

# Graphtec Cutting Plotter

Model CE 6000-120AP

## 1 File Setup

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Setup is almost identical to laser cutting, with a few minor differences noted below. Unless directed otherwise by your instructor, complete the laser cutter training before working with the cutting plotter.

### 1.1 Limitations in Scale

The plotter is able to cut up to 48" wide and approximately 48" long. The length is variable and can be adjusted with a parameter. Long sheets allow for a greater chance of misalignment of the page which can cause a jam. Use wider margins, up to two inches, on sheets longer than 48 inches.

Paper thickness can be accommodated up to about 0.01" thick

### 1.2 Layers

This Graphtec uses layer color to identify the tool, cut pressure and speed. Use the below layers for the described purpose. These layers are built-in to the **dFab-SmallObjects-Inches.3dm** template file.

Black – Paper Pen – used for drawing with the pen tool

Blue – Paper Cut – leaves small connectors called “tabs to keep the parts connected to the page

Red – Vinyl Cut – continuous cut with lower pressure to cut through the vinyl, but not through the backing

Dark Green – Layout

This machine does not process cuts in a very effective order, resulting in the page getting fed back and forth more than needed. To minimize these wasteful travel times between drawing, it is advisable to divide the file up grouping lines that are located near each other on separate layers, or sub layers. The machine will generally process all objects on each sequential layer, so you can target how you draw on larger sheets of paper.

### 1.3 Layout

Use a 1 inch border around the edge of your sheet. We'll use that to leave a space for the rollers to move your page forward and back.

#### Page Alignment

Using wide margins, and trimming your page to a final size is easiest.

If you must justify your drawing accurately on your page there is a built-in layer **Graphtec\Layout** to help. Use a cheap piece of paper to first just make an X at 1.5" from the corner. The alignment of the print window is counterintuitive. It usually takes people a couple tries before dialing it in. The x axis moves with the right hand roller, the y axis is determined by the optical sensor used when loading a sheet.

If you're sending multiple iterations on the same size sheet, place a piece of masking tape on machine to the right side of your page after loading and aligning. Use that tape, along with the same print window, to easily and quickly justify the right side of all the pages.

## 2 Machine Setup

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### 2.1 Using the Pen

This machine uses STAEDTLER Lumocolor Fiber pens only. They are provided in the tool case on the side of the machine. Please put the caps back on the pen after use, and please dispose of the pen when it's no longer working. Pens in the box are new, the current pen is loose in the case.

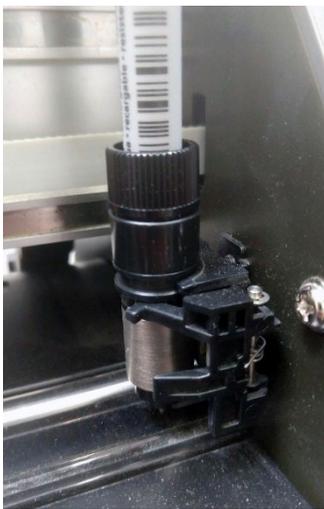


To set the pen in its holder, look in the tool case to find the height gauge pictured left and the black and silver collet pictured to the right.

Notice that the height gauge looks just like the holder on the right hand side of the machine. The height gauge used to set the height of the pen in the collet (right). Remove the pen cap and insert the pen into the collet, you may need to slightly loosen the knurled ring at the top of the collet to insert the pen.



Place the pen into the collet and adjust the height so that it marks on a piece of paper. The height must be adjusted so that the paper can move freely between the tip of the pen and the jig while the pen marks the paper clearly. Twist the ring at the top of the holder to lock the pen in place.



Next, take the pen out of the height gauge and place it into the holder on the right of the machine. Gently pull the spring loaded foot toward you and slide the collet into the holder. Do this while the machine is off. Ensure that the pen is located EXACTLY as in the image to the left, with the top channel fitting into the semicircular holder and the spring clip grabbing onto the lower channel.

## 2.2 Loading a sheet (preferred)

First measure your paper or vinyl and double check your file.

### 2.2.1 Set Roller Position

Notice the blue markings above the rollers, also notice that there is a longer blue marking on the right hand roller implying that this roller is variable.

Before adjusting the roller location, ensure that they are unlocked by pressing the lock lever down to raise all rollers. The lock Lever is the lever behind the machine on the right, it lifts all rollers when depressed allowing them to slide freely left to right, and allowing you to insert a sheet between them and the long silver drive roller below the sheet. All rollers must be under a blue marking before the machine will cut. Please don't move the left most roller, the mark is slightly out of alignment and it is not ever needed to move that roller.

Set the rollers so that only two are used (if possible). If three must be used set the roller pressure for the middle roller to "off" as described below.

### 2.2.2 Set Roller Pressure

Before adjusting roller pressure, ensure that they are unlocked by pressing the lock lever down (the lever behind the machine on the right). The middle three rollers have a toggle behind them over the top (on the back side) of the machine. When the toggle is down, hold down force is off, when it is up hold down force is normal.

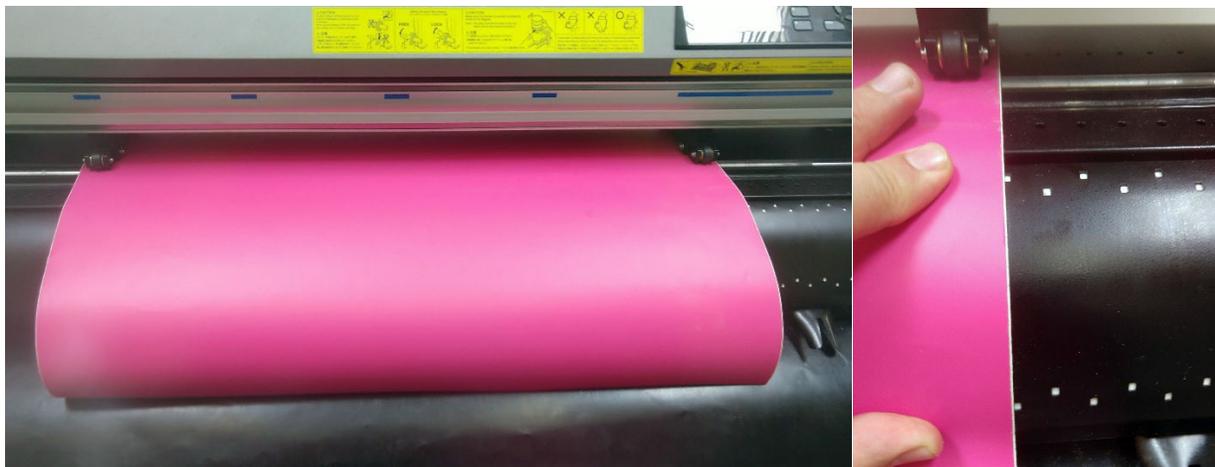
Ensure that the roller over the left side of the sheet is set to normal. The right hand roller is permanently set to normal.

### 2.2.3 Load your sheet

With the roller lock down (the lever behind the machine on the right) slide your sheet under the rollers so that the left hand side is approximately 0.5 inches to the left of the left hand roller and adjust the right hand roller so that it is also about 0.5 inch to the inside of the sheet. It's easiest to load on a diagonal.

Next align the right hand side of your sheet with the rectangular markings on the front of the machine to ensure that your sheet is parallel to the rollers. Doing this at the middle of your sheet ensures the best results.

With the sheet aligned, pull up on the Roller Lock lever to lock.



## 2.3 Loading a Roll

### 2.3.1 Load the Roll

With the roller lock down (the lever behind the machine on the right) slide the roll as diagramed in yellow on the front of the machine. The left hand side is approximately 0.5 inches to the left of the left hand roller and adjust the right hand roller so that it is also about 0.5 inch to the inside of the sheet. It's easiest to load on a diagonal.

### 2.3.2 Set Roller Position

Notice the blue markings above the rollers, also notice that there is a longer blue marking on the right hand roller implying that this roller is variable.

Before adjusting the roller location, ensure that they are unlocked by pressing the lock lever down to raise all rollers. The lock Lever is the lever behind the machine on the right, it lifts all rollers when depressed allowing them to slide freely left to right, and allowing you to insert a sheet between them and the long silver drive roller below the sheet. All rollers must be under a blue marking before the machine will cut. Please don't move the left most roller, the mark is slightly out of alignment and it is not ever needed to move that roller.

Set the rollers so that all five are equally spaced across the roll. Ensure that the right hand roller is approximately 0.5 inches away from the right hand edge of the roll.

### 2.3.3 Set Roller Pressure

Before adjusting roller pressure, ensure that they are unlocked by pressing the lock lever down (the lever behind the machine on the right). The middle three rollers have a toggle behind them over the top (on the back side) of the machine. When the toggle is down, hold down force is off, when it is up hold down force is normal.

Ensure that the center roller is set to "normal" and that the two other adjustable rollers are set to "off". The right hand roller is permanently set to normal.

### 2.3.4 Lock the Rollers

Pull the paper taught and pull up on the Roller Lock lever to lock

### 2.3.5 Cut the Roll

After cutting with the roll, you will want to cut your drawing/pattern free from the roll. On the machine press:

Menu > 4 (Material) >1 (Feed&CrossCut) >2 (Cross Cut)

If you don't see these options, make sure that "Simple" is not lit up.

## 2.4 Power On

Flick the toggle switch on the left hand side of the machine to power on. Only do this after you have loaded the pen (if you are using a pen)

Select "3" for sheet then wait for the machine to check the roller positions. If it is not successful, you will need to adjust the last roller that the cutting head checked.

### 2.4.1 Self Check

There is an “eye” in the front and back of the machine on the right-hand side used to measure the length of the page. The page will move forward and backward, and the cutter carriage will move back and forth, checking that the rollers are placed under the blue marks. If a roller is not located in the correct position the machine will not continue scanning the others. Adjust that roller and proceed again.

### 2.4.2 Check Condition

The active condition is displayed. If “Condition No. 1 Pen” is displayed, ensure that the machine is actually holding the pen. If any other condition is displayed the pen should be docked on the right or still in the pencil case. The condition can be changed by holding down “Enter” and pressing the corresponding number on the display. The machine does not intelligently know if it is holding the pen.

## 3 Print your File

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Type in Print or Ctrl+P

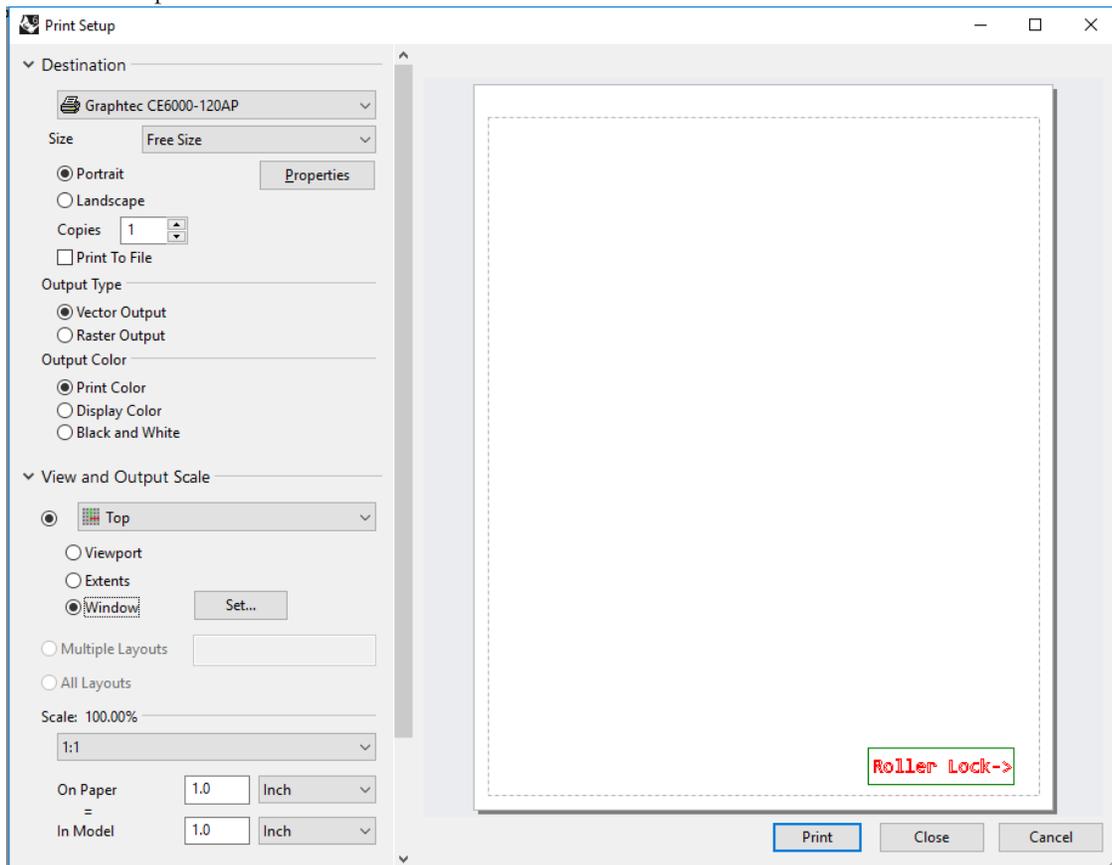
### 3.1 Print Setup

Check that the Destination is set to Graphtec CE6000-120AP

Check that size is set to Free Size, Portrait.

Set your print window and double check that your scale is set to 1:1

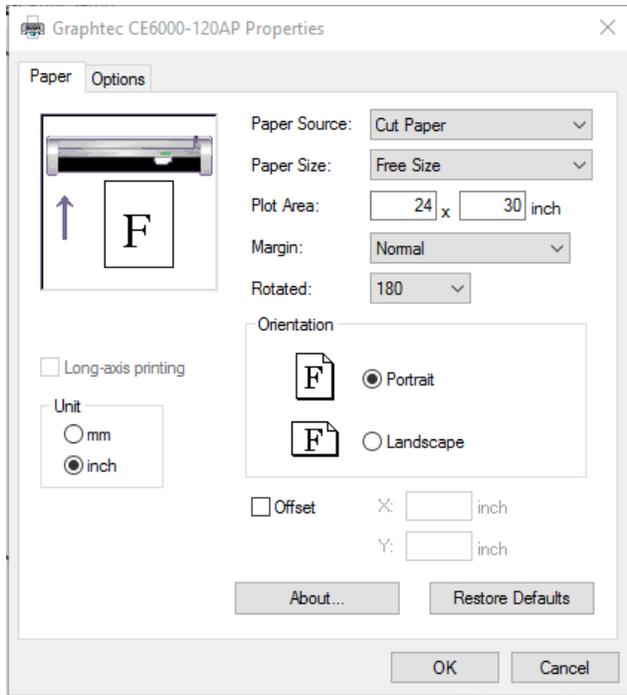
See the example Screenshot below.



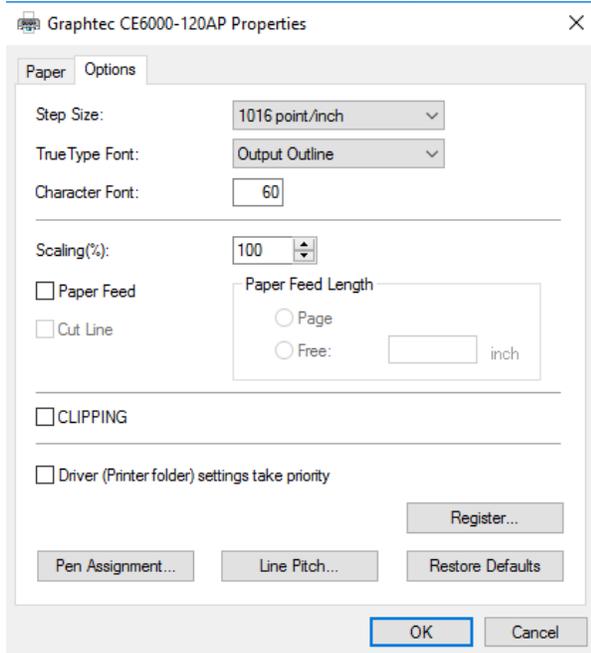
## 3.2 Graphtec Properties

### 3.2.1 Paper Tab

Set the Plot Area to the width and height of your material and ensure that the other settings are as shown in the screenshot below.



Ensure that Step Size is set to 1016 point/inch.



### **3.3 Press Print**

Have you ran a test? Are you sure that this will work? Can't hurt to double check before running a longer file. If you're ready, press print and watch it cut. A longer job may take a while to start. The machine will display "processing" larger files can take up to one minute before they begin cutting.

### **3.4 To Stop the Job**

Press Pause (button on top right) then press 2 to Quit the job. Wait for this to finish.

## **4 Clean Up**

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When you are done, be sure to remove the pen. They dry up easily when left uncapped. Place the pen and pen holder in the pencil case and cover the machine after powering it off.

We leave the machine set up as it was last used, so there is no need to undo the setup you did to run your part so long as you followed the procedures outlined in this document.

Cover up the machine with it's dust cloth