

# **XTR Master**

## **Fast Wire Cutters**

User's Manual

ver. 1.2



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# TABLE OF CONTENTS

INTRODUCTION.....	4
TECHNICAL PARAMETERS.....	5
BASICS .....	8
Initial start-up procedure .....	9
Installing / replacing the cutting wire .....	9
MANUAL CONTROL WITH THE HANDHELD.....	12
DRAWINGS' PREPARATION.....	14
Machine's Home position vs. project's zero point.....	14
Supported file formats .....	14
DXF format.....	14
G-code Postprocessor.....	15
Preparing the cutting path.....	16
FASTWIRE APPLICATION.....	19
Start-up procedure for the XTR Master machine and the control software. ....	19
FastWire application settings .....	20
Language version .....	20
FastWire Main Window.....	20
Opening a drawing .....	23
Simulation.....	24
Cutting multiple horizontal layers.....	24
Configuration.....	26
Working parameters tab.....	27
Misc. tab.....	28
Cutting.....	29
Manual Control.....	30
Homing procedure.....	33
Project's zero points.....	33

Precise manual wire movement .....	34
Wire inclination and alignment .....	34
Panel Generator.....	36
Introduction.....	36
Cutting parameters.....	38
Machine parameters.....	38
Prior to cutting panels out of a block (flat and sloped).....	40
Prior to cutting individual panels (double sloped).....	41
Panel Generator - use.....	45
Cutting multiple panels from a block (flat & sloped).....	45
Cutting individual panels (double sloped).....	48
Machine calibration .....	51
MAINTENANCE .....	54
TROUBLESHOOTING.....	56
Updating the FastWire application .....	57
TECHNICAL DOCUMENTATION.....	58
Machine general description .....	58
Machine technical parameters.....	58
Drawings, descriptions and explanation necessary for safe machinery use and maintenance..	59
Workplace description .....	61
Proper use of the equipment .....	62
Prohibited use of the equipment.....	62
Freight and installation.....	62
Operator's training, safety and machine environment safety .....	63
Basic XTR Master package includes: .....	65
Machine maintenance.....	65
E-stops.....	66

## INTRODUCTION

The XTR Master Fast Wire Cutters are computer-controlled machines used for sheet and contour cutting of such flexible and rigid materials as:

- polyurethane foam (PU or PUR)
- polyisocyanurate foam (PIR, POLYISO, ISO)
- polypropylene & polyethylene foams (PP, PE)
- mineral wool, rock wool, foamed glass, etc.

The cutting process is performed with an abrasive endless wire traveling at up to 280 km/h. The cutting wires are consumable parts requiring regular replacement and various cutting wires are available for given materials.

Advanced electronics, easy-to-use software and a robust frame enable the operator to contour cut any 2D shape. The shapes to be cut need to be drawn in third-party graphics software (e.g. CorelDraw, Rhinoceros 3D, AutoCad, etc.) and once the saved drawings are open in the FastWire application entire blocks of foam can be cut automatically from a single file (drawing).

Each XTR Master machine comes with the „FastWire” control application. It enables the preview of drawings previously prepared in third-party graphics software as well as setting all the working parameters, simulating and initializing a cut as well as controlling the cutting process and adjusting the cutting parameters on the fly while a cut is in progress.

Apart from performing automatic cuts from drawings, it is also possible to perform simple manual cuts. This can be done either within the Manual Control panel in the software or by means of the included wired remote controller (handheld) which can also be used to change the cutting parameters (speed and rpm) while a cut is in progress.

Common applications in which the XTR Master fast wire cutting machines are used include:

- upholstery – flexible PUR contour cutting for the furniture industry (sofas, arm chairs, etc.)
- insulation of chimneys, pipes and walls (mineral wool, PIR)
- packaging industry
- flat roofing systems from mineral wool
- SIP panels (PUR/PIR)

## TECHNICAL PARAMETERS

### XTR Master:

Working area	Work table : 1800 x 1800 mm Up-down movement : 300mm Wire inclination: do 10%
Cutting wire	Endless, abrasive, diameter: 1.1-1.6 mm pneumatic wire tensioning wire break detection
Wire speed	Up to 308 km/h
Wheel diameter	405 mm
Wire motor	3kW, 400V, 50Hz, inverter controller
X & Y drives	3-phase easy servo + planetary gears
Max. movement speed	10 meters / min
Power	AC 400V (3-phase), 6 KW

Environmental requirements: temperature: 0 – 40° C, humidity: 95% (non-condensing)

### Each XTR Master machine package includes:

- fast wire XTR Master foam cutting machine
- electronic controller
- automatic wire break detection
- pneumatic wire tensioning (air compressor not included)
- FastWire control application with unlimited free updates
- 5 cutting wires

### Optional accessories include:

- wired handheld with a display - facilitates the machine operation and allows for setting the project's zero point, manual movement in all direction, manual cutting as well as the adjustment of the cutting parameters on-the-fly while a cut is in progress



- a 4-bag 3-phase vacuum system with a custom vacuum head and 10 meters of flexible reinforced 100 mm pipe.



- full enclosure – complete enclosure preventing the dust from leaving the working area as well as increasing the safety in the proximity of the machine. It comes with sliding front and back doors as well as an operator's side door.



## BASICS

Please note the following before you start operating the machine:



The machine is powered with a 3-phase 400VC (up to 6kW) power line (unless otherwise agreed at time of order). The main ON/OFF switch is located on the side of the electronic controller as shown above.

To switch the machine on, press the green ON button located on the top panel of the electronic controller. To switch the machine off, press the red OFF button located next to the green ON button. There is an additional emergency OFF button located on the machine as shown above.

The PC used to operate the machine needs to be connected to the electronic via the USB port marked above.

There is a service display inside the electronic controller which displays information on the current state of the machine. During the start up procedure the machine model is displayed there and once the start up completes, the display shows the machine-PC connection status (Connected or Disconnected).



Moveable elements of the machine include:

- table on which the foam is placed – X axis – which moves left and right
- side panels with the wire stretched between them – X axis – which moves up and down
- the cutting wire's rotary movement along the 4 cutting wire wheels

## **Initial start-up procedure**

Please follow this sequence of steps to start up the machine safely and properly:

- turn ON the main power switch on the machine
- turn the controller ON by pressing the green button
- turn on the air compressor for the pneumatic wire tensioning system
- connect the controller to your PC with a USB cable
- switch on the PC (note it may take up to a few minutes for the Windows PC to recognize the machine as a new HID device and install its drivers automatically)
- open the FastWire application on the PC
- Home the machine in the FastWire application by pressing the Home button in the Manual Control window

The Homing operation moves the machine to its Home position in the X and Y axes determined by the location of the proximity switches. It is necessary to perform the Homing procedure each time the controller has been switched off and on. It is not necessary to Home the machine between subsequent cuts provided the electronic controller has not been switched off.

Important! Never try to initiate a cut nor make any manual movements until the machine has been Homed properly.

## **Installing / replacing the cutting wire**

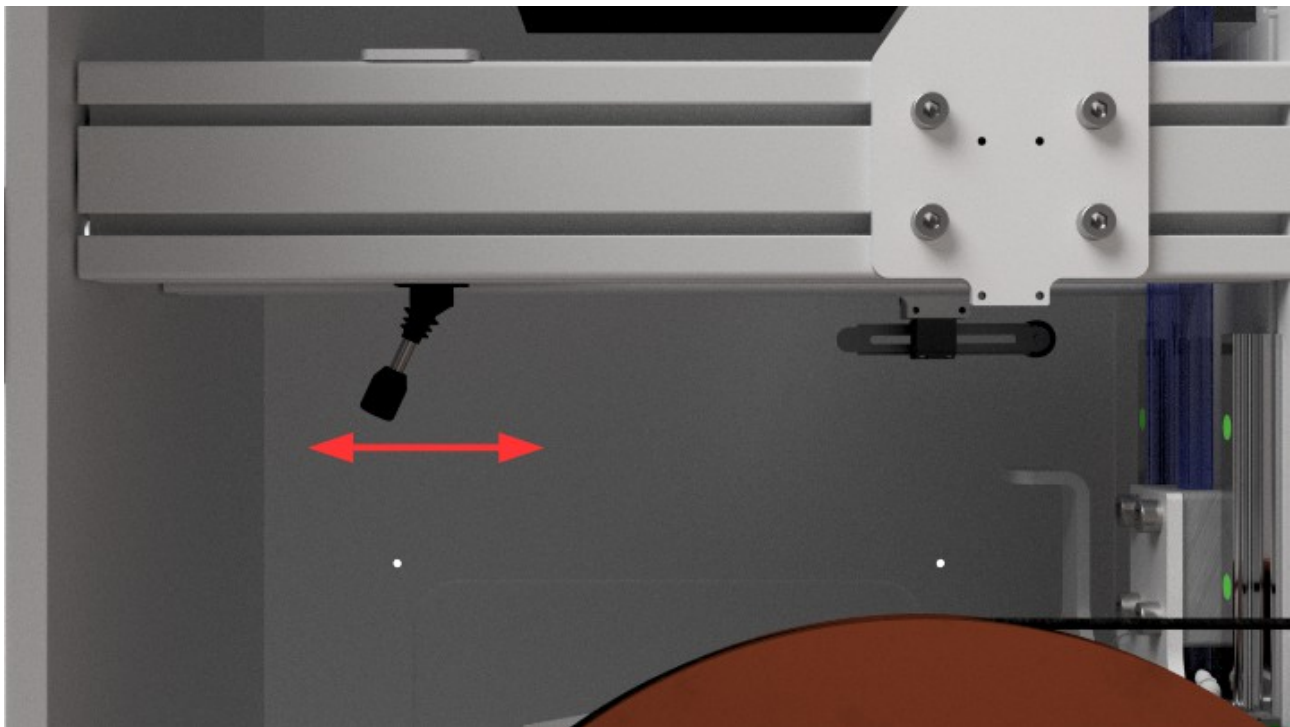
The cutting wire is installed on two wheels, one of them being a part of the wire tensioning system. To ensure consistent wire tension throughout the lifespan of the wire the machine comes with an automatic pneumatic wire tensioning system with a wire break detection system.

To install a new cutting wire, release the tension on the tensioning wheel by pulling on the up-down air switch located under the tensioning wheel.

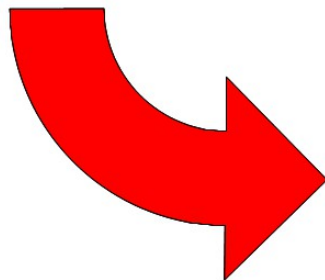
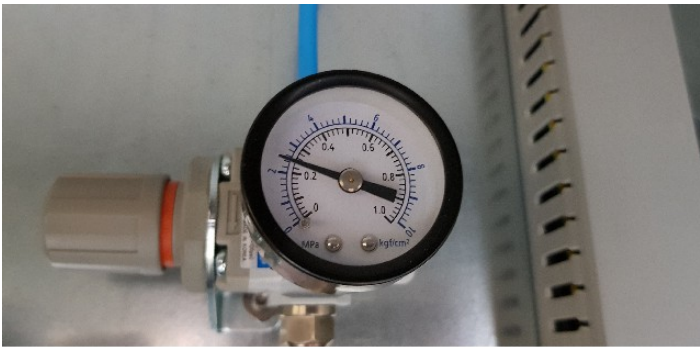
Make sure not to twist or break the new cutting wire during its installation. Place the wire inside the grooves of the wheels – note it is more convenient if the wire installation process is performed by 2 persons.

Each new wire comes with a marking of its directionality. Make sure to install it correctly so the wire's marking matches the wire rotation (counterclockwise).

Once the wire is installed on all 4 wheels turn the wire tensioning back on with the use of the air switch.



The wire tensioning system is pneumatic and works properly when an air compressor supplies compressed air to the system. Proper wire tension needs to be adjusted based on the type of cutting wire as well as type of foam. There is an air pressure reducer installed inside the electronic controller. In most scenarios the wire tensioning works best when set to 0,2-0,25 MPa.







## MANUAL CONTROL WITH THE HANDHELD

The remote control (handheld) is used to move the machine in X and Y axes manually, to switch on and off the wire rotations as well as to set the project's zero point. It can also be used to adjust the cutting speed and wire's RPM during a cut. Its display shows the project's current coordinates (in relation to the project's zero point), wire's rpm as well as the cutting speed.



Handheld's buttons description:

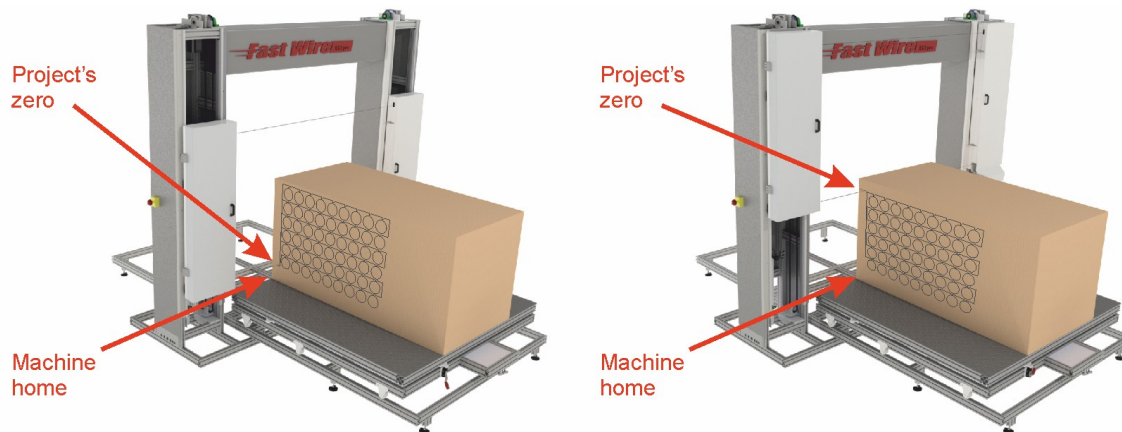
	OFF Rotation	Switch wire rotation OFF
	ON Rotation	Switch wire rotation ON
	RPM -	Decrease wire rotation (3000-5000 rpm)
	RPM +	Increase wire rotation (3000-5000 rpm)

	V -	Incremental speed decrease
	V +	Incremental speed increase
	STOP	Stop the movement/cut
		Move in X & Y
 (short press)	V1 .. V4	Select on of predefined speeds V1..4
 (press & hold)	V1 .. V4	Set the current speed as a new predefined speed for V1..4
 (press & hold)	START	Start the cutting of a drawing opened in FastWire application
 (short press)	START	Continue (after a cut has been stopped)
 (press & hold)	0,0	Save the current location in X and Y as a new project's zero point
 (short press)	0,0	Move to a previously saved project's zero point
 (press & hold + press & hold the STOP button)		Home the machine. After pressing and holding the blue button (short beep), press and hold the STOP button (double beep) to initiate the Homing procedure.

## DRAWINGS' PREPARATION

### Machine's Home position vs. project's zero point

It is crucial to understand the difference between the machine's Home position and the project's zero point. Each time the controller is switched on, the machine needs to be Homed. The Home position is determined by the location of the proximity sensors and it is not possible for the operator to change its location.



The foam to be cut can be placed anywhere on the machine table. The cutting process starts from the current wire location and it is called the project's zero point. It is either the lower left or upper left corner of the drawing.

When a drawing features an entry line originating in the upper left corner of a drawing, it is necessary to move the wire sufficiently high prior to initiating the cut to make sure the entire drawing to be cut fits below the current wire location.

### Supported file formats

Drawings to be cut on the machine can be prepared in a few different formats: PLT, DXF, AI /EPS (Adobe Illustrator 8) or NC (G-code). When preparing a vector drawing, make sure to avoid overlapping shapes.

#### DXF format

- all shapes to be cut need to be placed on the same zero layer
- do not use BLOCKs, all shapes need to be drawn with such tools as polylines, curves, etc.
- text (lettering) needs to be converted into curves. If you use AutoCad, you can use the Express tools for this purpose: `express \ text \ explode \ explode text`.

- we recommend saving your DXF files from AutoCad to DXF versions R12/R13

### G-code Postprocessor

The FastWire application reads from a G-code file all the info related to the geometry and size of the shape, including the tool path. G-codes to be opened in the FastWire application need to be saved in the NC (\*.nc) format. They can be created in a text editor or a CAM application.

List of supported G-code commands:

G20	inch co-ordinates
G21	mm co-ordinates
G0	Switch to the transit movement (same as G1)
G1	Switch to the working movement
G2	Switch to clockwise curve movement
G3	Switch to counterclockwise curve movement
X, Y	X & Y co-ordinates
I, J	Circle center I=x, J=y (absolute addressing) – in FastWire in the Misc. tab select <i>G-code: curve absolute addressing</i>
F	Not supported, working speed is read from the FastWire Configuration
S	Not supported, the RPM value is read from the FastWire Configuration

All other commands not listed above are ignored.

When using G-codes, the working speed and the wire rpm are read from the Configuration in the FastWire application. The wire rotation starts at the beginning of the file and switches off at the end of the cut. RPM commands on/off/change as well as speed change commands are ignored. Absolute addressing is supported.

When preparing a G-code file you can use either the full or shortened variants as shown below:

**Full**

```

N10 G90 G21
N20 G0 X15 Y15 Z5
N30 G1 X15 Y15 Z-1
N30 G1 X20 Y15 Z-1
N40 G1 X20 Y20 Z-1
N50 G1 X20 Y20 Z5
N60 G0 X0 Y0 Z5

```

**Short**

```

N10 G90 G21
N20 G0 X15 Y15 Z5
N30 G1 Z-1
N30 X20
N40 Y20
N50 Z5
N60 G0 X0 Y0 Z5

```

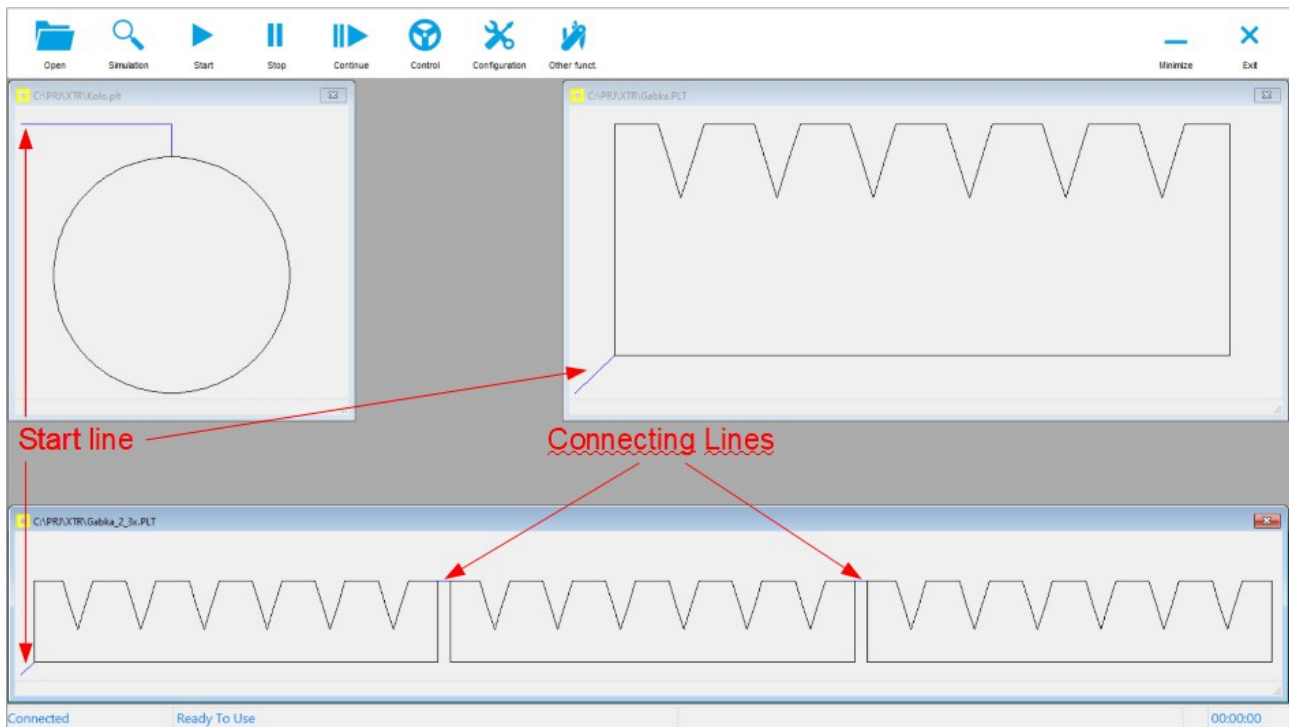
## Preparing the cutting path

Depending on the type of wire you use, there will be a kerf of 1,5-2,5 mm created during the cutting process – you need to take this into account when preparing the art file to ensure the final piece will have the correct dimensions (creating an outline on the outside of the shape will resolve the issue).

Since the kerf created during the cutting process results in the foam dropping down, it is recommended the path is prepared in a way ensuring the cutting begins in the top section of the foam block. For the same reason – to avoid inaccuracies – it is suggested each shape is cut completely before the wire moves to the next one.

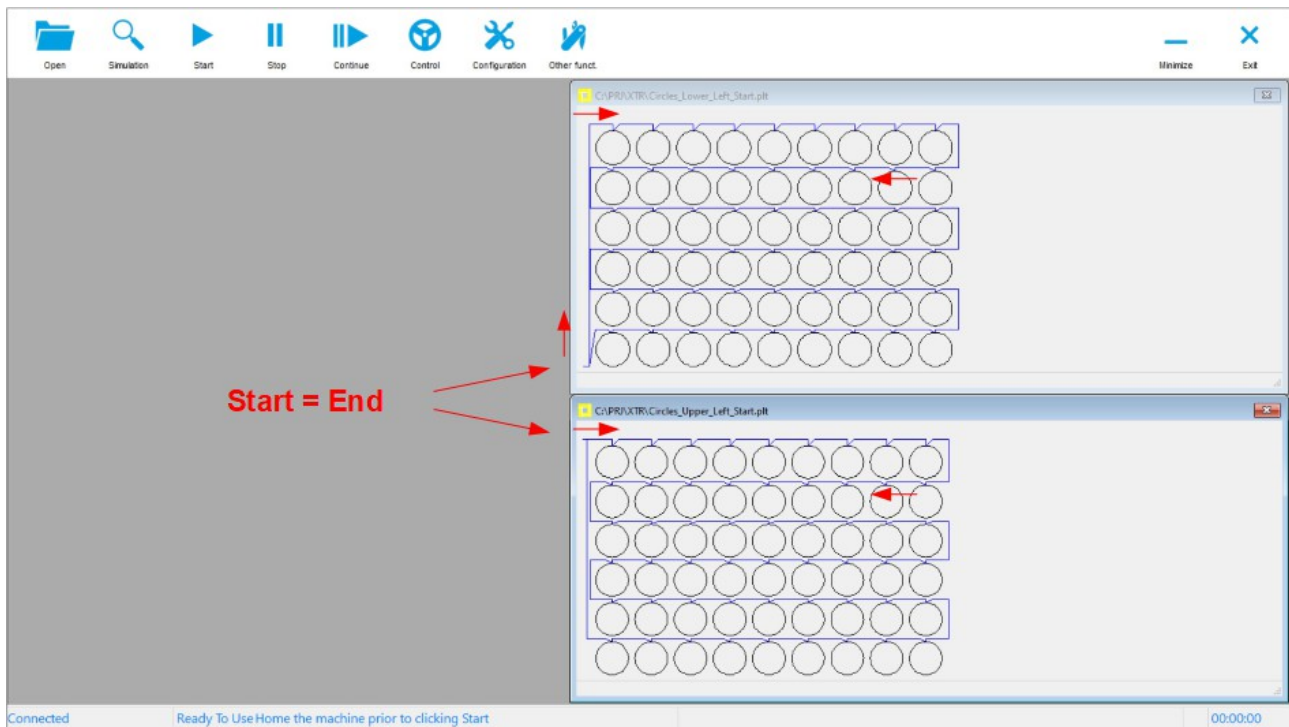
When creating closed shapes it is crucial to connect all nodes properly. A properly closed shape is displayed in the FastWire application in black. If it is displayed in blue it means it is an open shape which needs to be closed (back in the graphics software). Blue is also used to show all the connecting lines and the start line.



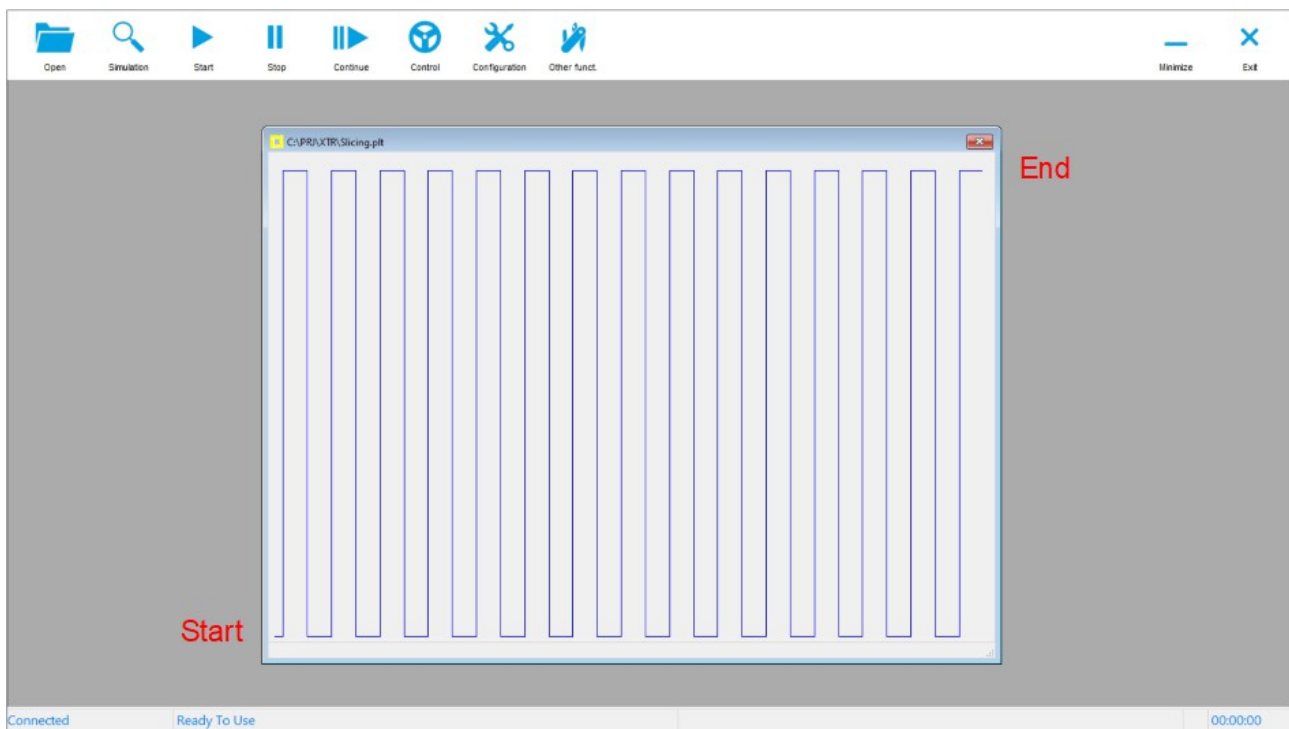


When a drawing consists of a number of unconnected shapes, the FastWire application will automatically add a start line as well as all the connecting lines between the shapes. However, with the previously explained suggestions in mind, it may often be more optimal to connect the shapes manually when preparing the drawing in the graphics software. The start line should originate either in the lower left or the upper left corner of the drawing and should reach a node on the first shape. It should be sufficiently long for the wire to enter the block of foam and reach the first shape to be cut. All manually added connecting lines need to start and end on a node.

When a drawing consists of closed shapes, the cut begins and ends in the same stop. To force the cut to end in a different place, the entire tool path needs to consist of a single open line (polyline) which will be displayed in blue. In this case the cutting can start e.g. on the left hand side and end e.g. on the right.



If your XTR Master is equipped with the manual turn table it is possible to rotate the block 90 degrees after a contour cut to have the shapes subsequently cut into required lengths during the second cut. In this case you will need two separate drawings, the second one typically consisting of a single open line as shown below.



## FASTWIRE APPLICATION

The FastWire application is used to control the machine during automatic cuts as well as manual movement.

Drawings to be cut on the machine need to be prepared in advance in third-party graphics software in one of the supported formats: PLT (CorelDraw), DXF (AutoCad), AI/EPS (Adobe Illustrator) or NC (postprocessor – G-code). Once a drawing is opened it can be scaled up or down and the built-on Simulation features shows the sequence of cutting prior to starting the cut.

### **Start-up procedure for the XTR Master machine and the control software.**

Please follow this sequence of steps to start up the machine safely and properly:

- turn ON the main power switch on the machine
- turn the controller ON by pressing the green button
- turn on the air compressor for the pneumatic wire tensioning system
- connect the controller to your PC with a USB cable
- switch on the PC (note it may take up to a few minutes for the Windows PC to recognize the machine as a new HID device and install its drivers automatically)
- open the FastWire application on the PC
- Home the machine in the FastWire application by pressing the Home button in the Manual Control window

The Homing operation moves the machine to its Home position in the X and Y axes determined by the location of the proximity switches. While it is necessary to perform the Homing procedure each time the controller has been switched off and back on, it is not necessary to Home the machine between subsequent cuts provided the electronic controller has not been switch off.

Important! Never try to initiate a cut nor make any manual movements until the machine has been Homed properly.

Should you encounter any PC-machine connection issues, please refer to the [TROUBLESHOOTING](#) chapter.

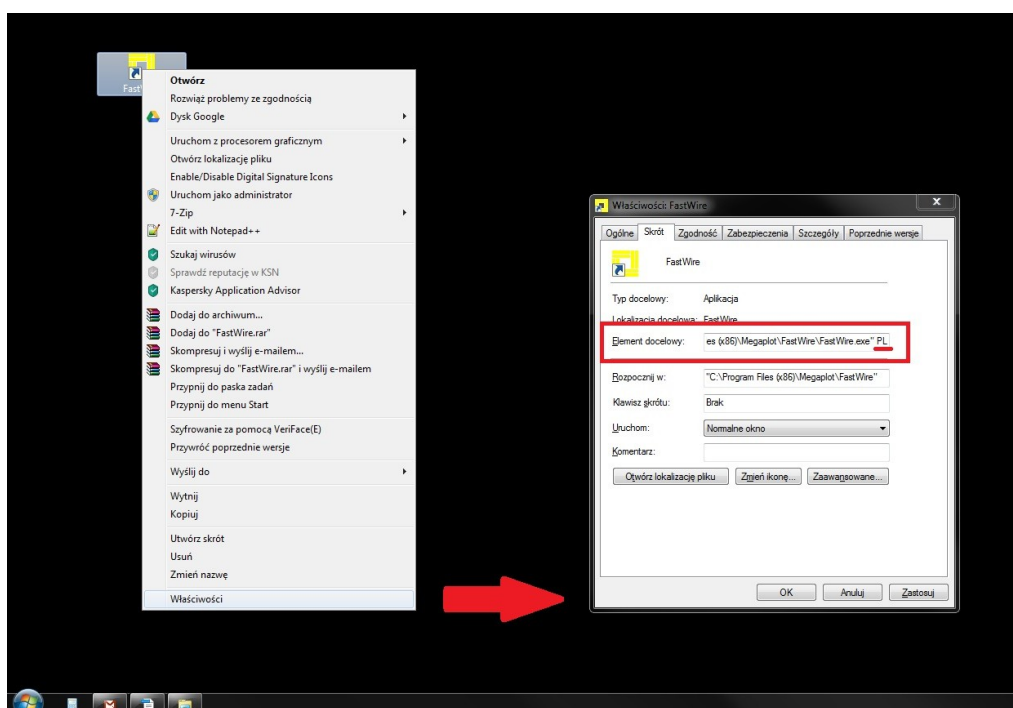
## FastWire application settings

### Language version

The FastWire application is currently available in Polish, English, Italian, German, French, Spanish, Hungarian, Russian, Romanian, Slovakian and Chinese. By default the application automatically starts in the same language as the Windows OS language version (if available). Should a matching FastWire language version not be available, the application will default to English.

Should you require we add an additional language version, please do not hesitate to contact us.

To „force” the FastWire application to open in any of the supported languages, you will need to modify the FastWire application’s shortcut normally found on your desktop.



In the Properties of the shortcut, add a space at the end of the target line followed by the two-letter language code (PL for Polish is used in the above example). Sample target path line after the modification:

"C:\Program Files (x86)\Megaplot\FastWire\FastWire.exe" PL

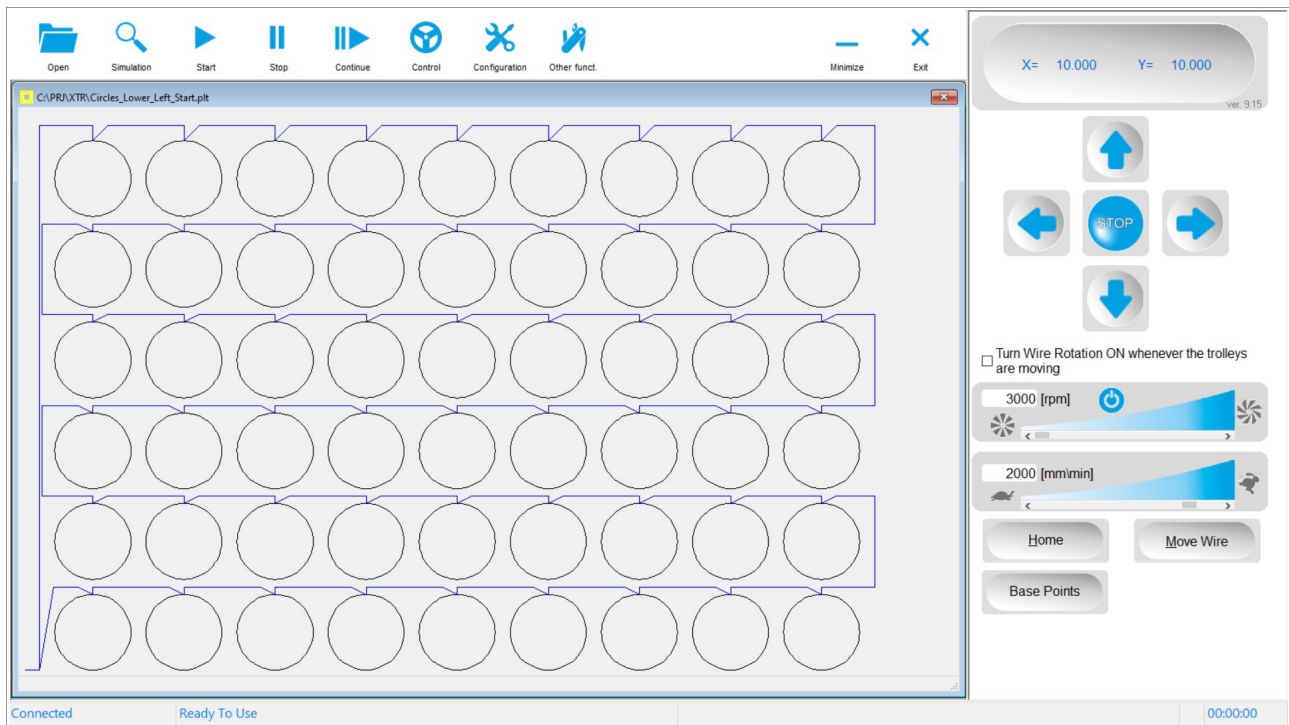
### FastWire Main Window

The application opens up in the fullscreen mode. The top bar consists of a series of buttons for the most often used operations. All the remaining functions are grouped under this *Other funct.*

button .

On the right hand side you will find the Control Panel as discussed in the chapter: Manual Control.




The remaining portion of the window is used to display the drawings to be cut. If you open more than one drawing, the new one will always be displayed fullscreen over the previous one(s).






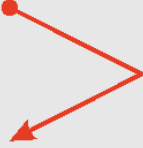


The button bar displays current status information.

The application has been optimized for touch screens

Supported gestures on the main window of the application:

	<p>Close the currently opened and active front drawing. To close all the drawings at the same time, go to <i>Other Funct.</i>  and select <i>Close All</i> .</p>
---	--

	<p>Swipe between all opened drawings starting from the last.</p>
	<p>Swipe between all opened drawings starting from the first.</p>
	<p>Adjust the view to full screen.</p>
	<p>Display drawing information (double press)</p>
	<p>Simulate the cut (triangle or circle gesture)</p>
	<p>Start the cut</p>


To close the iXshaper application please press .

On non-touch screen PCs the additional Menu bar will be displayed. It can be hidden by adding

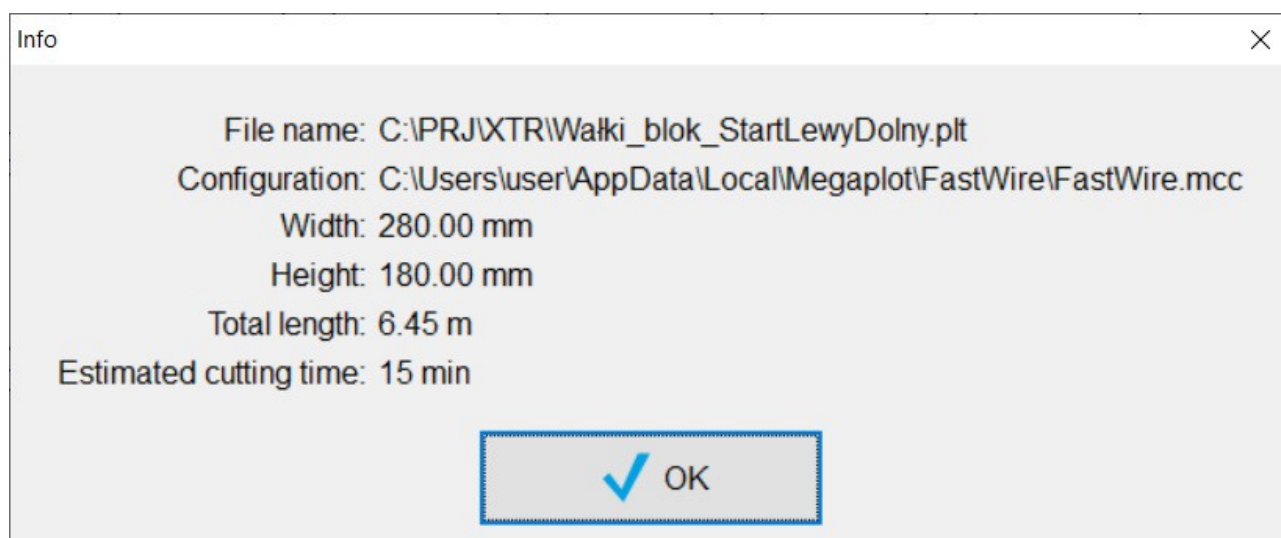
the TouchScreen parameter. To do that, in the Properties of the shortcut, add a space at the end of the target line and type in in TouchScreen. Sample target path line after the modification:

example: "C:\Program Files (x86)\Megaplot\FastWire\FastWire.exe" **TouchScreen**

## Opening a drawing

To load a drawing you can either press this button *Open*  or select from the Menu: *File \ Open [F3]*.

Once you open a drawing it is advisable to verify its dimensions. This can be done either by double tapping on the drawing (on touch screens) or by selecting from the Menu: *File \ Info* or by a right-click on the mouse.




Should the displayed dimensions not be correct, please:

- verify that you have set the correct units in your graphics software and that they match those set in the FastWire Configuration
- note they may originate from a bug in CorelDraw 11 export to plt where the exported file has incorrect dimensions (in which case setting the Scale in the FastWire application to 101,6% corrects the issue).

This window also shows estimated cutting time (based on your current working speed settings).

To close a drawing press the small system *X* icon located in the upper right corner of the drawing. On touch screens, you can close a drawing with an up-down swipe.


To close all open drawings at the same time go to *Other funct.*  and select *Window: Close*

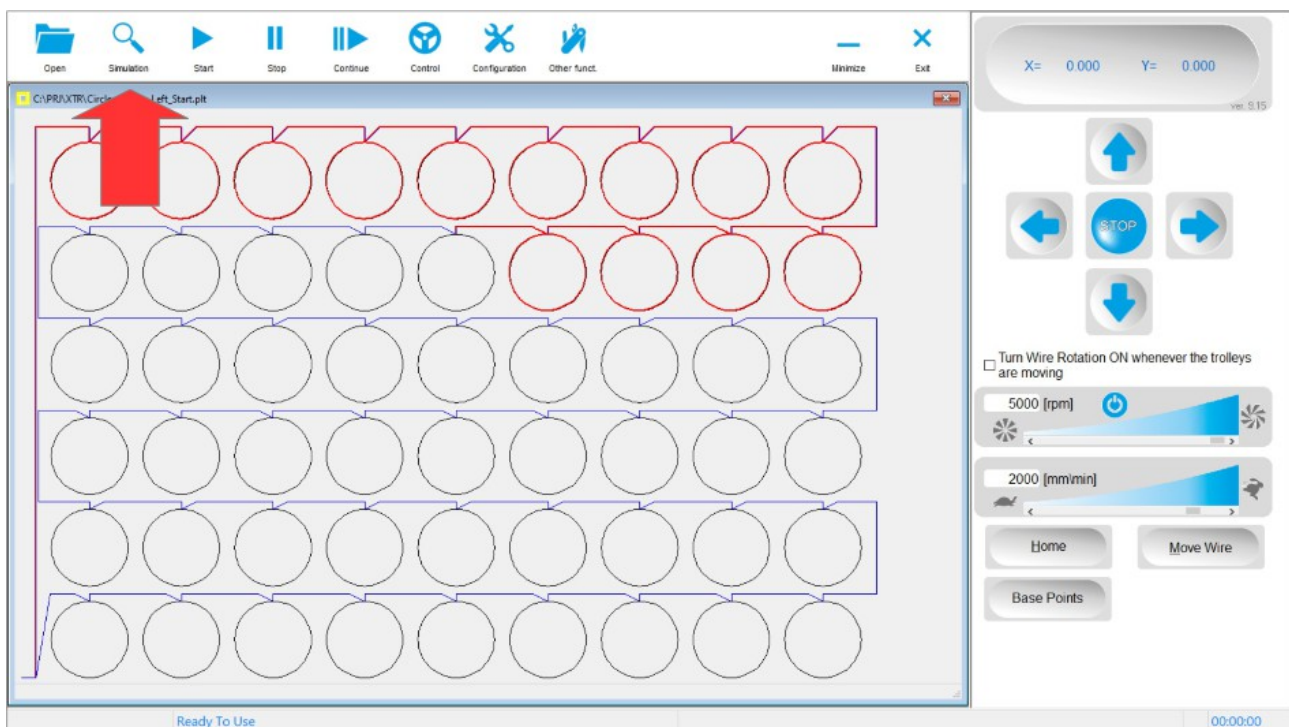


all. 

If multiple drawings are open you can swipe left-right or right-left between them.

## Simulation

Once you load a drawing in the FastWire application it is recommended you simulate the cut prior to performing the actual cut in the foam. This will confirm whether the cutting sequence is correct. To run the Simulation press *Simulation*  or press *F1* or select *File \ Simulation*.



The cutting direction and sequence can be controlled by proper drawing preparation (see DRAWINGS' PREPARATION).

## Cutting multiple horizontal layers

The FastWire application allows for cutting a given drawing in multiple layers of material, even if they are of different thicknesses.

Start by opening the drawing which is to be cut in each of the layers. It should be a closed drawing with a short entry/exit line.

Once the drawing is open, select *Other funct.*  and next *Cutting multiple horizontal layers*





(or select from the Menu *File\Cutting multiple horizontal layers*). A pop-up windows will be displayed where you can specify the starting height for each of the layers. At each of the specified Y value the same drawing will be cut from the beginning. You can have up to 20 layers for a given cut.

Layers' starting points

Layer	Offset in Y axis
1	0.00
2	85
3	173.2
4	260
5	0.00
6	0.00
7	0.00
8	0.00
9	0.00
10	0.00
11	0.00

☒ OK
 ☐ Cancel

To set the correct starting point values, move the wire to the starting point of the bottom layer and the measure and insert the distances to the following starting points in the layers above. For the first layer the offset should be set to 0.

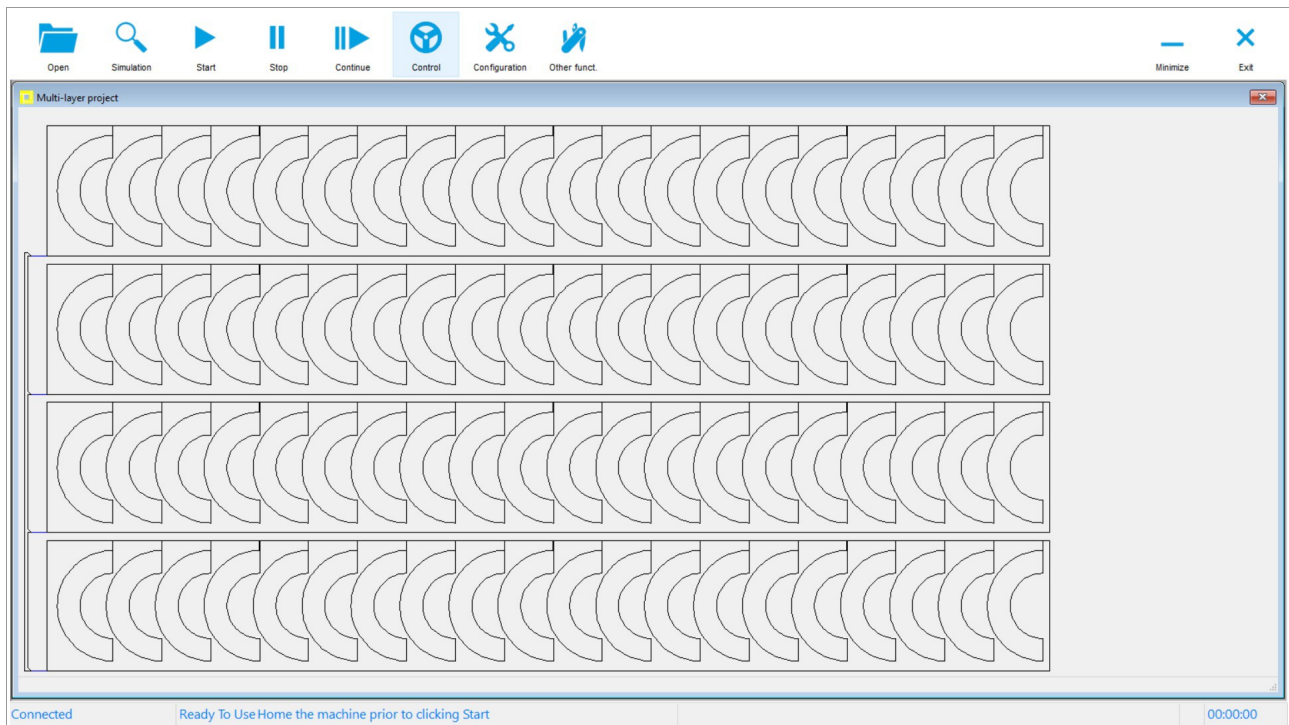
Once all the values have been set press OK. The application will verify the values and if data format issues are found or an offset is found to be smaller than the drawing' height a pop-up window will display information on which layer seems to be causing issues:

**i** Information

Incorrect starting point for layer: 2


☒ OK

If all the values have been verified successfully, a multi-layer drawing will be generated and displayed on the screen:



The cutting begins by the wire moving up to the starting point of the highest layer and then all of the layers are being cut one at a time from top to bottom. Upon completing the cut the wire will move to the starting position.

## Configuration

One can access the *Configuration* window by pressing this button  or from the *Configuration* menu. All cutting parameters can be set in the various tabs and it is important to set them to the required values prior to loading a drawing and initiating the cut.

The title bar shows the path to the currently used configuration file. There is a *SAVE* button to save the current configuration to a file and a different previously saved configuration file can be opened with the *OPEN* button.

When troubleshooting a drawing issue we may occasionally ask you to e-mail us your current Configuration file. To do so, please locate on your hard drive the configuration \*.mcc file whose path is displayed in the title bar.

## Working parameters tab

### *Speed*

- this is the speed at which the machine will perform the cut. It needs to be set to the correct value which is influenced by a number of factors, including wire type and diameter, type of foam, density of foam, required quality, etc. The cutting speed can be adjusted while a cut is in progress by using the Manual Control window or the wired handheld.

### *Rotation*

- the wire rpm during a cut within the 3000-5000 rpm range. This value can be adjusted while a cut is in progress by using the Manual Control window or the wired handheld.

### *Acceleration time*

- time needed for the wire to reach the required rpm prior to starting the actual cutting

### *Angle pause*

- a delay in movement when cutting sharp corners to ensure the wire drag does not round the corners.

### *Scale*

- used to increase or decrease the drawing's size

### *Add a frame*

- adding a frame around all the shapes within a drawing e.g. to facilitate the removal and packaging of the cut pieces

*Enable higher speeds on straight lines* - this feature allows for the wire to move faster when

cutting long straight lines. In certain materials it may be possible to increase the cutting speed when cutting straight lines without compromising the surface quality. This is also used when cutting a block into sheets when the wire returns are done outside of the block. When disabled, all wire movement is done at the same working speed. When activated, the following fields become unlocked:

*Speed on straight lines* - the speed at which the wire moves when cutting long straight lines

*Min. length of the straight lines* – the minimal length of a straight line to be cut at the increased speed. Curves as well as shorter line will be cut at the working speed set in Configuration.

*Cutting direction* - this setting only applies to single-line drawings (blue) which start and end in different places. They can be cut always in the same direction (left or right) or left-right subsequently (two-way) to save on time necessary to return to the original starting point between the cuts.

### Misc. tab

C:\Users\user\AppData\Local\Megaplot\FastWire\FastWire.mcc

Working parameters Misc.

Simulation speed slow fast

Upper limit of distance in shape linking procedure 0.25 [mm]

DXF curves resolution low high

G-codes: Arc center is an absolute position ☐

Calibration

X 1.00000000

Y 1.00000000

Calculate calibration

Unit

☒ mm

☐ inch

☐ feet

Homing Type

☐ aslant (X and Y together) - fast

☐ first X, then Y - fast

☒ slow

Open Save ☒ AutoSave OK Cancel




*Simulation speed* - determines the speed of simulation on the main preview window

*Upper limit of distance in shape linking procedure* - the min. distance between nodes which will be auto-connected by the FastWire application into a single closed shape


- DXF curve resolution* - curves interpolation resolution when importing a DXF file
- G-codes: Arc center is an absolute position* - when disabled, relative position will be used instead (relative to the last location)
- Calibration* - in case of small and incremental inaccuracies in the X or Y movement, it is possible to calibrate each of the two axes separately. The Calibration process is explained in the chapter Machine calibration .
- Units* - measurement units used in the application
- Homing sequence* - the first Homing procedure performed after the controller is switched on is a slow and precise homing based on the location of the proximity switches. Each subsequent Home button press can either:
- Aslant* - move the machine to the Home position via the shortest route possible (X and Y at the same time) at the speed set in the Manual Control window
- First X, then Y* - move the machine toward the Home position first in the horizontal direction (X) and then in the vertical direction (Y) at the speed set in the Manual Control window
- Slow to proximity sensors* - complete and slow Homing (identical to the original Homing procedure) – recommended



## Cutting

Prior to starting a cut:

- set all cutting parameters in *Configuration* (speed, rpm, angle pause, etc.)
- open a drawing [F3] 
- verify the cutting sequence by pressing the *SIMULATION* button [F1] 
- move the wire to the starting point (upper left or lower left corner of the drawing)
- press the *START* button [F2] 


After the *START* button is pressed the wire will first reach its required rpm and the wire movement will follow immediately from the current wire location. The cutting will be performed with the parameters set in Configuration. Speed and rpm can be adjusted while a cut is in progress by means of the Manual Control window as well as the wired remote.

After the *START* button  is pressed, the cutting will start and follow the sequence on cutting as shown during Simulation.

The cutting process can be stopped at any time by pressing the *STOP* button . To proceed with a previously stopped cut, you can press the *CONTINUE* [*Shift+F2*] button  in which case the machine will first move to the place where the cut had been stopped (in case the wire has been moved to a different location in the meantime) and will then continue with the cut. The Continuation is only possible if the FastWire application has remained open since the cut was stopped and provided the controller has not been switched off. Closing the application or turning the electronic controller off prevents the previous cut from being able to continue.



If a cut is stopped due to a broken wire, move the machine to a place outside the block of foam, install a new wire and then move the wire (with the wire rotation on) to the proximity of the place where the cut was stopped. When the Continue button is pressed the machine will move to the precise place where the cut was stopped and will then continue the cut. The wire replacement procedure is explained in Installing / replacing the cutting wire .

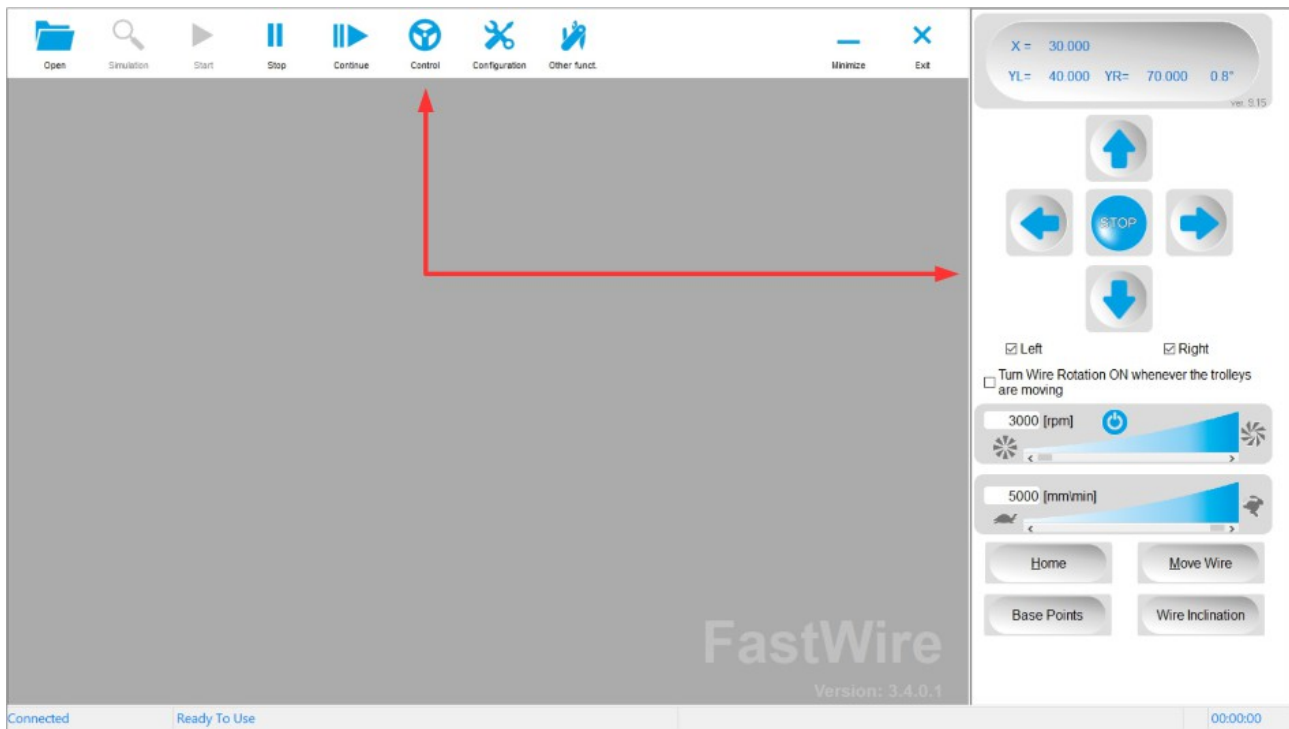
## Manual Control

The Control Panel is located on the right hand side of the main application window. You can hide it and have it show again by pressing this button  or by pressing F5.

This window also shows the wire's current location (in relation to the Home position) – note these co-ordinates do not have to match those displayed on the wired remote (which are calculated in relation to the project's zero point). Only when the project's zero point is set at the machine Home position will these co-ordinates match.

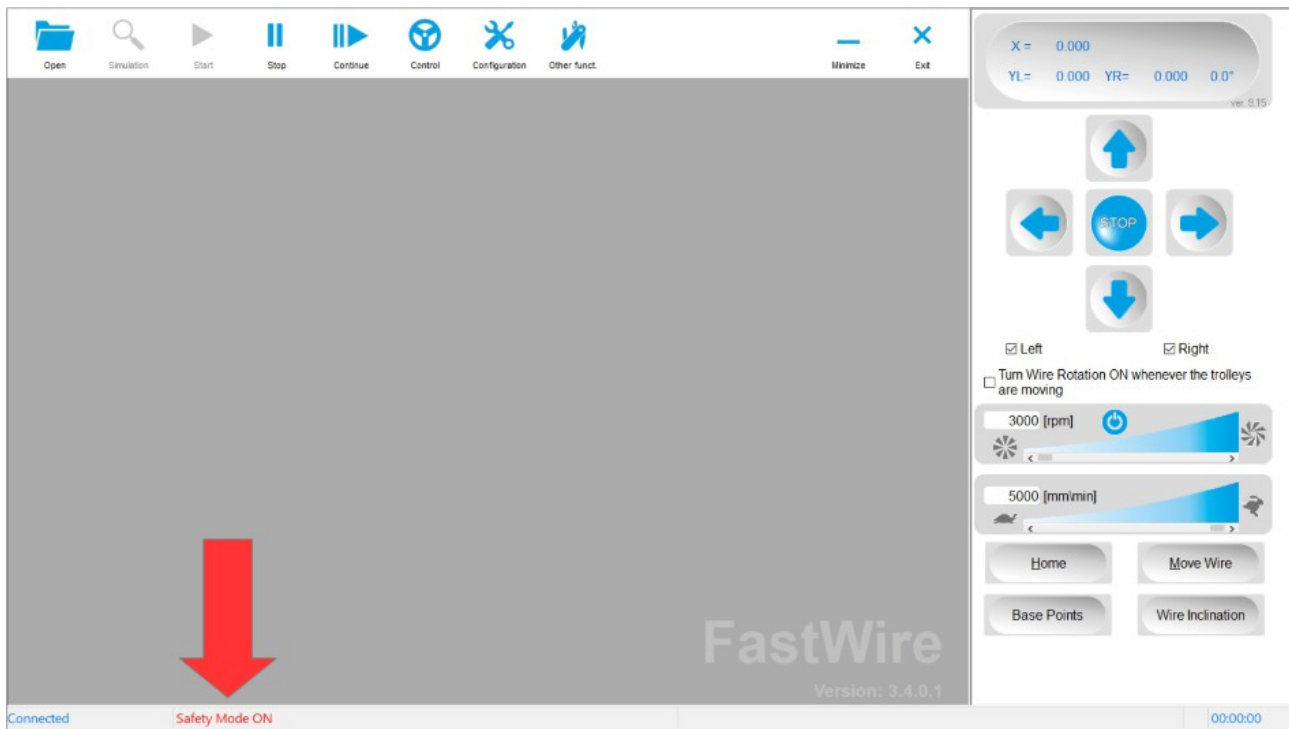
Apart from enabling the operator to move the machine manually in all axes, the Manual Control window also allows the operator to:

- turn on and off the wire rotation,  (OFF)  (ON),
- Home the machine,
- move by a given distance or to specific co-ordinates,
- set the project's zero point,



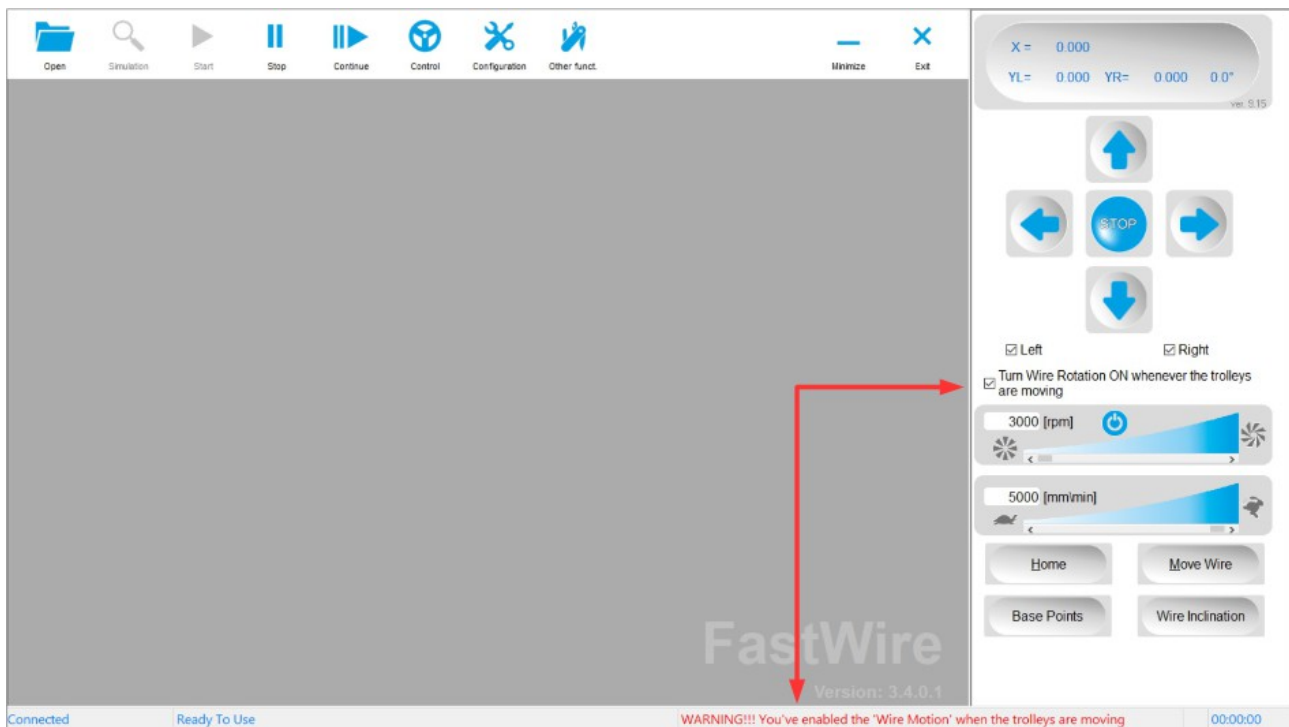
In the bottom part of the screen the machine status information is displayed:

- |                       |  |
|-----------------------|--|
| <i>Safety Mode ON</i> | - the cutting wire has broken or is not sufficiently tensioned. Check the cutting wire as well as whether compressed air is supplied to the tensioning wheel, ensure the wire tensioning value is set to around 0,2 Mpa. |
| <i>Ready To Use</i>   | - the machine is ready for a cut, the wire rotation is off   |
| <i>Wire in Motion</i> | - the wire rotation is on, do not enter the machine working area   |



The manual movement is typically done with the wire rotation switched off.

Should the manual movement be necessary with the wire rotations on, select the applicable option as shown below. With this setting on, the wire rotation will start prior to machine movement. In this case it is necessary to press and hold the movement arrows sufficiently long to enable the wire to reach the required rpm prior to initiating movement.





For manual movement the wire rpm and the movement speed are set using the sliders on the Control panel. You can use the same sliders to adjust these parameters on-the-fly while a cut is in progress, yet note the cut will always start with the cutting speed and wire rpm values set in *Configuration*.

## Homing procedure

Homing (*Manual Control \ Home button*) is used to send the machine to its Home position determined by the location of the proximity switches. This needs to be done each time the electronic controller has been switched off and on.

Homing should also be repeated each time movement has been blocked or when a movement error has been detected.

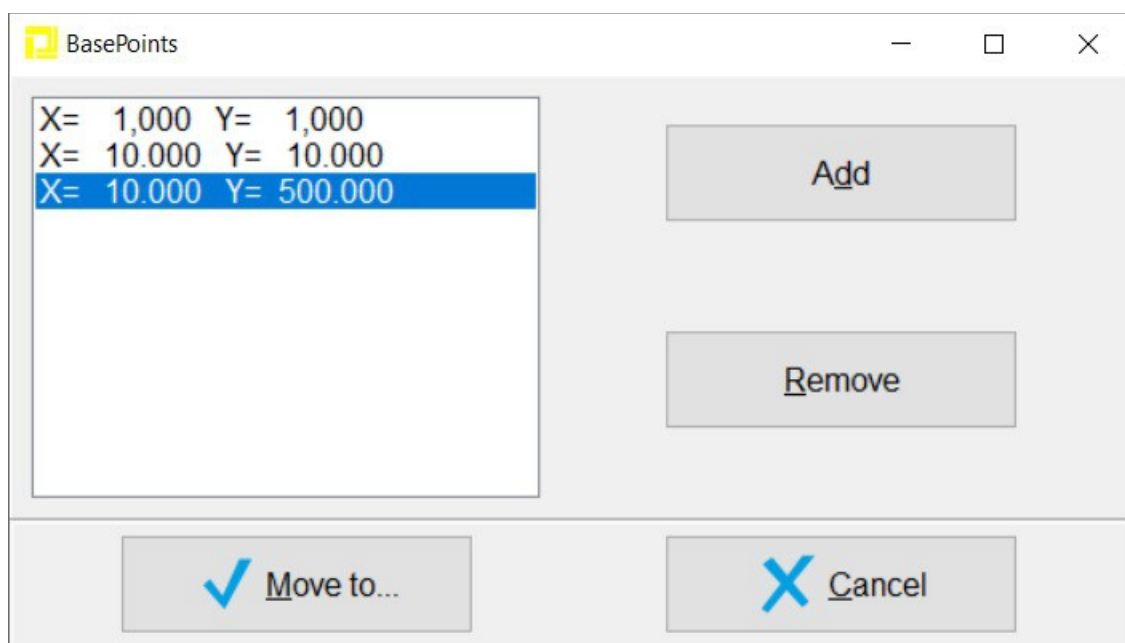
Only the first Homing after the controller has been switched on is done at the slow speed toward the proximity sensors. All subsequent presses of the Home button will result in the type of movement selected in the Homing Sequence setting as explained earlier.

To ensure the Homing procedure is successful it is important to keep the proximity sensors in a good and clean condition as explained in [MAINTENANCE](#).

## Project's zero points

The differences between the machine's Home position and the project's zero points are explained in the chapter [Machine's Home position vs. project's zero point](#).

The project's zero point is the current wire location. Additionally a number of base points can be saved by using the Add button in the application to facilitate subsequent returns to these points as necessary. A double click on a given base point will move the wire to its co-ordinates.



To delete no longer needed base points, please use the Delete button.

### Precise manual wire movement

Apart from being able to manually move the wire using the control arrows, it is also possible to move the wire precisely using the *Move the Wire* window. Two types of movements are available.

Y axis movement can be activated for one side only or for both at the same time:

☒ Left ☒ Right

### Wire inclination and alignment

Setting the wire at an angle and the subsequent bringing it back to a level alignment can be done via the wire inclination feature.

To put the wire at an angle, please insert the required angles in degrees or percents and select the wire inclination orientation.

To confirm please press the Set button.

Wire inclination

×

Set the required wire inclination in ° or %

2

▲▼

°

3.49

▲▼

%

Inclination direction

☒ Left < Right

yF

yB

☐ Left > Right

yF

yB

Set

Align Left - Right

Cancel

To bring the wire back to its level state, please press the “Align Left-Right” button as shown above.

Current wire inclination values are shown next to YL & YR coordinates as shown below:

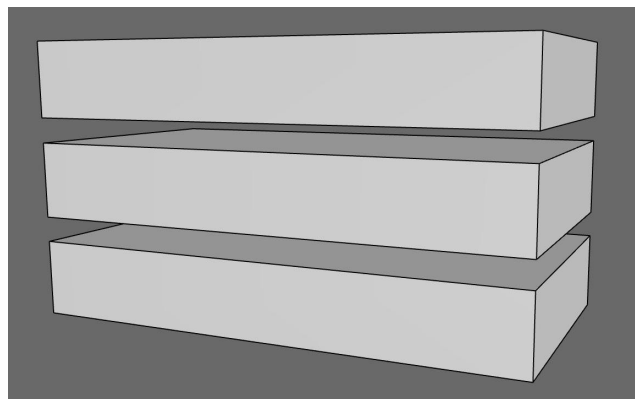
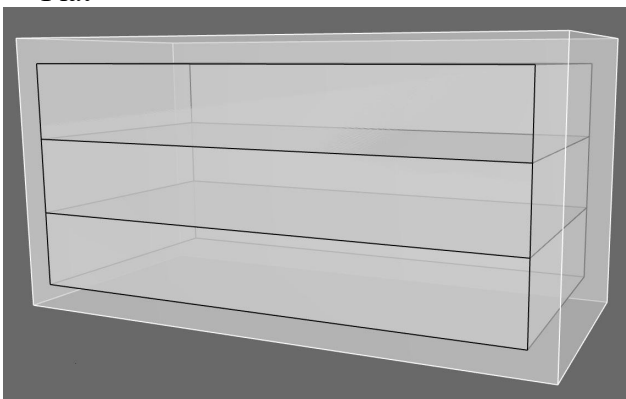


## Panel Generator

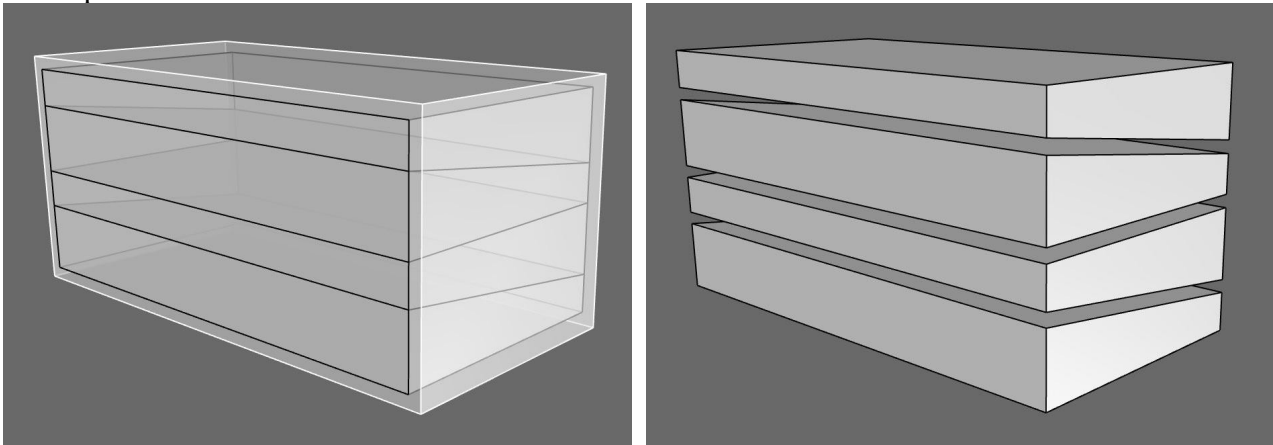
### Introduction

The *Panel generator* feature is available on all XTR PRO models (machine type: HVI) & XTR Master models (machine type: HWI). It is used to cut a block of material into different types of panels such as flat & sloped ones.

Flat

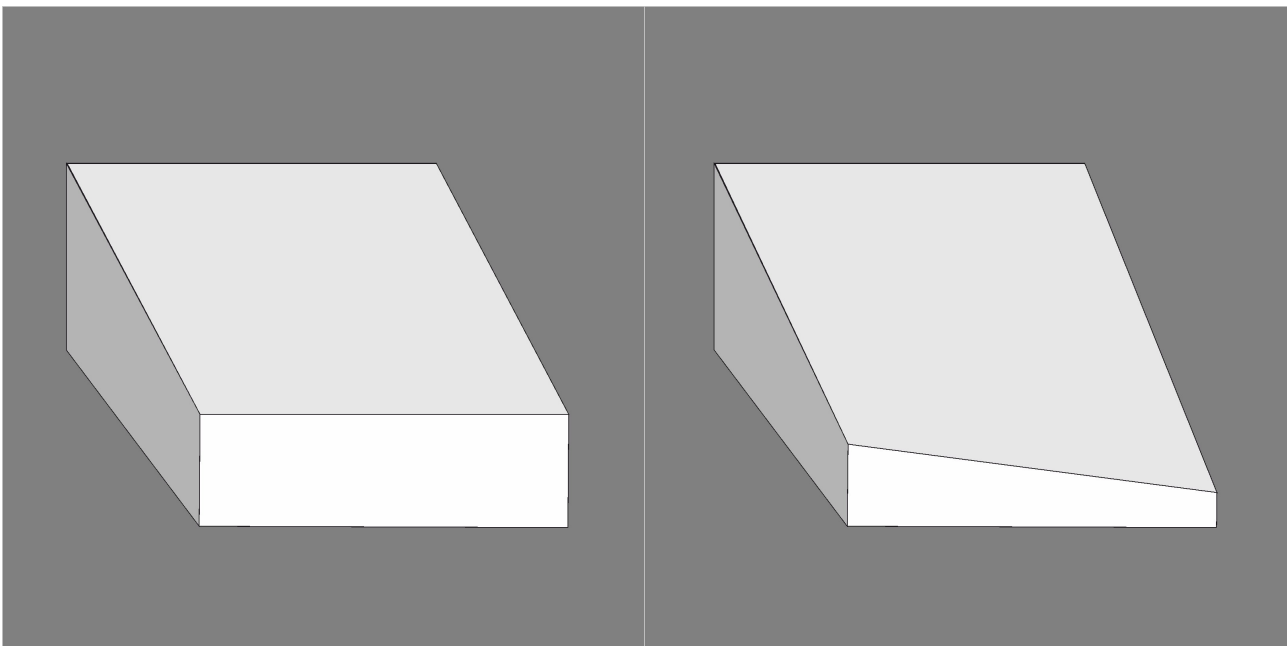


### Sloped




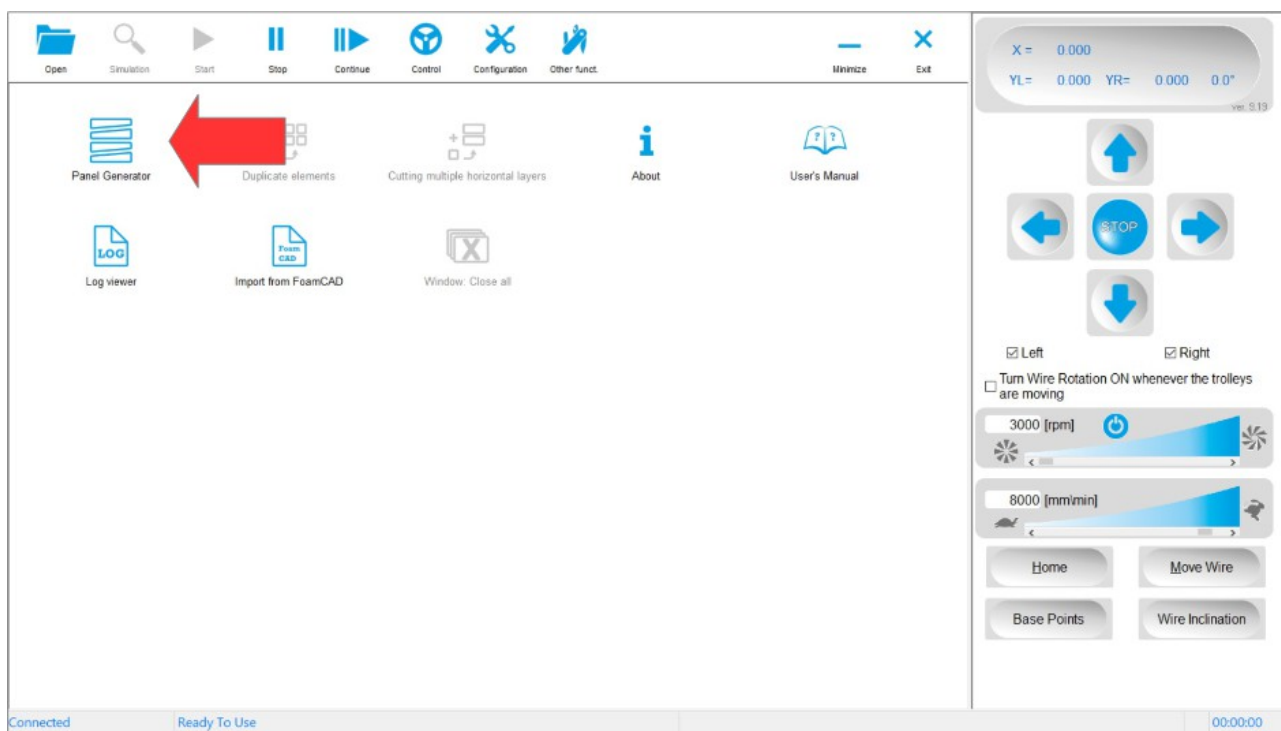
It also allows cutting individual panels such as the double sloped panels presented below where the 4 panel corners are of different height.

### Double sloped



Note the sloped and double sloped panels can only be cut on a machine equipped with the optional wire inclination feature.

The Panel Generator window can be accessed by pressing the *Other funct.*  button.



## Cutting parameters

Prior to starting the Panel Generator do set all the standard parameters as you would normally do for any other type of cut: speed, rotation, acceleration time and angle pause. They are all present in *Configuration*. For details on these parameters please refer to the main XTR PRO or XTR Master manual.

## Machine parameters

For the wire inclination to work properly it is essential to set all the parameters correctly in the *Ploter settings* tab.

C:\Users\user\AppData\Local\Megaplot\FastWire\FastWire.mcc

Working parameters Misc. **Plotter settings**

Distance between the wire wheels' centers (wire tensioner at 0)  [mm]

Wire tensioner extension  [mm]

Wire diameter  [mm]

Distance between the table level and the cutting wire in Y value at Home position.  [mm]

Negative value when the wire is below the table level.

EEPROM

☒ AutoSave

These parameters are read from the electronic controller when the machine is switched on and connected to the software. When editing them it is essential to save the changes by pressing the Set button on the right.

These factory settings may require a change e.g. in the following circumstances:

- a mechanical change resulting in a new and different distance between the wire wheels
- significant wire wear impacting their diameter
- using a short wire which impacts the wire tensioner performance (this applies to XTR Master only)

XTR Master only:

- distance between the wire centers needs to be measured when no air is present in the wire tensioning system and the air cylinder is all the way in
- air cylinder extension needs to be measured with the cutting wire installed and air supplied to the system (it is the distance in relation to the above passive state where no air is present in the system)
- the sum of distances between the wheels + air cylinder extension should reflect the actual distance between the wire centers when the cutting wire is installed and the wire tensioning is switched on

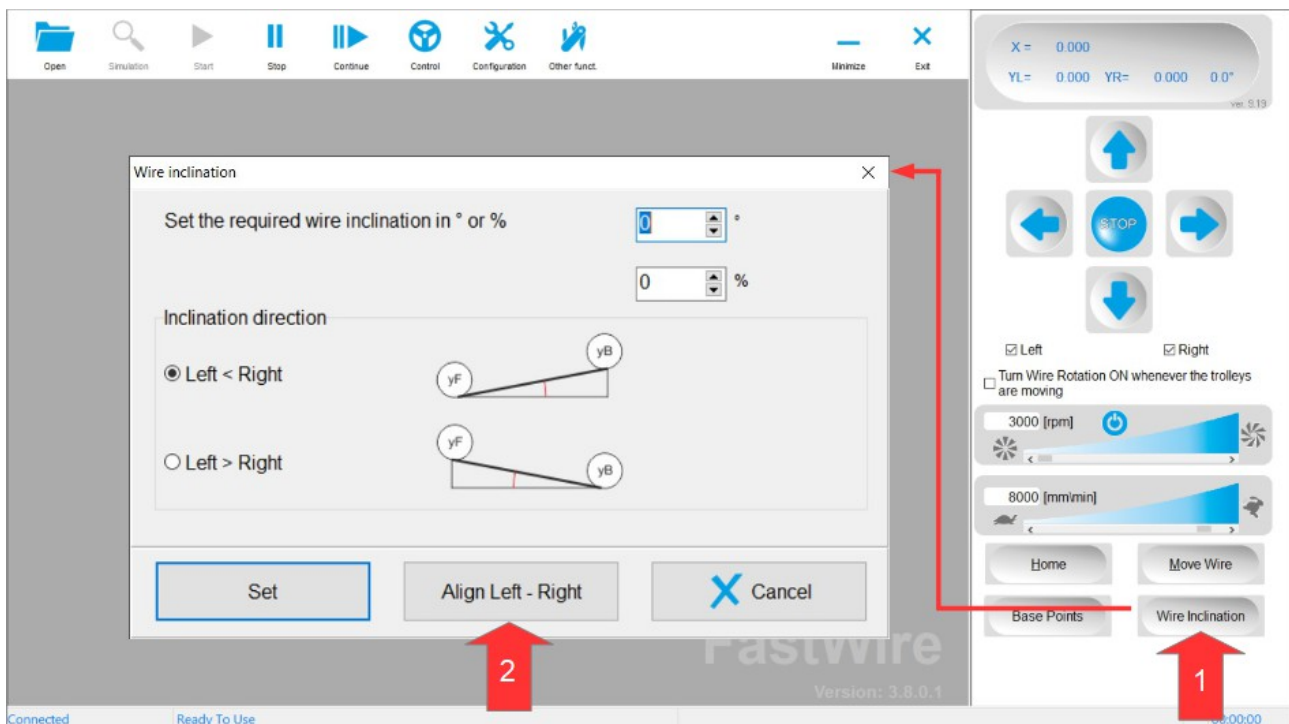
XTR PRO only:

- since the air cylinder extension is irrelevant here, this value should always be set to 0

### Prior to cutting panels out of a block (flat and sloped)

If you haven't Homed the machine yet, now is the time to do it. For details, please refer to the main XTR PRO manual.

Prior to starting the panel cutting the cutting wire needs to be perfectly horizontal. If it's currently at an angle do align it by going to the *Control* panel and then *Wire Inclination* and *Align Left – Right*.



After a simple trial cut in your default material with your currently installed type of wire measure the kerf created by the cutting wire. You can then use this value in the kerf correction setting to ensure your panels will come out in the exact thicknesses as required.

The panels will cut from the top of the block down.

Place your block on the machine table.

Place the wire in the upper left corner of your clock. For best results you may want to have the wire e.g. 10 mm to the left of the block and a few mm below the top surface of the block.

Measure all the required dimensions and distance, i.e.:

- block width (*Panel width: BC & AD*)



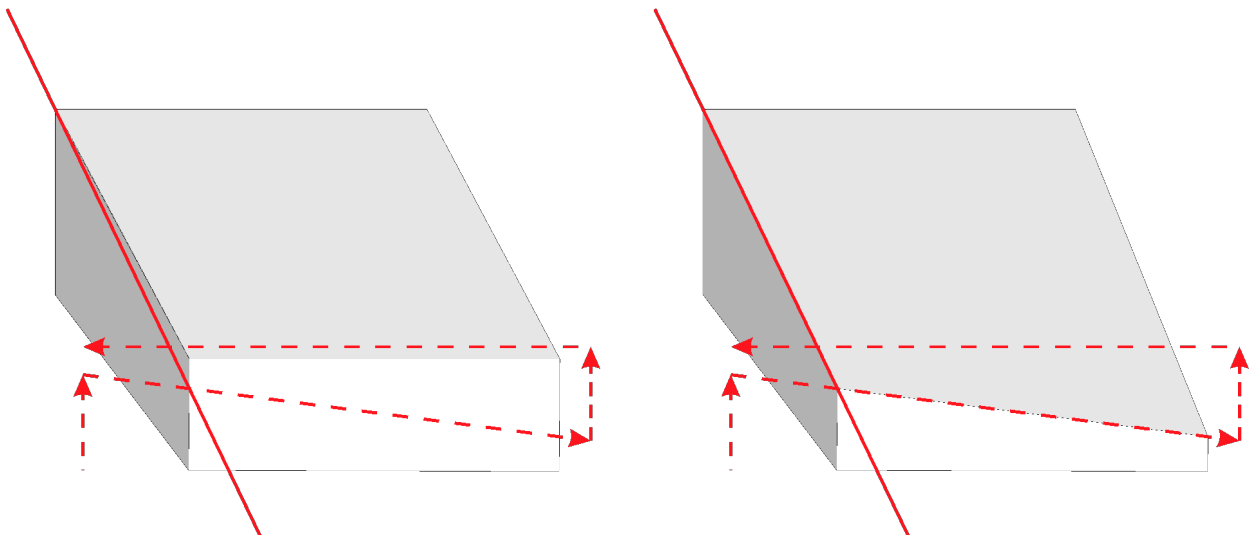
- the distance between the center of the left wheel and the material surface (*Left wheel center – material distance*).



### Prior to cutting individual panels (double sloped)

After a simple trial cut in your default material with your currently installed type of wire measure the kerf created by the cutting wire. You can then use this value in the kerf correction setting to ensure your panels will come out in the exact thicknesses as required.

Cutting will be done from left to right with the option to return to X=0 at the required height.



Place the machine on the table. Use the optional material holder for consistent and precise

positioning of subsequent panels.

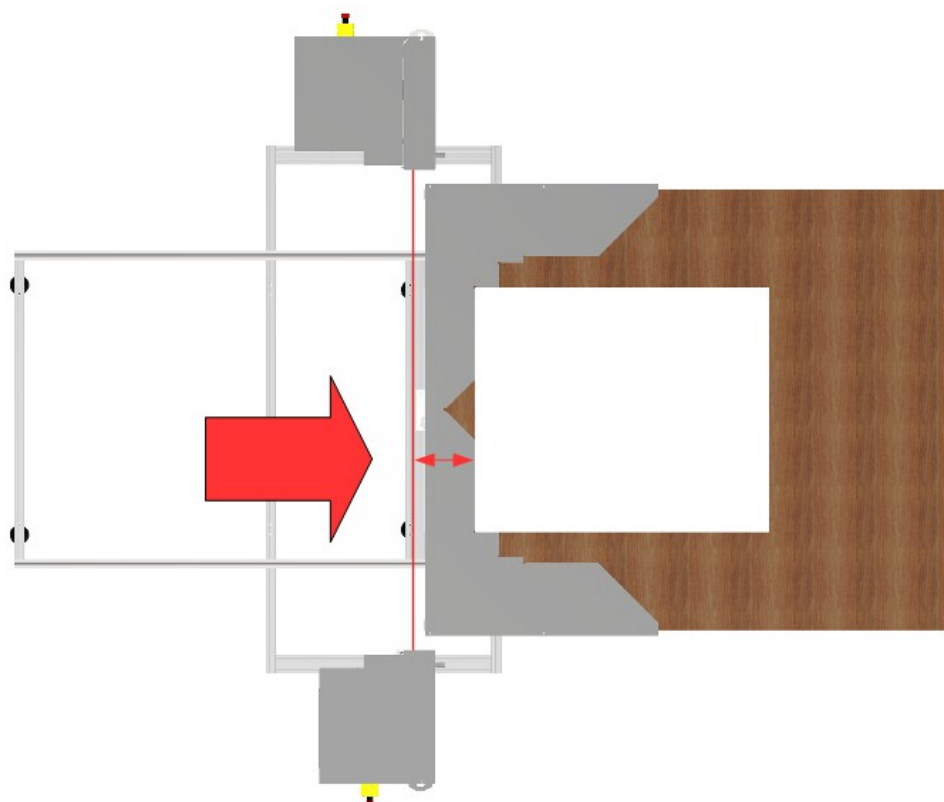
Move the wire in front of the material - anywhere between  $X=0$  and the panel, at any Y value.

The following info needs to be provided for the double sloped panels:

- *Panel length: BA & CD*
- *Panel width: BC & AD*
- *Left wheel center – material distance*

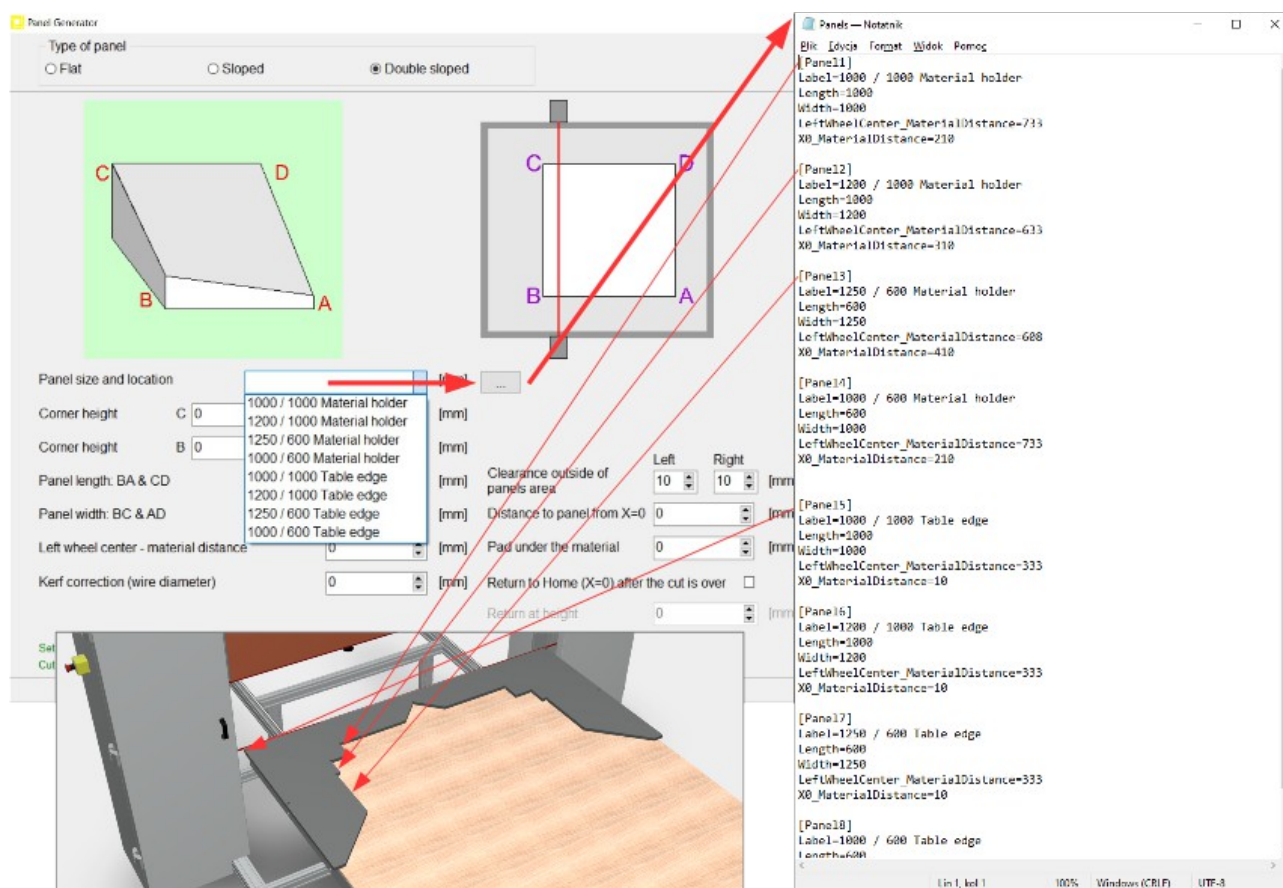
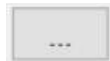


- *Distance to panel from  $X=0$*



- *Thickness of the pad under the material*

Panel size and positioning can be set from the drop down menu. You can edit the *Panels.ini* file containing this information as needed. This file can be accessed by pressing the following button:



Contents of the *Panels.ini* file and the data displayed in the *Panel* – generator window:

Panels.ini contents	Description
[Panel1]	Start of data for Panel 1. Subsequent panels will be labelled [Panel2], [Panel3]...[Panel9]
Label=1000 / 1000 PAD	Name as displayed on the list of panels
Length=1000	Panel length: BA i CD
Width=1000	Panel width: BC & AD
LeftWheelCenter_MaterialDistance=733	Left wheel center – material distance

<b>X0_MaterialDistance=210</b>	<i>Distance to panel from X=0</i>
Do not change the above labels in <b>bold</b> - you can only edit the values following the „=” sign (in green above)	

Default location of this file:

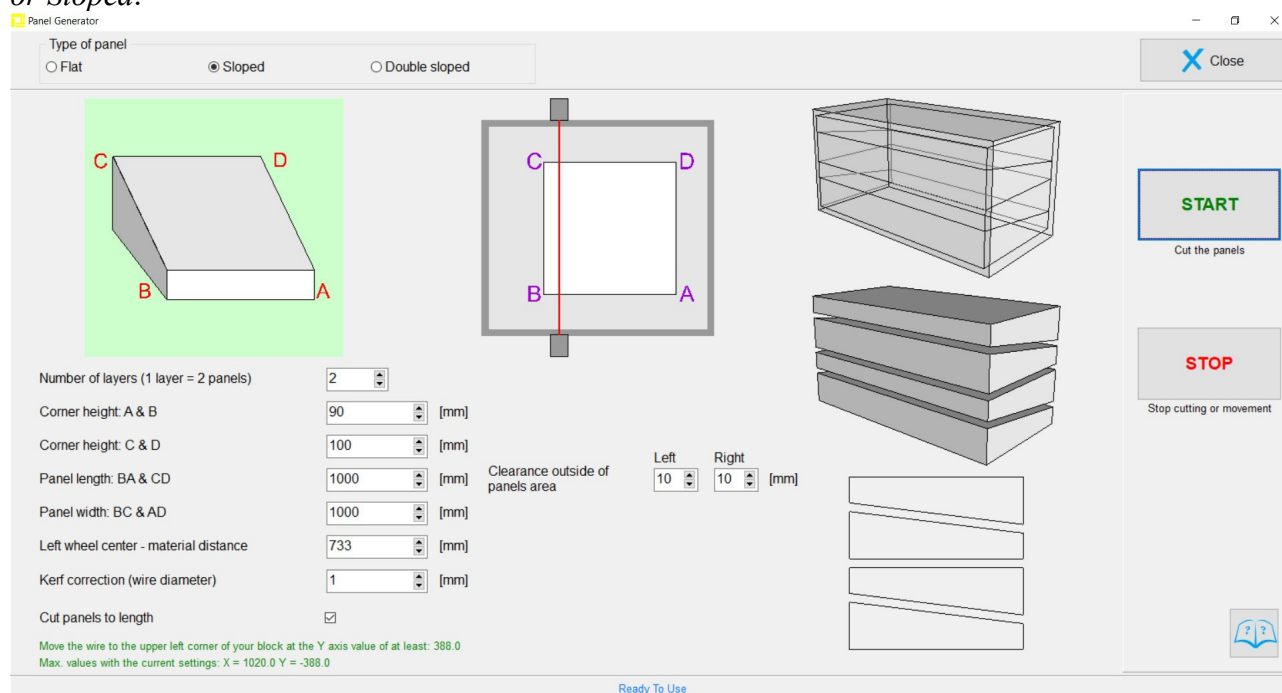
C:\Users\user\AppData\Local\Megaplot\FastWire\Panels.ini

### Panel Generator - use

#### ***Cutting multiple panels from a block (flat & sloped)***

The Panel Generator window is shown below.


Start by selecting the type of panel you wish to cut in the upper part of the window: *Flat* or *Sloped*.



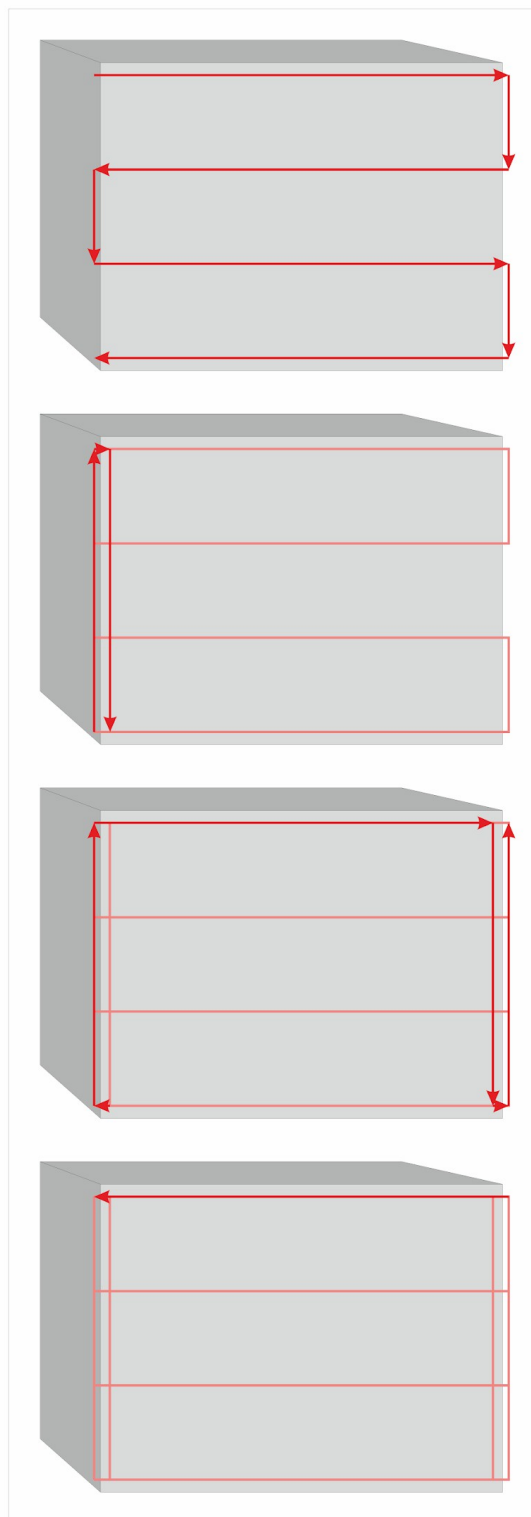
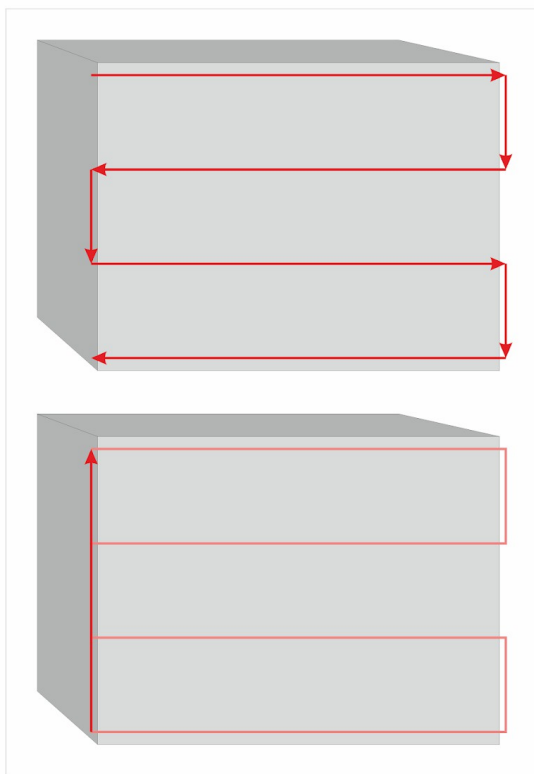
Description of the required input fields:

*Number of layers*

- set the required number of panels you wish to cut. When cutting Flat panels the number of layers equals the number of panels. When cutting Sloped panels each layer consists of two panels.

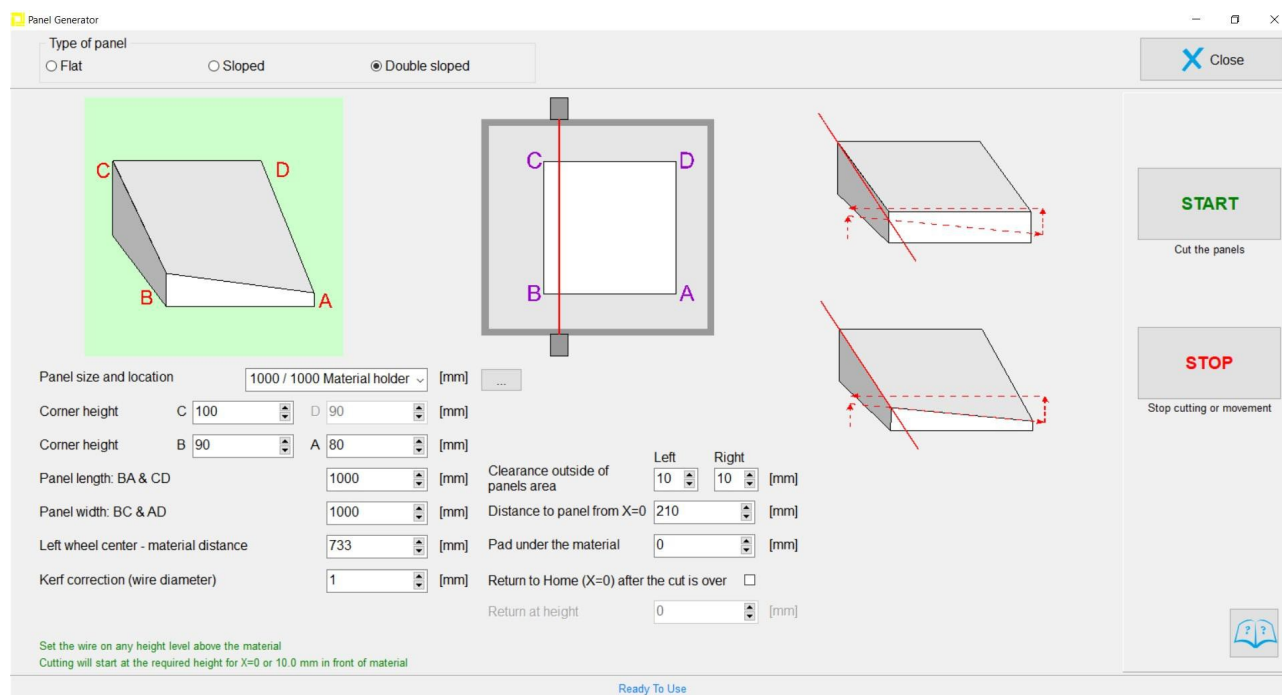
- Corner height A & B* - height of corners A and B. For sloped panels, the shorter corners should be set as A and B.
- Corner height C & D* - height of corners C and D. For sloped panels, the shorter corners should be set as C and D. When cutting flat panels this option is disabled as all the corners will have the same height as A and B.
- Panel length BA & CD* - panel length along the X axis of the machine
- Panel width BC & AD* - panel width along the cutting wire
- Left wheel center - material distance* - this needs to be set only when cutting the Sloped panels. This is the distance between the center of the lower left wheel and the material surface. For the visual please refer to: (Cutting multiple panels from a block (flat & sloped)).
- Kerf correction (wire diameter)* - this is the distance by which the wire will be offset to take into account the kerf created during the cutting process. Depending on the wire type and diameter as well as the material type this value may vary slightly. Perform a trail cut as explained in Prior to cutting panels out of a block (flat and sloped).
- Clearance outside of panels Left/Right* - clearance when cutting the panels to length. Having the wire move slightly outside the required panel length ensures sharp corners and prevents the wire from multiple passes along the same surface which could affect surface quality and length accuracy.
- START* - starts the cutting
- STOP* - stops the cutting
-  - this button opens up this *Panel Generator* manual.
- Close* - the button to close the Panel Generator window. Note that closing this window does not automatically stop a cutting process already in progress.

# Cut panels to length




## Cutting individual panels (double sloped)

Select the *Double sloped* tab. Here you can configure and cut a panel with 4 different corner height provided the wire inclination remains constant throughout the cut between BC and AD. Corner D height is calculated automatically. When  $B=A$  and  $C=D$  a single slope panel will be generated.



The following need to be set prior to the cut:

*Panel size and location* - drop down menu of predefined panels. When selected, the following will be filled in automatically: *Panel length*, *Panel width*, *Left wheel-material distance*, *Distance to panel from X=0*). The  button can be pressed to access and edit the Panels.ini file containing this information as explained above.

*Corner height C, B, D, A* – corner heights. Corner D is calculated automatically and cannot be edited. Requirements:  $C > B$  and  $D > A$ . When  $B=A$  and  $C=D$  a single slope panel will be generated and cut.

*Panel length BA & CD* - panel length in X axis

*Panel width BC & AD* - panel width (along the wire)

*Left wheel center – material distance* - only available when cutting *Sloped* and *Double*



*sloped* panels. This is the distance between the edge of the material and the center of the left wheel. See above (Cutting individual panels (double sloped)) for how this needs to be measured.

*Kerf correction (wire diameter)* - this is used to ensure precise panel measurements & taking into account the wire diameter and amount of material lost during the cutting. See above (Prior to cutting individual panels (double sloped)) for how this needs to be measured.

*Clearance outside of panels area Left/Right* - the cutting will start and end with these clearances outside the material

*Pad under the material* - when the wire inclination is significant and the corner heights are low, it may be necessary to place the material on a pad to be able to perform the cut. When used, the pad thickness needs to be specified here.

*Return to Home (X=0) after the cut is over* - when off the cutting will end on the right hand side of the panel. When on, at the end of the cut the wire will reach the specified height (Return at height) and then move to the left to X=0. The return movement is done at the max. transit speed Sequence of steps is presented below.

*Return at height* - active when *Return to Home* is active. Set the height at which the wire is to return to X=0.

*START* - press to start the cutting process

*STOP* - press to end the cutting process

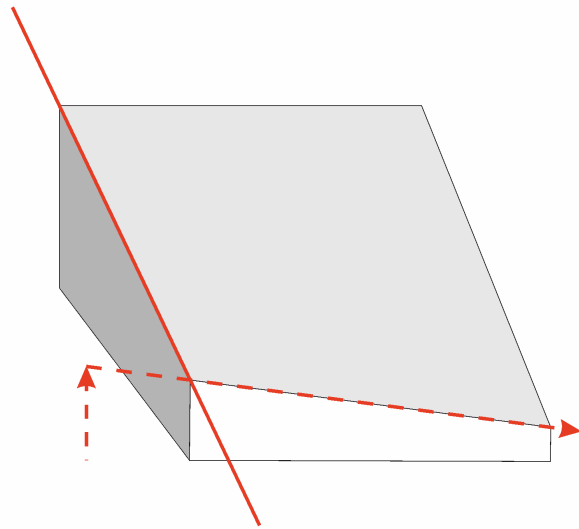
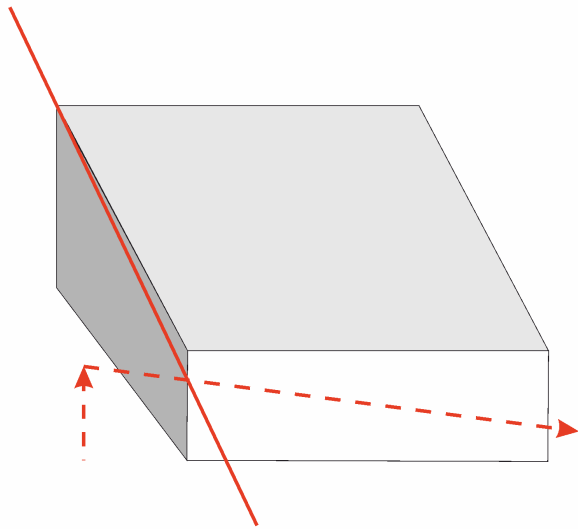


- press to open the User's Manual

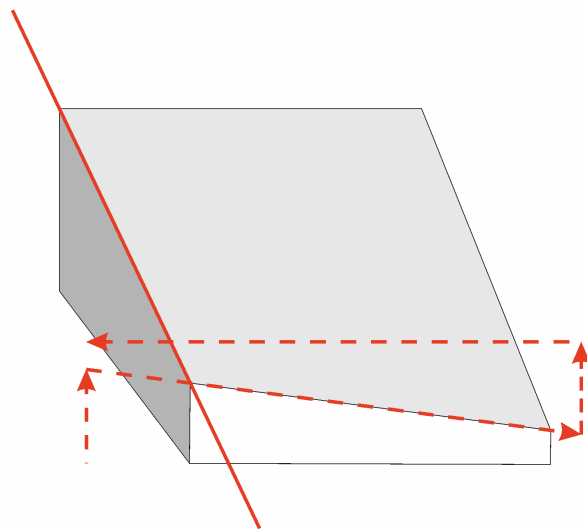
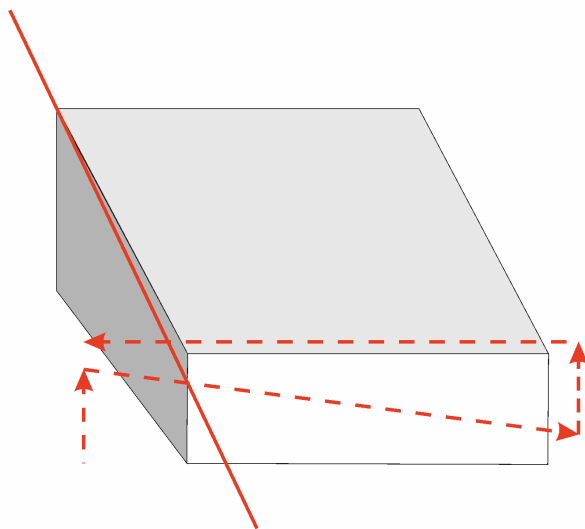
*Close* - close the *Panel - Generator* window. Closing this window will not stop a cut in progress.

Movements based on the *Return to Home ( $X=0$ ) after the cut is over* setting:

*Return to Home ( $X=0$ ) after the cut is over* □



*Return to Home ( $X=0$ ) after the cut is over* □□



The sequence of movement when cutting an individual panel:

- the wire reaches the required height (at  $X=0$  unless a value is set for Clearance outside of panels area : *left*) [max. transit speed, wire rpm from Configuration]
- the wire is set at the required angle
- cutting from left to right [Speed from Configuration]
- wire movement to the *Return at height* [max. transit speed]
- return to  $X=0$  [max. transit speed]

## Machine calibration

The calibration feature is used when small and incremental movement inaccuracies develop in one or both axes. To calibrate a given axis, move the wire by a set distance, i.e. 1000 mm and then measure the exact travelled distance.

The calibration feature can be found in the *Misc.* tab in *Configuration*. The window below shows 1 for each axis, i.e. no axes requires calibration.

C:\Users\user\AppData\Local\Megaplot\FastWire\FastWire.mcc

**Working parameters** Misc.

Simulation speed: slow fast

Upper limit of distance in shape linking procedure: 0.25 [mm]

DXF curves resolution: low high

G-codes: Arc center is an absolute position ☐

**Calibration**

X: 1.00000000

Y: 1.00000000

Calculate calibration

Unit: ☒ mm ☐ inch ☐ feet

Homing Type: ☐ aslant (X and Y together) - fast ☐ first X, then Y - fast ☒ slow

Open Save ☒ AutoSave OK Cancel

To calibrate an axis, press the *Calculate Calibration* button and the following window will pop up:

	X axis	Y axis	
Requested movement	1000	1000	[mm]
Actual measured movement	999	998	[mm]
Calibration ratio	0.9990000	0.9980000	



Clear calibration (to default values)

Save Cancel

Once you insert the two values (requested and actually measured movements) the calibration value will be calculated automatically. Prior to subsequent calibration, make sure to set the Calibration values to the default values of 1.

To do that, press the *Clear calibration* button as shown above.

To save the new calibration values, press the *Save* button.

Current calibration values are also shown in the *File – About window*. Aby je wyświetlić należy wybrać *Other funct.*  a następnie *About*  .



## MAINTENANCE

The operation of the machine needs to be performed in accordance with local safety laws.

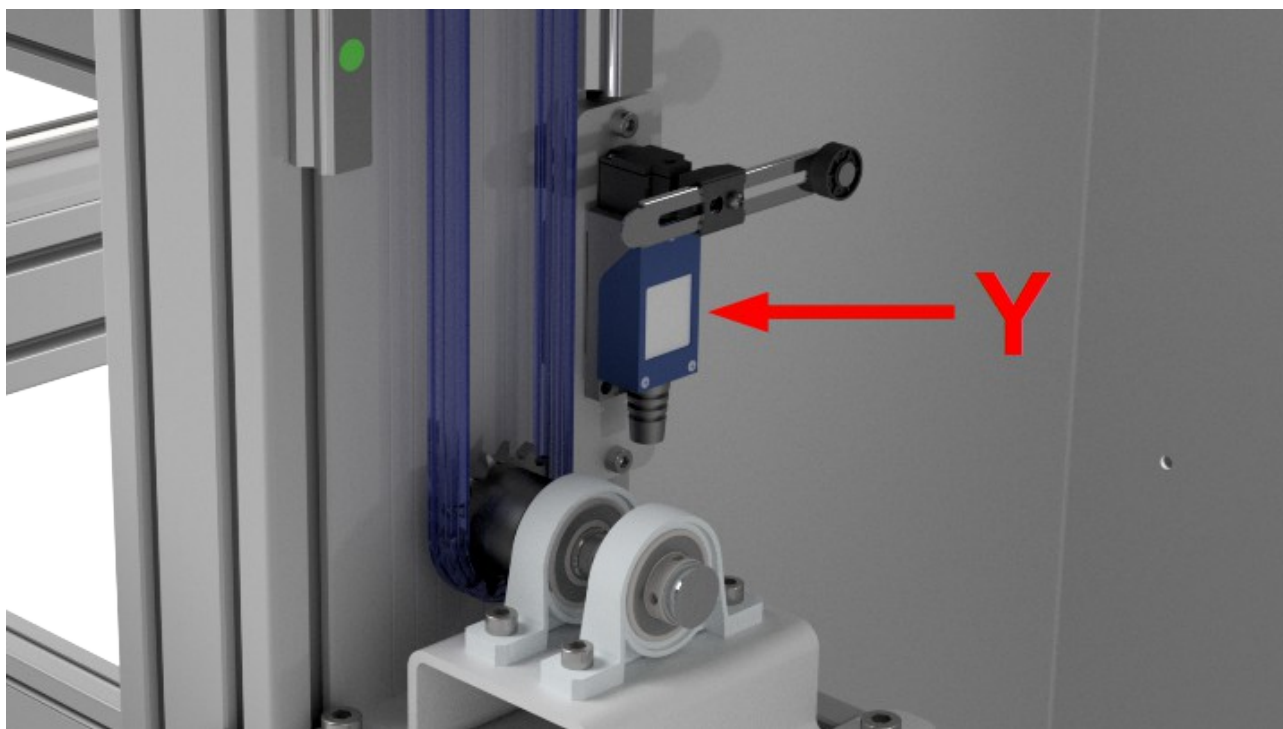
It is important to keep the lineal rails and the chains in both axes in a good and clean condition. They should be greased on a regular basis to ensure their reliable performance.

To ensure long life of the cutting wire, make sure to use the correct type of wire for a given material and ensure the cutting parameters are set to values reflecting the requirements of the material being cut. Wires with visible tear and wear should be replaced before they break.

It is prohibited for the operator to be in the proximity of the working area of the machine (to clean it or hold the foam piece) while the machine is in operation.

To ensure the Homing procedure completes successfully each time, ensure the proximity switches are wiped clean on a regular basis.





## TROUBLESHOOTING

Here is a list of common problems you may encounter while operating the machine.

Should your problem not be listed below, please contact us for assistance.

A large drawing was not completely cut despite the fact the Simulation shown otherwise and the controller's display shows the message "End of data".

This indicates a USB connection issue. Ensure the PC is powered from a properly grounded power line. Disable all power saving features on the PC, including screensaver, hibernations, etc., as they all interrupt USB communication. Try lowering the number of nodes in your drawing. Make sure you're using a good quality USB cable of no more than 3 meters.

A PLT file from CorelDraw has incorrect dimensions when opened in the FastWire application.

Certain versions of CorelDraw (e.g. ver. 11) come with a bug when exporting to PLT. To correct the difference in size, set the scale in the FastWire application to 101,6% - in case of CorelDraw 11, for other versions the correct scale value may be different.

Circles and shapes cut from a PLT file are not smooth.

When exporting to PLT from CorelDraw, open the Advanced tab in the Export window and set a lower Curve resolution value. Alternatively, try exporting to DXF instead.

During Simulation (or during a cut) the wire does not move as expected.

Double check your drawing for overlapping shapes. Ensure all the shapes are closed node to node. If nothing else helps, please consider e-mailing us the file causing issues and we will be pleased to assist you.

### Homing problems

Ensure the proximity switches are clean and in their correct locations. Their detection distance is around 0,5-1,0 mm so it is important the metal piece they are supposed to detect is within this range in the Home position.

Check the proximity switches by touching them with a piece of metal – when this happens a red LED should lit up on the proximity switch and at the same time this proximity switch should be listed on the controller's display - in the upper right corner of the display the corresponding axis' letter – x or y – should change from a small letter to a capital one. E.g. when the X axis limit switch is touched e.g. with a coin, "x" will immediately change into "X".

The cutting wire broke during a cut.

When the cutting process is stopped by the wire break detection system, do not close the application nor switch off the electronic controller, but instead replace the cutting wire by following



the wire replacement procedure explained in the chapter Installing / replacing the cutting wire .

I set the wire in the upper left corner of a drawing and my drawing has the start line in the upper left corner but when I try to start the cut I get a message informing me it is not possible to perform the cut from the current wire location.



Make sure the machine has been Homed properly.

Check your drawing's height by clicking File – Info or right clicking on your open drawing. Move the wire up to a Y value equal or higher than your drawing's height. Note the wire can be up to 1 cm above the table level when in the Home position so if your drawing is supposed to cut the entire block of foam top to bottom it may be necessary to bring the block up by introducing e.g. an EPS pad under your block.

The FastWire application is unable to communicate with the machine

Make sure the controller is connected to your PC with the USB cable. Try a different, short and good quality USB cable. Try a different USB port on your PC. Restart the PC and the machine and try again. Try a different PC. If still no luck, please contact us for further assistance.

If your problem is not listed above, please reach out to us via email. To ensure prompt assistance, please provide as much details as possible:

- machine model & serial number
- FastWire application ver.
- machine CPU version (shown on the display during the start up as well as in the File – About window). This can be done by selecting *Other func.*  And then *About*  (or *File \ About*)
- problem description
- if you're experiencing a problem with a drawing, please attach the drawing as well as the configuration mcc file
- pictures and/or a movie.

The more details you supply the sooner we will be able to assist you.

## Updating the FastWire application

If you own an XTR Master fast wire machine, your FastWire control application comes with unlimited free updates. The latest version is always available for download here:

<https://foamcutter.home.pl/pub/FastWire.zip>

## TECHNICAL DOCUMENTATION

### Machine general description

XTR Master Fast Wire Machines are computer-controller CNC machines for cutting such flexible and rigid materials as PU, PP, PE, XPS, foam glass, mineral wool, etc. The drawing to be cut by the machine needs to be prepared in advance in third-party graphics software (e.g. CorelDraw or AutoCAD) and saved to one of the supported formats: plt or dxf. Next this graphics file is opened in the FastWire application supplied with each XTR Master machine. This in-house written MegaPlot application is used not only to preview the previously opened file, but also to set the cutting parameters, manually control the machine, etc.

The machine has an open frame design and can be also offered with the optional full enclosure which limits the access to the working area of the machine thus increasing the safety of the operator and also preventing the dust created during the cutting from contaminating the factory floor. Regardless of the configuration it is the end-user's responsibility to take all the necessary steps to create a safe working environment meeting all local safety requirements.

The operator's area needs to be located in the close proximity of the machine and should consist of the electronic controller of the machine as well as the wired remote controller (handheld) as well as the Windows PC (normally supplied by the customer themselves).

A 100 mm opening is available on one side of the machine to connect the optional dust vacuum system (or customer's own vacuum system).

Operating the machine (staff)

Standard machine operation requires up to three people: the machine operator, their assistant (mainly for material loading and unloading as well as for wire replacement) as well as a graphics person to prepare suitable plt or dxf files to be cut by the machine. Regular maintenance may be performed either by the machine operator or dedicated maintenance technician.

### Machine technical parameters

Model	XTR Master
Height	30 cm
Width	180 cm
Length	180 cm
Wire inclination	to 10%
GENERAL INFORMATION	
List of materials XTR Master can cut:	PUR, PIR, PE, PP, XPS, rock wool, mineral wool, foamed glass, rebound foam

Supported file formats:	HPGL.plt (CorelDraw) DXF (AutoCad) AI / EPS (Adobe Illustrator)
<b>Cutting Wire</b>	
Number of cutting wires:	1
Length of the cutting wire:	6165 mm
Type of the cutting wire:	Endless, Ø 1,2-1,5mm
Wire speed:	380 km/h
Wire wheel diameter:	405 mm
Wire motor:	3 kW 400 V 50 Hz
<b>X and Y movements</b>	
Y axis	EasyServo + planetary gear
X axis	EasyServo + planetary gear
Y axis max speed:	10000 mm/min
X axis max speed:	10000 mm/min
<b>GENERAL INFO</b>	
Machine frame:	Anodized aluminum profiles + steel
Accessibility:	Full access from two sides
Power requirements:	400 V, 50 Hz
Working environment:	Temperature: 0-40°C, humidity: 95% (non-condensing)
Power consumption:	Up to 6 kW
PC requirements:	Windows PC with a USB port
PC OS requirements:	Windows 7, 8, 10 or 11
Control application:	FastWire by Megaplot, included with each XTR Master unit
Basic package includes:	XTR Master Fast Wire Foam Cutter, electronic controller, FastWire application, 5 cutting wires
Basic package does not include:	Windows PC with a USB port, graphics software (e.g. CorelDraw), installation, training, delivery
To be supplied by the customer:	Windows PC with a USB port, graphics software (e.g. CorelDraw), power line (3-phase, 400VAC), flat and stable flooring

## Drawings, descriptions and explanation necessary for safe machinery use and maintenance

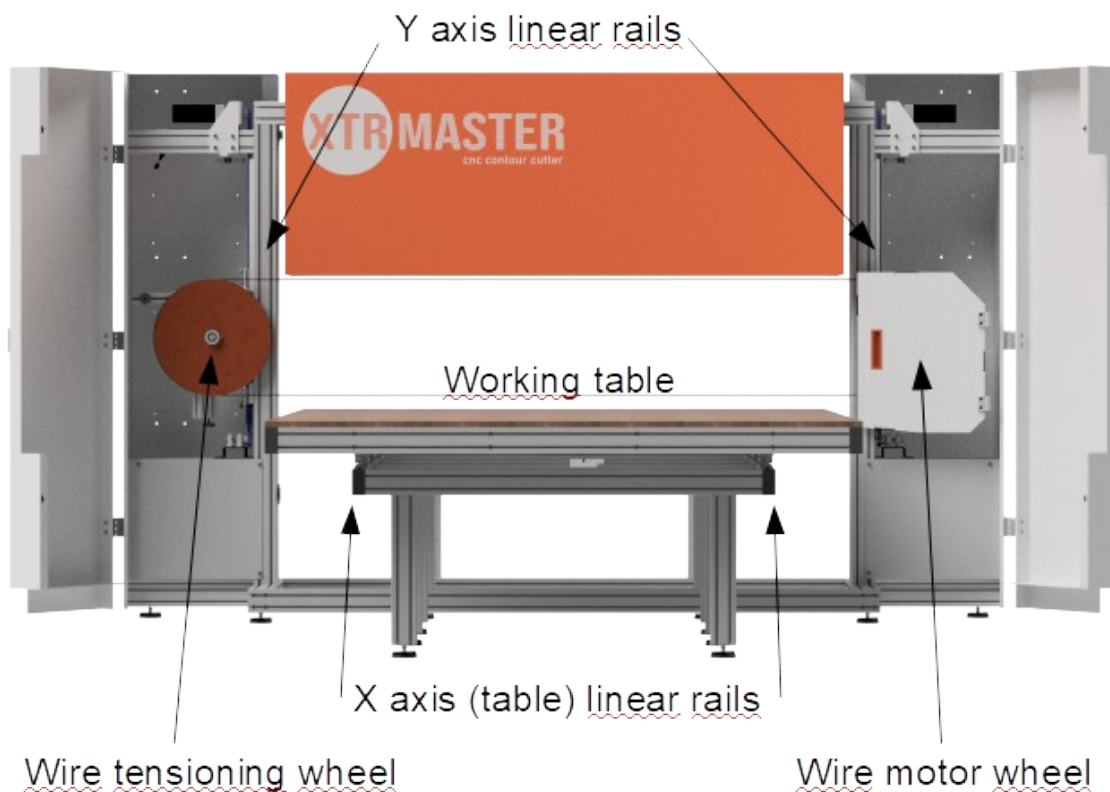
The XTR Master Fast Wire Cutter consists of:

- aluminum and steel bolted machine frame,
- aluminum and steel moveable frame for the wire wheels up and down movement
- moveable machine table (left and right)

- electronic controller and all the control and power cables
- handheld (remote control)

The electronic controller is installed in a stand alone steel enclosure. The following are accessible from the outside of the controller: USB port to connect the PC, handheld connector, main ON/OFF switch as well as the emergency e-stop button. The wired remote (handheld) is used to manually move the cutting wire and the table prior to initiating a cut. It can also be used to initiate as well as stop a cut. The operator is also able to adjust the cutting parameters – e.g. speed and rpm – using the remote while a cut is in progress. All the machine wiring and plugs are clearly labelled.

The following main components are located inside the electronic controller: power supplies, servo motor drives as well as the main control unit. The operator should not be opening the controller on their own. There is also a display inside the controller and it shows the current machine status. Standard status is READY, USB with the additional info presented lower down on the display being of no use for the end user.



The electronic controller is an integral part of the machine. On the outside of the controller the following can be found::

- USB port to connect the PC to
- green ON button
- red e-stop button

- connector for the wired remote (handheld)
- light indicators

Inside the controller one can find:

- a display
- air pressure reducer
- electronics and control drives

The operator should be not opening the controller on their own.

There is an additional e-stop button located on the machine frame

The FastWire application is an integral part of the machine.

The latest version of this application is always accessible from here:

<https://foamcutter.home.pl/pub/FastWire.zip>

This application should be installed on the PC used to control the machine. Prior to operating the machine the operator should read the User's Manual.

## **Workplace description**

The XTR Master machine operator's workplace consists of the machine itself as well as the PC used to control the machine. The workplace needs to be sufficiently lit and be located away from sources of open fire or humidity. It should be located in the safe distance from the machine's moving parts yet close enough so the operator is able to control the machine properly using the PC and the included wired remote.

**IT IS PROHIBITED FOR THE OPERATOR TO BE LOCATED WITHIN THE WORKING AREA OF THE MACHINE WHILE THE MACHINE IS IN OPERATION**

Only one person should be operating the machine at any given time (save for the temporary assistance of the second person with material loading and unloading) – the operator. The machine vicinity should allow the machine operator to load and unload the machine safely.

The electronic controller should be located in an easily accessible place allowing easy access to the e-stop in case of emergency.

Local safety and fire regulations re. min. clearance around the machine should be observed.

Optimal placement of the machine should allow the material loading from one end of the

machine and have it unloaded on the other side.

## **Proper use of the equipment**

XTR Master fast wire cutters are used for contour cutting and sheet cutting of such flexible and rigid materials as PUR, PIR, PP, PE, XPS, mineral and rock wool, rebound foam or foamed glass. The cutting element consists of a fast moving endless abrasive wire.

The cutting process may be started after a suitable drawing in one of the supported formats is loaded into the FastWire control application.

Prior to loading the drawing, the operator should set all the cutting parameters in the FastWire application's Configuration based on the type of cut as well as the type of material being cut.

Prior to initiating the cut it is required for the material to be placed on the machine table and secured, if necessary.

Note the block of material to be cut on the XTR Master machine may be very heavy so it is essential local safety laws regarding heavy items handling are observed when loading and unloading the machine. Use suitable mechanical loading devices if necessary.

Prior to starting a cut verify it will cut properly – use the Simulation button in the FastWire application to ensure the drawing's been properly prepared and interpreted by the FastWire application.

## **Prohibited use of the equipment**

It is prohibited to use the machine for manual cuts of manually held material. It is also prohibited for the operator to clean or remove any cut pieces from the machine while it is in operation.

It is prohibited to use the machine for cutting non-approved and very dense materials as it may cause premature wire breaks as well as may cause the small cut pieces to fly out of the machine working area.

It is prohibited for the operator or any other person to remain within the working area of the machine while it is operating. Do not remove or modify any safety features, covers or other parts of the machine.

## **Freight and installation**

The machine needs to be installed on hard and level flooring (cement floor or a similar industrial equivalent). It is the customer's responsibility to prepare suitable installation area prior to having the machine installed.

The immediately machine environment should be clean, easily accessible as well as well lit.

Do not place any items or obstacles within the immediate environment of the machine always

leaving enough room for both the operator's stand as well as for material loading and unloading, daily cleaning of the machine, its regular maintenance and occasional servicing. There should be no sources of vibration, dust, fire or humidity in the close proximity of the machine.

To operate the machine the end-user needs to supply their own Windows PC with a USB port and Windows OS 7, 8 or 10.

The technical and commercial terms of machine delivery, installation, training and commissioning of the machine at the customer's location are to be agreed on individually at time of purchase – for warranty and safety reasons, the machine does require to be installed either by MegaPlot or one of its authorized distributor.

The machine needs to be powered from a PROPERLY GROUNDED 3-phase 400V line. In addition a single-phase 230V line may be required for the PC.

Always ensure the ambient temperature and humidity are within the acceptable range when operating the machine.

The machine needs to be connected to the PC via the supplied USB cable.

Install the FastWire control application on the PC prior to operating the machine.

## **Operator's training, safety and machine environment safety**

Prior to using the machine the machine operator should undergo machine use and safety training by MegaPlot staff or an authorized distributor. It is recommended for the operator to be also trained in graphics software to understand the basic principles behind proper preparation of drawings for the machine.

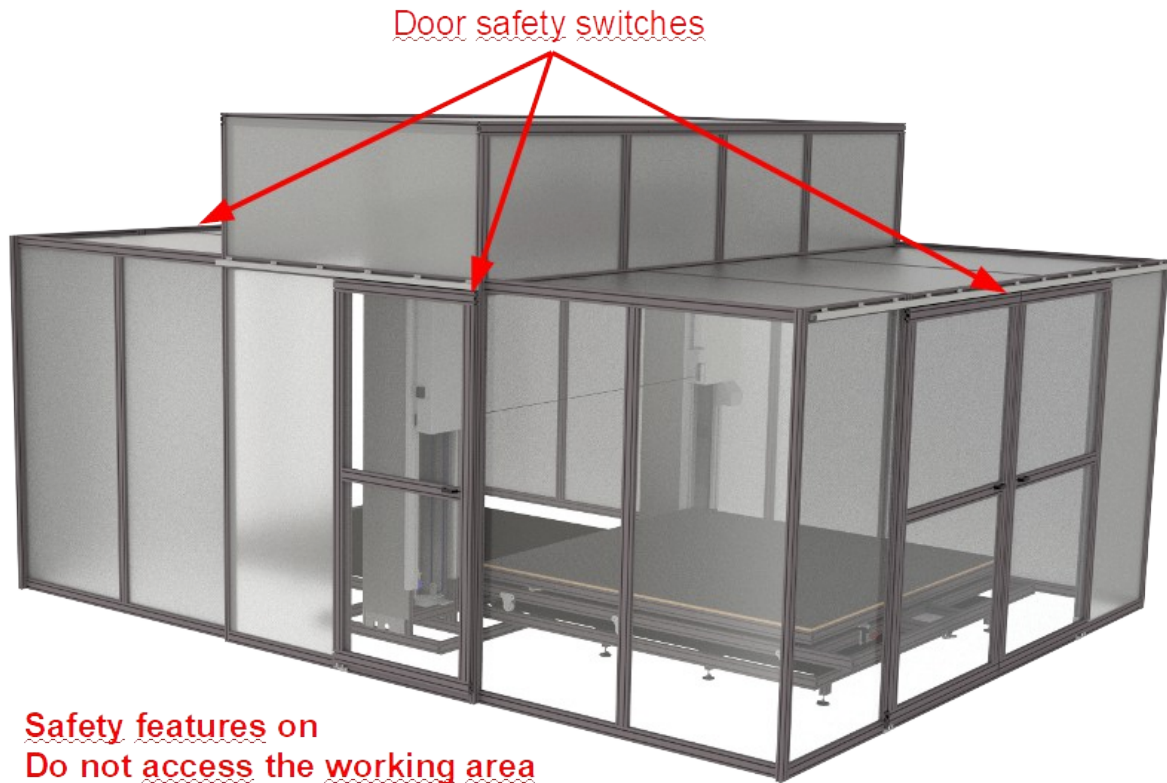
MegaPlot does not offer training in third-part graphics software.

During the training MegaPlot staff trains the operator on the safe use of the machine as well as selecting correct working parameters.

The base configuration of the XTR Master machine features an open design without the optional safety enclosures. Design, preparation and introduction of suitable safety features as required by local safety laws is the sole responsibility of the buyer of the machine.

MegaPlot may optionally supply the machine with the optional paid full enclosure featuring full semi-transparent walls and ceiling as well as front and back doors for material loading and unloading and a side operator's door. Each door features a safety switch stopping the machine operation the moment a door is open while the machine is performing a cut. Note the wire motor does not stop instantaneously – after the power off it begins to decelerate but it takes a number of seconds until the wire wheels come to a complete stop.





The operator should bear in mind the following:

Place the material block parallel to the machine table as a slanted block may hit the machine frame while the table moves back and forth

The machine is designed to handle full sized blocks

Remove all the items from the machine table (save for the block of material) prior to initiating a cut

Always use a cutting wire dedicated for a particular material

Dust created during the cutting process can be manually removed and vacuum only after the machine has stopped cutting and has been switched off completely.

It is not allowed for the operator to make any measurements, touchings or adjustments of the material on the machine while it is operating.

Do wear suitable hearing protection as required by local safety law.

Noise levels of the working machine exceed 85 dB.



When air cleaning the machine or the cut pieces, wear a suitable face mask and eye protection.

Wire wheels and steel axles for the wire wheels should only be replaced with original replacements sourced at Megaplot.

### **Basic XTR Master package includes:**

- XTR Master fast wire machine
- electronic controller
- 5 sample cutting wires
- handheld (remote controller)
- FastWire application (CD or download link)

Optional accessories:

- dust vacuum system
- full enclosure with the front and back door as well as the side operator's door

FastWire application



Cutting wires



## **Machine maintenance**

During normal operation the machine does not require any regular adjustments save for those described in this manual.

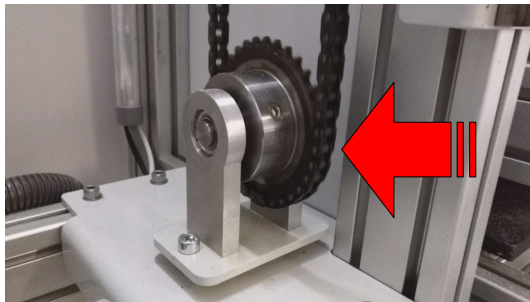
During the machine installation, MegaPlot staff (or authorized distributor) adjust and level the machine as required.

For the machine to work reliably and safely it is necessary to keep it in a clean condition.

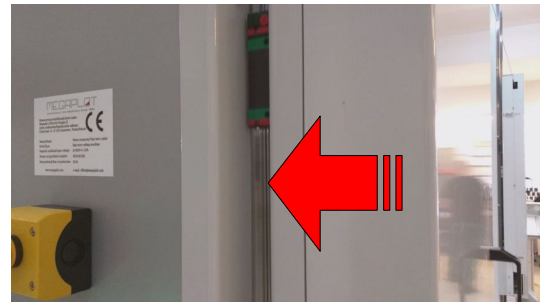
At the end of each workday (or 8-hour shift) inspect and if necessary clean all the linear rails, chains and gears. In case of increased amount of dust, perform this after each cut.

The best way to clean the rails and gears is to use a vacuum or a source of compressed air. Do not allow for excessive dust build-up on the gears and idlers as this may cause machine movement errors and inaccuracies.

Gear and chain



Linear rail



## E-stops

The XTR Master fast wire cutter features an mechanical emergency button located on the side column.

It cuts the power off completely and needs to be mechanically released prior to further use of the machine.

In units equipped with the optional enclosure, opening machine doors during the machine operation stops all movement immediately. To proceed, the operator needs to close the door again and press Continue.

Location of the e-stop:

