

## Cutting Vinyl Effectively

Graphtec cutters do exceptionally well when cutting vinyl. Speed, accuracy, and precision are synonymous with the Graphtec name. This TNC will discuss how to make sure you understand how to use your cutter to get the most from the vinyl your cutting.

### Choosing a Vinyl

The types, brands, and colors of vinyl are many. When choosing vinyl. Your primary concern is matching your vinyl to its intended application. Many vinyl manufacturers have excellent products suited for a variety of purposes. For instance, as discussed later in this article, when you are cutting small characters, you will want to acquire vinyl that is conducive to small cutting. Once again, select a vinyl suitable to your application.

## Adjusting the Cutter to the Vinyl Size

### Sizes that can be accepted

Graphtec cutters can handle all the commonly used sizes within the cutter's range of width. Below is a list of each machine and the common sizes they can accept.

Model(s)	Sizes
<b>CE1000-60/FC2100-60/FC3100-60</b>	15,20,24
<b>FC4100-75</b>	15,20,24,30
<b>FC4100-100, FC3100-100</b>	15,20,24,30,36,40
FC3100-120	15,20,24,30,36,40,48
<b>FC4100-130</b>	15,20,24,30,36,40,48,50,54

Note: The latest models are in bold

These sizes above are the sizes to ask for when ordering vinyl. Although these are the common sizes, Graphtec cutters can generally cut any size from 4" to the cutter width range. If you find that you have an "in-between" size, read "[Moving the Pinch Roller to Your Advantage](#)" below.


### Moving the Pinch Rollers to Your Advantage

When the cutter initializes, it will find the position of the wheels. Assuming they are at the edge of the media, the cutter will then obtain the width of the media. To

protect the Teflon strip, the cutter will not go beyond the wheels. There are cases, though, when there is a need to cut beyond the wheels such as in the case where you would like to cut to the edges of your material. There are a couple of tricks that can be done to overcome this. First the cutter has to be 'fooled' into thinking the wheels are farther out than they really are. To do this, follow the steps below:

#### **For the FC3100 series plotters**

1. Turn the cutter off.
2. While holding the DOWN ARROW key, turn the cutter back on.
3. Keep pressing NEXT until MAINTENANCE 3 is displayed.
4. Turn MAINTENANCE 3 on.

 **Note:** MAINTENANCE 3 only has to be turned on once. After that, the CONTINUE function will always be set to ON.

5. Turn the cutter OFF and then back ON.
6. Unlatch the film and move the left-hand wheel over to the far left (away from the control panel).
7. Turn the plotter on and press ROLL-2.
8. After initialization, unlatch the wheels and move in the wheels to the edge of the film.
9. Move in the wheels to the edge of the film.
10. Latch the film and press CONTINUE.

*CONTINUE will keep everything the same relating to the position of the wheels. Therefore, the cutter still will think the push roller is to the far left.*

11. Start plotting.

#### **For the FC4100 series plotters**

The FC4100 actually has two methods. The first is to expand the margins. This will set the margins so the tool will move .4 inches beyond the wheels. The instructions on how to set your margins are in the Cutting Pro FC4100 Users Manual page 73. If you need to go to the edge then follow the steps below:

1. Unlatch the film and move the left-hand wheel over to the far left (away from the control panel).
2. Move the right-hand wheel over to the far right (towards the control panel).
3. Turn the plotter on and press ROLL-2.
4. After initialization, unlatch the wheels and move in the wheels to the edge of the film.
5. Latch the film and press CONTINUE.

*CONTINUE will keep everything the same relating to the position of the wheels. Therefore, the cutter still will think the push roller is to the far left.*

6. Start plotting.

### Adjusting the Wheels to the Odd-Sized Widths.

By adjusting the wheels over the grit rollers, they can be placed on the edges of the vinyl. If this is not possible due to an odd sized material or scrap, the pinch roller wheel should be moved inward to a grit roller under the vinyl. In order to do this, follow these steps:

1. Unlatch the vinyl and move the left-hand roller (as you are facing the cutter) to an inner grit roller that is covered by the vinyl.
2. Latch the vinyl back down.
3. Press the [4] key for CONTINUE.

If CONTINUE does not appear, review [Moving the Pinch Rollers to Your Advantage.](#)

## What Blade and Settings to Use

Settings on the cutter for different brands should not vary by much. For instance, you may have a certain setting for using an Arlon high performance vinyl. This setting will probably be the same for GMI's high performance. Below is a chart of suggested settings for different types of material.

Material	Blade Model No.	Speed	Force	Quality
High Performance	CB09UA	30-80	13-16	4
Intermediate	CB09UA	30-80	17-21	4
Reflective	CB09UA	30-80	23-28	4
H.I. Reflective	CB15U-5	20-30	25-30	2

## Cutting small characters

### Things to remember when cutting small characters:

- Cutting small characters may require changing the speed and force setting. This being the case, many of our customers choose to use a separate condition setting for cutting small characters. **Review** [TNC-Setting Up the Blade Accurately](#) for test cutting the media and setting a condition specifically for cutting small characters.
- **You do not need a special blade** but watch how far out your blade is extending. When looking at the blade plunger, you will notice that the blade will project from the tip (a brass tip for the holder on earlier models and a black plastic for the newer holders). The tip of the holder and the blade work in conjunction to

perform clean cuts. If the blade is extended too far, then the blade is working by itself, causing torn corners.

- **Not all vinyl is conducive to small character cutting.** As mentioned above, the vinyl type has much to do with how well the cutter will cut small graphics.
- **If there is still an issue with cutting, lower your force and don't weed the vinyl until it is on the substrate.** See [Weeding Tips](#), below.

## Weeding Tips

Since all vinyl does not weed the same, below are some weeding tips.



***Note:** These suggestions do not always provide the same results.*

- **Direction.** It is usually best to weed from right to left. The reason for this is the way the characters of the English alphabet lay.
- **Do a little shaking.** When pulling up the vinyl, the adhesive can re-attach itself. Shaking the vinyl as you pull it up will sometimes break this.
- **Do not rip weed.** This is where you pull the vinyl up very quickly hoping that it will break the vinyl away and leave the graphics. This is good for demonstration purposes but not for true application.

**Weeding small characters (1/4" or less)** is sometimes difficult. Below are instructions offered on the Signweb™ that we can share with you:

1. Cut your lettering in the normal manner.
2. Weed out all the centers of the p's, o's, etc., and score lines between the copy or the graphics.
3. Cut unnecessary material away around the entire piece.
4. Apply the application tape.
5. Trim leaving approximately 1 inch of margin beyond the vinyl.



***Tip:** If you are applying the vinyl to a hard surface such as a window, some of our customers will apply the vinyl to the window and weed off the window. This may save some time.*

6. Turn the piece face down and anchor the piece with tape around the perimeter.
7. After removing the backing sheet, pull the unwanted vinyl surrounding the letters away from the transfer tape.

*Since the adhesion of the vinyl to the transfer tape is greater than that of the vinyl to its backing, the separation of unwanted vinyl will be accomplished more easily.*

8. Place the backing sheet back on the piece of transfer tape and the weeded vinyl graphics.
9. Release the piece from the work surface and apply.

## Storing your Vinyl

The general rule for all product storage is as follows:

- Store your rolls of vinyl in a **cool area and away from any moisture.**
- It is usually best when the **relative humidity is kept within the 40-50% range.**
- **Store the vinyl in the original box** in which it was sent.

Shelf life will be extended if these procedures are followed.