

Vinyl cutter guide



Figure 1: Our vinyl cutter

Theory



Figure 2: Uppsala Makerspace

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Foreword

This is a book about using the Vevor cutter at the Uppsala Makerspace.

Some pieces of advice:

Have your material (T-shirt) ready. Make sure the right color of vinyl is loaded. Have you USB with your .svg file ready.

About this book

This book has a CC-BY-SA licence.



Figure 1: Licence for this book

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You can do whatever you like with this book, as long as you give proper credit to us and/or mention the website https://uppsala-makerspace.github.io/vevor_vinyl_cutter_to_t_shirt_manual/.

This guide will always be free (as in beer) and free (as in freedom).



Figure 2: QR Code of this guide

0. Check if Inkcute is already installed

In this step of this vinyl cutter to T-shirt manual, we check if Inkcute is already installed.

On a Linux computer, open a terminal window.

Type

```
~/inkcut_venv/bin/inkcut
```

If Inkcute starts then it is installed.

1. Install Inkcute

In this step of this vinyl cutter to T-shirt manual, we install Inkcute.

If you cannot use the Inkcute laptop that is usually in the vinyl cutter, you will need to Inkcute on the computer you use.

Inkcute is a program to send things to cut to the vinyl cutter. It works under Linux, Mac and Windows. This guide shows how to do this for Linux.

If you could provide these instructions for Mac or Windows, please contribute!

1.1 Start a terminal

On a Linux computer, start a terminal:

- Press the Meta/Windows key (between Ctrl and Alt at the bottom left of the keyboard)
- Type `terminal`

Now you have started a terminal

1.2 Install the Debian packages

Copy-paste the following command to the terminal:

```
sudo apt-get install python3-pip python3-pyqt5 python3-setuptools
```

Probably you will need to type a password and press enter.

You will probably be asked if you want to install these programs. Type 'Y' and press enter.

You will see a lot of programs being installed.

Well done!

Now repeat with this command:

```
sudo apt-get install libcups2-dev python3-pyqt5.qtsvg
```

1.3 Create a virtual environment for Inkcute

Create a (mandatory!) virtual environment for Inkcute:

```
python3 -m venv ~/inkcut_venv
```

If you get the error 'The virtual environment was not created successfully', try:

```
sudo apt install python3.12-venv
```

1.4 Install Python packages in the virtual environment

Install the Inkcute and PyQt5 Python packages in the virtual environment"

```
~/inkcut_venv/bin/pip install inkcut PyQt5
```

1.5 Start Inkcute

Now you can start `inkcut` with:

```
~/inkcut_venv/bin/inkcut
```

Inkcute is now started. Well done!

2. Setup Inkcute

In this step of this vinyl cutter to T-shirt manual, we setup Inkcute.

After install Inkcute, you will need to set up Inkcute, so that it can talk to the vinyl cutter.

2.1 Start a terminal

On a Linux computer, start a terminal.

2.2 Add yourself to the dialout group

Add yourself to the dialout group:

```
sudo usermod -a -G dialout "$USER"
```

2.3 Reboot the computer

Reboot the computer.

3. Get T-shirts

In this step of this vinyl cutter to T-shirt manual, we get one or more T-shirts.

Company	Address	Price	Description
Biltema	Online	60	Has S to XXXL
New Yorker	Marknadsgatan 1	79	Has XS to XL

- Price is in kroner per (cheapest) T-shirt

4. Get vinyl

In this step of Vinyl cutter to T-shirt manual, we get suitable vinyl foil.

Suitable foil looks like this:



Figure 3: Transfer foil ready for transfer

- The foil feels smoother than a sticker ('klistermärke')
- The foil is shinier than a sticker

Places to buy vinyl:

Place	Features
https://folier.se/ https://www.scandraft.se/	Recommended by a member Sells our favorite Siser P.S. Film Easyweed in 25 meter rolls for 2500 kr

5. Connect the vinyl cutter

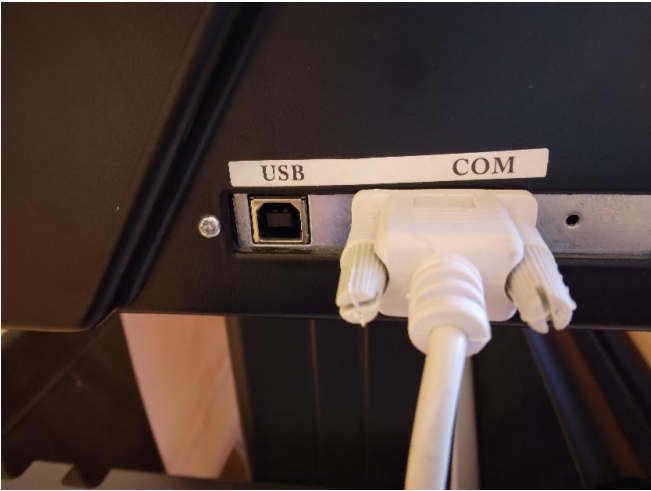
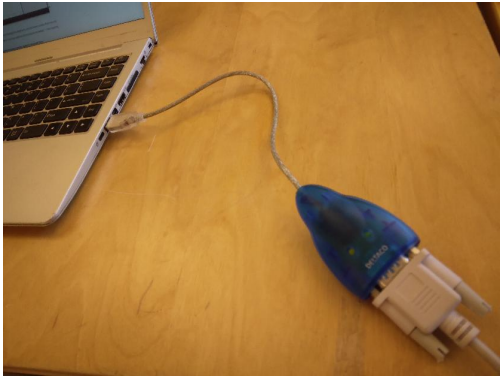
In this step of this vinyl cutter to T-shirt manual, we physically connect our laptop to the vinyl cutter. There are two ways to connect the vinyl cutter to a computer.

5.1 Use the USB port

Plug in the USB cable from the vinyl cutter's USB port to your computer. This is a regular/simple USB cable.

5.2 Use the COM port

Plug in the correct USB cable from the vinyl cutter's COM port to your computer:

Vinyl cutter side	Center	Computer side
		

6. Setup the vinyl cutter

In this step of this vinyl cutter to T-shirt manual, we setup the vinyl cutter.

The vinyl cutter has three parameters:

- Origin: the bottom-left of the cut, move the red dot to the bottom-left of the vinyl
- Speed: the speed of the blade
 - If the speed is too high, no idea what happens. Please contribute if you know!
 - If the speed is too low, the process takes needlessly longer
- Force: how much force the blade applies to the vinyl
 - If the force is too high, the cutter will go through the vinyl
 - If the force is too low, the vinyl cannot be removed easily

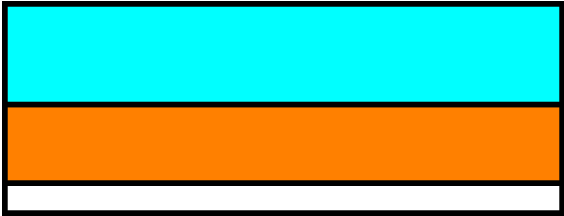
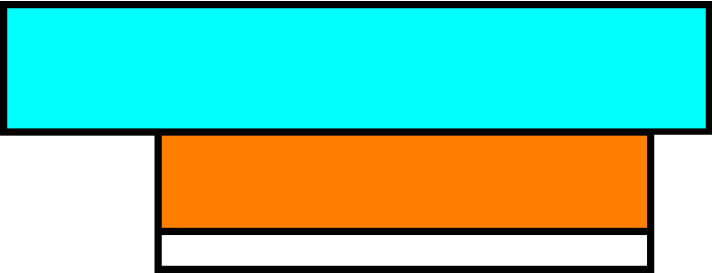
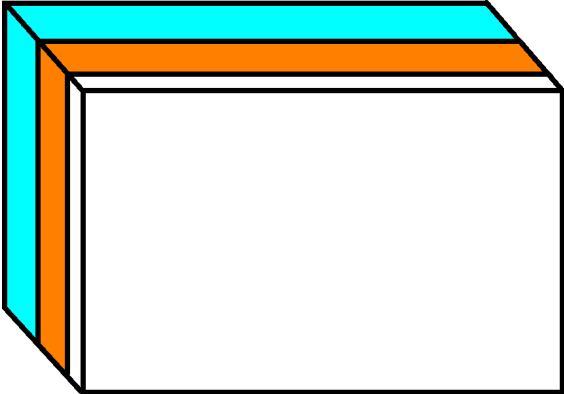
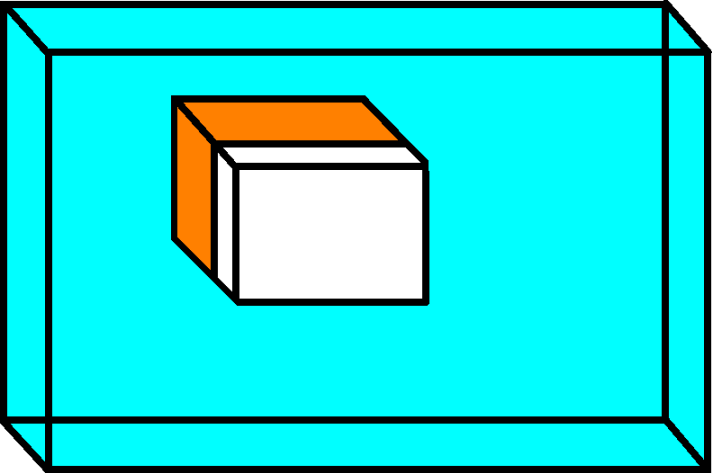
Vinyl	Speed (mm/s)	Force(g)	Recommendation source
Siser P.S. Film	300	60	manual
Siser P.S. Film	300	120	Richel, to prevent weak cuts

7. Place foil on the vinyl cutter

In this step of this vinyl cutter to T-shirt manual, we place our vinyl foil on the vinyl cutter.

Place the foil on the vinyl cutter, with the white side up, i.e. with the thick and transparent plastic at the bottom.

Only use two of the three rollers. If you use three rollers, you will get distorted images.

View	Before cutting	After cutting
Slice		
Isometric		

Structure of the foil and what will be cut away. Light-blue: thick, transparent layer, do not cut, can be separated from orange layer by hand. Orange: the color of the print. White: the glue connecting the print to the T-shirt

The knife cuts the white and colored layer only. The thick and transparent layer needs to remain intact.

8. Set up Inkcute connection

In this step of this vinyl cutter to T-shirt manual, we setup an Inkcute connection, from our laptop to the vinyl cutter. Depending on how you've connected the vinyl cutter, here is how to connect Inkcute to the vinyl cutter.

8.1. Start Inkcute

On a Linux computer, start a terminal:

- Press the Meta/Windows key (between Ctrl and Alt at the bottom left of the keyboard)
- Type `terminal`

Now you have started a terminal

In the terminal, type

```
~/inkcut_venv/bin/inkcut
```

Now Inkcute will start.

8.2. Use the USB port

If you have physically connected the vinyl cutter to your laptop using **USB**, then, in Inkcute, go to the 'Configure device | Connection':

- Type: Parallel port
- Port: printer manufacturer descriptor printer product descriptor (/dev/usb/lp0)

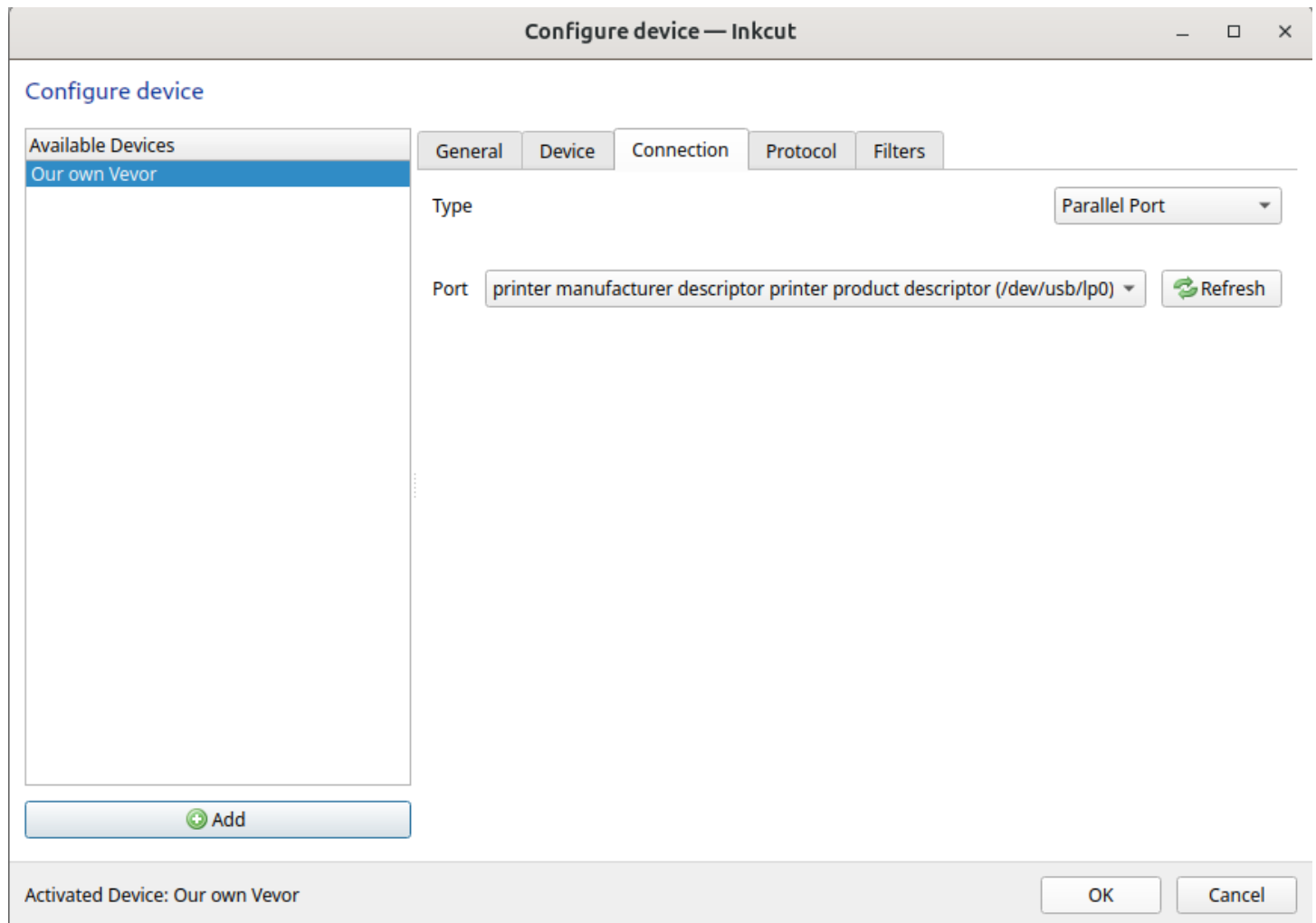


Figure 4: Connect to the vinyl cutter via USB

8.3. Use the COM port

If you have physically connected the vinyl cutter to your laptop using the **COM port**, then, in Inkcute, go to the ‘Configure device | Connection’:

- Type: Serial port
- Port: `tttyUSB0`. If you cannot select `tttyUSB0`, you’ve used the wrong USB cable coming out of the vinyl cutter :-)
- Baudrate: 38400

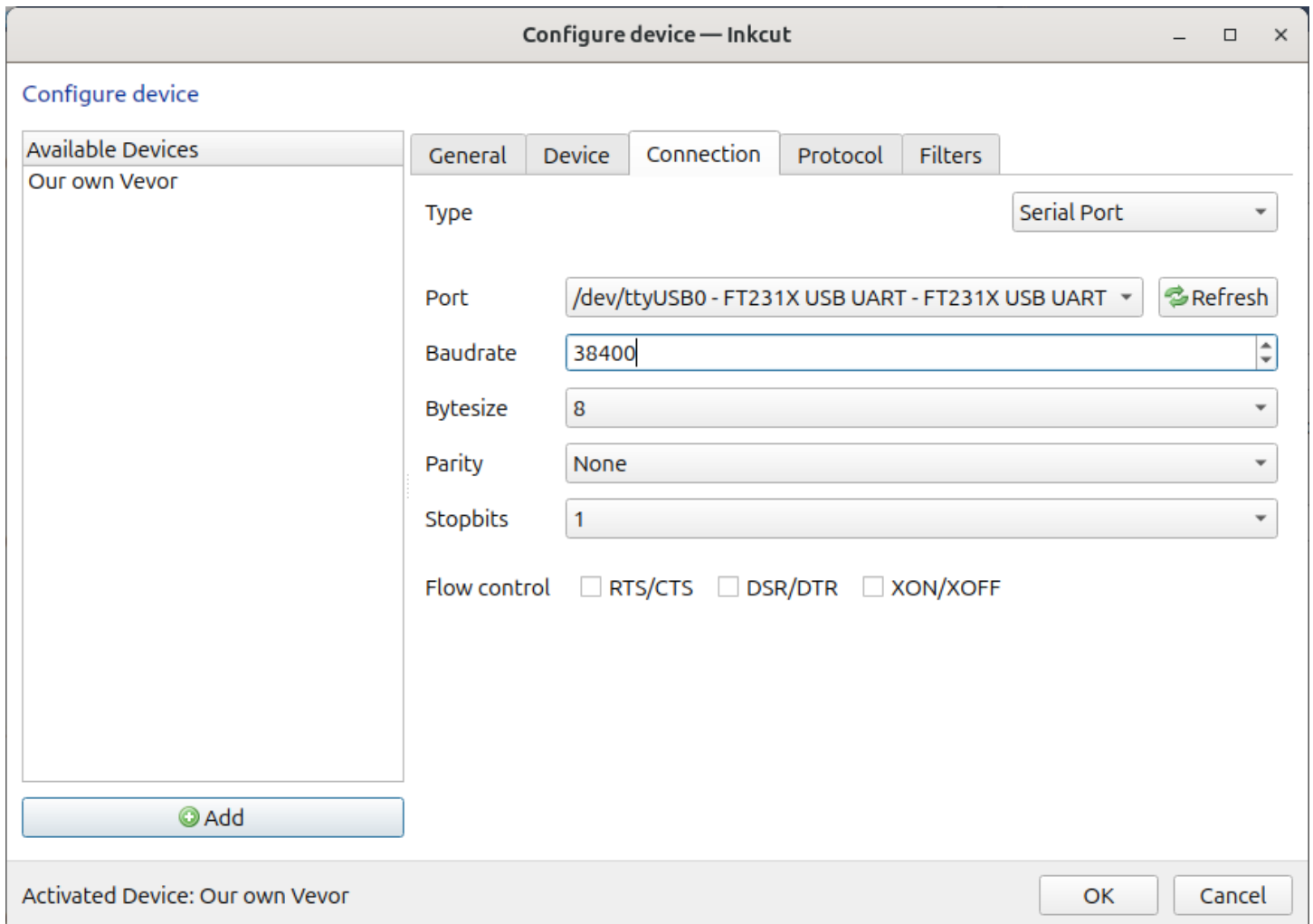


Figure 5: Use the serial port with a baudrate of 38400

Use the serial port with a baudrate of 38400. If you cannot select `tttyUSB0`, you’ve used the wrong USB cable coming out of the vinyl cutter

9. Use Inkcute

In this step of this vinyl cutter to T-shirt manual, we use Inkcute to make the vinyl cutter cut out a design in our vinyl foil.

9.1 Load an SVG

In Inkcute, load an SVG.

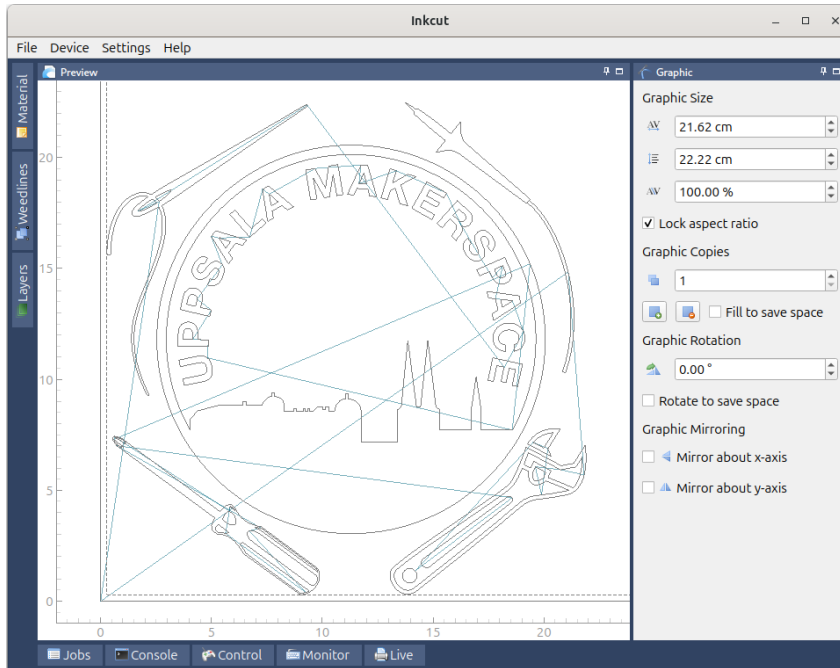


Figure 6: Inkcute in action

9.2 Mirror the image

Click on 'Mirror y-axis' (at the bottom-right of the screen) to mirror the image horizontally. This is especially important for letters.

9.3 (optional) Set up multiple images correctly

For many copies, do as shown here:

9.4 Start the cut

Click on 'Device | Send to device' to start the vinyl cutter.

Click on 'Device | Send to device' to start the vinyl cutter

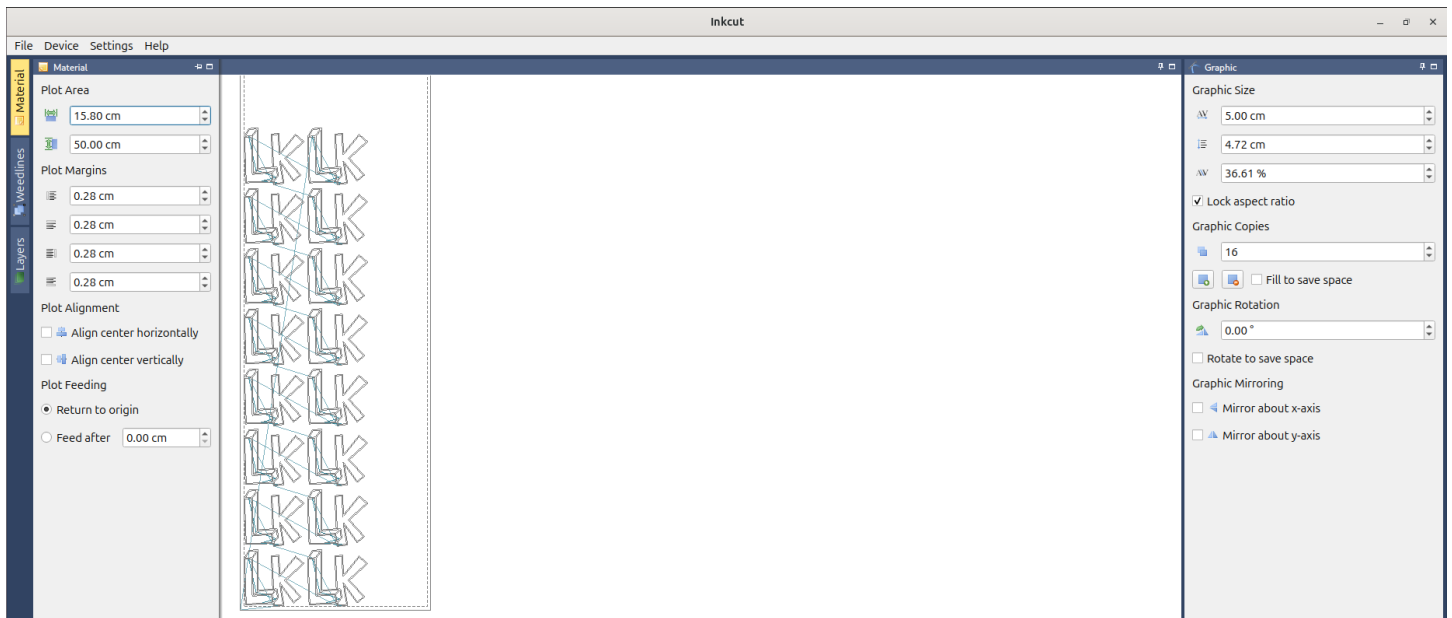


Figure 7: Do many copies like this

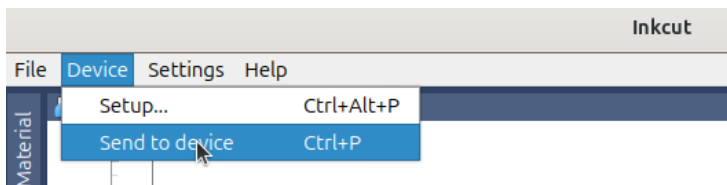


Figure 8: Click on 'Device | Send to device' to start the vinyl cutter

10. Set up heat press

In this step of this vinyl cutter to T-shirt manual, we setup the heat press.

Set up the heat press to have the correct temperature and time.

Vinyl	Temperature (C)	Time (s)	Recommendation source
Siser P.S. Film	150	15	manual

11. Peel vinyl

In this step of this vinyl cutter to T-shirt manual, we peel away the useless part of our cut vinyl foil. You now have vinyl with your pattern cut out.



Figure 9: Vinyl with a pattern cut out

Remove all the vinyl that should **not** be on the T-shirt. Use your favorite tools for this.

In the end, this how your vinyl looks like after peeling:



Figure 10: Vinyl after peeling

12. Transfer vinyl to T-shirt

In this step of Vinyl cutter to T-shirt manual, we transfer our vinyl to our T-shirt.

Put the remainder of the foil on the T-shirt, with the colorful side up:



Figure 11: Vinyl to be transferred to T-shirt

Consider using a Primadocka to help place the foil on the right spot of a T-shirt:

Confirm the heat press is warmed up: it's temperature should match the desired temperature.

Place the T-shirt under the press, with the foil still at the desired location on the t-shirt.

When the heat press is warmed up, lower the press. After the time you've set up in an earlier step, the press will start to beep. Raise the press again.

Wait for the print to cool off.

Peel off the transparent layer from the shirt:

Done!



Figure 12: A Primadocka



Figure 13: Vinyl transferred to T-shirt

Troubleshooting

The vinyl cutter is hammering

No idea why this happens.

My leading idea is that ‘something is getting too warm after a lot of printing’.

Reasons that are not a cause:

- Type of connection (i.e. COM versus USB)
- Printer memory full (i.e. turning the printer off and on does not fix the problem)
- Computer memory full (i.e. turning the connected computer off and on does not fix the problem)

The vinyl cutter is wrinkling the paper

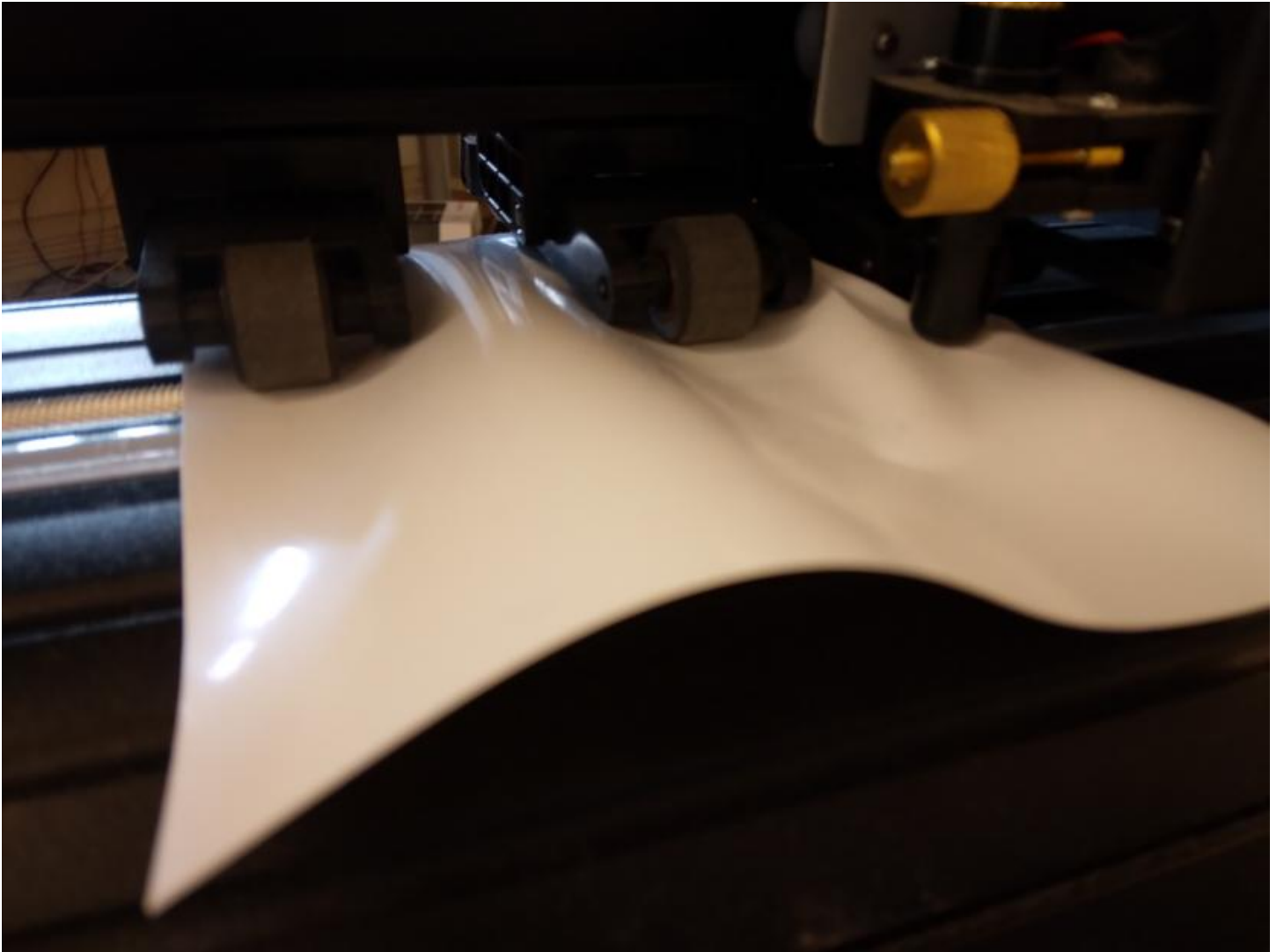


Figure 14: The vinyl cutter is wrinkling the paper

The vinyl cutter is wrinkling the paper.

This happens when at least one wheel of the two movable heads is not on a roller at the bottom:

The right wheel (right rectangle) is not on the roller (partially shown and indicated by the left rectangle)

The vinyl cutter is confused

This may happen when you send multiple prints at the same time. Press reset, close Inkcute, press reset, start Inkcute and try again

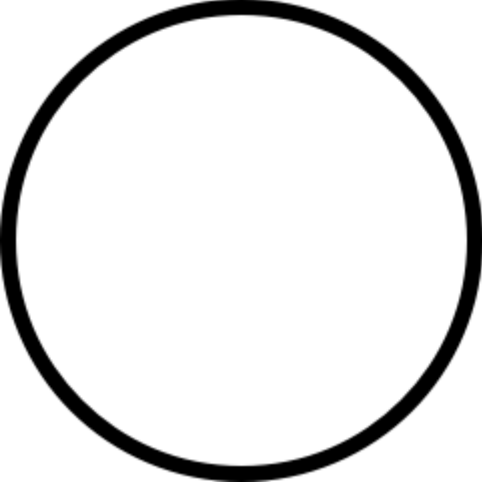
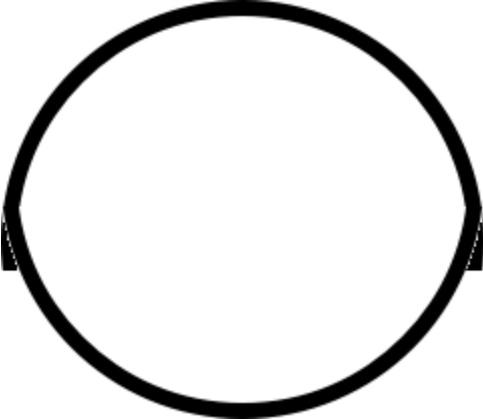
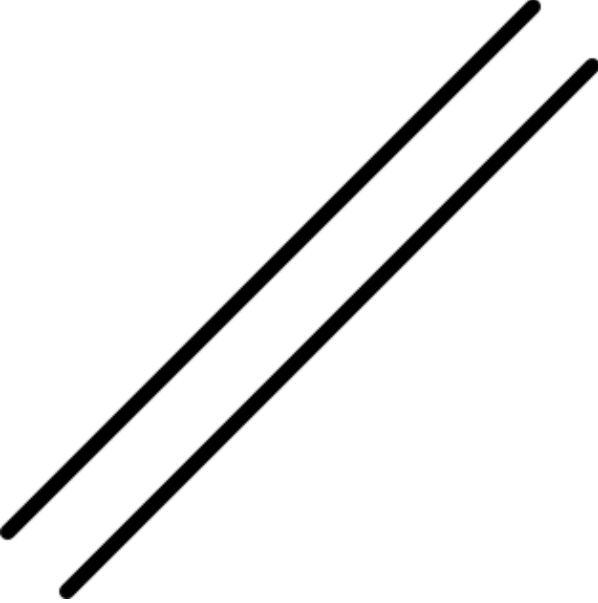
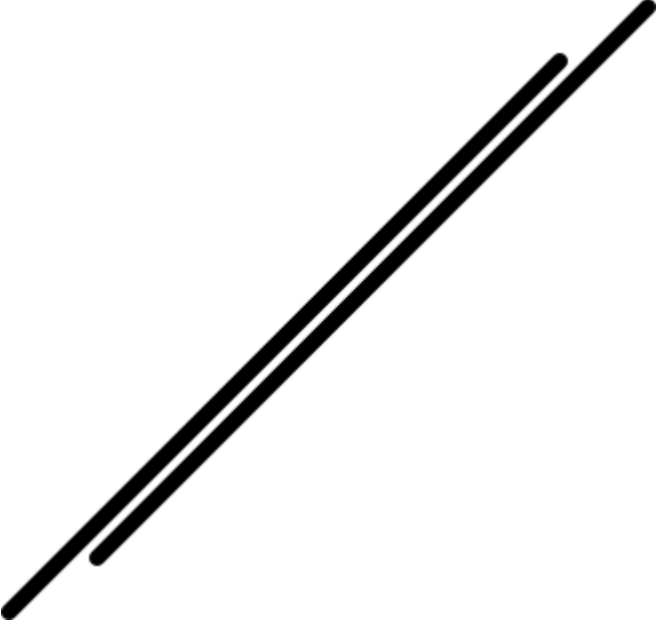


Figure 15: The right wheel is not on the roller



Figure 16: The vinyl cutter is confused

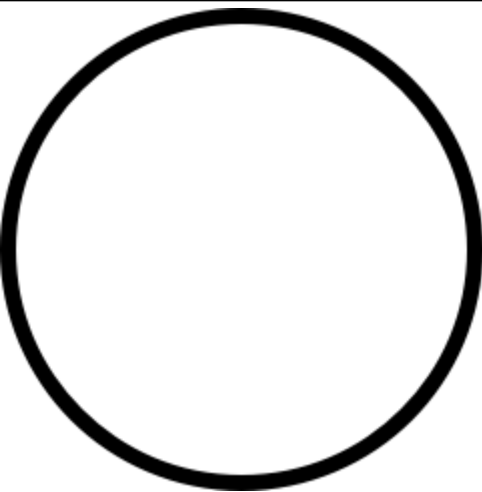
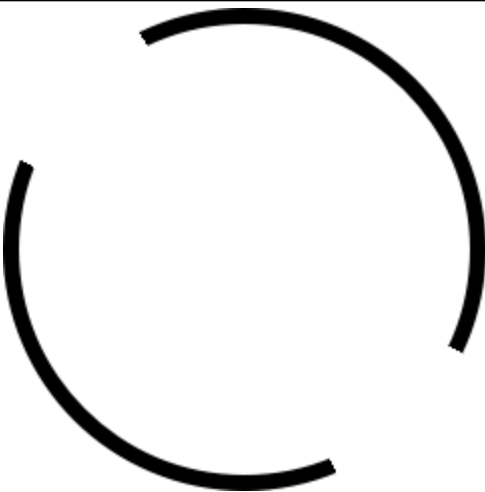
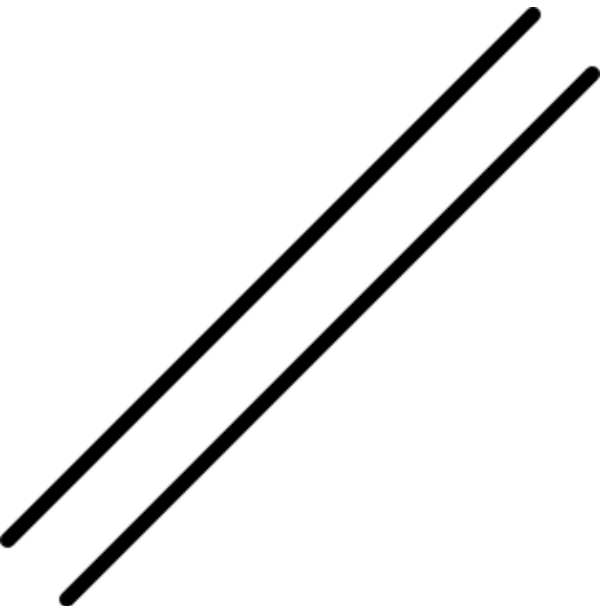
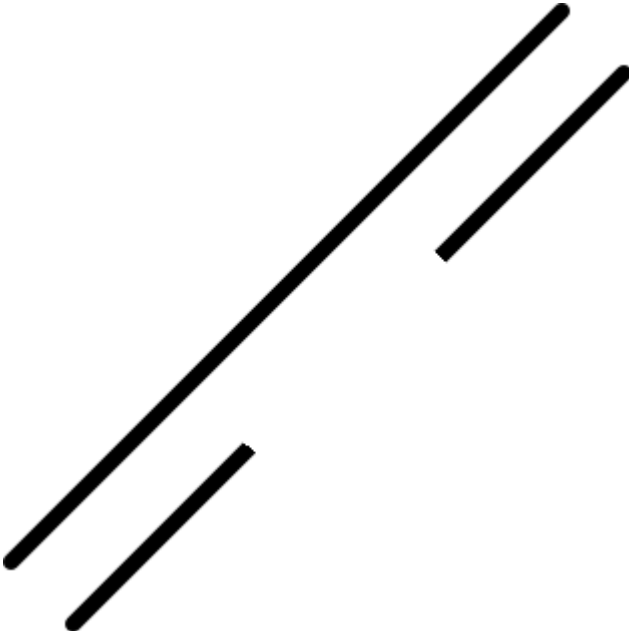
The cut does not follow the image

Example	Correct	Incorrect
Circle		
Lines		

This happens when you have three roller wheels connected to the vinyl, instead of just two.

Disconnect the middle wheel from the vinyl.

The cut does not cut

Example	Correct	Incorrect
Circle		
		
Lines		

This happens when the force of the knife is too low.. In step 6: setup the vinyl cutter, increase the force.