Program Information

Foamworks 3.0

Designed Computing Systems

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Essexville, Michigan 48732

Contact: (989) 892-4376
website: http://www.foamwork.net
General Information: info@foamwork.net
Technical Support: support@foamwork.net

Technical Support

Technical Support is available by email, phone, and Frequently Asked Question. Users are encouraged to check FAQ prior to trying other means of technical support. We will make every effort to respond in less than 24 hours.

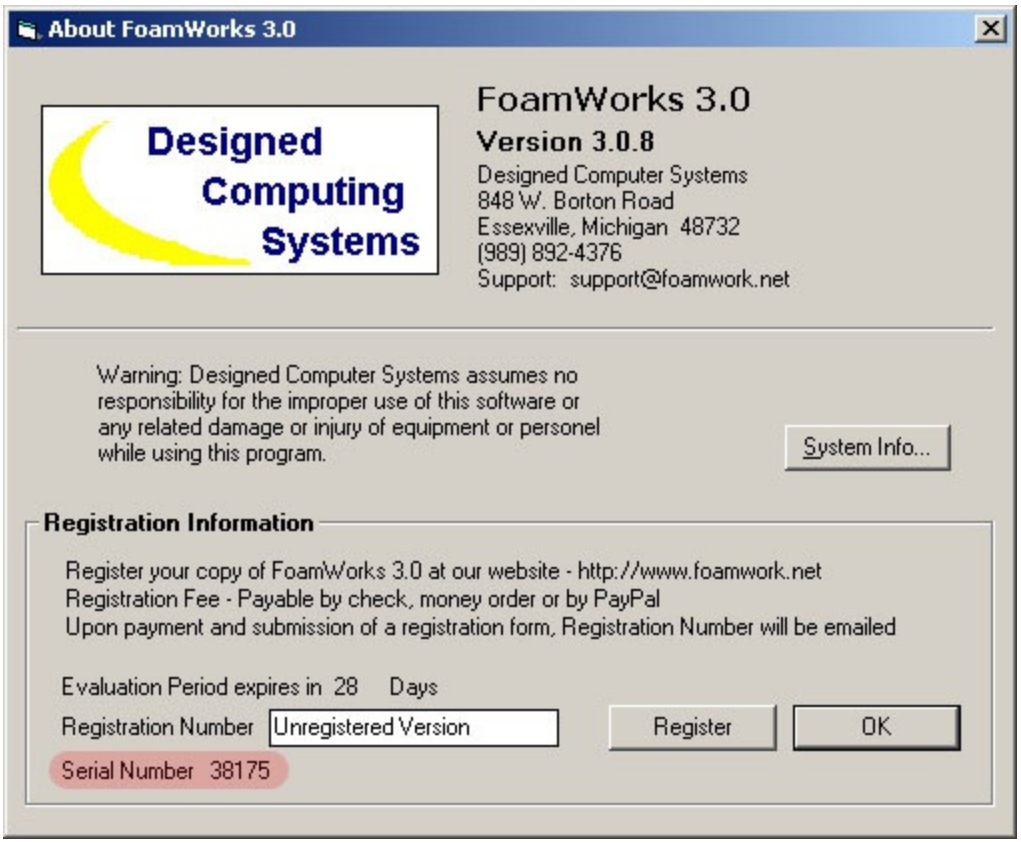
Our FAQ web page is updated as new questions are asked.

FAQ website: http://www.foamwork.net/faq.htm
Email support: support@foamwork.net
Phone support: (989) 892-4376

Registration

To register your program and disable the timeout function, go to http://www.foamwork.net/reg.htm

Complete the registration form and your registration number will be returned to you within 24 hours. Registration numbers can not be issued with out the installation serial number. This number can be found in the lower left hand side of the opening screen.



Purchase price for Foamworks 3.0 is $45.00

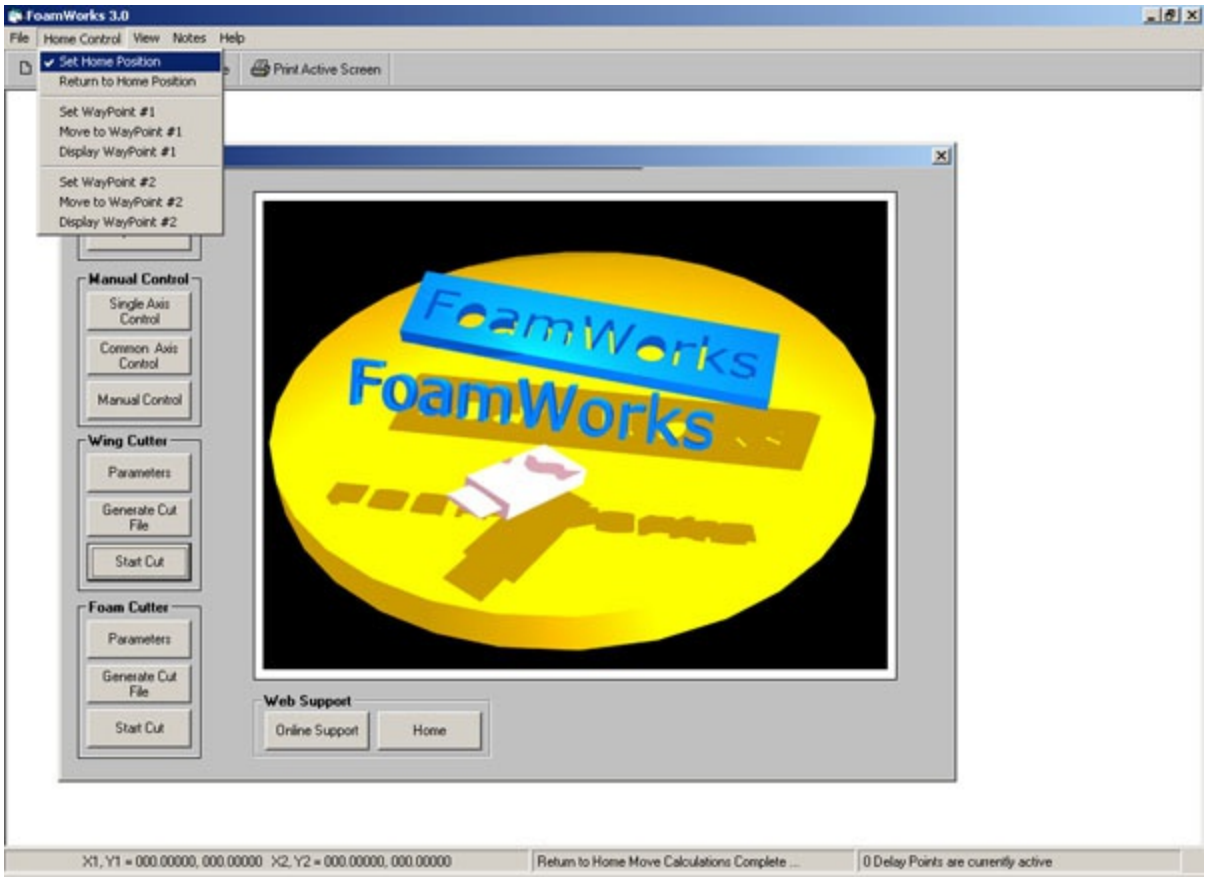
Payments can be may by PayPal (the preferred method) or by check or money order. Send PayPal payments to **djmrozinski@chartermi.net**

Set Home Position

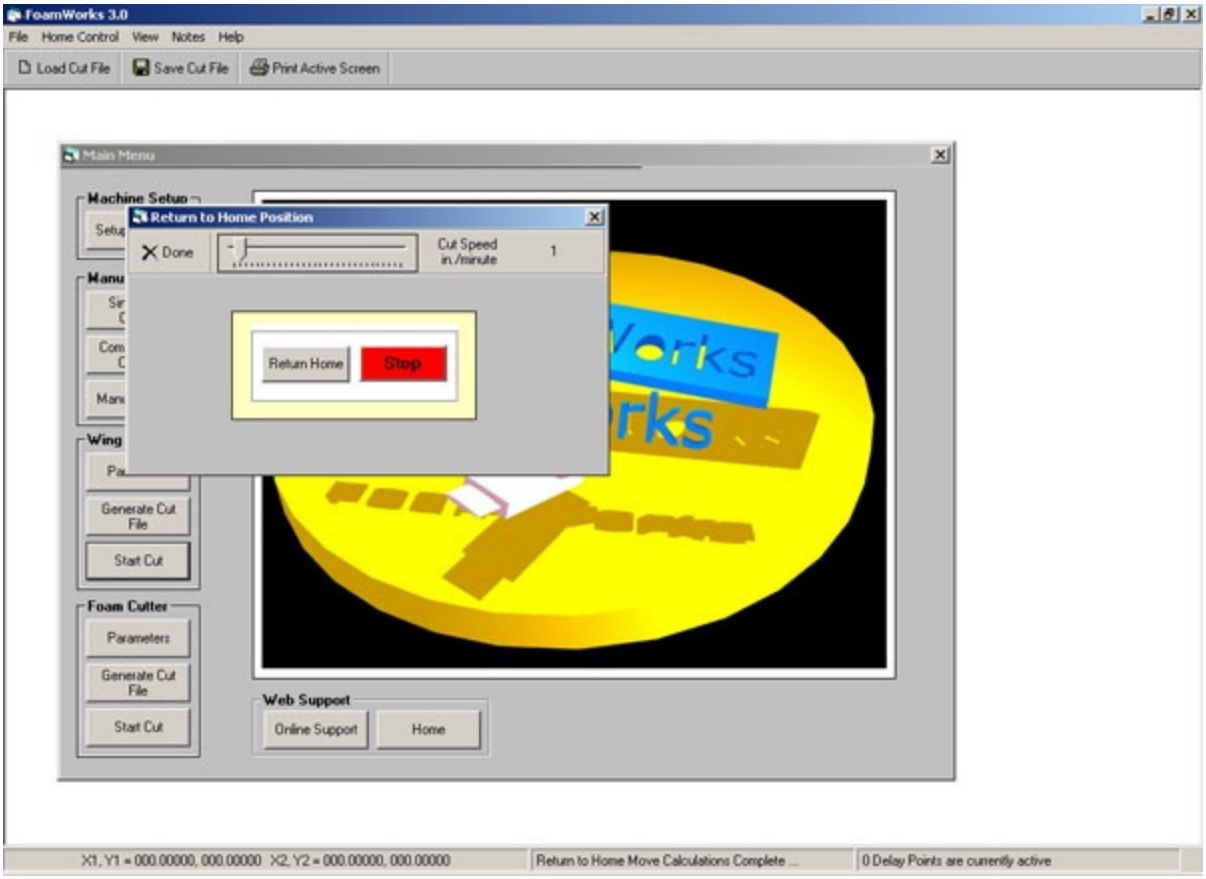
Foamworks 3.0 now allow setting a home position.

The home position is set by placing the hot wire at the desired home position and then clicking on Set Home Position for the main menu.

You will see the status bar change so that the X1,Y1 and X2,Y2 positions are now shown and Set Home Position will be checked. From this point forward, all movement will be updated in the status bar.

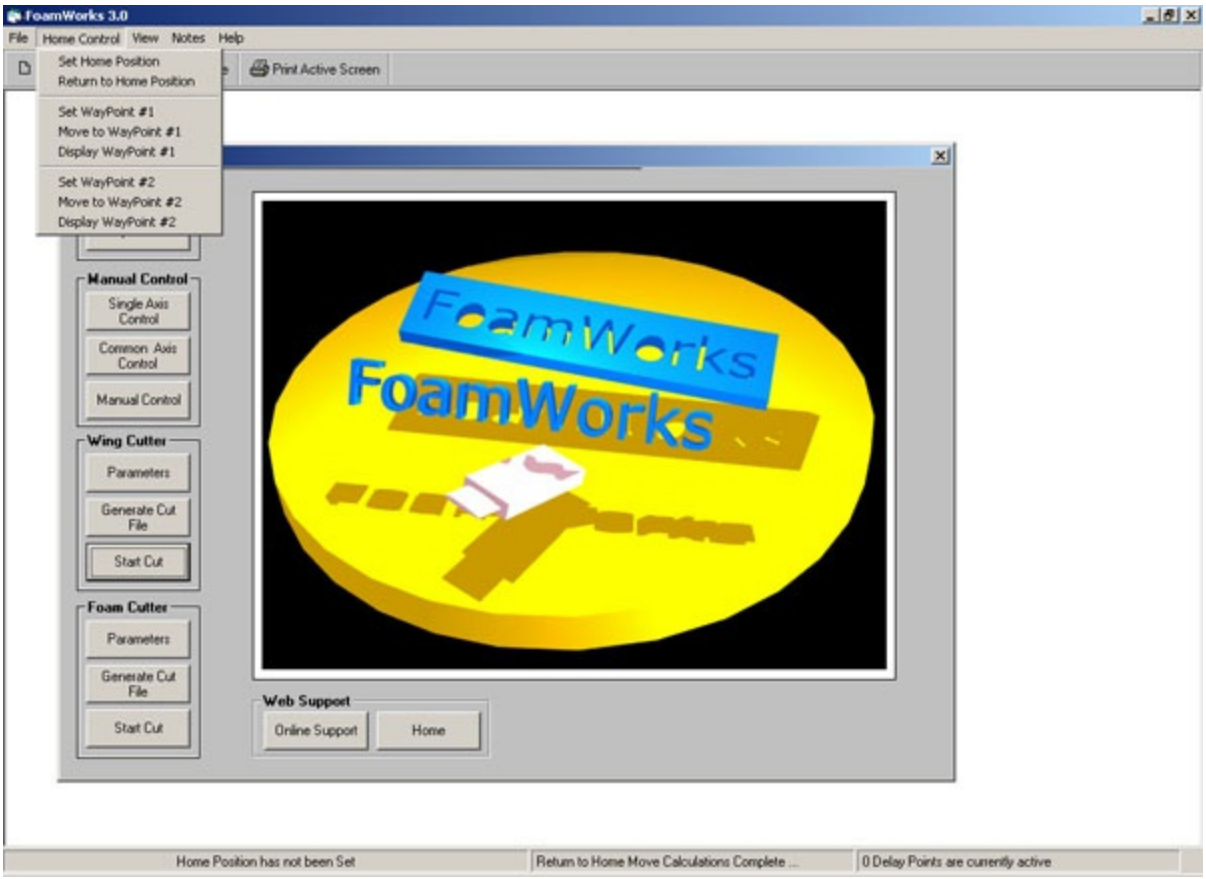


To return to the home position, click Home Control, and select Return to Home Position. The machine will move in a straight line from its current position to the Home Position.



On slower computers updating the current position can cause problems maintaining desired speed. If this occurs, Click View and turn off the Status Bar. Home position will still be active, but the continuous update will be inactive.

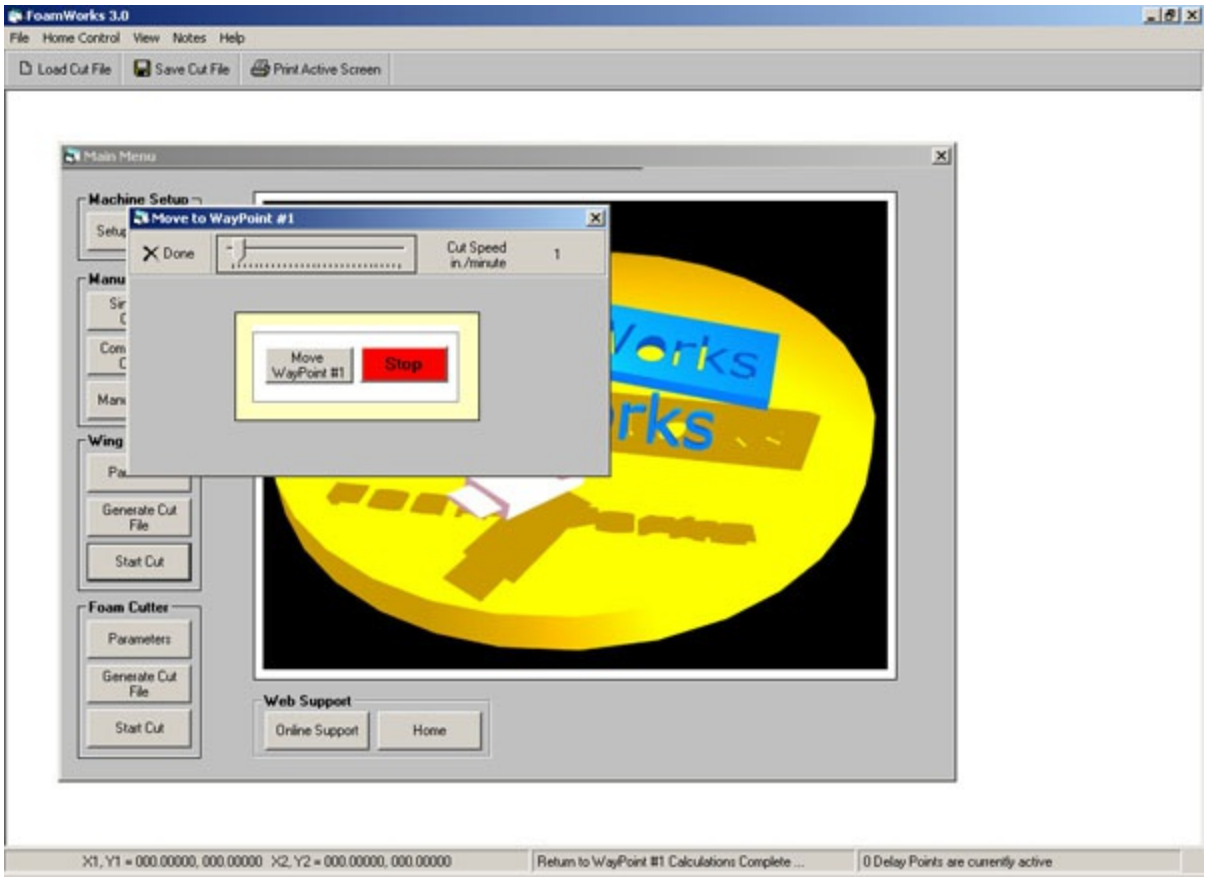
To turn off Home Position click Home Control from the main menu and select Set Home Position. You will see the status bar change so that the X1,Y1 and X2,Y2 positions are **not** shown and Set Home Position will be **unchecked**.



Way Point 1

Foamworks also support setting up to two Waypoints. Waypoints are points other than the Home Position that can be saved. The cutter can be moved to either of these waypoints at any time as long as Home Position is active.

The cutter will move in a straight line from its current position to the desired waypoint. The function is similiar to the Return Home operation.



You can select a WayPoint by clicking Home Control and then click Set Way Point. From the menu that opens, clicking Select will set the current cutter position to the desired WayPoint or you my enter your own values in the boxes provided.

Click Done saves these values.

Clicking Display WayPoint will show the current saved value. Home Position must be active for WayPoint to function.

This help file was created with the free trial version of HelpScribble.

Getting Started

Follow these steps to begin using **Foamworks 3.0**

Select Machine Setup

- Select parallel port address
- Set steps per inch value
- Set all parallel port pin assignments to match your driver board
- Return to main menu

Select either Wing Cutter or Foam Cutter

- If Wing Cutter is selected
- Select wing type, tapered or constant cord
- Complete the requested information in all white boxes.
- Return to main menu

f Foam Cutter is selected

- Complete the requested information in all white boxes
- Return to main menu

Click corresponding Generate File button

- Select DAT file for the right and left cutting towers
- Enter the horizontal size of piece you wish to cut
- Return to main menu

Click corresponding Start Cut button

- Your shape should appear in the left and right cutting window
- Manually position the cutting wire and the foam blank
- When you are ready click Begin Cut

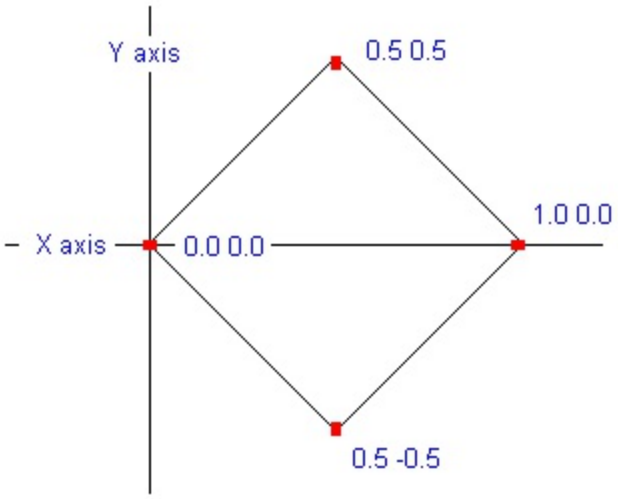
DAT Files

A DAT file is simply a list of points (x,y coordinates) along a shape that describe the shape. The comma between the coordinates is not used.

The coordinates range between 0 and 1 for the x axis. The y axis is given by measuring the distance along the y axis to a given point and referencing that distance to the x axis as a function of percent. For example if the distance to a point along the y axis is 10% of the total x axis distance, then the y value for that point would be .1

This is a sample DAT file that describes a diamond.

1.0 0.0
0.5 0.5
0.0 0.0
0.5 -0.5
1.0 0.0



Another important function of the DAT file is providing the cutting sequence to the cutting machine. The DAT file above would start the cut at 1,0 and proceed to .5 .5 then 0 0 then .5 -.5 the 1 0.

This the convention that Foamworks follows. DAT files should start at 1 0 and begin cutting moving to 0 0 in the X Foward direction

Machine Orientiation and Cutting Sequence

Orientation

To understand how Foamworks is oriented relative to you foam cutter, follow these instructions.

Stand between your cutting towers with the stepper motors closests to you.

X1 and Y1 are on your left
X2 and Y2 are on your right
X Forward would move the cutting trolleys away from you
X Back would move the cutting trolleys back toward you
Y Up moves the Y axis trolleys up
Y Down moves the Y axis trolleys down

Cutting Sequence

Foamworks works best when cutting is setup to begin the cut moving X Forward. DAT files should be designed to start at 1 0 and proceed to 0 0 and then back to 1 0, if they are intended to return to the location where the cut started.

When at the Cutting Window the cut will begin moving right to left over the shape the DAT file has described . If the cut is designed to return to the start, then the return direction would be left to right.

Note Pad Use

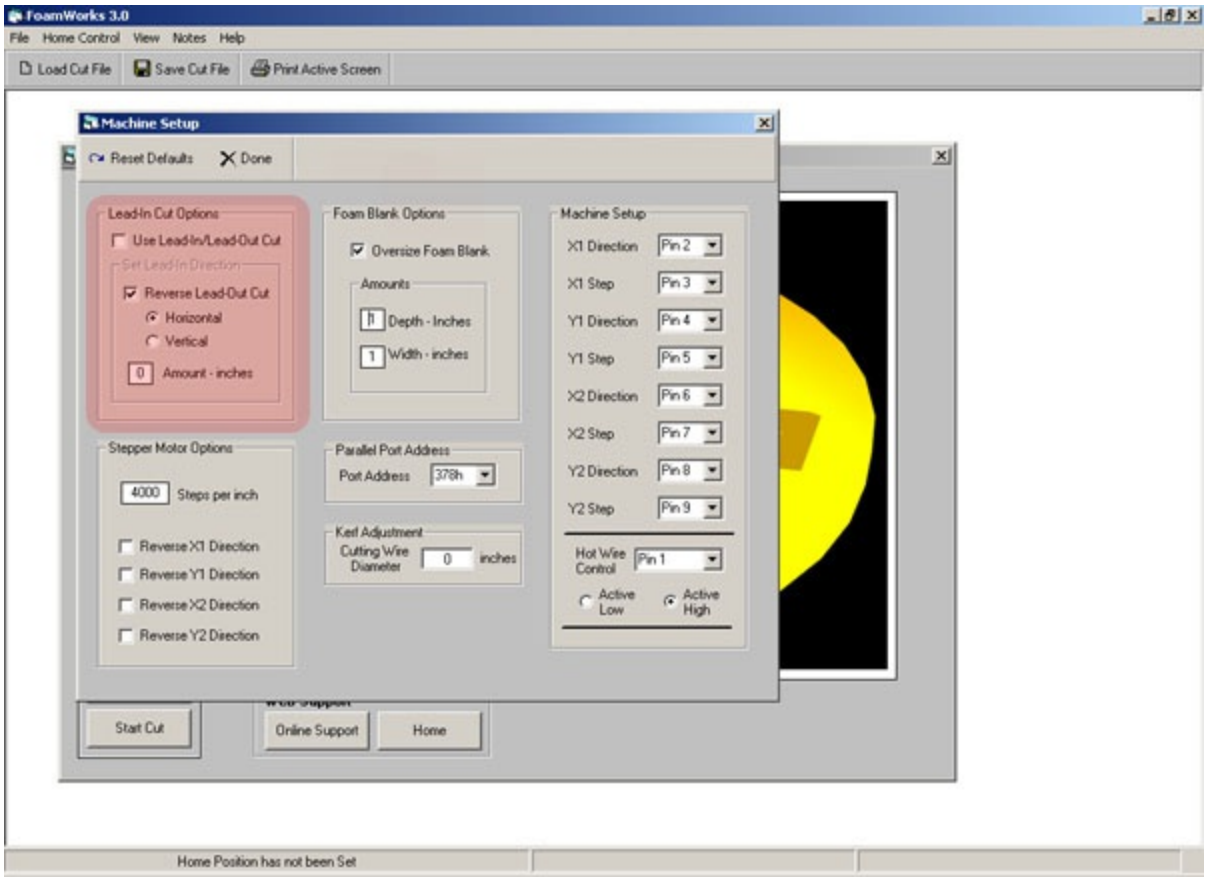
A note pad has been added to Foamworks to allow you to easily save important data to a text file. This info can be reviewed/editted at any time in the future.

To open Note Pad, click Notes from the Main Menu then select Open Note Pad.

Note Pad files are saved with .fwn extension. These are just text files and they can be opened with any text editor. The special extension was used to distinguish Foamworks notepad files froim other text files.

Lead-In Cut Options

Lead - In Cut Options specify if you desire to have the foam cutter begin or end a cut with a vertical or horizontal cut that is independent of the cut that is defined by the DAT file.



For example if you specified a 1 inch horizontal lead-in cut. The cutter would travel 1 inch horizontally prior to starting the cut specified by the DAT File. At the end of cutting the DAT file shape, the cutter would then travel 1 inch horizontally in the opposite direction, returning to the starting point. If Use Lead-In Cut is left unchecked, the cutter will just cut the shape described by the DAT file.

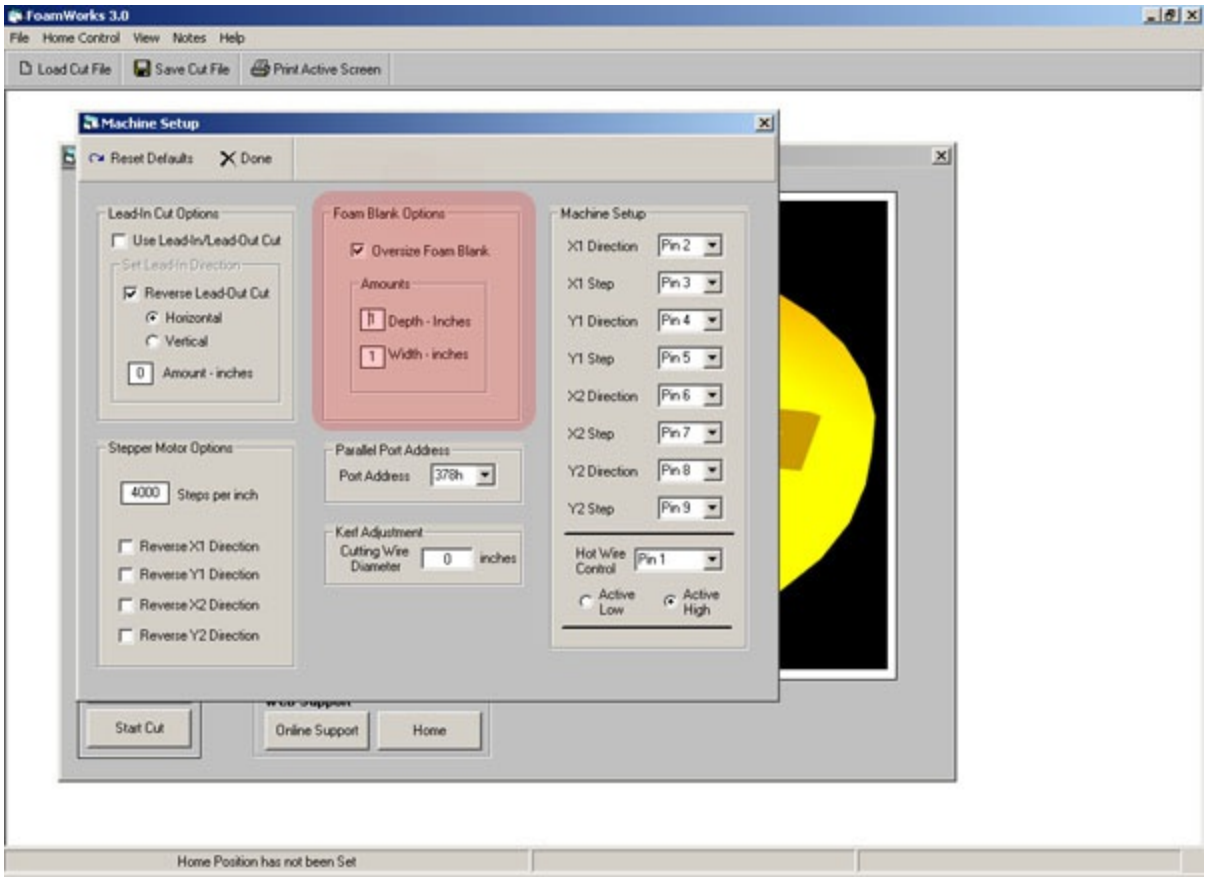
If **Reverse Lead-Out Cut** is checked, the cutter will return to its original position (traveling in the opposite direction of the lead-in cut) when the cutter has finished with the shape described by the DAT file. The lead-out cut will be the same distance as the lead-in cut.

If **Reverse Lead-Out Cut** is NOT checked, the cutter will travel in the same direction as the lead-in cut when when the cutter has finished with the shape described by the DAT file. The lead-out cut will be the same distance as the lead-in cut.

Foam Blank Options

Foam Blank Options tells Foamworks if, when calculating the size of the foam block needed to make a desired cut, it should take into consideration the need for a lead-in cut or if the user simply wishes to have the foam blank oversized. For example if you were cutting a shape with a horizontal distance of 10 inches and you wished to leave 1 inch of foam on either side of the cut, you would check the Oversize Foam Blank box and enter 12 in the Depth box. 10 inches for the shape, 1 inch on either side of the cut for a total of 12 inches.

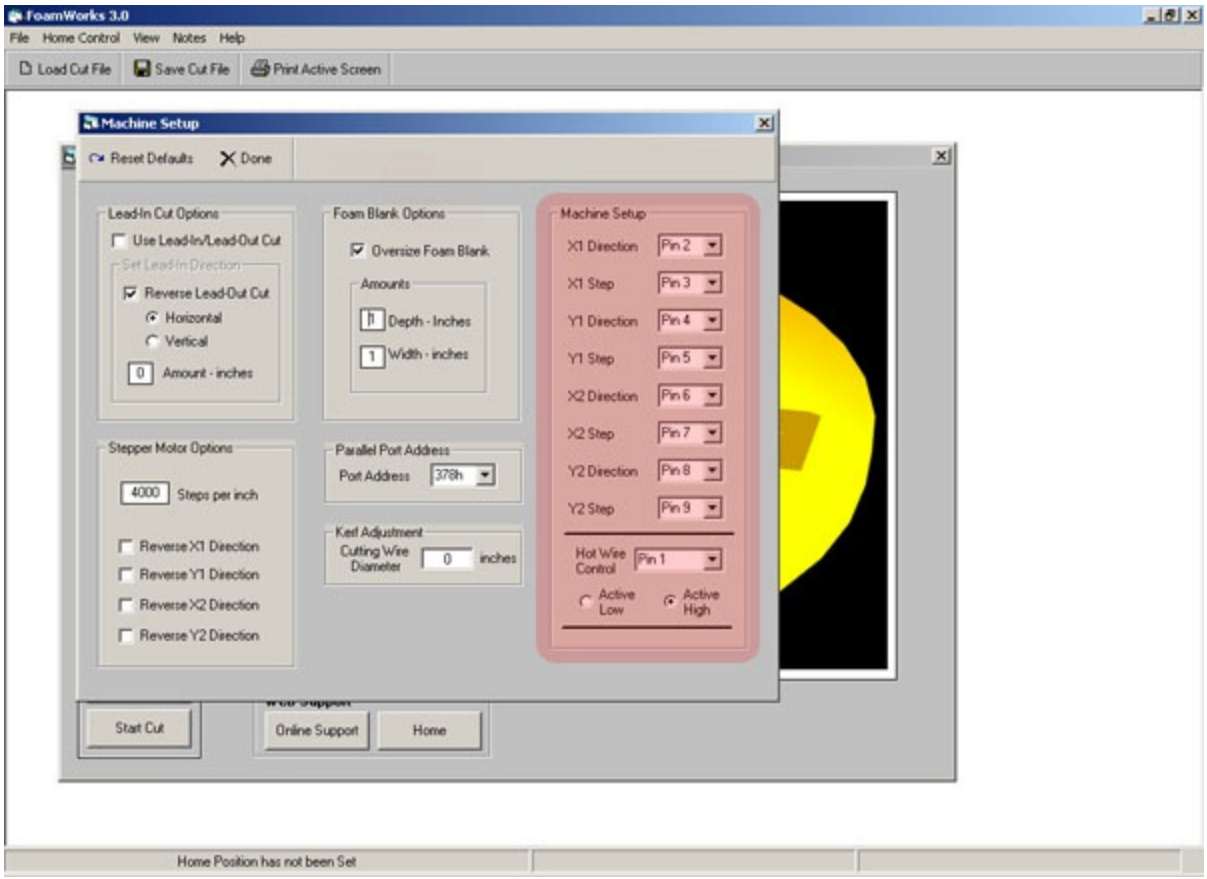
Depth is the distance along the x axis and Width is measured between the cutting towers.



Machine Setup Up - Parallel Port Pin Assignments

This section of the Machine Setup Screen allow you specify the pins of the parallel port that are assigned to each specific motor step and direction pulse. Pins cannot be assigned to multiple signal. If this is done a error will be generated. Step and direction signals use the Data portion of the parallel port, D0 through D7.

You also can assign a parallel port pin to turn on/off you hot wire temperature controller, if one is used. Hot wire control uses the Control portion of the parallel port, C0 through C3. For hot wire control you should also specify if in the on state, the hot wire signal is active high (+5 volts) or active low (0 volts).



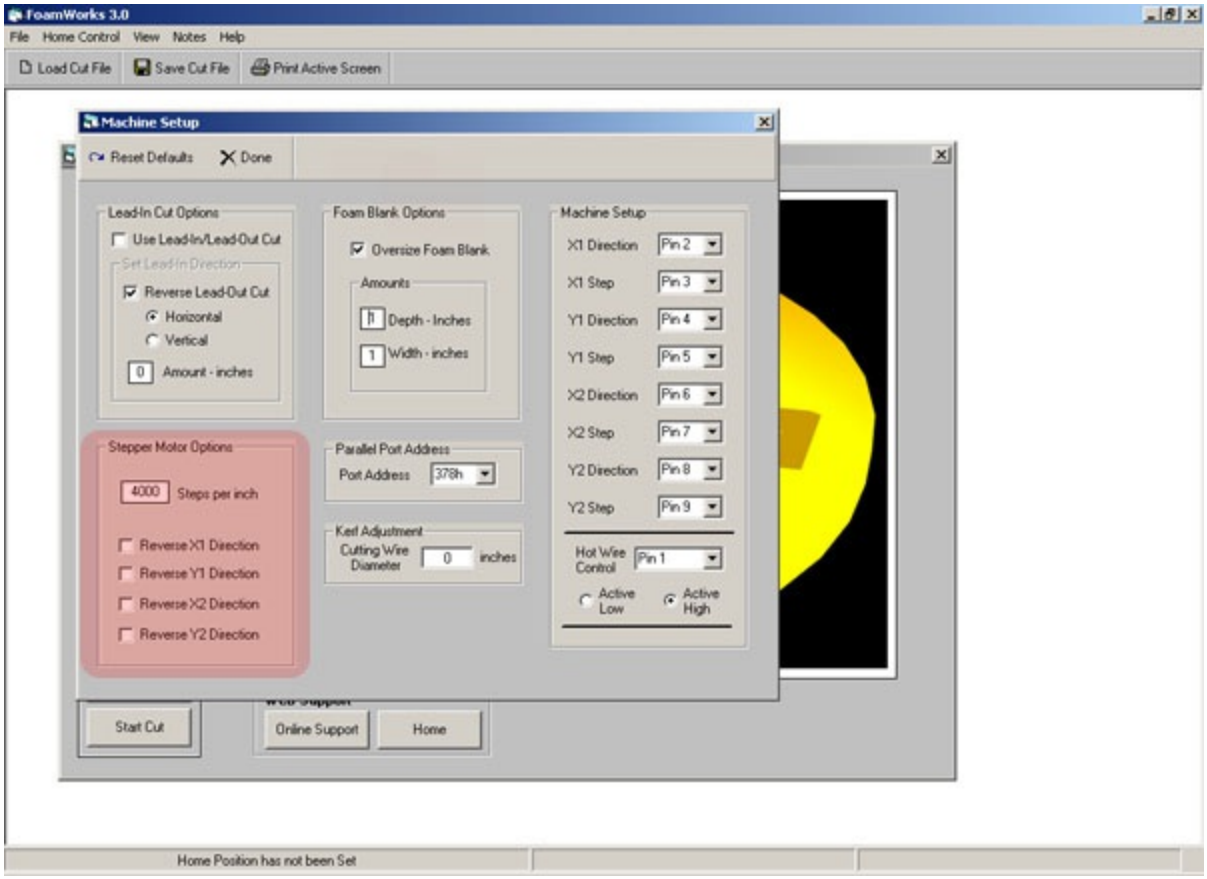
Stepper Motor Options

Stepper motor options allow you specify the type of lead screw and stepper motors you are using. The value that should be entered is steps/inch. The value is calculated by multiplying the number of steps you motor takes to make 1 revolution by the number of turns you lead screw must rotate to travel 1 inch.

For example, 1/4-20 lead screw and a 200 step/revolution motor would give --> 20(turns per inch) X 200(steps/rev) = 4000 steps per inch.

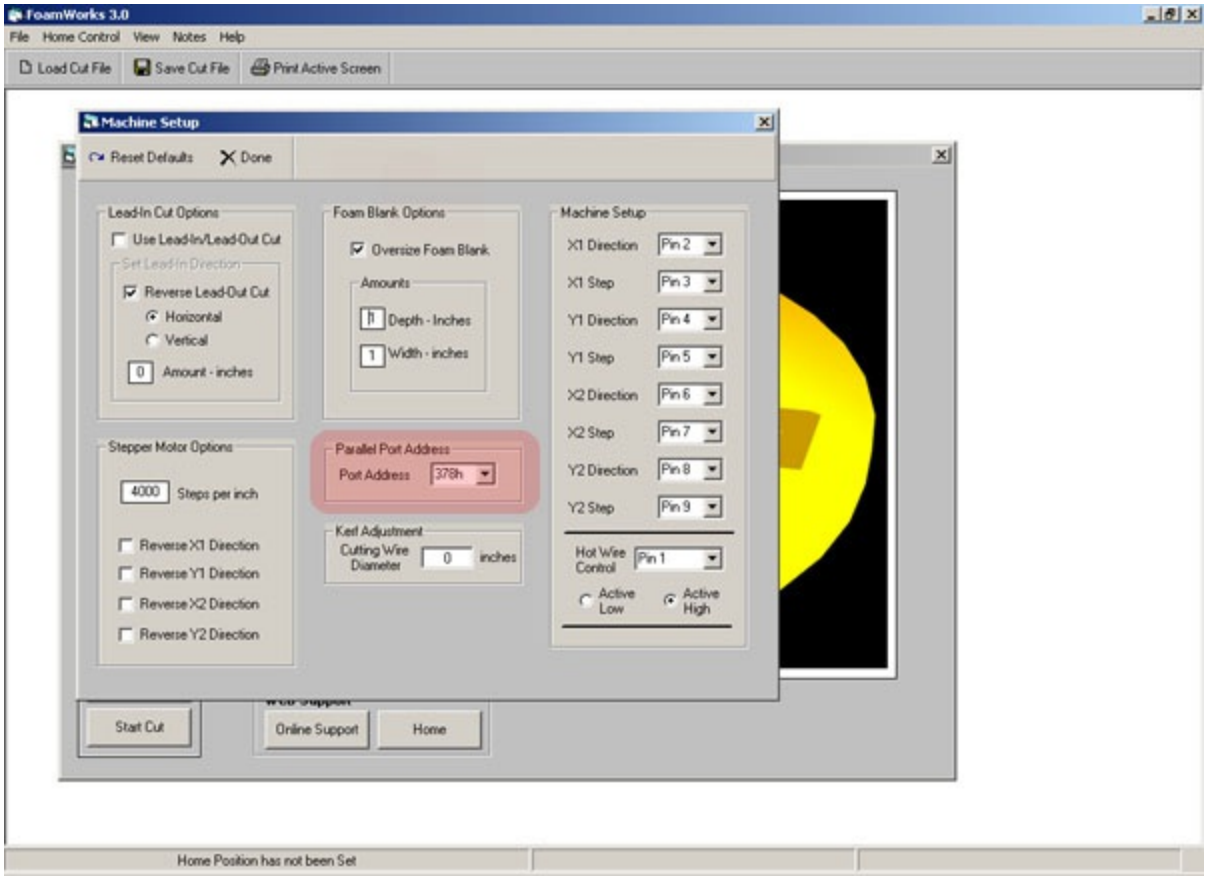
This value can be adjusted to compensate for missed steps or backlash. Experience with your specific machine will determine if any compensation is added.

Stepper Motor direction can be reversed by checking the appropiate box in the Machine Setup screen. This change will only effect cut files that are generated after the change has been made.



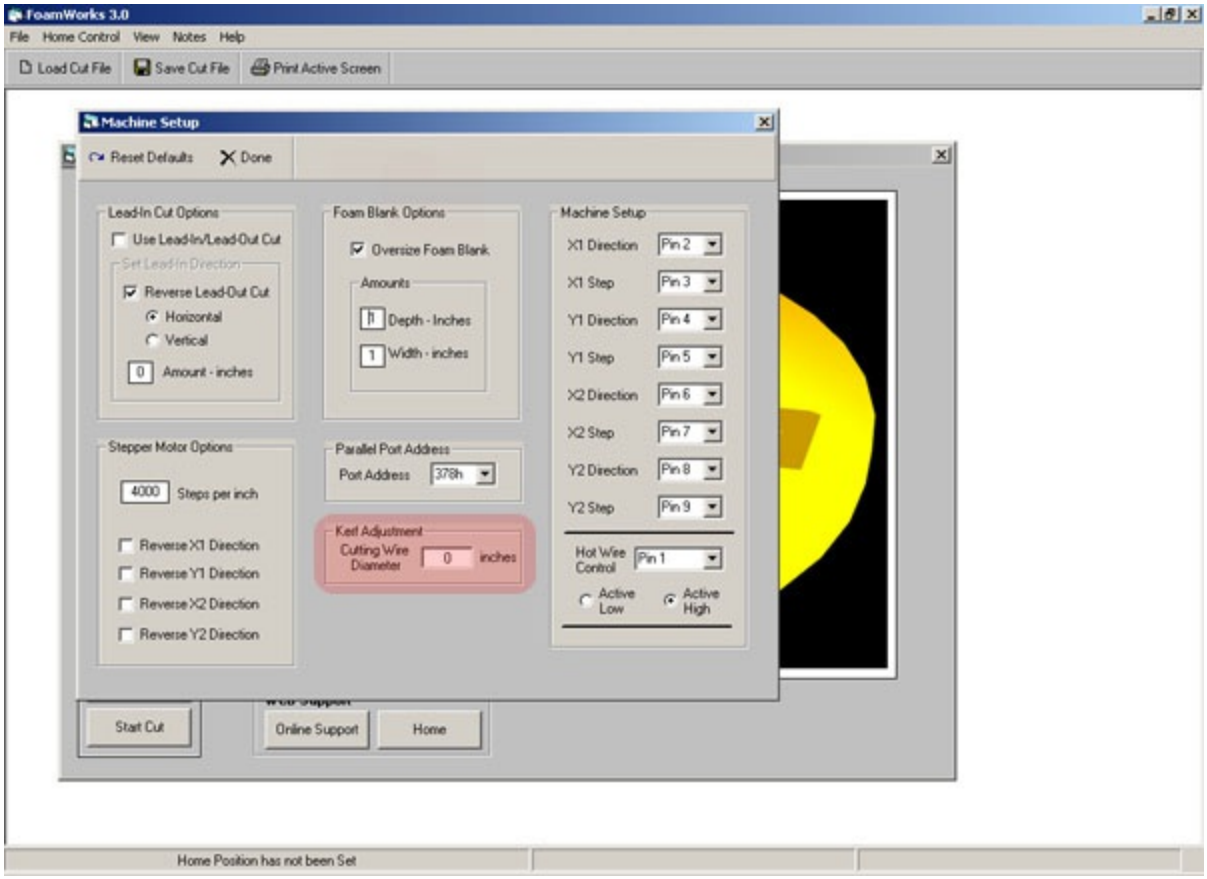
Parallel Port Address

This setup option allows the user to specify the parallel port that is going to be used to drive the stepper motor driver board. Your options are 378H, 278H, and 3BCH.



Kerf Adjustment

Kerf adjustment allows the user to enter the diameter of the cutting wire that is used. This allow Foamworks to take the cutting wire size into consideration when generating cut files. Enter the diameter of the wire in inches.

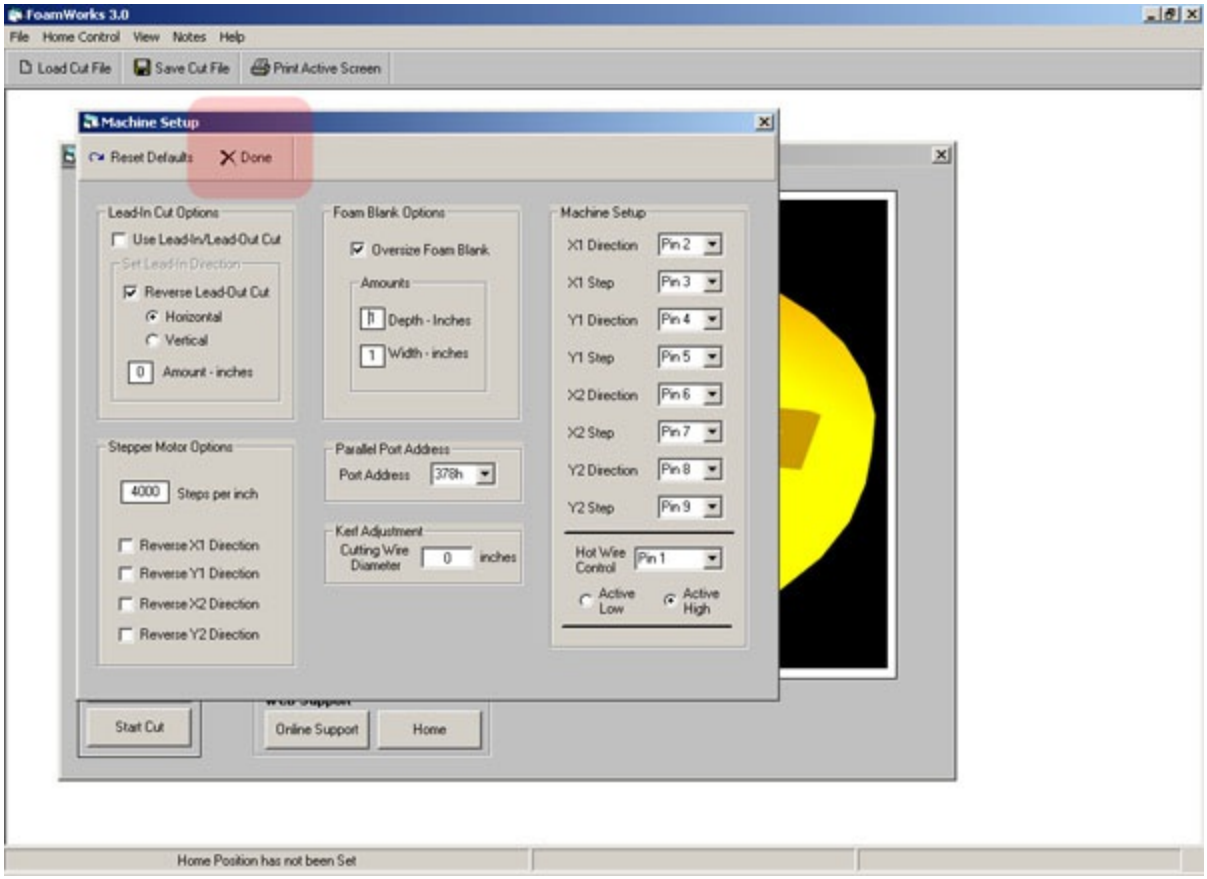


Reset Defaults

The Reset Button returns all values to the default values.

Save Settings

When changes are make to the Machine Setup Screen, these setting are saved only if the Machine Setup Screen is exitted using the Done Button.

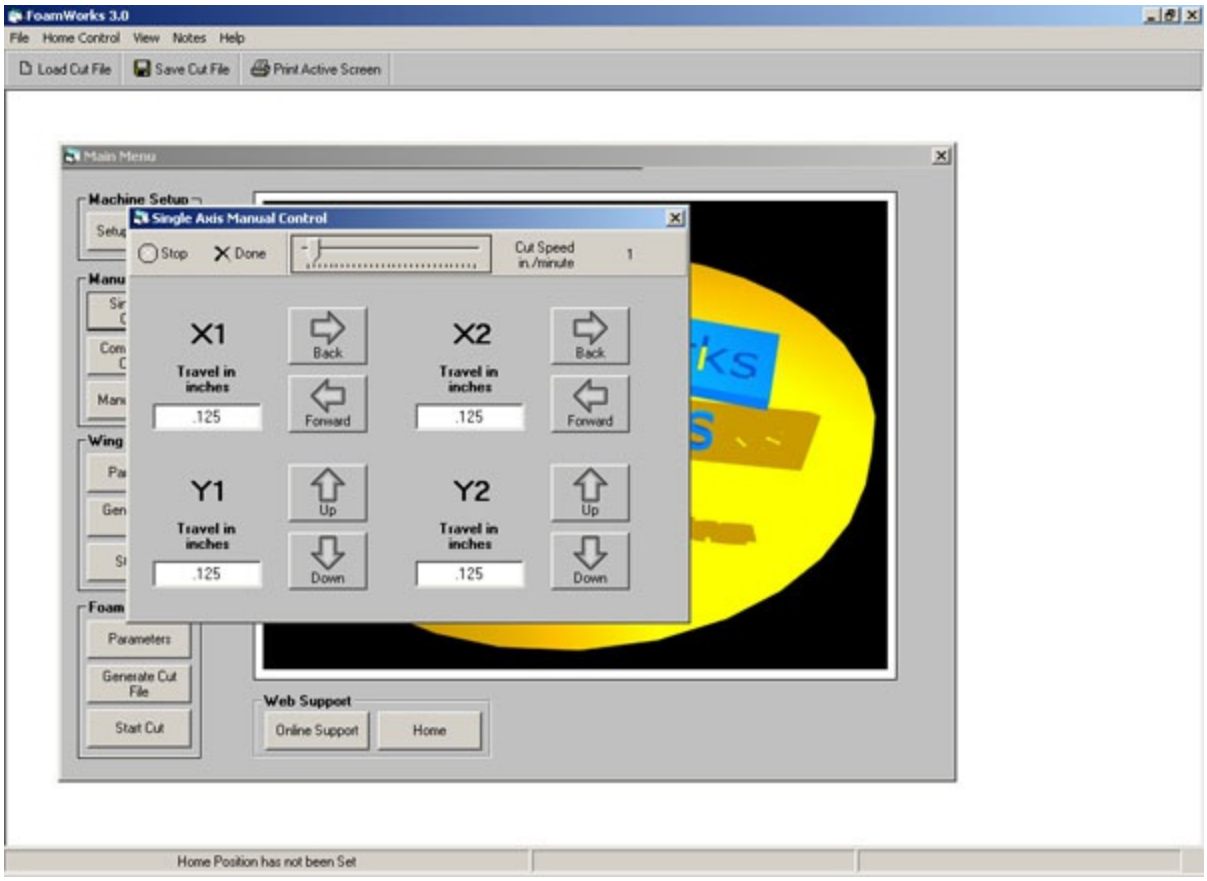


Single Axis Control

Single Axis Control allows individual control of each individual stepper motor.

Enter the distance you wish the cutter to move in the box adjacent to the motor you wish to activate. Click the button that specifies the direction you wish to move the cutter. Th cutter will begin to move the preset distance.

Speed can be set prior to beginning the move or it can be adjusted during the move. The speed is adjusted by clicking on the **Speed Control Slider** and dragging to the speed that you desire. The speed setting corresponding to the slider position is shown in the cut speed box.

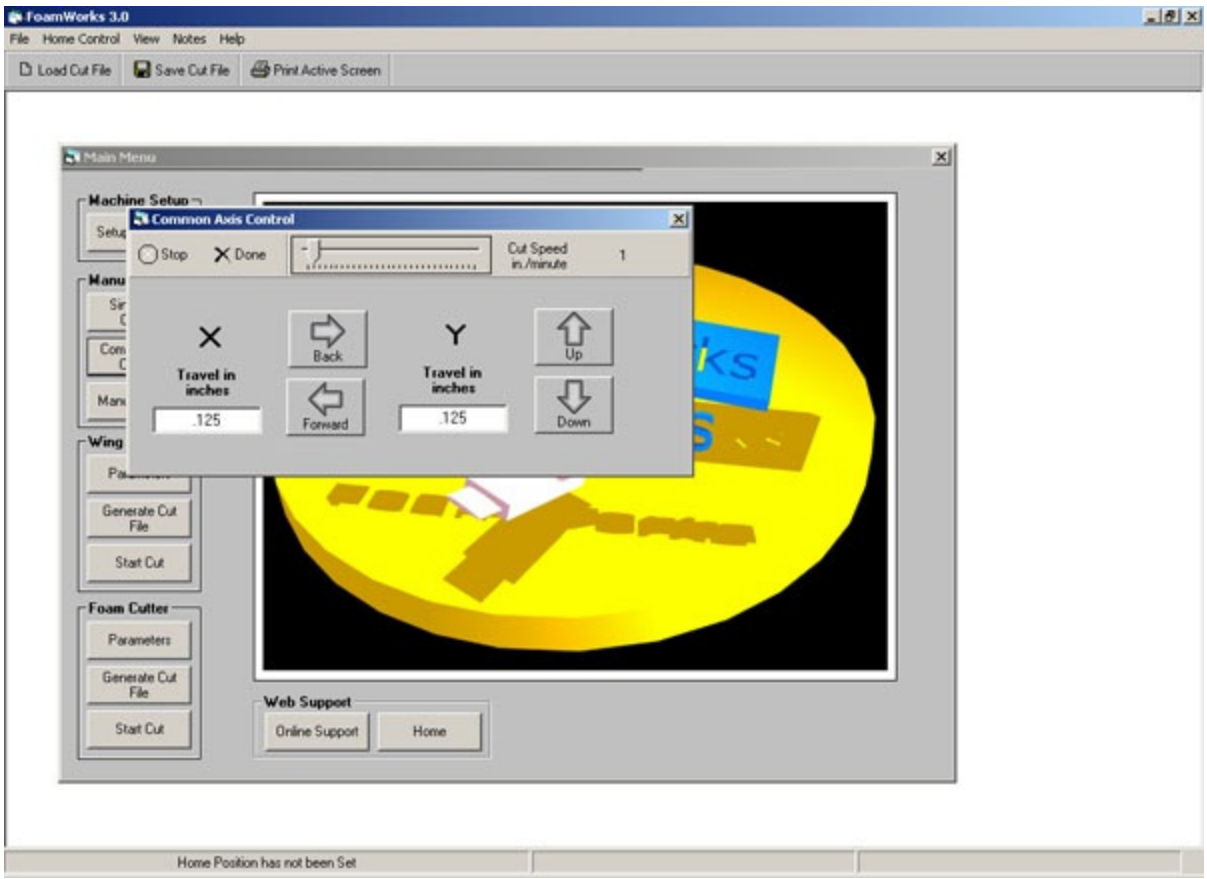


Common Axis Control

Common Axis Control allows combined control of the X1 stepper motor and the X2 stepper motor or the combined control of the Y1 stepper motor and the Y2 stepper motor.

Enter the distance you wish the cutter to move in the box adjacent to the pair of motors you wish to activate. Click the button that specifies the direction you wish to move the cutter. The cutter will begin to move the preset distance.

Speed can be set prior to beginning the move or it can be adjusted during the move. The speed is adjusted by clicking on the **Speed Control Slider** and dragging to the speed that you desire. The speed setting corresponding to the slider position is shown in the cut speed box.



Manual Control

Manual Control allows combined control of the X1 stepper motor and the X2 stepper motor or the combined control of the Y1 stepper motor and the Y2 stepper motor.

Click the button that specifies the direction you wish to move the cutter. The cutter will continue to move in the direction specified until the Stop button is clicked.

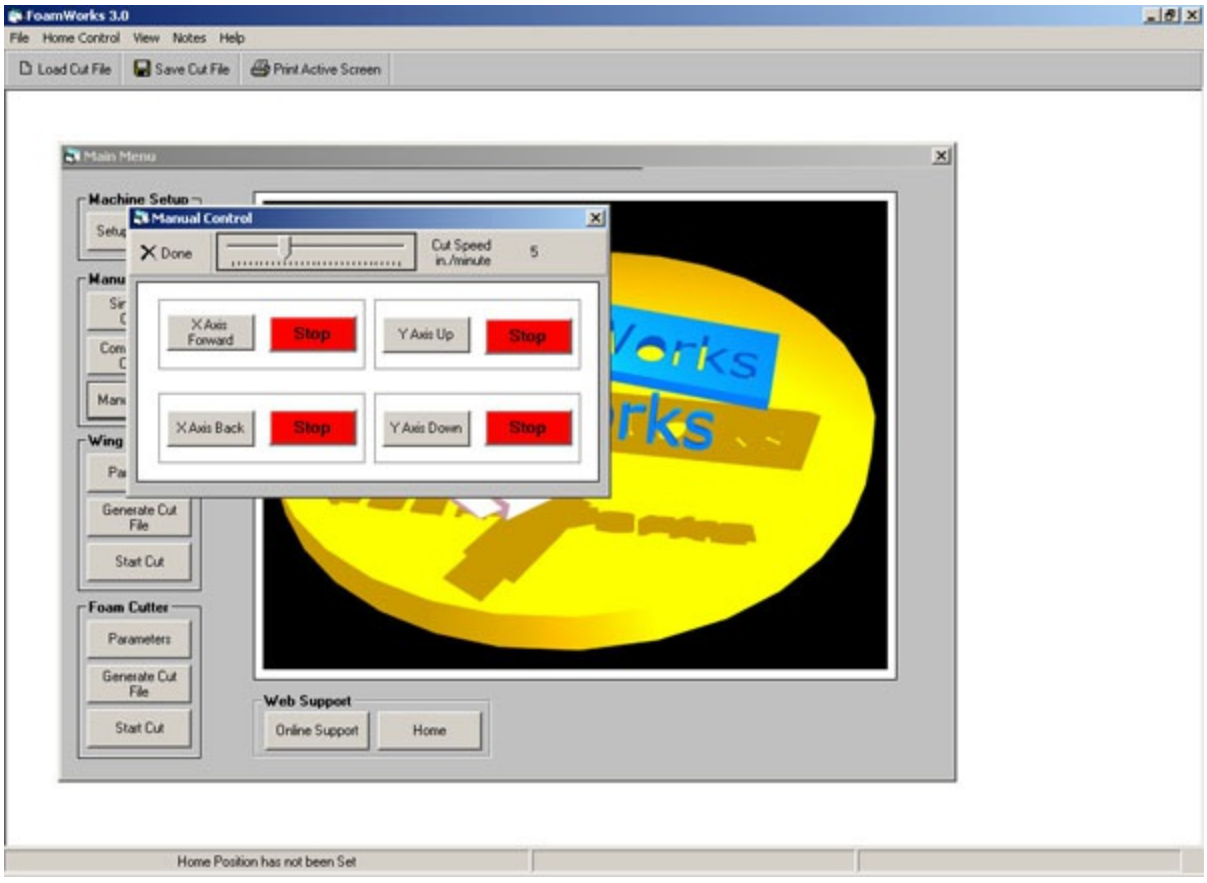
Speed can be set prior to beginning the move or it can be adjusted during the move. The speed is adjusted by clicking on the **Speed Control Slider** and dragging to the speed that you desire. The speed setting corresponding to the slider position is shown in the cut speed box.

Manual Control can be accomplished using two methods, mouse control or keyboard control.

Mouse Control

When the Manual Control Box opens, and the area around the button is white, mouse control is active. You can control the movement of the cutter by clicking on the the approiate button coressponding to the action that you wish to take place.

If you wish to switch to keyboard control, just click in the area of the buttons and the surrounding area will be come highlighted yellow. This indicates that keyboard control is active. You can toggle between keyboard and mouse control by clicking in the area around the buttons.

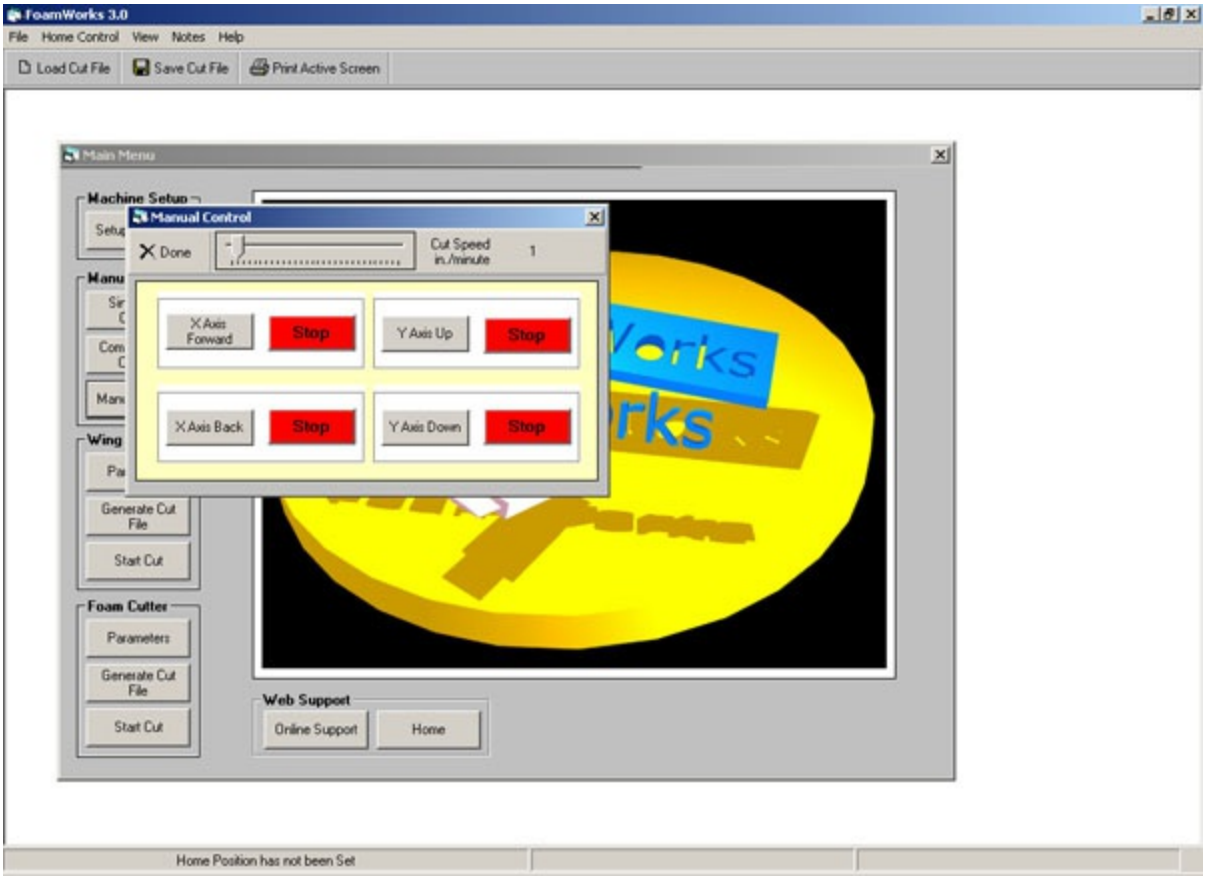


Keyborad Control

When the Manual Control Box opens, and the area around the button is yellow, keyboard control is active. You can control the movement of the cutter by arrow keys on the keyboard.

Either the group of four arrow keys or the numeric keypad will work. Make sure that numlock is off for the numeric keypad to function. The "5" key of the numeric keypad acts as the stop button.

If you wish to switch to mouse control, just click in the area of the buttons and the surrounding area will be come highlighted white. This indicates that mouse control is active. You can toggle between keyboard and mouse control by clicking in the area around the buttons.



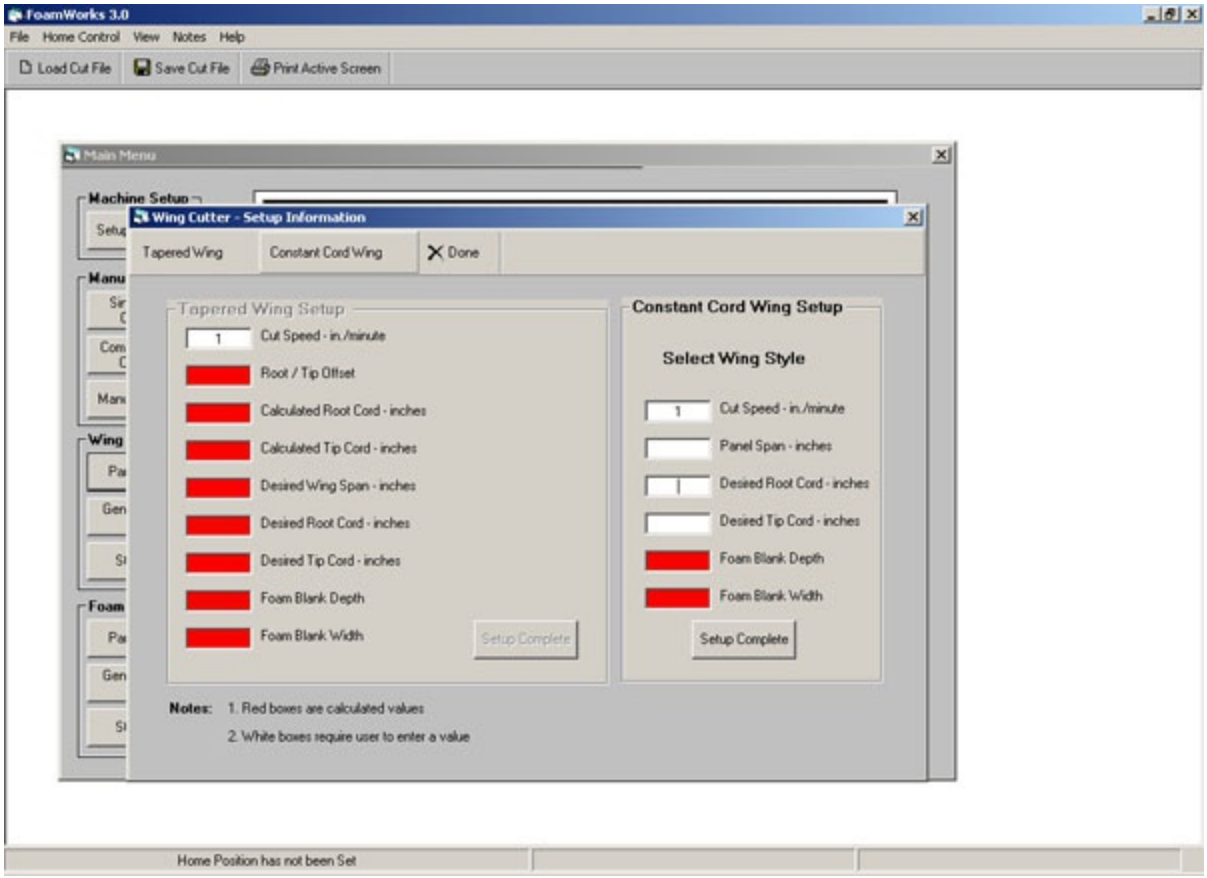
This help file was created with the free trial version of HelpScribble.

Parameters

Wing Cutter Parameters allows a user to select the type of wing they wish to cut and begin entering information that defines the wing panel. Two type of wings can be defined, **Contant Cord Wing** and **Tapered Wing**. Additionally 4 different type of tapered wings can be selected, tapered, swept, leading edge tapered, and trailing edge tapered. Tapered wing must be cut as right and left wing panels. Foamworks will automatically calculate the need root cord and tip cord to cut the wing that is described. White boxes are for user input, red boxes are completed by Foamworks.

Constant Cord Wing

When Constant Cord Wing is clicked, Constant Cord Wing Setup is enabled. The user should enter the requested information in the white boxes. When all information has been specified, click **Setup Complete** and the information is saved in preparation for generation of a cut file.

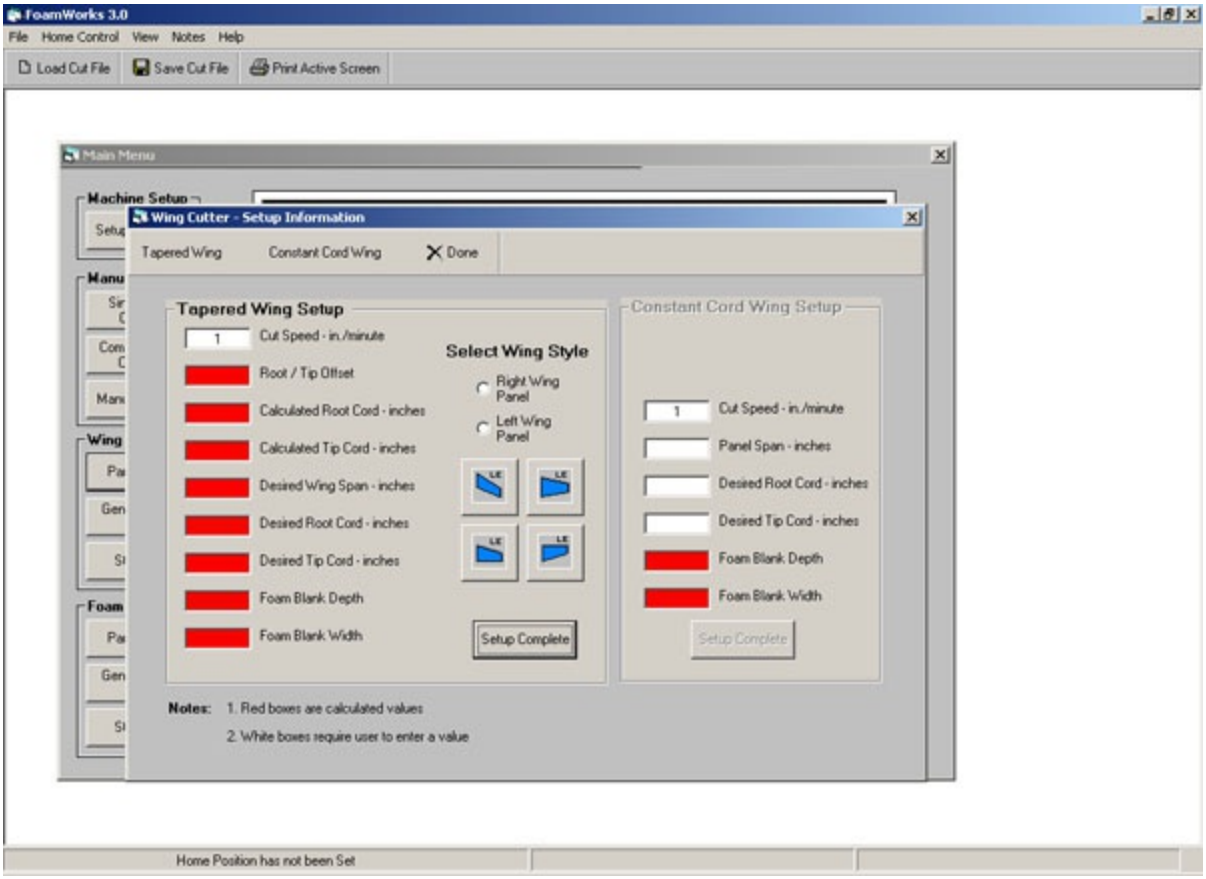


Tapered Wing

When Tapered Wing is click, 4 additional options are shown. The user should either right or left panel and then wing type. When this is done the user will be taken to the **Wing Setup** screen that corresponds to the wing type selected. The user can then enter more detailed information that will allow Foamworks to make the necessary calculations.

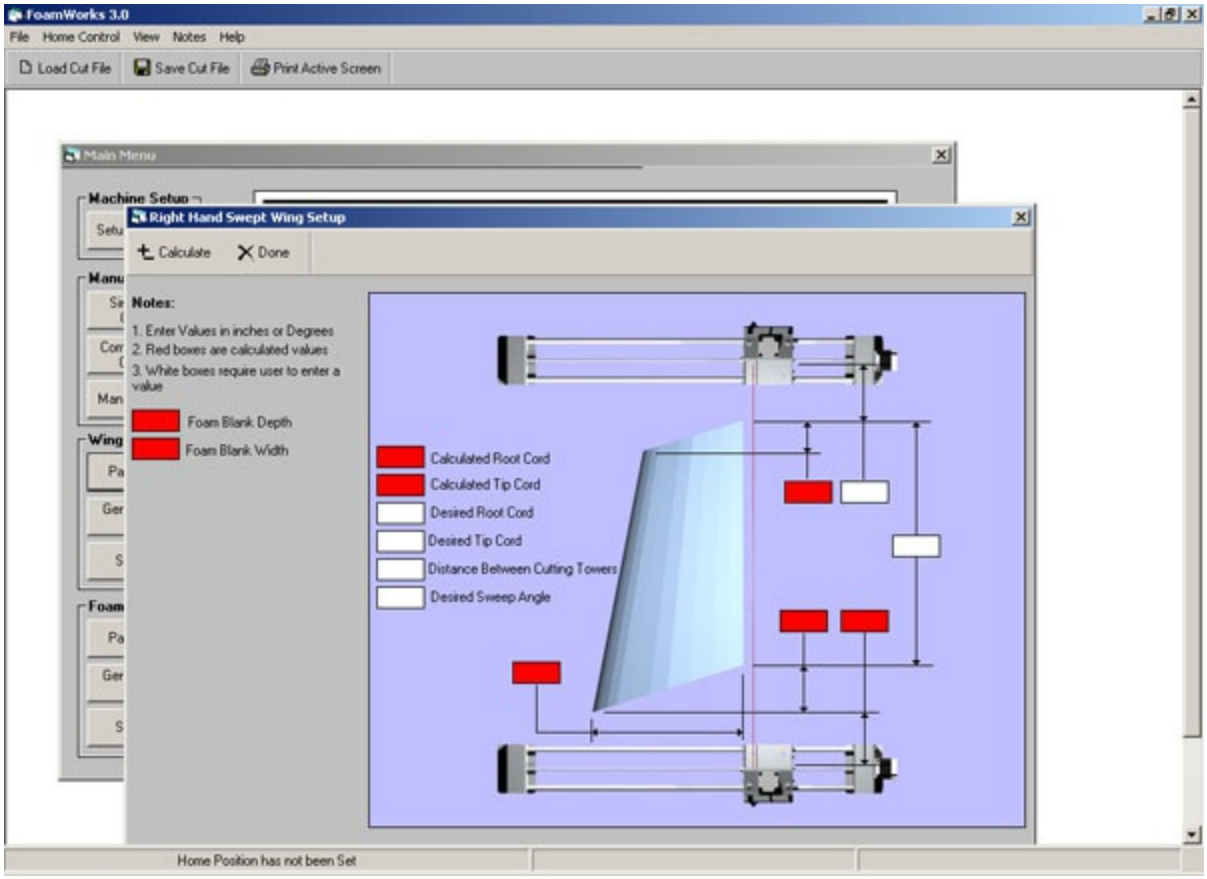
When the calculation process is completed the user will be returned to the Wing Cutter Setup Screen. The user can then click **Setup Complete** and the information is saved in preparation for generation of a cut file.

This process must be completed for both the right and left wing panel.



Wing Setup Information

We the user has selected the right or left panel and wing type, they will be taken to the Wing Setup screen. They must now enter more detailed information about they wing panel.



White boxes must be completed by the user. Red boxes are completed by Foamworks. Light blue represents the foam blank and the darker blue is the wing panel that will be cut from the foam blank.

The following information must be entered.

- Desired Root Cord
- Desired Tip Cord
- Distance Between Cutting Towers
- Root / Tip Offset (setback of the tip cord relative to the root cord)
- Desired Span (span of the right or left wing panel)
- Distance from tip to cutting tower (distance from the foam blank, tip side of the blank, to the cutting tower)

When all information has been entered, the user must click **Calculate**. Foamworks will then calculate all the needed information to complete all the remaining red boxes. Calculated root and tip cords are calculated taking into consideration wing sweep, distance between cutting towers, etc.

When the calculations are completed, click **Done** to return to Wing Cutter Parameter screen. All the required information will carried back to this screen and entered into the appropriate red information box.

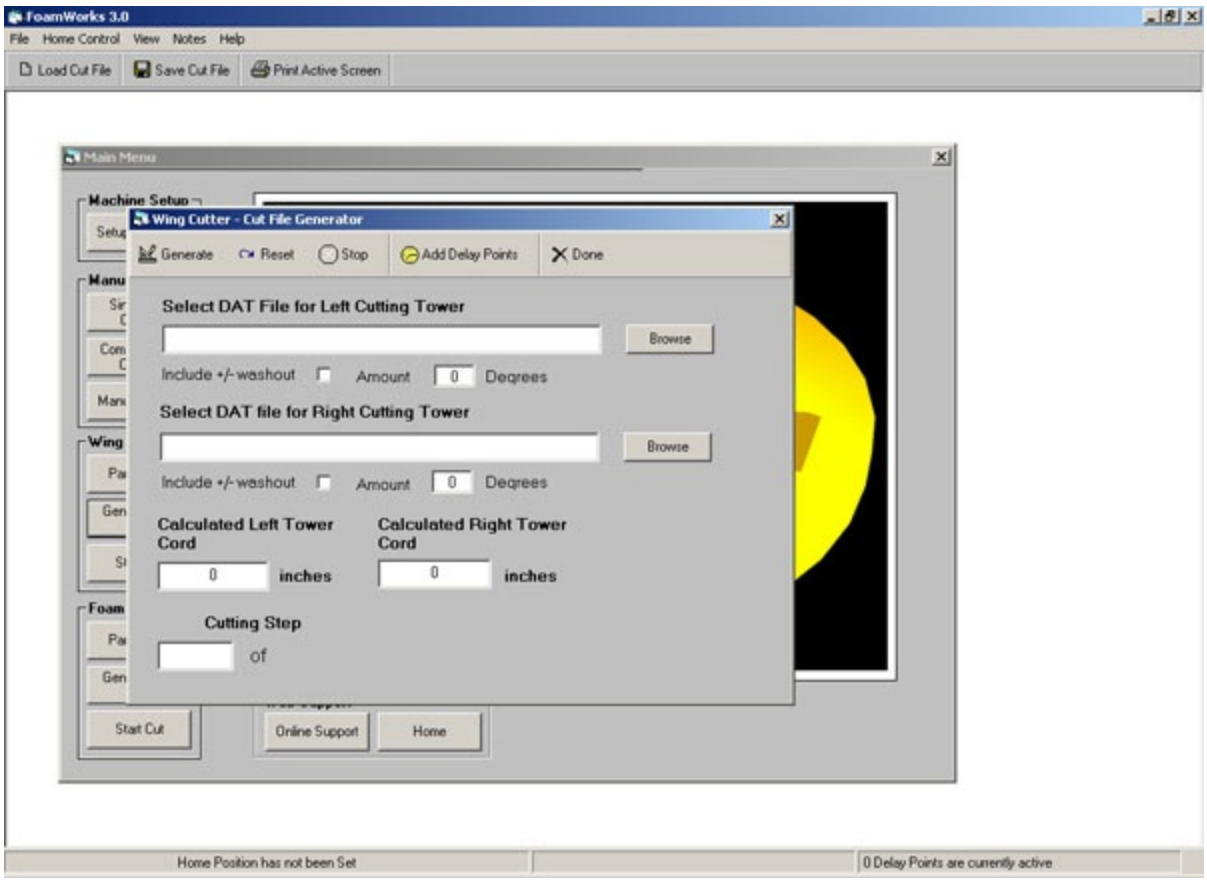
Generate Cut File

When all the necessary information needed to create a cut file is calculated (file containing the data that is set to the drive board), the user must generate a cut file. This is done by clicking **Generate Cut File** at the Main Menu.

To generate a cut file the user must enter the following information;

- DAT file for the right cutting tower
- DAT file for the left cutting tower
- Washout information
- Root and Tip cord (this data should already be completed by Foamworks)

Washout information is entered by clicking the box that corresponds to the cut tower that will cut the tip cord. Washout amount is entered in the corresponding **Amount** box. For right wing panels the right cutting tower wll cut the tip cord and for left wing panels the left cutting tower will cut the tip cord.



When all the necessary information has been entered, click **Generate Cut File** and the file generation process will begin. The last cut file becomes the current cut file until the next file is generated or loaded. The Save Cut File option does not need to be completed to make the cut file current. The last successfully generated file become the current file.

When completed click **Done** to return to the Main Menu and begin cutting the wing panel.

NOTE

A error message will be generated if both the right and left DAT files do have the same number of lines/steps. If you open up a DAT file with a program like Microsoft Notepad (or the text editor of your choice), you will see a series of x,y coordinates.

Each of these coordinates represent the lines that make up the drawing (DXF) that was used to generate the DAT file. Just like cutting with a bow and templates, the hot wire needs to hit the same relative location of each airfoil profile at the same time to maintain proportion. Therefore, just as an example, if the tenth step in the root DAT file is the point where the

spar cutout starts, then the tenth step on the tip DAT file must also be the point where the spar cutout starts. That is why the DAT files need to have the same number of steps.

This is one technique to get proper DAT files that include spar cuts:

1. Using DXF2DAT 3.0 or CadWorks open the DAT file for the root airfoil. DXF2DAT 3.0 or CadWorks will ask for a horizontal size. Enter the size of the tip airfoil. You now have a DAT file for the tip that is identical to the root with just a couple of exceptions. Because DXF2DAT 3.0 or CadWorks scaled the drawing to the tip size, the spars will only be sized to the ratio of (root size / tip size) * (spar root spar size).
2. Carefully delete the line around the spar, keep track of the number of lines you deleted. Then redraw the spar to the size at the root, replacing with the exact same number of lines placed in the same locations. What you will end up with is a new DXF that has a tip cord and root spar size. If you place the lines back carefully, you will also have a DXF that has the same number of line/steps as the original DAT file that was used to create the DXF.
3. Convert to DAT
4. Generate the cut file using the original DAT file for the root and the new DAT file for the tip. You should get a cut file that will cut a tapered wing with a constant size spar.

Other techniques can be used, like simply editting the DAT files with a text editor, removing unnecessary steps, until the DAT files for both cuts match. The final result must end with both DAT files having the same number of line/steps.

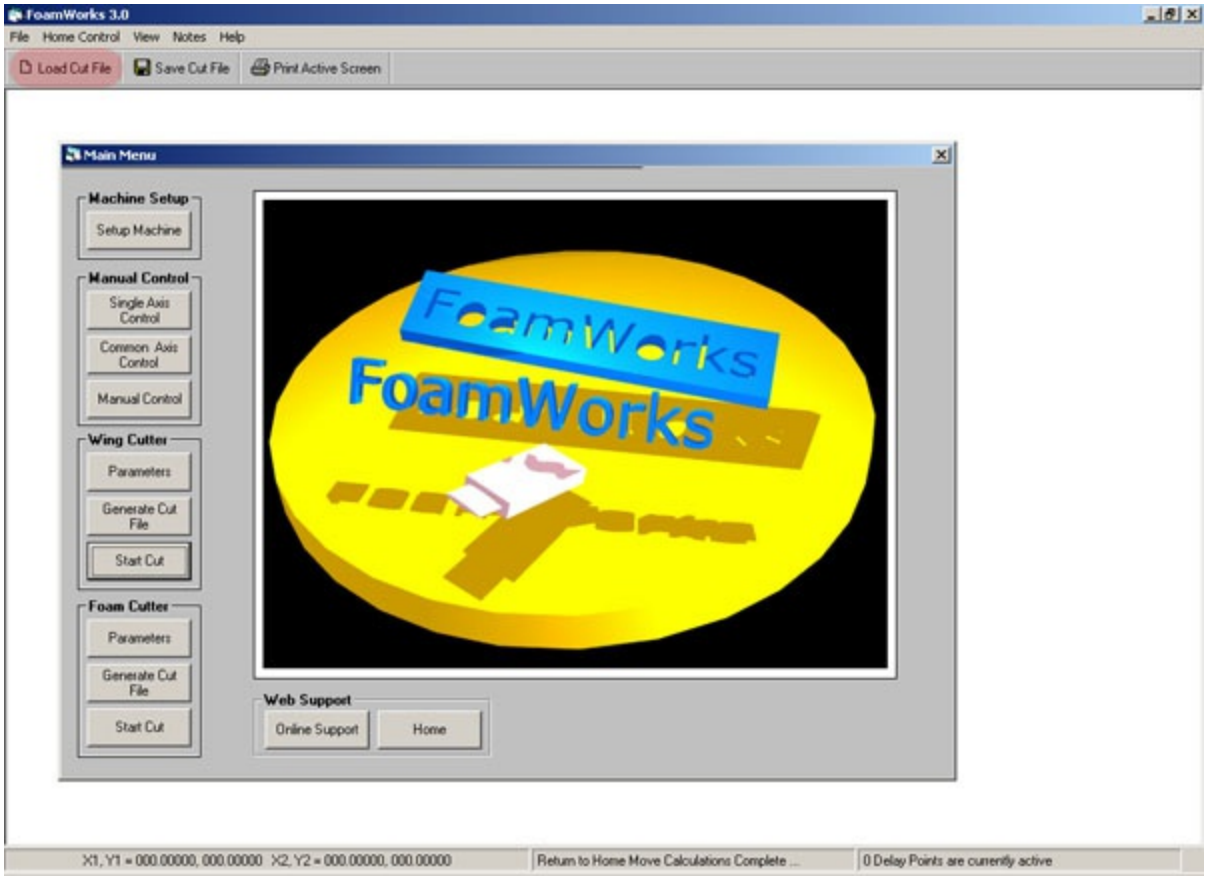
Load Cut File

When cut file generation is completed, the user is asked if they wish to save the cut file. By saving the cut file the user may **Load** the same wing panel cut file at a future time without going through the specification and calculation process again. When a cut file is saved, the file is unique to the wing profile, root and tip cord as well as washout information. Right and left cut files must be saved to describe a complete wing.

Cut files are save in 3 files:

Cut file data, CT1 file extension
Step data, CT2 file extension
DAT file information, CT3 extension

Each of these files will have the same filename with the extension specified.



Start Cut

When the cut file generation is completed, the user must click **Begin Cut** from the Main Menu to begin cutting the wing. At the Wing Cutter, Cut Progress screen the user can begin the foam cutting process, turn the hot wire control on/off and control the speed of the cut.

Clicking **Begin Cut** starts the cutting process. As the cutting progresses the profile of the wing will begin to turn red. The red line indicates the progress of the cut.

The cutting process can be aborted by clicking **Stop**. If the cutting process is stopped, the user must manually move the cutter back to the starting position.

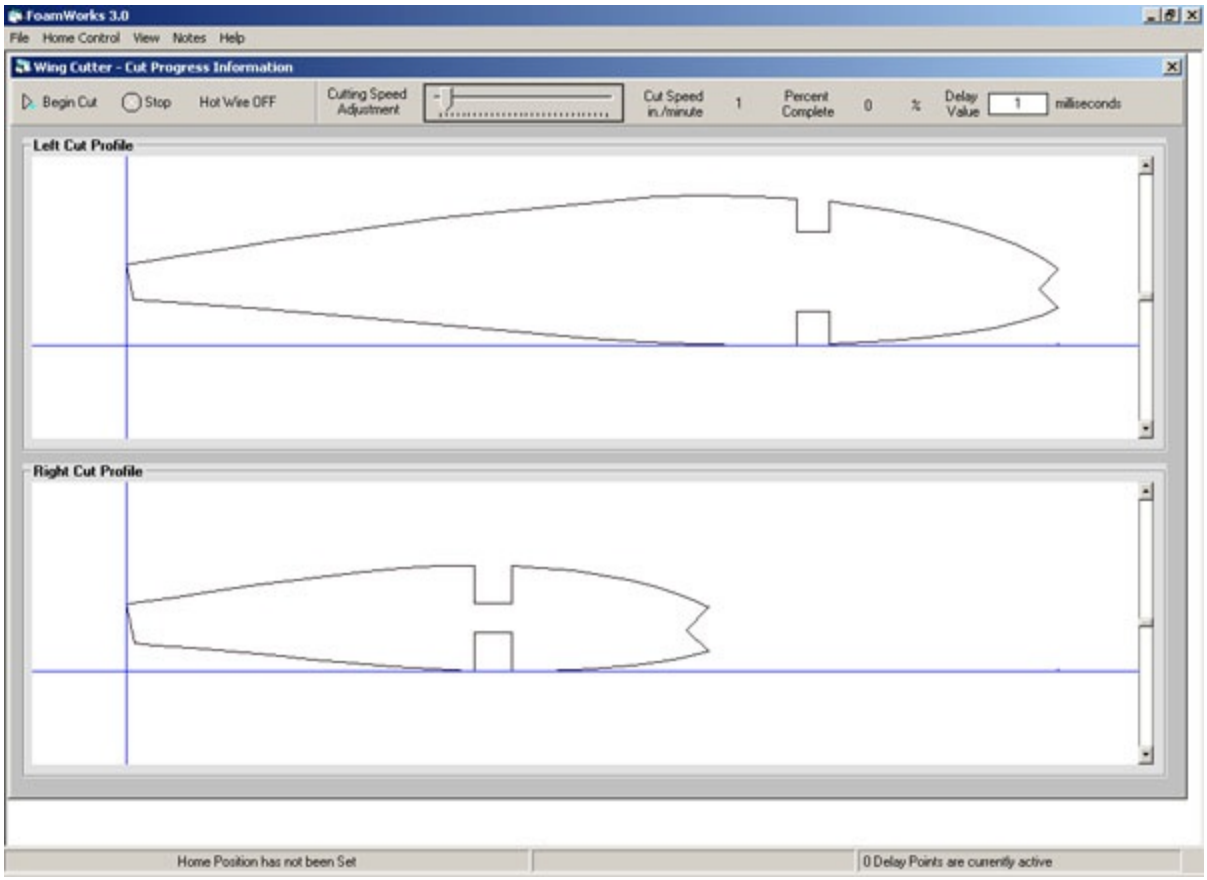
When the cutting process is completed, click **Done** to return to the Main Menu.

Speed can be set prior to beginning the cut or it can be adjusted during the cut. The speed is adjusted by clicking on the **Speed Control Slider** and dragging to the speed that you desire. The speed setting corresponding to the slider position is shown in the cut speed box.

A manual control pop-up window can be opened by clicking on Manual Control and then clicking **Show** or by striking the F5 key. The window can be closed by clickingUNCONVERTED WINHELP MACRO:!EF(`15',`',1) Manual Control and then clicking **Hide** or by striking the F6 key.

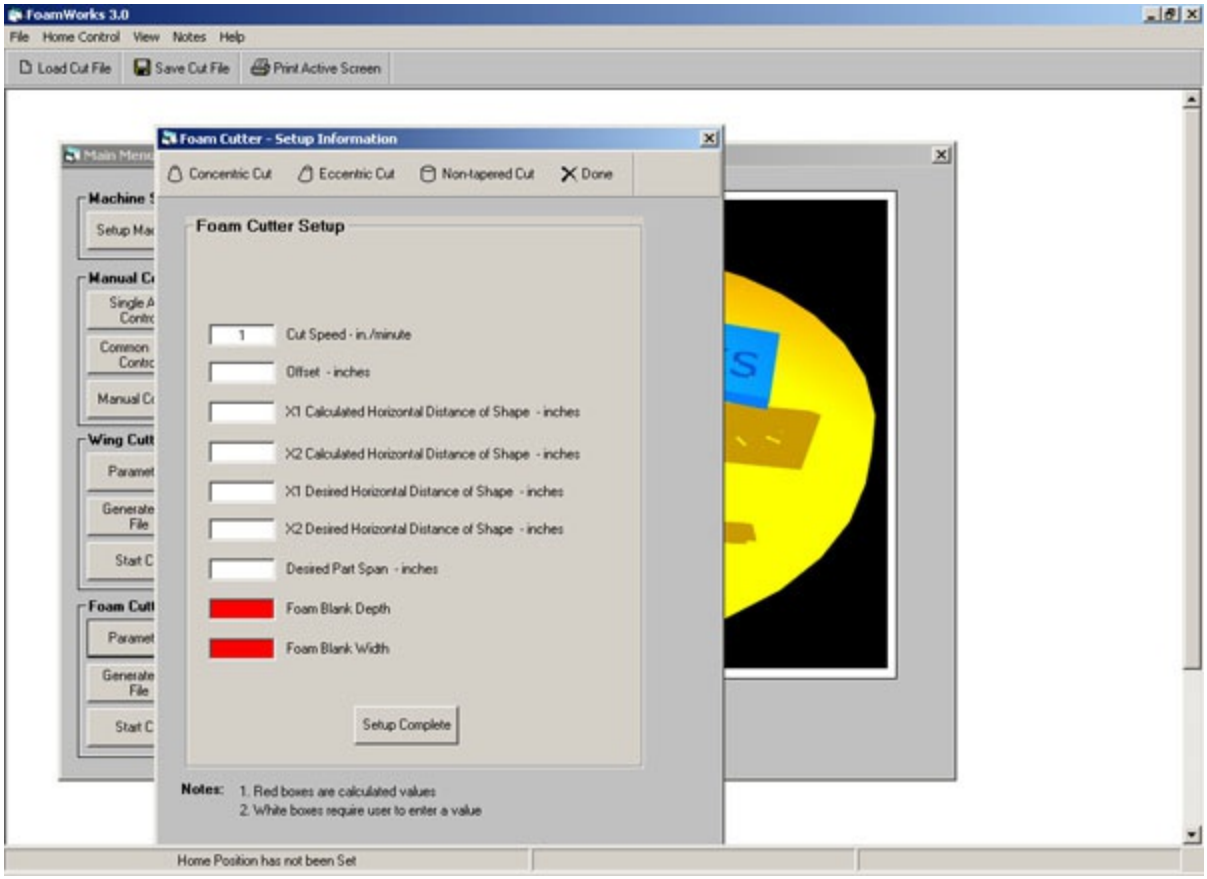
Zoom Functions

When the Cut Screen is open, to view the entire drawing, you can zoom in or zoom out. This is done by pressing the + (plus) or the - (minus) key on the numeric keypad



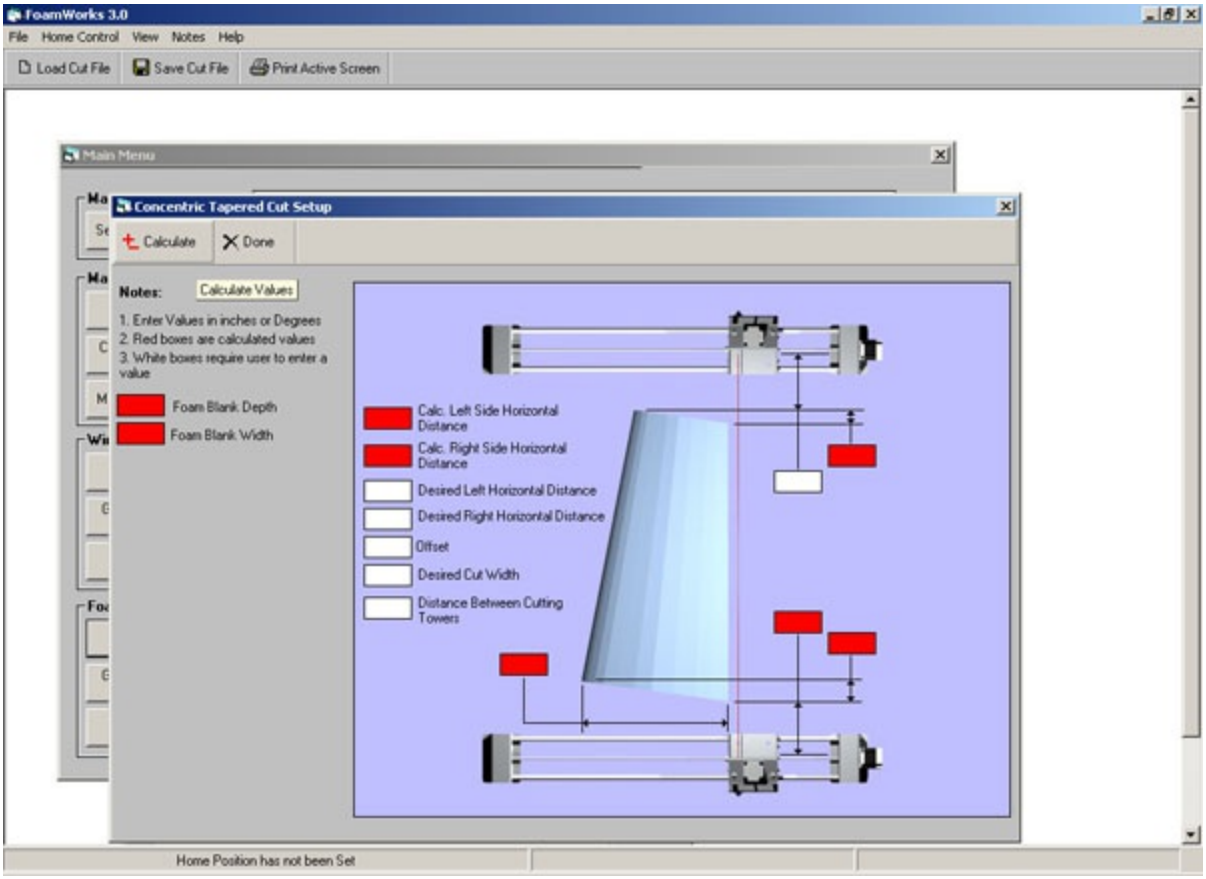
Parameters

The Foam cutting parameter screen aids with the setup of non wing cutting. Tapered cuts, non-tapered cut and offset tapered cuts.



Concentric Cuts

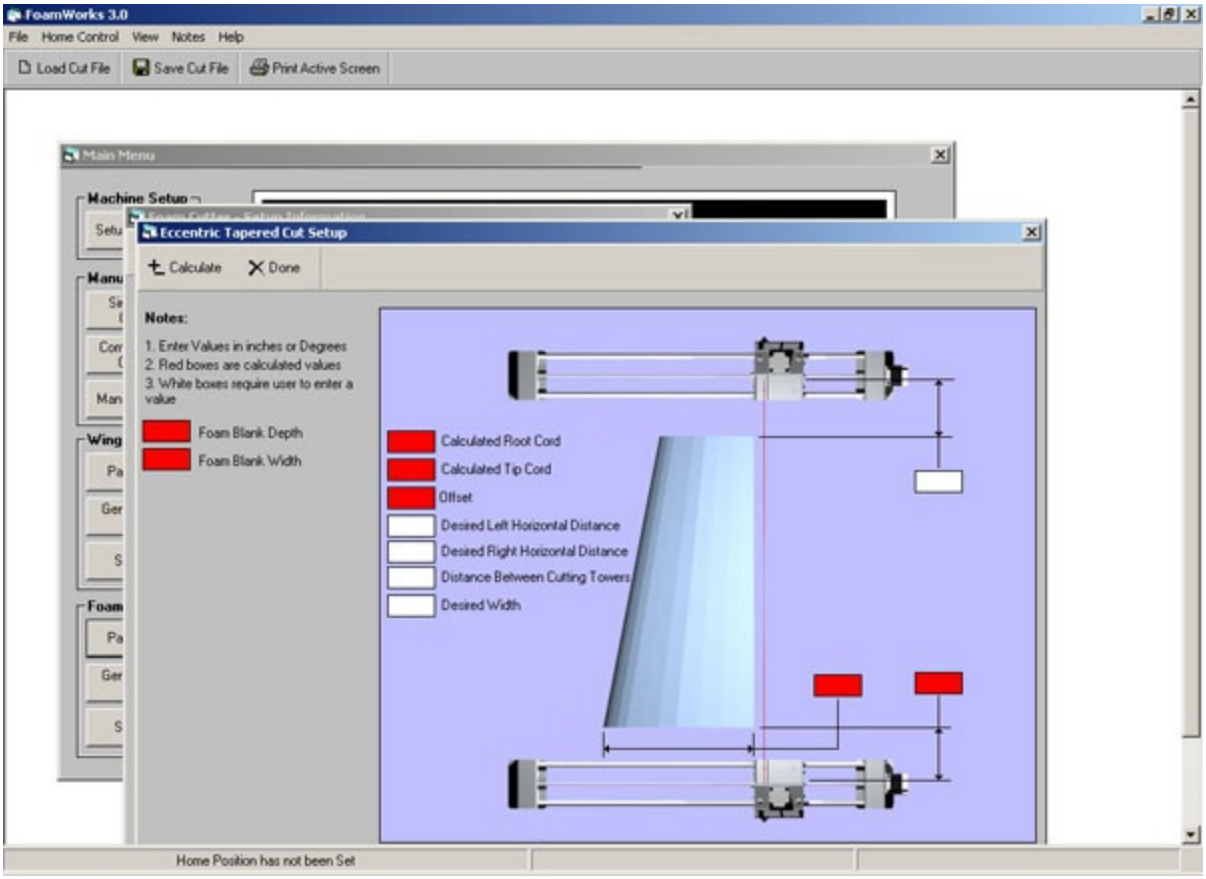
An example of a concentric cut would be a cone. By entering the information requested. Foamworks will calculate the required machine movement to achieve the target sizes that have been specified. All information should entered in the white boxes. Red boxes are calculated values. Clicking the Calculate button will start the calculation process. When the calculations are completed, clicking the Done button will carry these values back to the Parameter Screen.



Eccentric Cuts

An example of a eccentric cut would be a cone, but the point of the cone would be offset by the amount that would make its diameter even with the base diameter.

By entering the information requested. Foamworks will calculate the required machine movement to achieve the target sizes that have been specified. All information should entered in the white boxes. Red boxes are calculated values. Clicking the Calculate button will start the calculation process. When the calculations are completed, clicking the Done button will carry these values back to the Parameter Screen.



Non-Tapered Cuts

Non-tapered cuts are cuts that are made using the same size dimension of both the right and left cutting tower. This type of cut only requires the that you enter the Horizontal distance of the cut. YOU DO NOT NEED TO USE THE PARAMETER SCREEN OF NON-TAPERED CUT. YOU CAN GO DIRECTLY TO THE CUT FILE GENERATION SCREEN AND JUST ENTER THE HORIZONTAL DISTANCE IN THE TEXT BOXES PROVIDED.

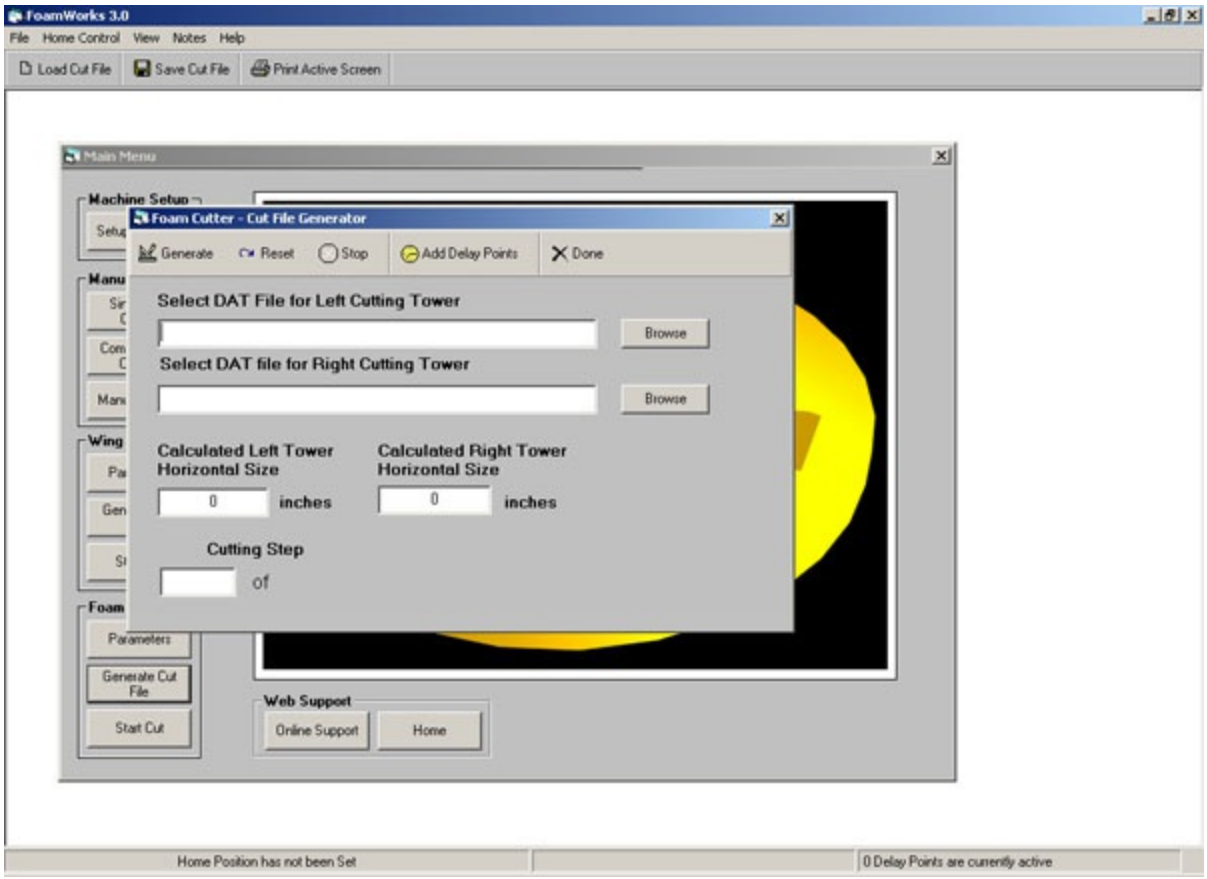
When completed, click **Setup Complete** and the user will be returned to the Main Menu to being generating the cut file.

Generate Cut File

When all the necessary information needed to create a cut file is calculated (file containing the data that is set to the drive board), the user must generate a cut file. This is done by clicking **Generate Cut File** at the Main Menu.

To generate a cut file the user must enter the following information;

- DAT file for the right cutting tower
- DAT file for the left cutting tower
- Horizontal size of the shape at the right cutting tower
- Horizontal size of the shape at the left cutting tower



When all the necessary information has been entered, click **Generate Cut File** and the file generation process will begin. The last cut file becomes the current cut file until the next file is generated or loaded. The Save Cut File option does not need to be completed to make the cut file current. The last successfully generated file become the current file.

When completed click **Done** to return to the Main Menu and begin cutting the shape.

NOTE

A error message will be generated if both the right and left DAT files do have the same number of lines/steps. If you open up a DAT file with a program like Microsoft Notepad (or the text editor of your choice), you will see a series of x,y coordinates.

Each of these coordinates represent the lines that make up the drawing (DXF) that was used to generate the DAT file. Just like cutting with a bow and templates, the hot wire needs to hit the same relative location of each airfoil profile at the same time to maintain proportion. Therefore, just as an example, if the tenth step in the root DAT file is the point where the spar cutout starts, then the tenth step on the tip DAT file must also be the point where the spar cutout starts. That is why the DAT files need to have the same number of steps.

This is one technique to get proper DAT files that include spar cuts:
1. Using DXF2DAT 3.0 or CadWorks open the DAT file for the root airfoil. DXF2DAT 3.0 or CadWorks will ask for a

horizontal size. Enter the size of the tip airfoil. You now have a DAT file for the tip that is identical to the root with just a couple of exceptions. Because DXF2DAT 3.0 or CadWorks scaled the drawing to the tip size, the spars will only be sized to the ratio of (root size / tip size) * (spar root spar size).

2. Carefully delete the line around the spar, keep track of the number of lines you deleted. Then redraw the spar to the size at the root, replacing with the exact same number of lines placed in the same locations. What you will end up with is a new DXF that has a tip cord and root spar size. If you place the lines back carefully, you will also have a DXF that has the same number of line/steps as the original DAT file that was used to create the DXF.

3. Convert to DAT

4. Generate the cut file using the original DAT file for the root and the new DAT file for the tip. You should get a cut file that will cut a tapered wing with a constant size spar.

Other techniques can be used, like simply editting the DAT files with a text editor, removing unnecessary steps, until the DAT files for both cuts match. The final result must end with both DAT files having the same number of line/steps.

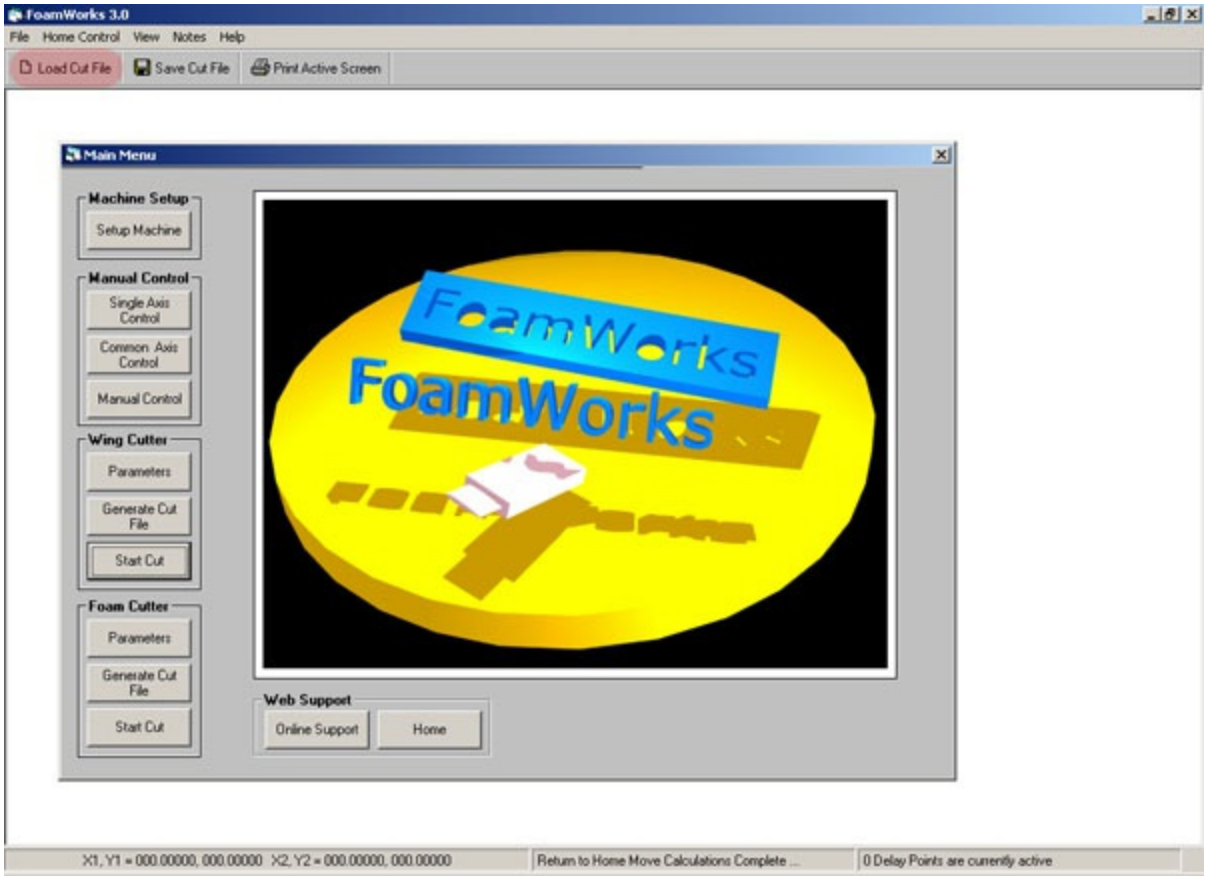
Load Cut File

When cut file generation is completed, the user is asked if they wish to save the cut file. By saving the cut file the user may **Load** the same shape cut file at a future time without going through the specification and calculation process again. When a cut file is saved, the file is unique to the shape profile and right and left horizontal size.

Cut files are save in 3 files:

Cut file data, CT1 file extension
Step data, CT2 file extension
DAT file information, CT3 extension

Each of these files will have the same filename with the extension specified.



Start Cut

When the cut file generation is completed, the user must click **Begin Cut** from the Main Menu to begin cutting the wing. At the Foam Cutter, Cut Progress screen the user can begin the foam cutting process, turn the hot wire control on/off and control the speed of the cut.

Clicking **Begin Cut** starts the cutting process. As the cutting progresses the profile of the shape will begin to turn red. The red line indicates the progress of the cut.

The cutting process can be aborted by clicking **Stop**. If the cutting process is stopped, the user must manually move the cutter back to the starting position.

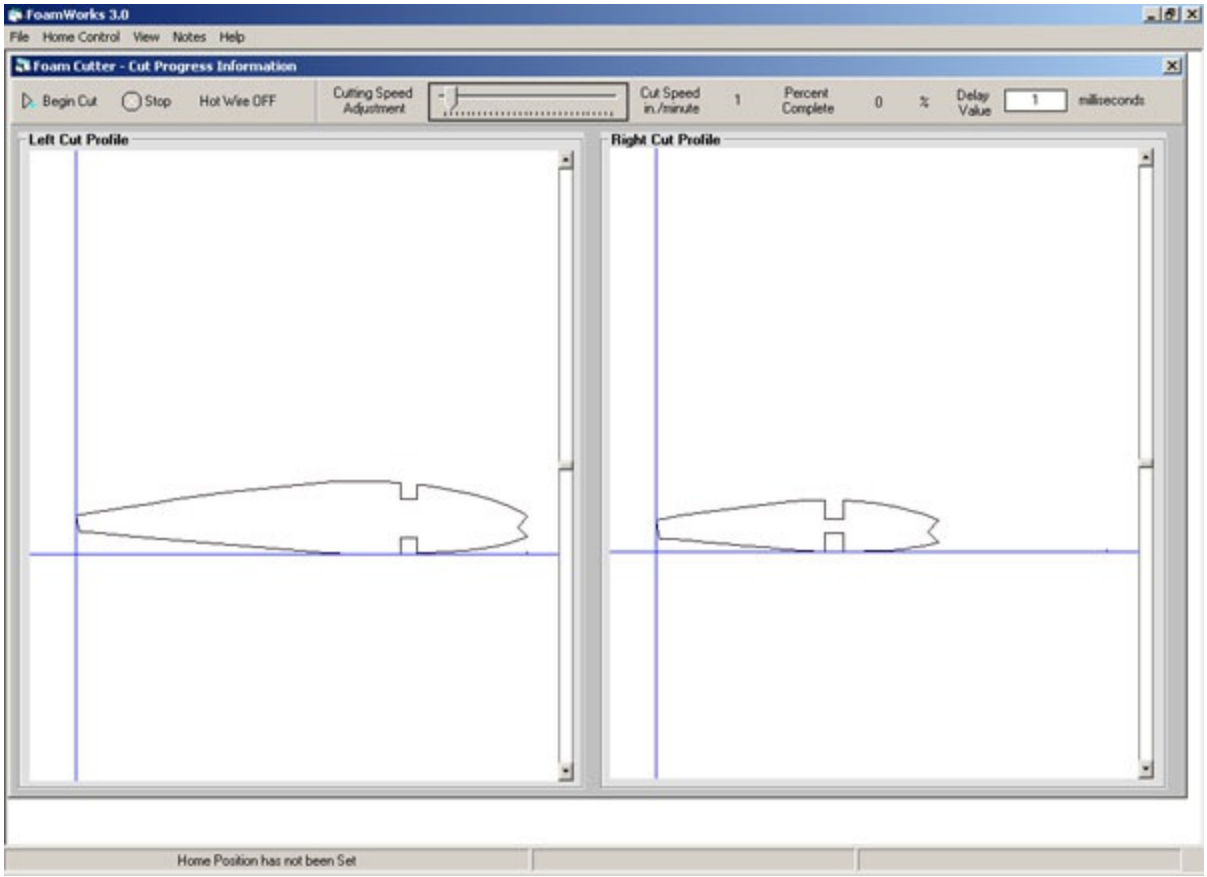
When the cutting process is completed, click **Done** to return to the Main Menu.

Speed can be set prior to beginning the cut or it can be adjusted during the cut. The speed is adjusted by clicking on the **Speed Control Slider** and dragging to the speed that you desire. The speed setting corresponding to the slider position is shown in the cut speed box.

A manual control pop-up window can be opened by clicking on Manual Control and then clicking **Show** or by striking the F5 key. The window can be closed by clicking Manual Control and then clicking **Hide** or by striking the F6 key.

Zoom Functions

When the Cut Screen is open, to view the entire drawing, you can zoom in or zoom out. This is done by pressing the + (plus) or the - (minus) key on the numeric keypad.



Delay Points - Purpose

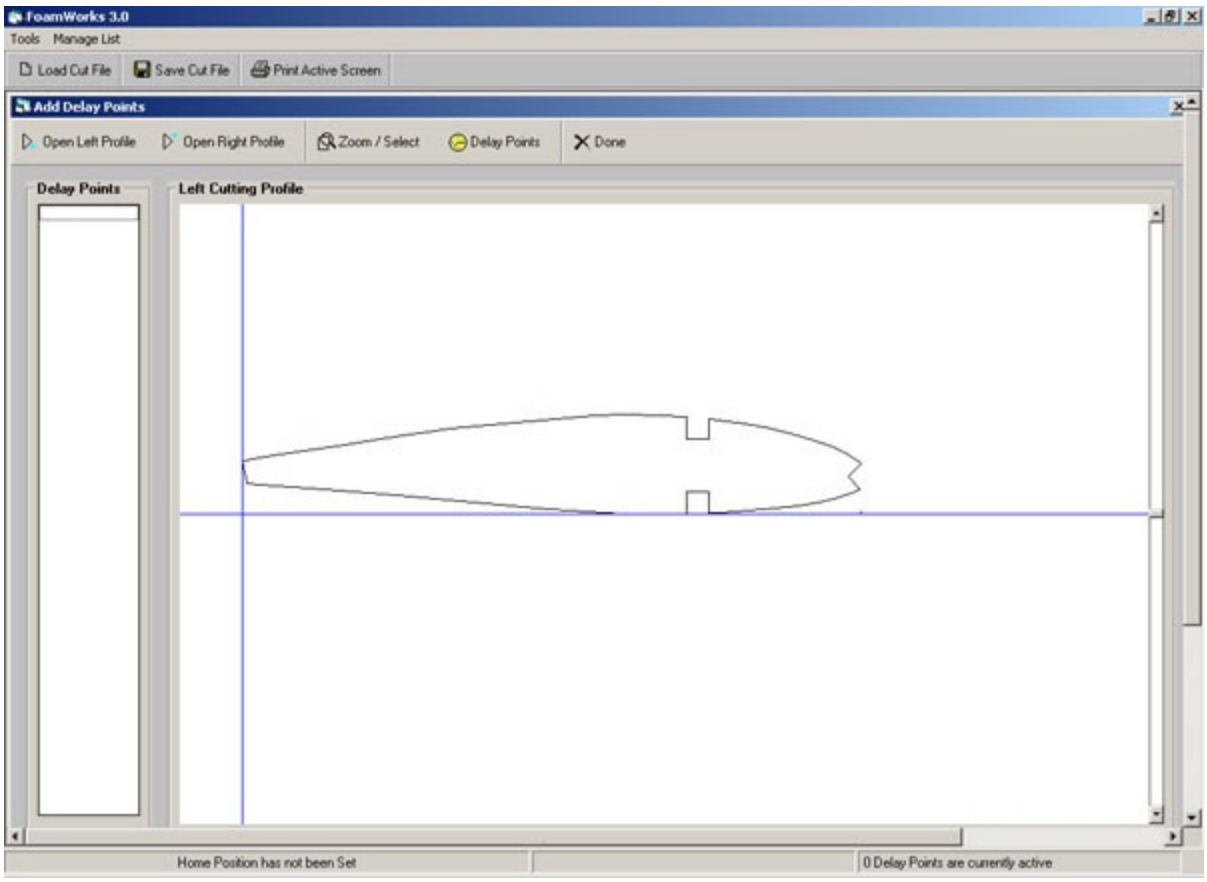
Delay point provides a means of pausing the cutting wire when wire need to make a significant direction change. The delay allows the wire to "catch up" prior to changing direction. The amount of time that the machine pauses is specified at the Cutting Screen.

The value should be entered in milliseconds. This value will apply to all delay point that have been included in the cut file. Delay point are incorporated into the Cut File when the cut file is generated. To change delay points, the delay points must be re-selected and the cut file must be regenerated.

To add delay point click the Add Delay Points button at the Cut File Generation Screen

To add delay points DAT files must be already selected.

Because both the right and left DAT file must have the same number of steps and the steps must correspond to the same relative location on each DAT file, delay points can be added to either the right or left profile. Select either the right or left profile based on which profile allow for the easiest addition of the desired delay point.

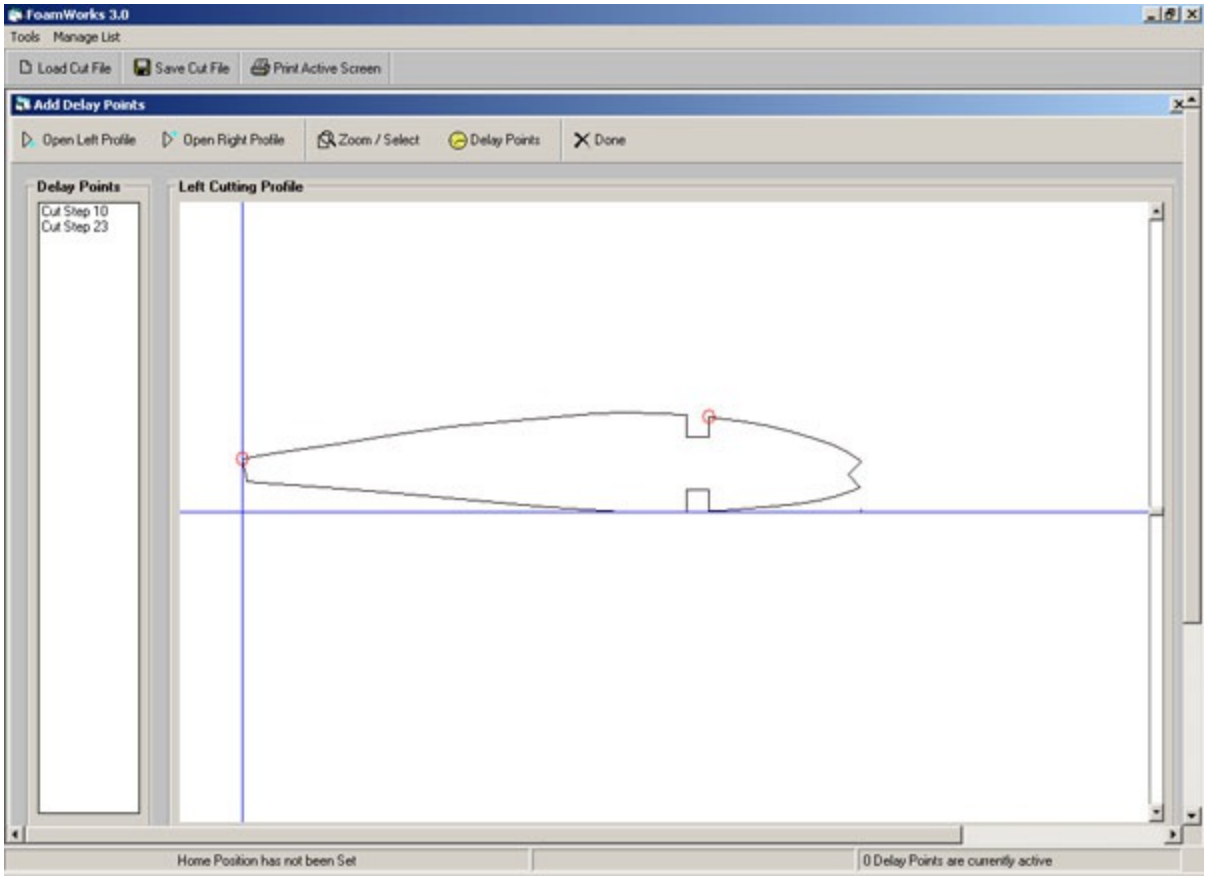


Adding Pause Points

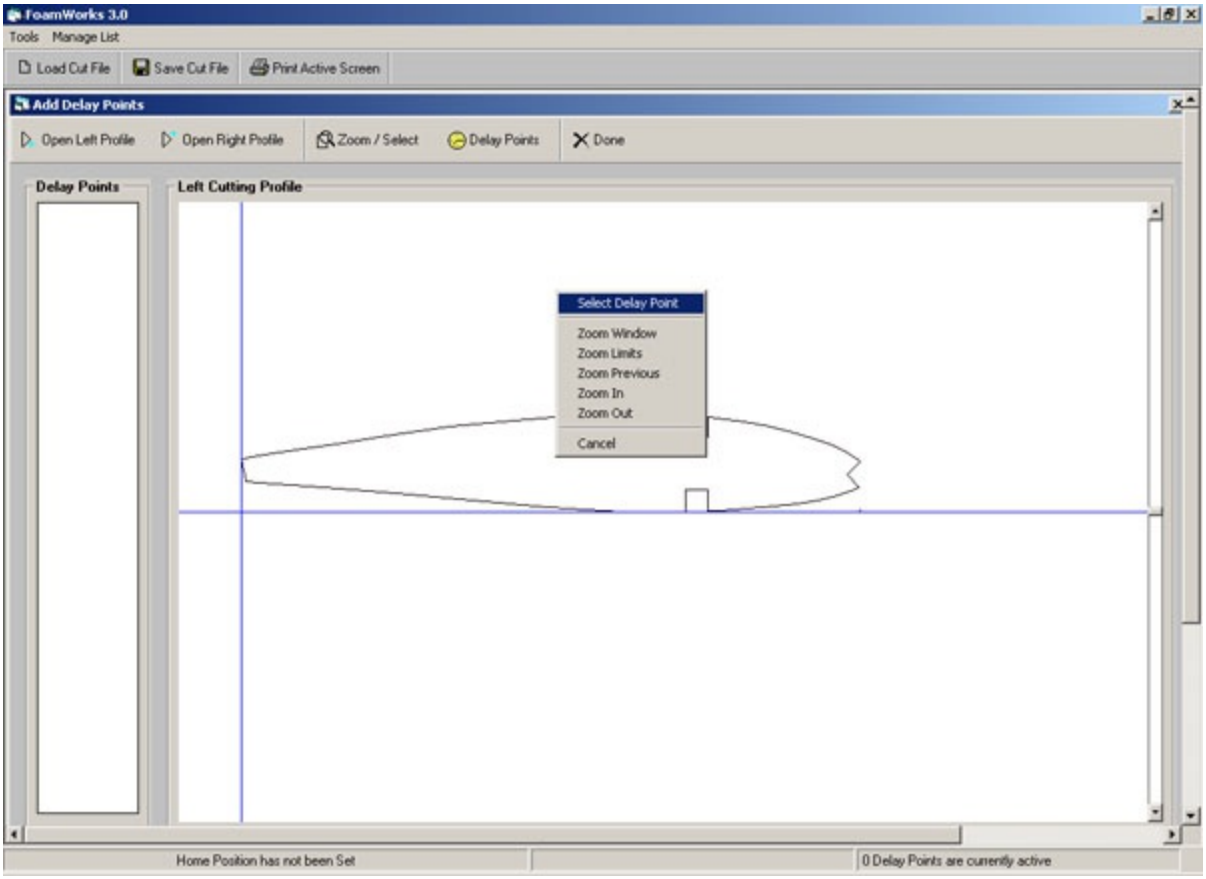
Open either of the Cut File Generation Screens . Enter the DAT files that you wish to use, then click Add Delay Points. Now to add a delay point, with the mouse over the drawing, right click and a pop up menu will appear. Select the top item and you will see the cursor change to a crosshair.

Use the cross hair to click on the point where you wish the delay point added. Repeat this process as needed to add all the desired delay points.

When you are done, close the window and save the delay points. When the cut file is then generated, the delay points will be incorporated into the cut file.



Zoom options are also available from the Delay Points Screen. Right click over the drawing and select the desired drop down menu or click Zoom/Select for the tool bar

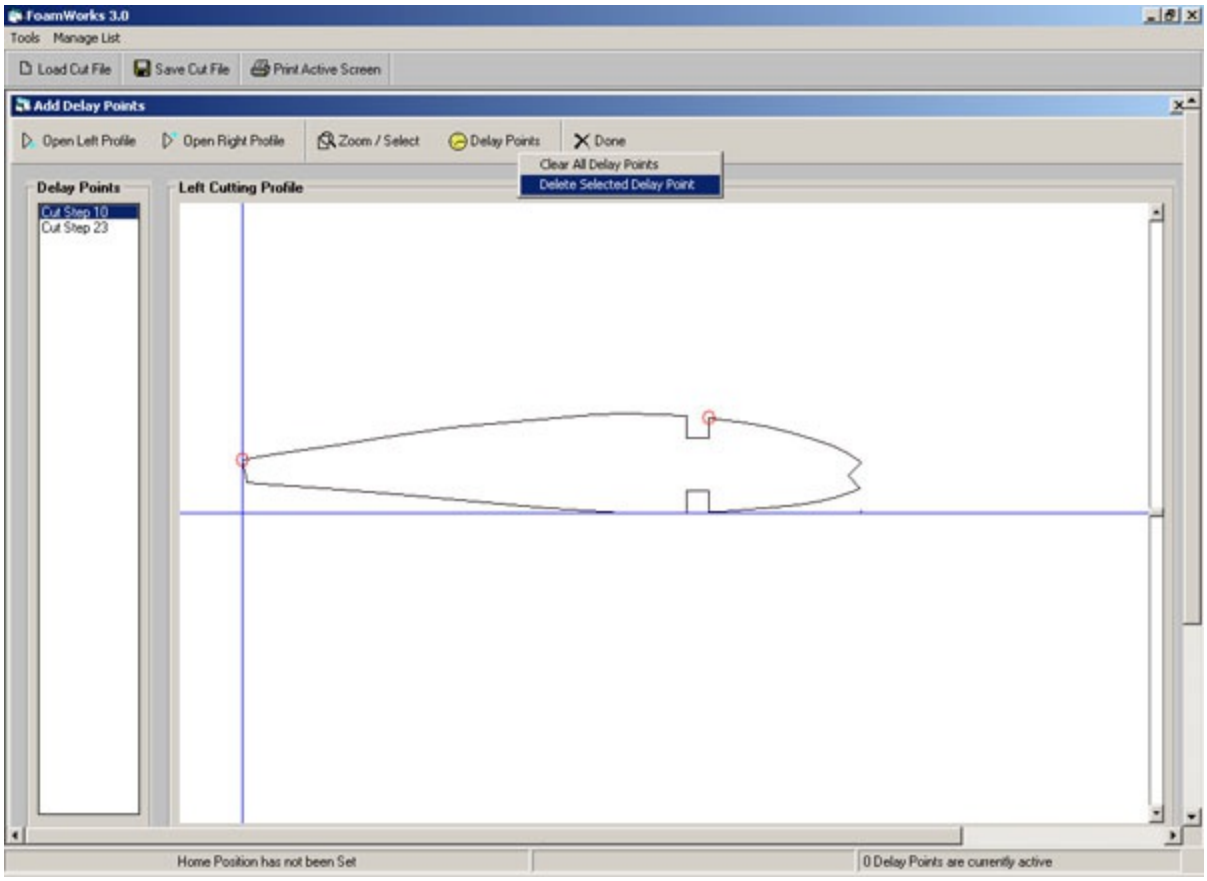


Deleting Pause Points

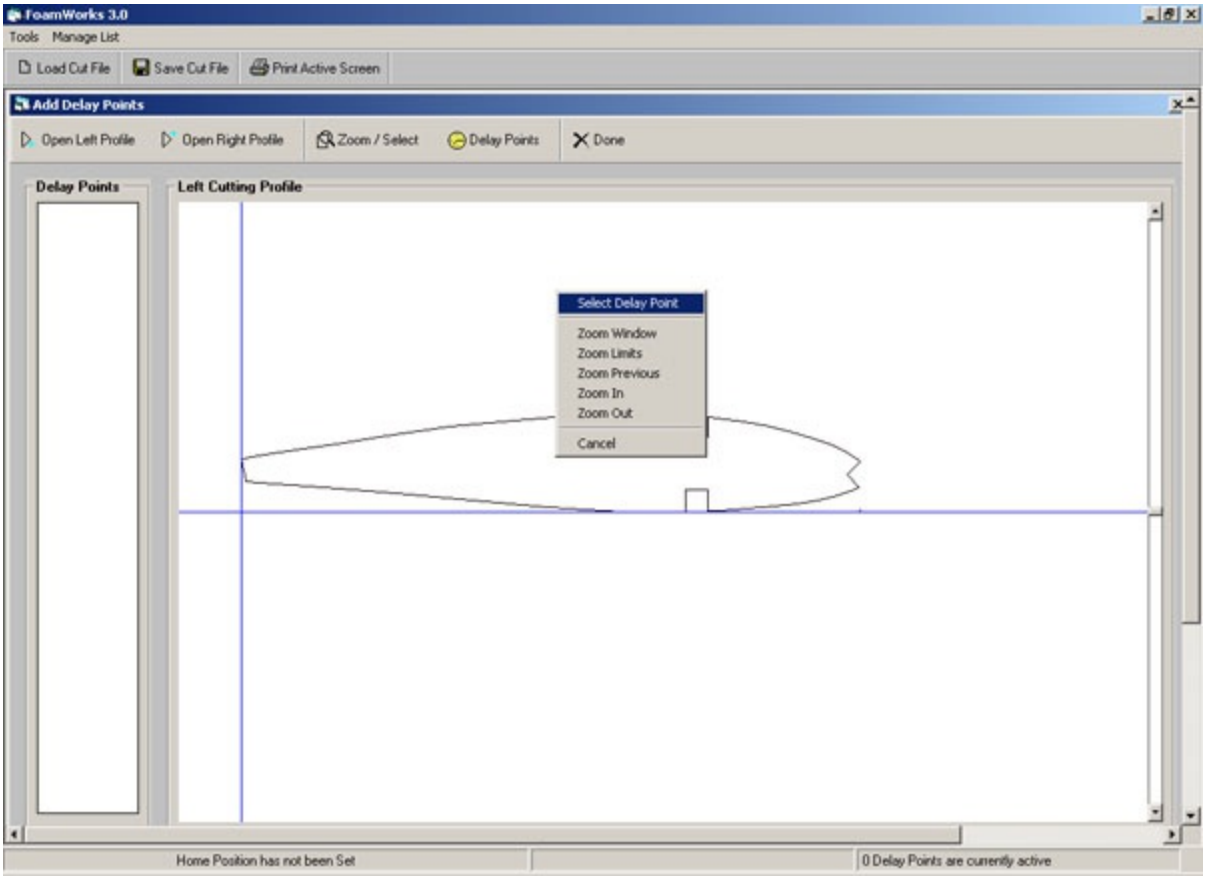
Delay points can be deleted by highlighting the desire point for the list of delay point on the left of the screen. When a point has been selected, it will be highlighted blue.

Delete the point by clicking the Delay Points button on the tool bar and selecting Delete Selected Delay Point.

All delay points can be deleted by clicking on the Delay Points button on the tool bar and selecting Clear All Delay Points.



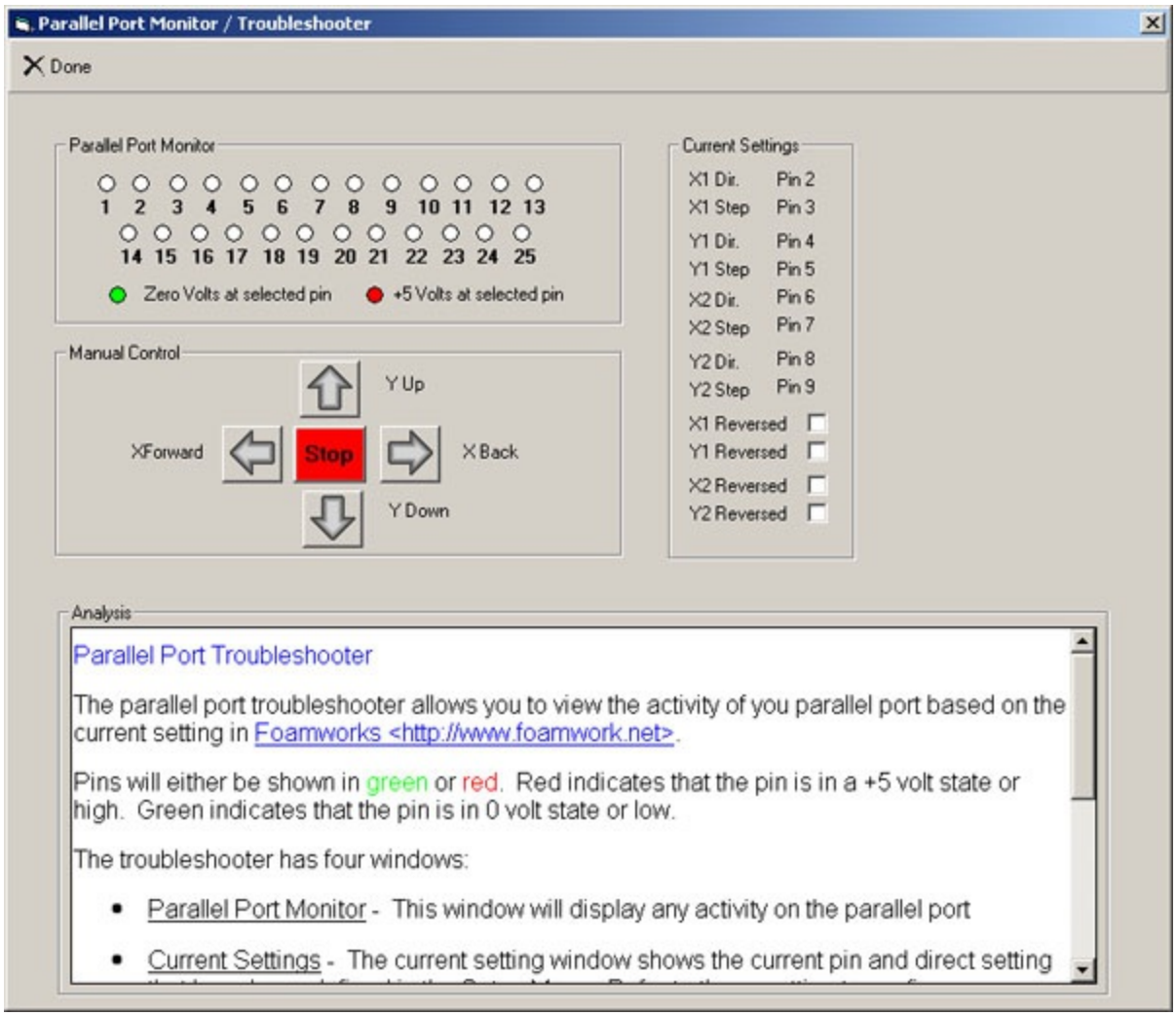
Zoom options are also available from the Delay Points Screen. Right click over the drawing and select the desired drop down menu or click Zoom/Select for the tool bar.



Parallel Port Output Explained

From Help on the Main Menu, Parallel Port Output Explained can be opened. This screen provides view of the current setting in Foamworks. It also allow you to see simulated activity on the parallel port based on those settings. Using this tool can help you understand how Foamworks commincates with the controller board.

When any of the manual button are clicked, the parallel port monitor will show simulated activity of the parallel port that is reflective of the current setting in Foamworks. For example if a motor is set to reverse, the pin will toggle high or low based on the setting in the setup screen. A breif dialog will also be display to help explain the current activity. This is not intended to be diagnositic tool. It is intended to help you become familiar with how Foamworks communicates with your controller.



Veiw Parallel Port Activity

From Help on the Main Menu, View Parallel Port Activity can be opened. This monitor allows you to see the actual activity on the parallel port. Using this tool can help you diagnose communications and hardware problems.

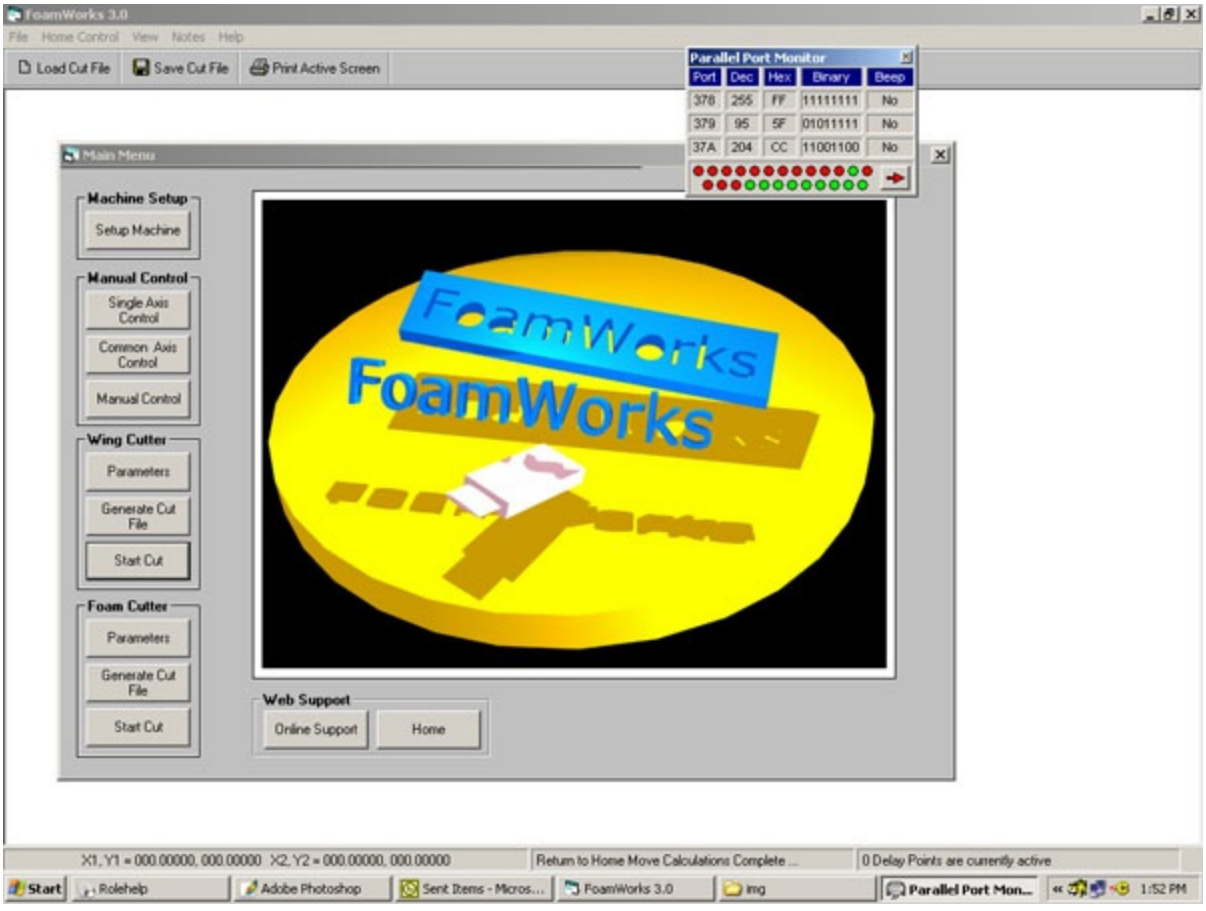
To view activity, make sure that your speed setting are at the lowest possible setting. If the speed is set to high the activity at the parallel port is to fast to be observed.

You are viewing real-time activity at the parallel port. By first reviewing Parallel Port Output Explained, you can compare the simulated output to the actual output based on your current setting.

This can be a very valuable tool in trouble shooting hardware and communication problems. For example if you are seeing the proper output at the parallel port, but the machine is not responding as expected, you can begin to look at wiring or mechanical problems.

The monitor will show the currently selected parallel port and the 25 pins asssociated with the port. The pins will toggle between 0 and +5 volts based on the activity at the port. You can view the port from either the male or female side of the connector.

A red pin indicates a +5 volt state, a green pin indicates a 0 volt state.



Cutting Speed

On slower computers, the accuracy of cutting speed can be affected by have the Home Position active. Foamworks should function properly with a minimum 800 MHz computer. You can use Foamworks on slower computers by turning off the Status Bar from View > Status Bar on the Main Menu.

Home Position is still active, but real-time updating is stopped. Generally this will take care of speed concerns on slower computers.

Cut File Generation Speed

Cut file generation is effected by active virus protection software. If you have virus protection software running and you cut file generation time is slow, turn off the virus protection software while using Foamworks. You will see a noticeable difference in speed

DAT file

location

Cut files can be move from one computer to another. Make sure the following steps are completed:

Source Computer

1. Copy CT1, CT2 and CT3 file
2. Copy one or both DAT files based on the cut file that was generated.

Target Computer

3. Copy the CT1, CT2 and CT3 to a common folder on the new computer.
4. Copy the DAT file to the new computer. Place the DAT file in the same relative location on the target computer as the source computer.

For example if the location of the DAT file when the cut file was generated was C:\dat files\ somename.dat on the source computer, then the DAT file must be placed in the same relative location on the target computer, C:\dat files\somename.dat

Screen Resolution

Screen resolution should be set to **1024 x 768** to fully view all screens.

Foamworks will function at lower resolutions, but some options my not be visible at the lower screen resolution.

Zoom Functions

Zoom fuctions are available at the following screens:

Wing Cutter - Cutting Window, use + (plus) key and - (minus) keys on the numeric keypad.
Foam Cutter - Cutting Window, use + (plus) key and - (minus) keys on the numeric keypad.
Add Delay Point Window - Right click anywhere on the drawing and use the options provided in the popup menu.

These functions are intended to aid you in viewing drawing of cut profiles in more detail.

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With HelpScribble you can even provide your documentation in several forms, all from the same source. You can add context-sensitive help to your application, print a manual and provide online documentation on your web site.

WinHelp

WinHelp is the help file format supported by all versions of Windows. It is fast, compact and supported by Windows 3.x, NT 3.x, 95, 98, ME, NT4, 2000 and XP. All Windows users are familiar with it. With any Windows development tool you can use WinHelp files to add context-sensitive help to your applications.

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Reading from paper is a lot easier than reading from a screen. A printed manual or, for downloadable software, a printable manual in PDF format, adds greatly to the value of your product.

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Number 1 Help Tool for Delphi & C++Builder

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HelpScribble's HelpContext property editor takes most of the tedious job of assigning Topic IDs to HelpContext properties out of your hands. Adding context-sensitive help to your application could not be easier. Simply click on the corresponding controls and help topics to link them.

Delphi developers like HelpScribble so much that it won the Delphi Informant Readers Choice awards three years in a row. In 1999, 2000 and 2001, HelpScribble was chosing the Best Help Authoring Package, beating well-known tools such as RoboHelp and ForeHelp.

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Chris Kryza

"Just wanted to let you folks know that you have created a very, very, very nice product! The last time I had to generate a context sensitive help file I used Doc-To-Help and I remember it took me weeks to get it right. With HelpScribble I was able to put together a complete help system in under 2 days and I then created a web-help deployment of same in seconds. I used your demo version to create the entire project and then purchased your product online after I saw how good it all looked. Great stuff!"

Roj Ash

"I just felt I had to compliment you on this product. I have no experience of producing Help files, and having evaluated a number of products, I was beginning to believe that a mere programmer had no chance whatever!

"I am not only making good progress in producing the Help for our product (which is usually used by **very** inexperienced users), but I'm actually enjoying it!

"Thanks for a great product."

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