Work Example — Rounded (Kamaboko) Engraving

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 Example — Rounded (Kamaboko) Engraving

- This document assumes that the laser machine has been set up correctly.
- This document assumes that the honeycomb table is installed.
- This document assumes that RDWorksV8, the control software for the RSD-SUNMAX series, has been installed correctly.
- This document uses CorelDRAW X5.
- This document uses Photoshop CS6.
- This document is intended for users who are familiar with the basic operation of RDWorksV8. For basic operation, refer to "Work Example — First Machining."

Example of rounded (kamaboko) engraving:

1. About Laser Processing

The RSD-SUNMAX series does not support grayscale engraving (varying the laser output according to the shade of the fill color in the data in order to change the engraving depth). Ordinary data therefore cannot produce rounded (kamaboko) engraving.

In this document, instead of varying the laser output itself, the laser output is switched ON and OFF in fine cycles so that the amount of laser irradiation per unit area is varied, and rounded engraving is achieved in this way.

This is similar to the halftoning (screen-tone conversion) applied to data when engraving photographs. Normally, when halftoned photo data is processed at a power stronger than the setting appropriate for laser engraving of photographs, the darker areas collapse and are cut in deeply. The method in this document deliberately turns that effect to advantage: the material is intentionally cut in so that the engraving depth varies, and gradation is thereby expressed.

2. Creating the Data

The data is created using CorelDRAW and Photoshop together. It can be created with CorelDRAW alone, but processing the image data in Photoshop produces cleaner laser engraving results.

2.1 Creating the Data in CorelDRAW

(1) New document

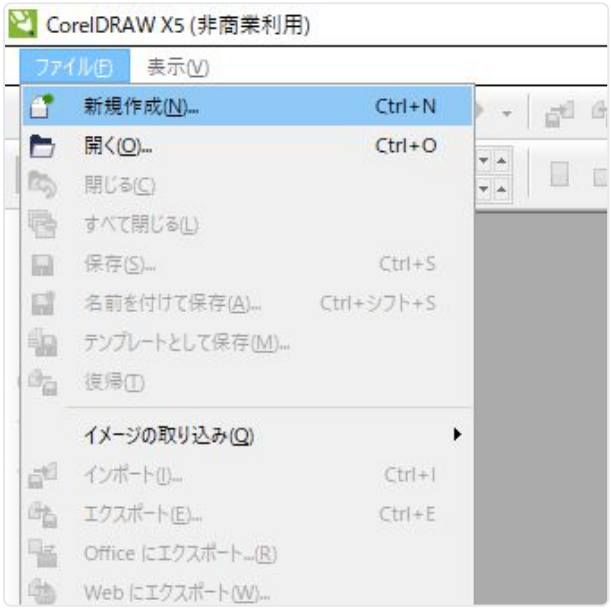
Start CorelDRAW.

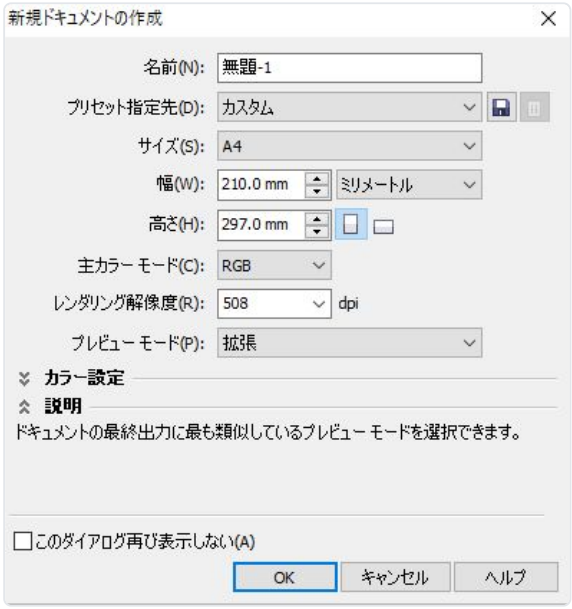
Once it has started, click "File" → "New" on the menu.

The "Create a New Document" dialog appears.

Change only the following two items:

Primary color mode	RGB
Rendering resolution	508

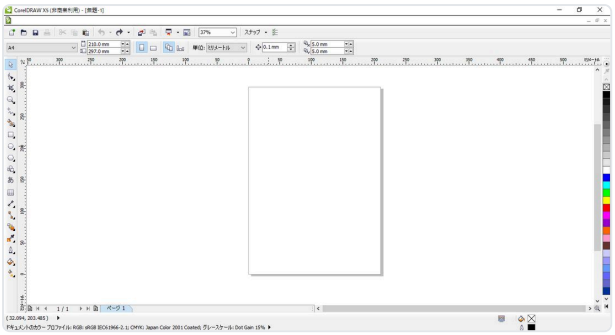


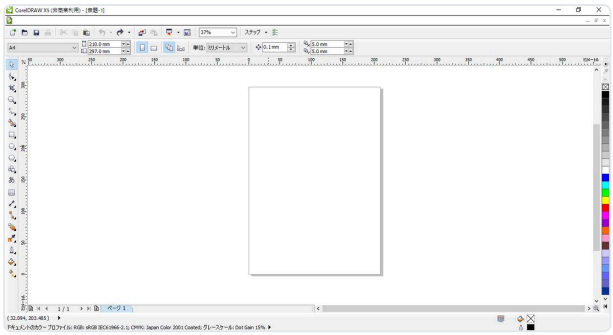


Click "OK," and the artboard appears on the screen.

(2) Creating the text

Click the "Text" tool on the toolbar.





When the Text tool is active, the mouse pointer changes shape.

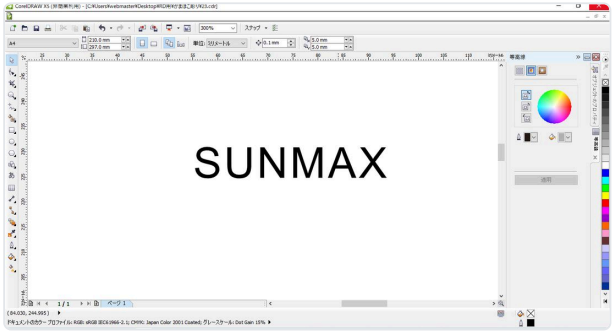
Click anywhere inside the CorelDRAW document.

When you click, the Text tool cursor starts blinking.

Once the cursor appears, type the text on the keyboard. In this document, "SUNMAX" is entered.

Next, select the text and change the font. Use the "Pick" tool to select the text.

The cursor appears.



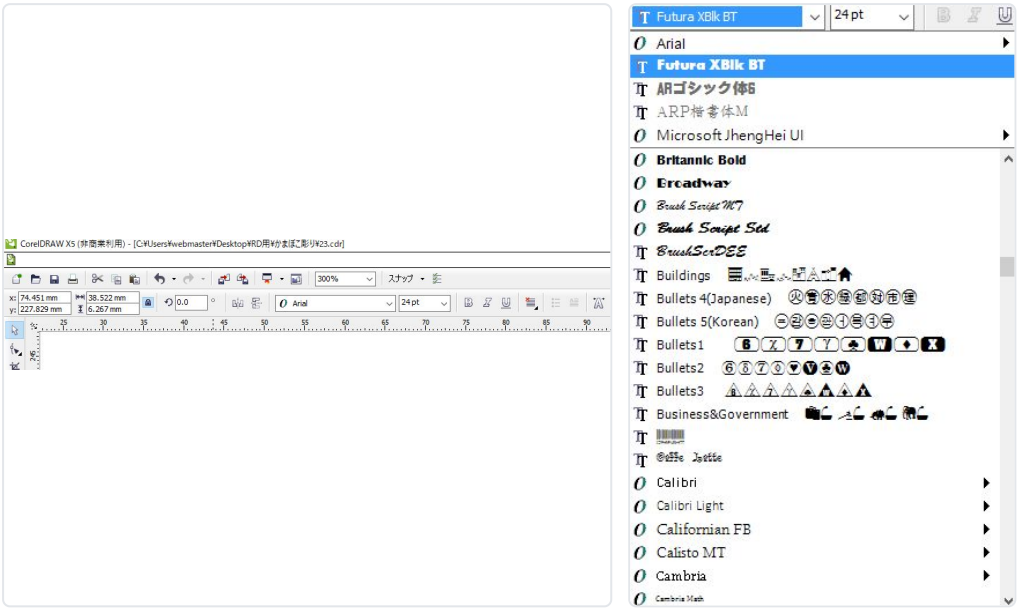
After clicking the "Pick" tool, place the cursor over the text and click it.

— Selected state — *— Normal state —*

Click the "Font List" on the screen to display the list of fonts.

The font list appears. Select the font you want to use. In this document, the font Futura is used.

> **Caution:** Rounded (kamaboko) engraving is best suited to typefaces with thick strokes. Fonts whose vertical and horizontal stroke widths differ, such as Mincho (serif) styles, and fonts whose stroke width varies greatly from place to place, are not suitable.



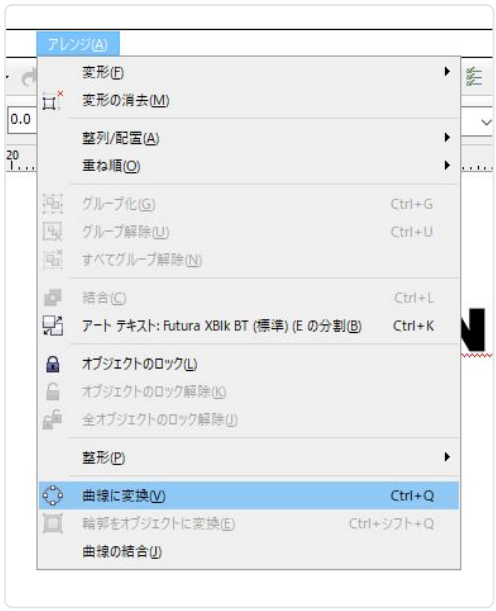
When you select a font, the text is displayed on the artboard in the selected typeface.

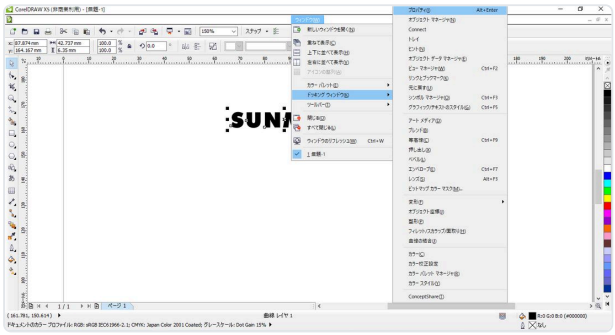
(3) Converting to curves

On the menu bar, click "Arrange" → "Convert to Curves."

(4) Properties

On the menu bar, click "Window" → "Dockers" → "Properties."

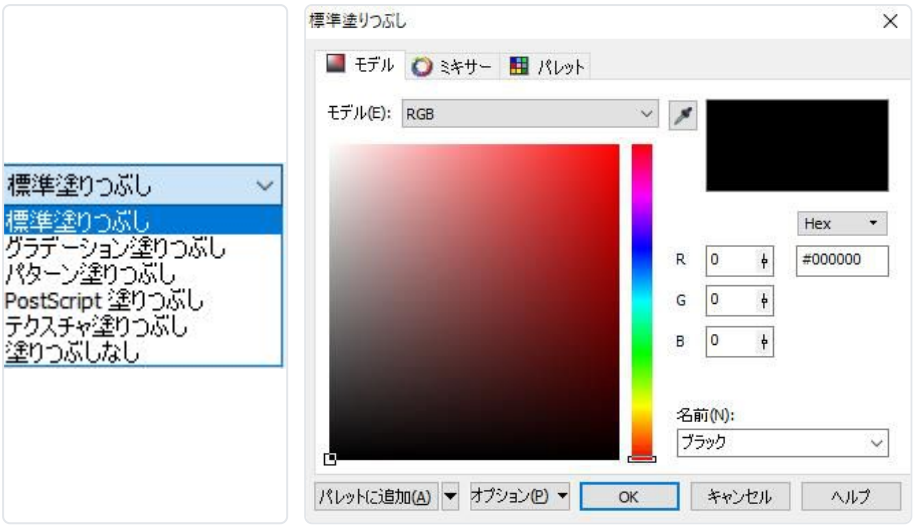


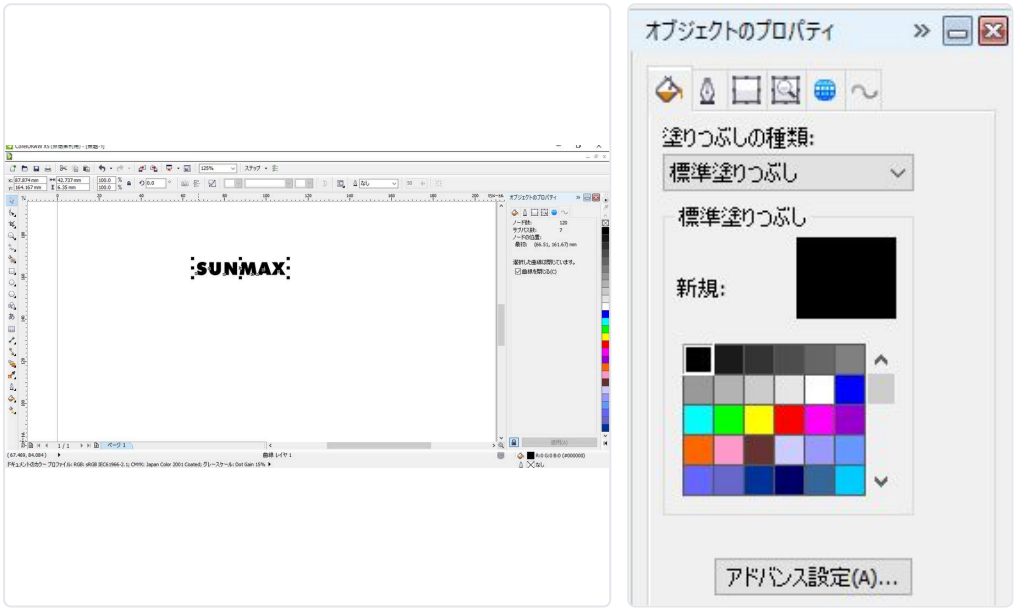


The "Properties" window appears.

Set the "Fill." Configure the fill settings as follows:

1. Set the fill type to Uniform fill.
2. Set RGB to 0.

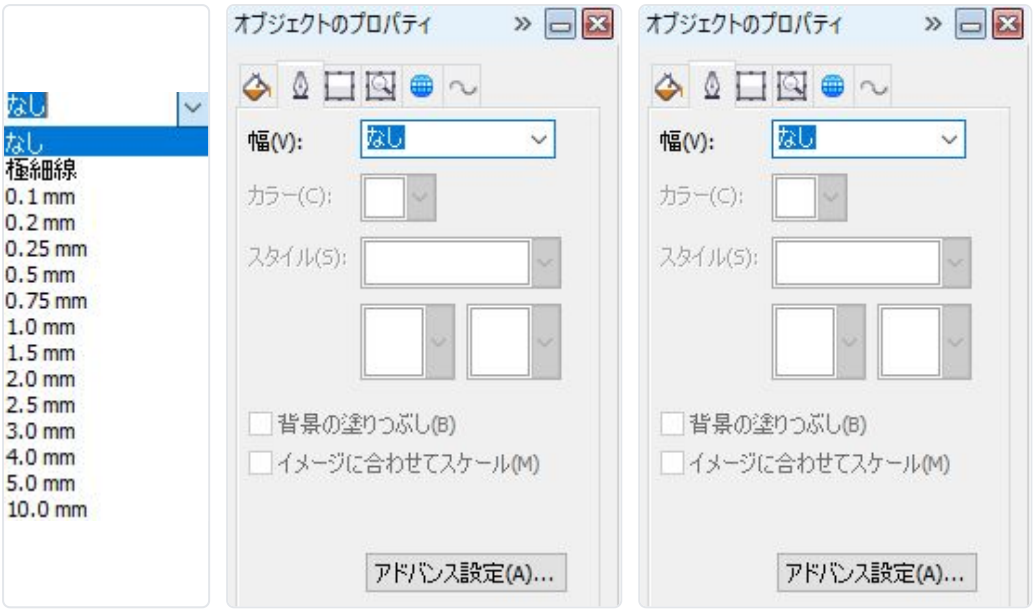




Set the "Outline." Click "Outline" to display its settings.

Set "Width" to "None."

Set to None.



(5) Resizing

Change the size of the text.

Set the size to the actual dimensions at which the laser processing will be performed.

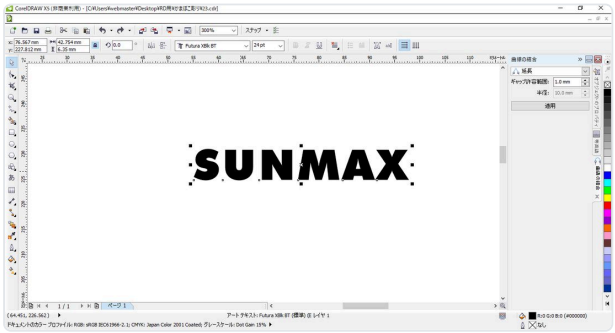
The size can be changed with "Object Size" on the screen.

Enter 120 mm for the width.

> **Caution:** Locking the aspect ratio prevents the text from being shrunk or enlarged out of proportion.

Lock ratio

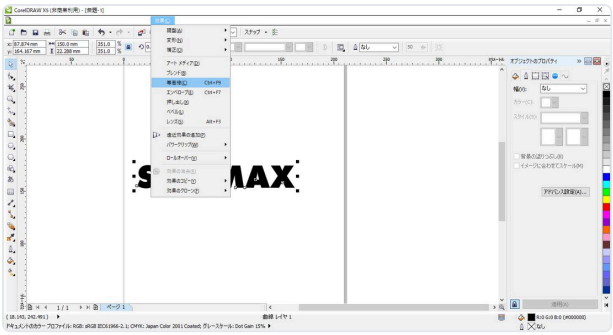
Locked	The scaling ratio is fixed.
Not locked	The scaling ratio is not fixed.

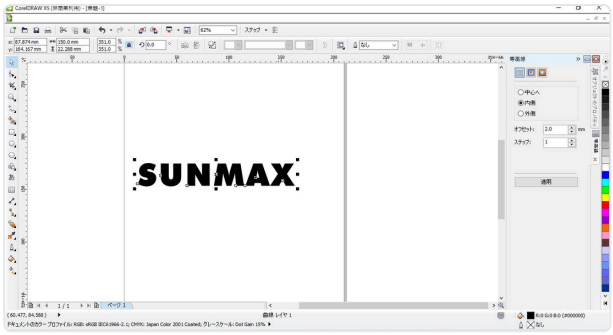


(6) Contour

With the text selected, click "Effects" → "Contour" on the menu.

The "Contour" window appears.



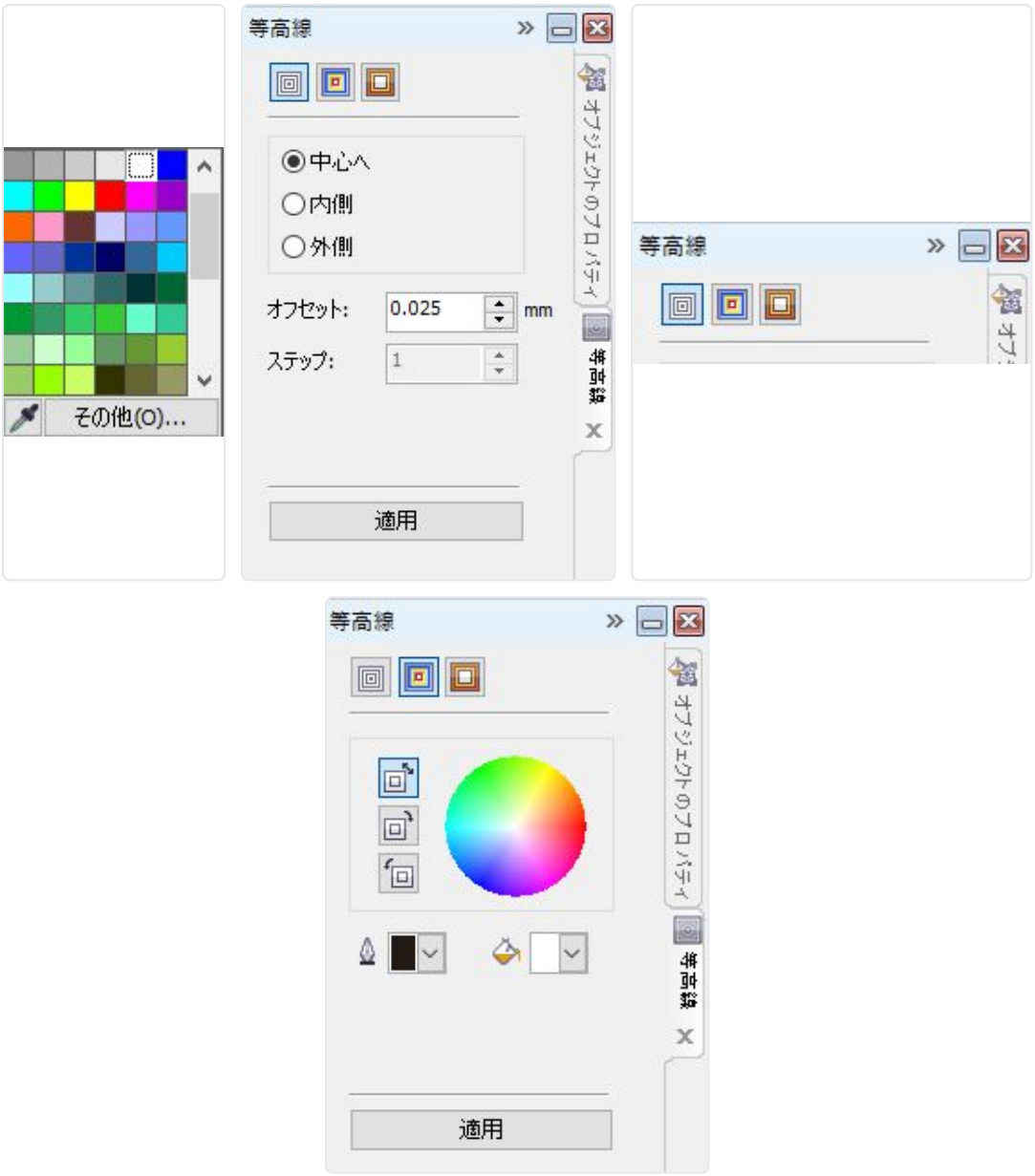


Configure the "Contour" window as shown below.

Click "Contour color" to display the color options.

Once the colors are displayed, configure them as shown below.

- Set the direction to "To center"
- Set the offset to 0.025 mm
- Set the color to white



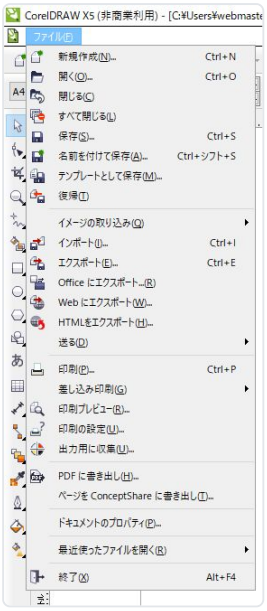
When the settings are complete, click "Apply".

A gradient that fades to white toward the inside of the text has now been created.

(7) Save

Save the design as a "BMP" bitmap so it can be opened in Photoshop.

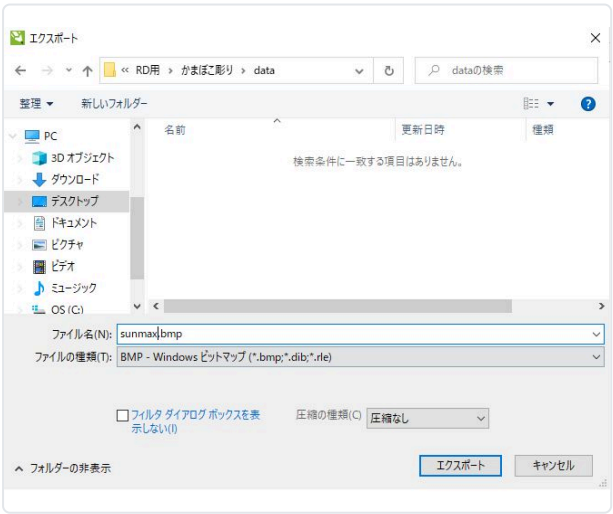
Click "File" → "Export" on the menu bar.

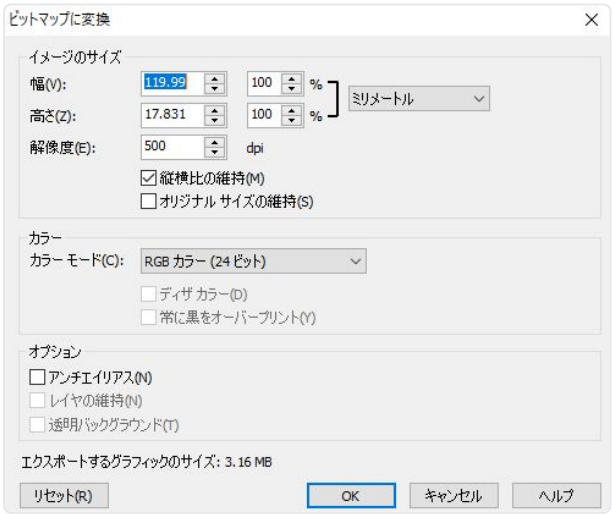


The "Export" dialog appears.
Specify the save location and file name, then click "Export".

The "Convert to Bitmap" dialog appears.
Configure it as shown below.

- For the file type, select "BMP - Windows Bitmap"
- Set compression to none
- Set the color mode to "RGB Color"





2.2 Editing the BMP Image in Photoshop

Edit the "BMP" bitmap data saved from CorelDRAW in Photoshop.

(1) Open the data

Start Photoshop and open the "BMP" data saved in step (7).

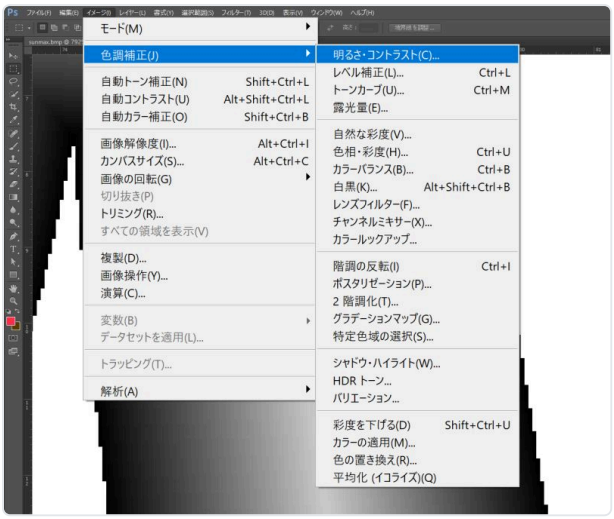
(2) Adjust brightness and contrast

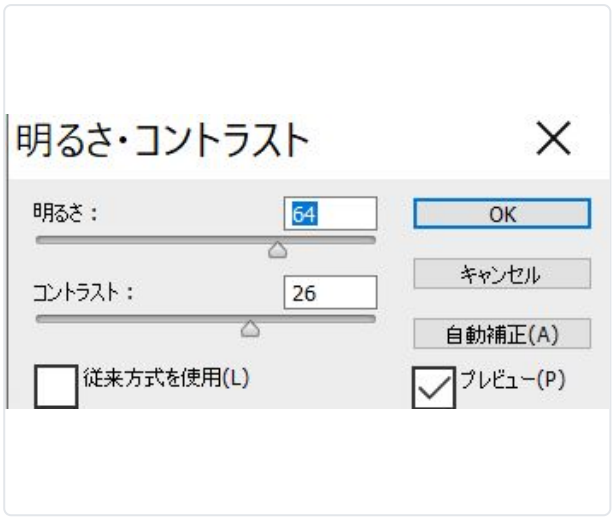
Zoom in on the part of the text that contains the largest white area.

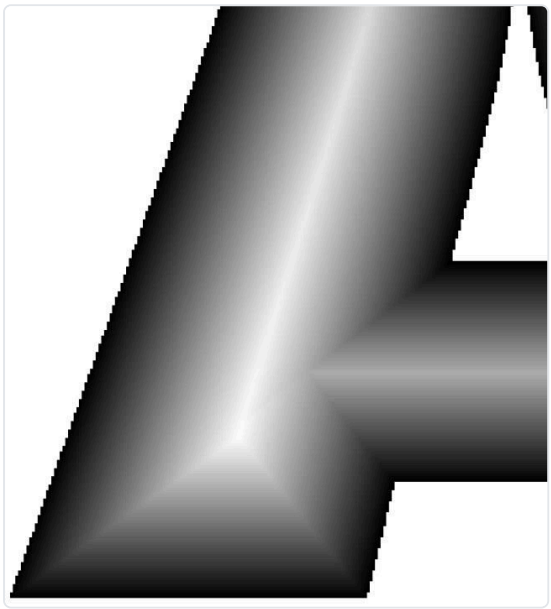
Next, click "Image" → "Adjustments" → "Brightness/Contrast" on the menu.

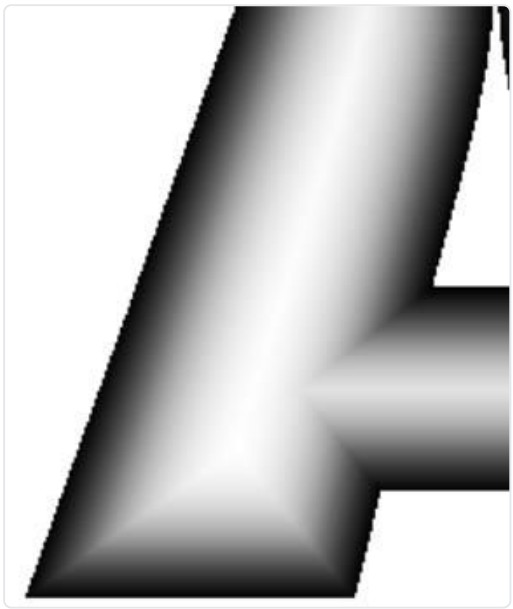
The "Brightness/Contrast" dialog appears. Adjust the brightness and contrast.

Adjust them as shown in the figure below so that black and white are clearly distinguishable.
White areas will be engraved shallow, and black areas will be engraved deep.





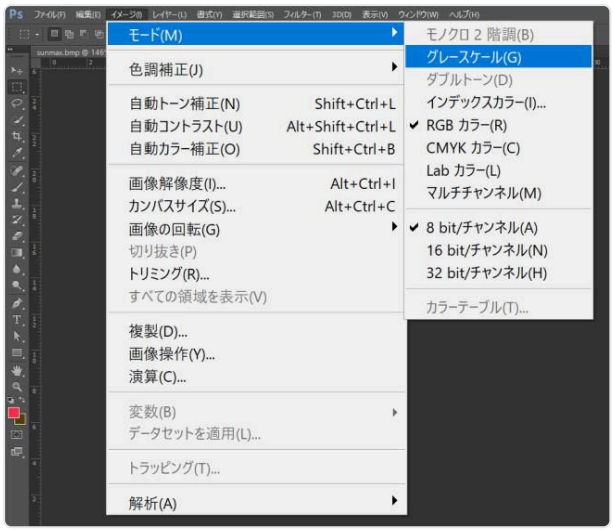


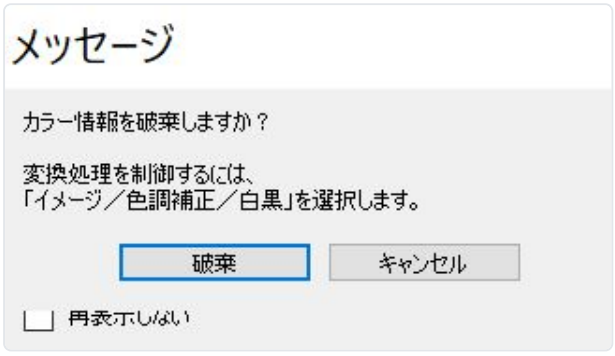


(3) Convert to grayscale

Convert the data to grayscale (monochrome).
Click "Image" → "Mode" → "Grayscale" on the menu.

A message appears asking "Discard color information?"
Click "Discard".





(4) Bitmap mode

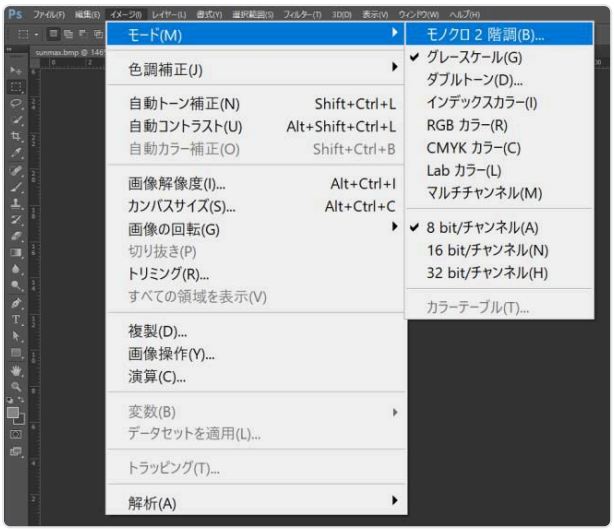
Click "Image" → "Mode" → "Bitmap" on the menu.

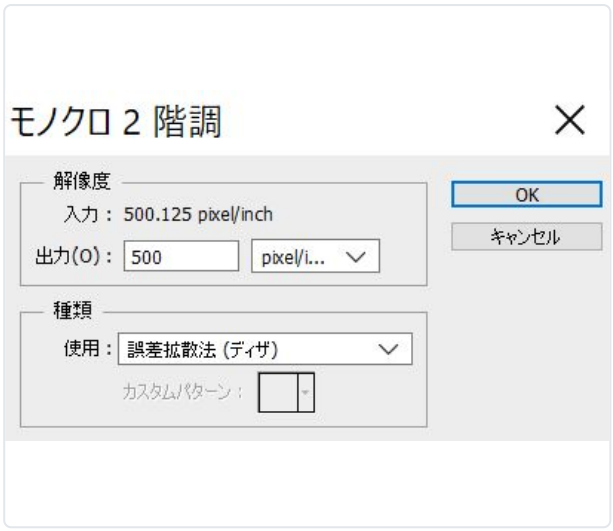
The "Bitmap" dialog appears. Configure it as shown in the figure below.

- Set the output to 500
- Set the method to "Diffusion Dither"

After entering the settings, click "OK".

A texture like the one shown below is applied to the design.





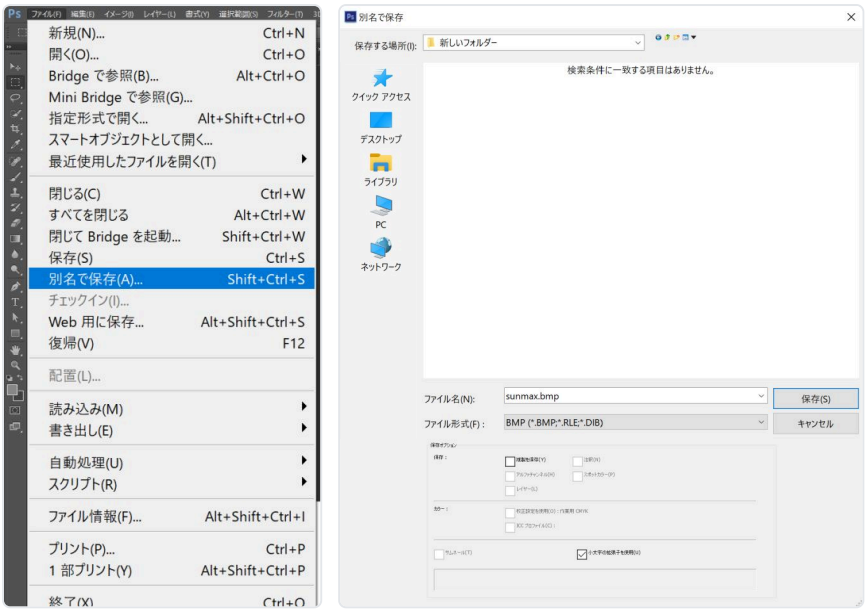
(5) Save

Now that the data is complete, save it so it can be loaded into the processing software.
Click "File" → "Save As" on the menu.

The "Save As" dialog appears.
Specify the location where you want to save the file and enter a file name.

When you have finished entering the information, click "Save".

- For the file type, select "BMP - Windows Bitmap"



3. Processing

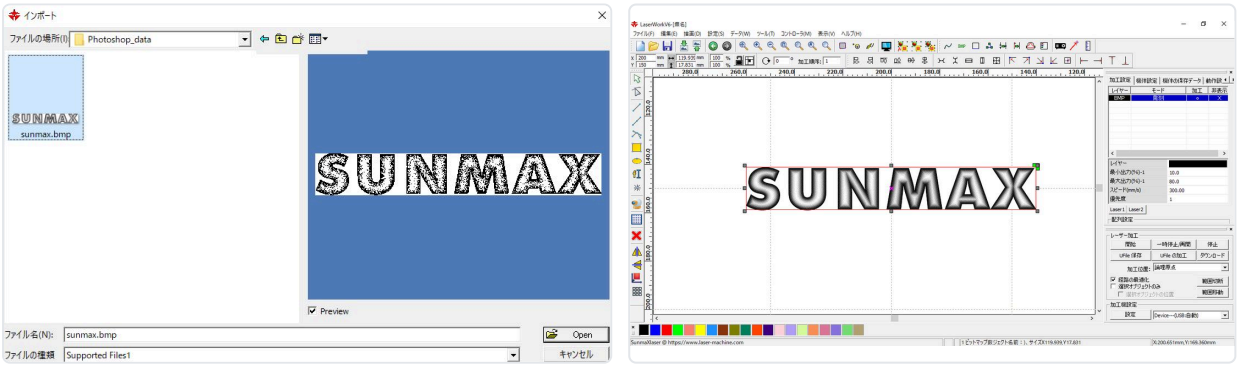
Load the data created in CorelDRAW and Photoshop into RDWorksV8 and run the job.

For basic RDWorksV8 operation, refer to "Work Example — First Machining."

3.1 Processing the Data in RDWorksV8

(1) Import

Import the data you created.



The data is displayed.

(2) Processing settings

Use the settings below as the defaults for the processing settings, and adjust them yourself to suit the data content and the material being processed.

Processing mode	Engraving
Scan interval	0.05
Optimize	Checked

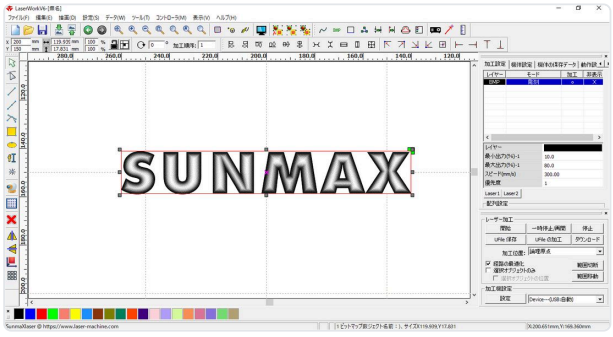
(3) Processing

3.2 Reverse Kamaboko (Rounded) Engraving

Reverse kamaboko engraving inverts the black and white of the gradation in the data.

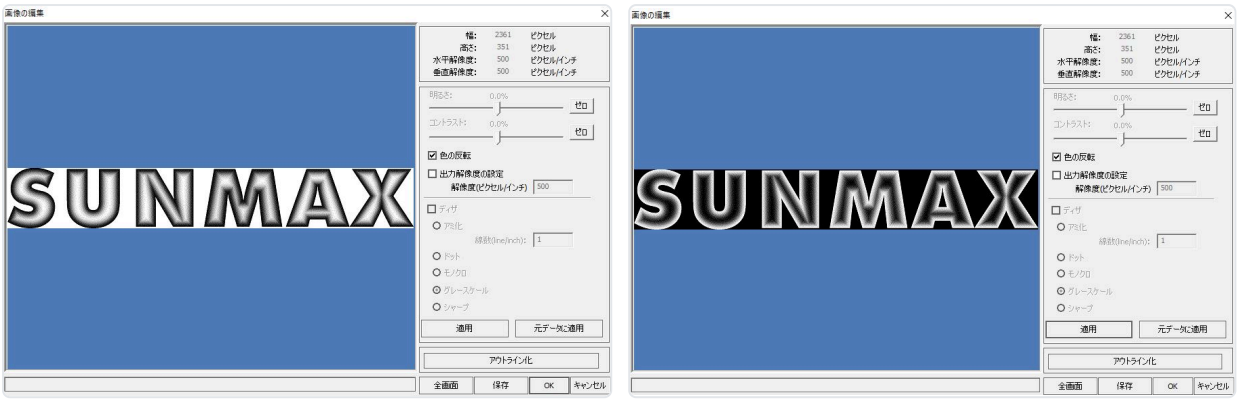
(1) Click "Image Edit" on the data toolbar

> **Caution:** "Image Edit" cannot be clicked unless a layer is selected.

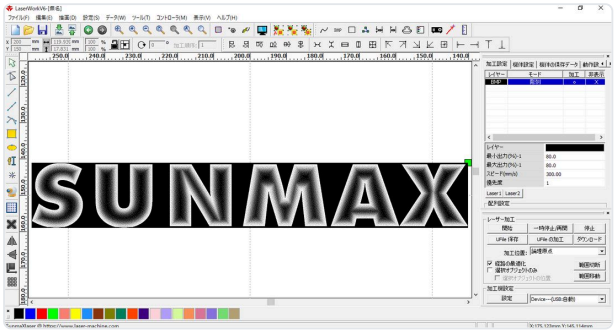


(2) Invert color

Select the "Invert Color" check box and click "Apply."



Once you have confirmed that the colors are inverted, click "OK."



The data for reverse kamaboko engraving is now complete.
