Speed," "Max Power," "Min Power," and "Overlap" values according to the thickness of the acrylic and the required quality.

Click the OK button to complete the settings.

5. Setting the Origin

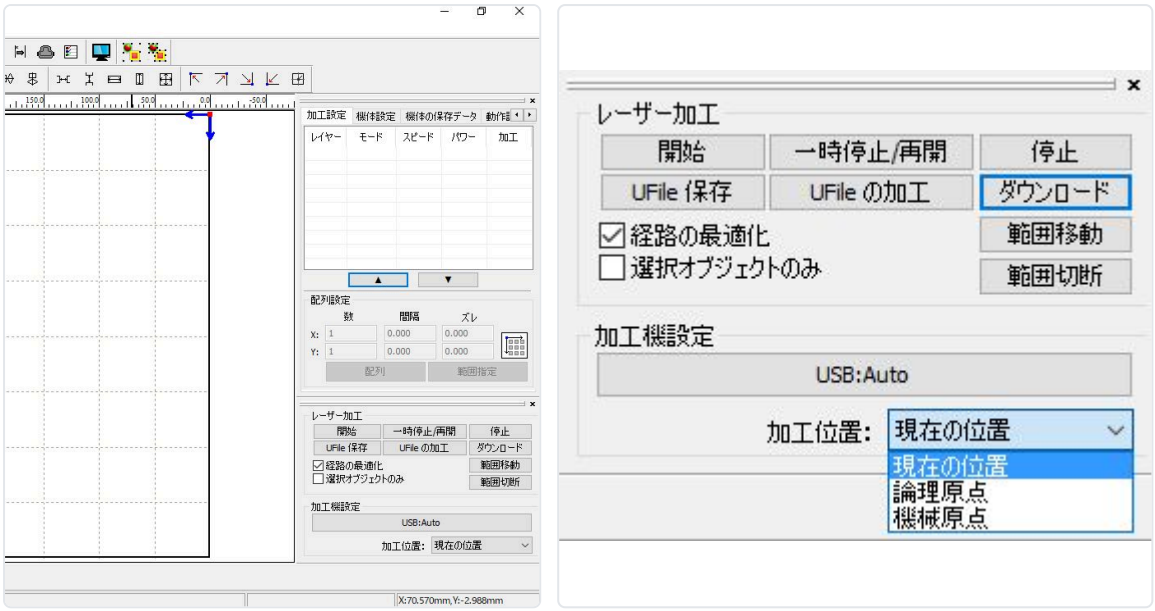
Before starting a job, you must check and set the processing origin.

When you start a job from the operation panel of the laser machine, the "logical origin" set with the "Origin" button on the operation panel becomes the origin position of the job.

When you run a job from the machine control pane of LaserWork, the origin position changes according to settings such as the "Position" setting described below.

5.1 Processing Position

The processing start position differs depending on the processing position setting. You can select it from the position options shown in the Laser work area at the lower right of the screen.



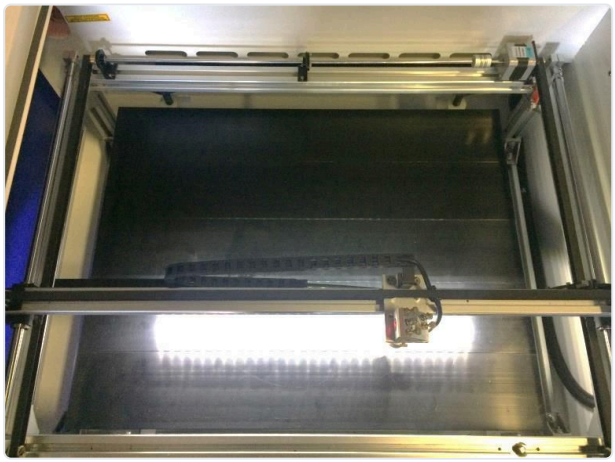
The processing position can be selected from the following three options.

Current Position

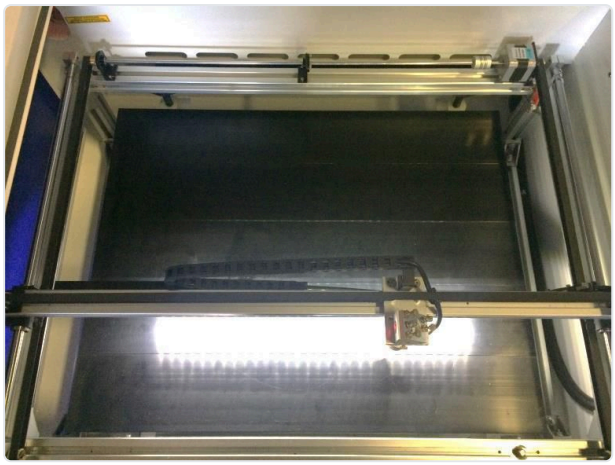
When "Current position" is selected, clicking "Start" runs the job using the current position of the laser head as the position of the data origin.

Logical Origin

When "Logical origin" is selected, clicking "Start" runs the job using the logical origin position set with the "Origin" button on the laser machine as the position of the data origin.



Processing origin: press the "Origin" button on the machine's operation panel.

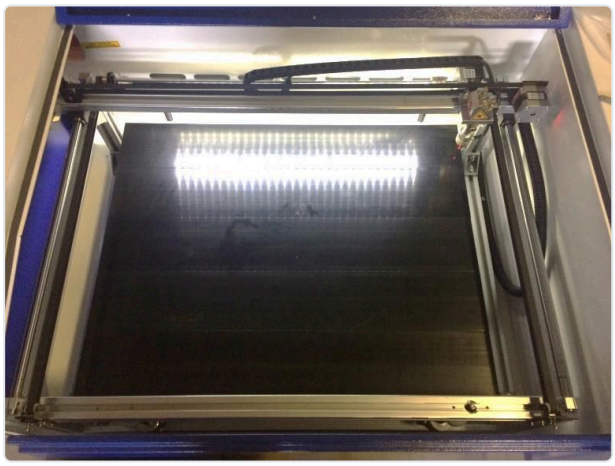


Even if the laser head has been moved, clicking "Start" moves the laser head to the logical origin and begins processing.

Machine Origin

When "Machine origin" is selected, clicking "Start" runs the job using the machine origin position of the laser machine (rear right: the position to which the machine homes at startup) as the position of the data origin.

When processing from the machine origin, only cutting is possible.



When you click the "Start" button, the laser head moves to the machine origin and begins processing.

5.2 Absolute Coordinates

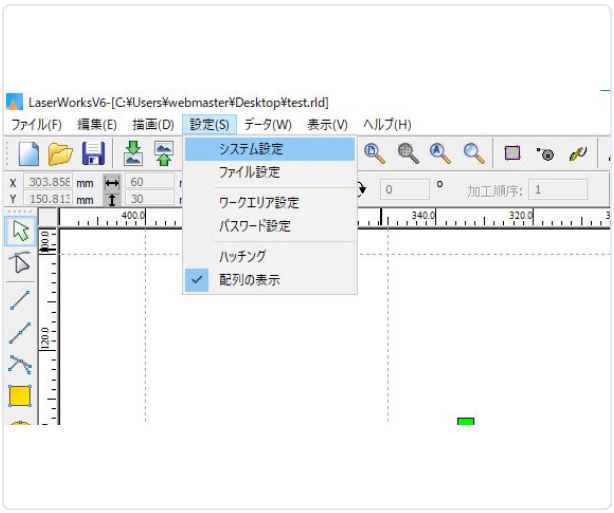
When "Absolute coordinate" is checked, the logical origin set with the "Origin" button on the operation panel and the "Position" setting used when running a job from LaserWork are both disabled, and the job is processed at the position of the objects on the design screen.

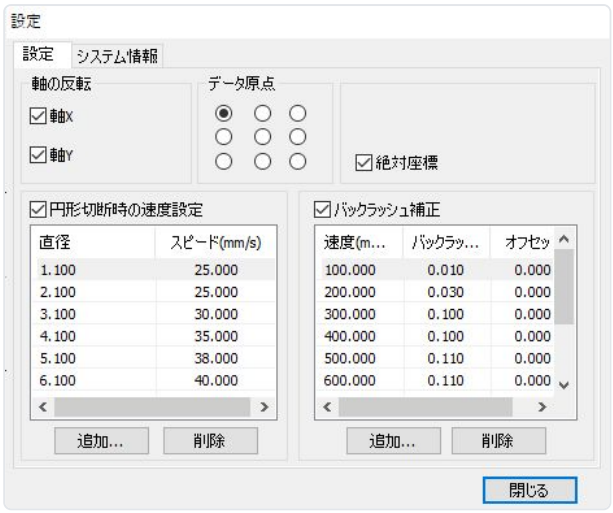
Use this setting when you want to process at a specific location.

How to Set It

From the tabs at the top of the screen, open "Config" → "System Setting".

The settings screen appears. Check the "Absolute coordinate" checkbox to enable it.



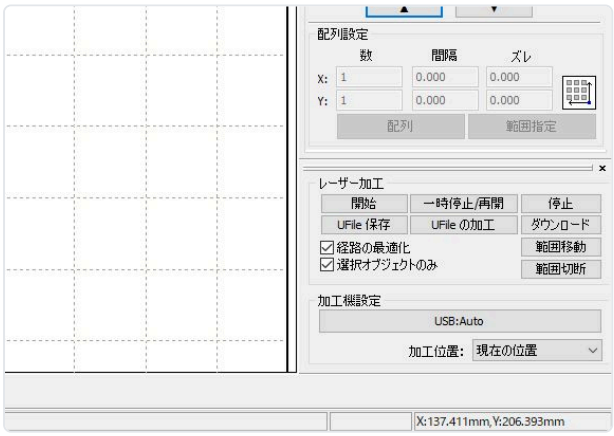


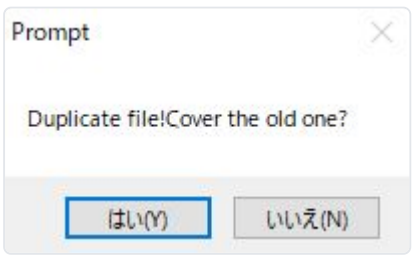
6. Downloading the Data

Once the processing settings and the processing position have been configured, load the data into the laser machine.

Note: Downloading the data is performed when you start the job from the operation panel of the laser machine. It is not necessary when running the job from LaserWork's machine control pane.

1. In the Laser work area at the lower right of the screen, click "Download".
2. When you click the Download button, the data name dialog appears. Enter a name of your choice.

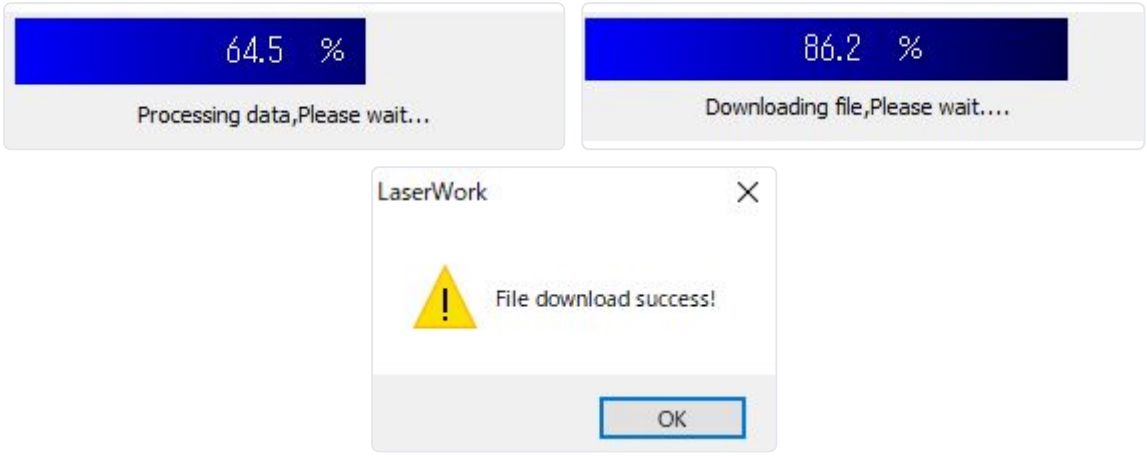




Note: If a file with the same name already exists on the laser machine, a dialog appears asking whether to overwrite it.

Note: Only single-byte alphanumeric characters can be used.

3. Start the download. Clicking it starts the data download. First, the design data is converted into a format the controller can handle. If you have created a large data file, this step may take some time. When it reaches 100%, the download itself begins. When the download progress bar reaches 100%, the data download is finished.
4. When it reaches 100%, a download-complete dialog appears. Click the OK button to finish.

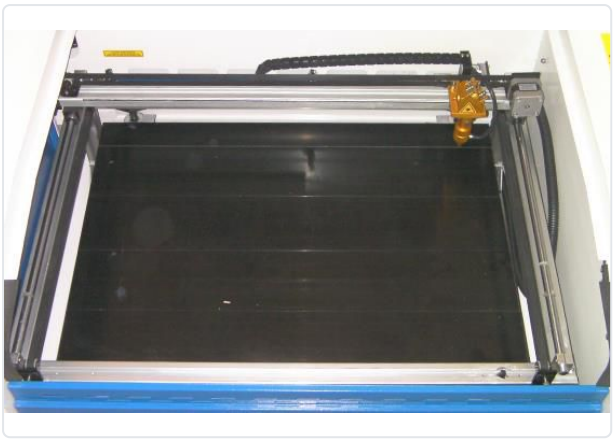


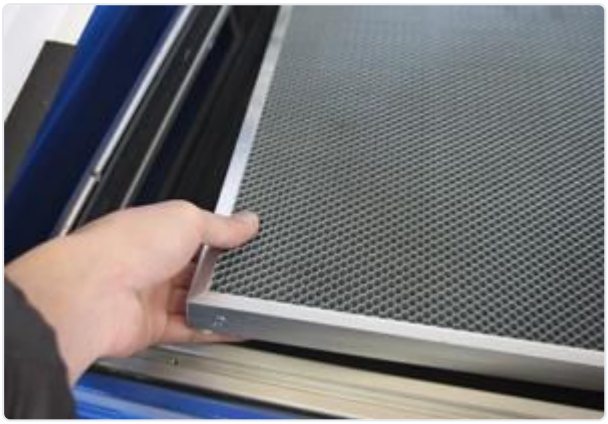
7. Processing

The job data has now been saved to the laser machine, so you can run the job. Start processing using the following procedure.

7.1 Installing the Honeycomb Table

- Attaching the honeycomb table -



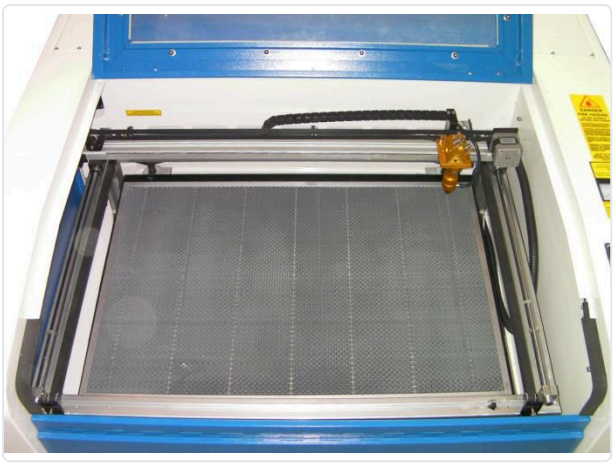


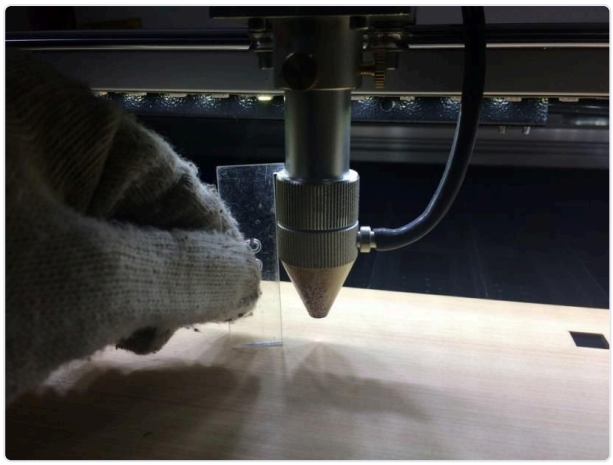
To make enough space to install the honeycomb table, use the table elevation handle. Turn it counterclockwise to lower the Z-axis.

If the cutting table is installed, remove it so that the machine is in its engraving-table configuration.

Carefully place the honeycomb table on top of the engraving table.

Make sure the honeycomb table is installed in the proper position.





7.2 Focusing

Set the focus.

Use the included focus gauge to check whether the table height is appropriate.

Use the table elevation handle to adjust the height until the bottom of the focus gauge lightly grazes the workpiece.

(Turning the handle clockwise raises the table; turning it counterclockwise lowers the table.)

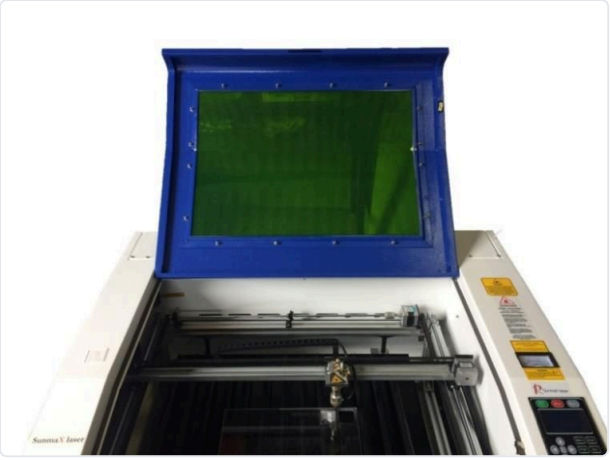
6.4 Starting the Job

Everything is now ready, so start the job. In this example, the job is started from the operation panel.

1. Move the laser head to the position where you want to process the workpiece, and set the processing origin with "Origin".
2. Close the top lid.

> **Caution:** The laser will not fire while the top lid is open.

3. After closing the top lid, turn on the power of each external device (blower, water chiller, and air compressor).



4. Press "Start/Pause" on the operation panel to start the job.
5. When the job is finished, the laser machine emits a beep. Open the top lid and remove the processed material.

8. Precautions During Processing

> **Warning:** When processing at high laser power and extremely low speed — for example when cutting thick acrylic — the acrylic material may catch fire. Always monitor the job at all times while working, and be alert to the risk of fire.
