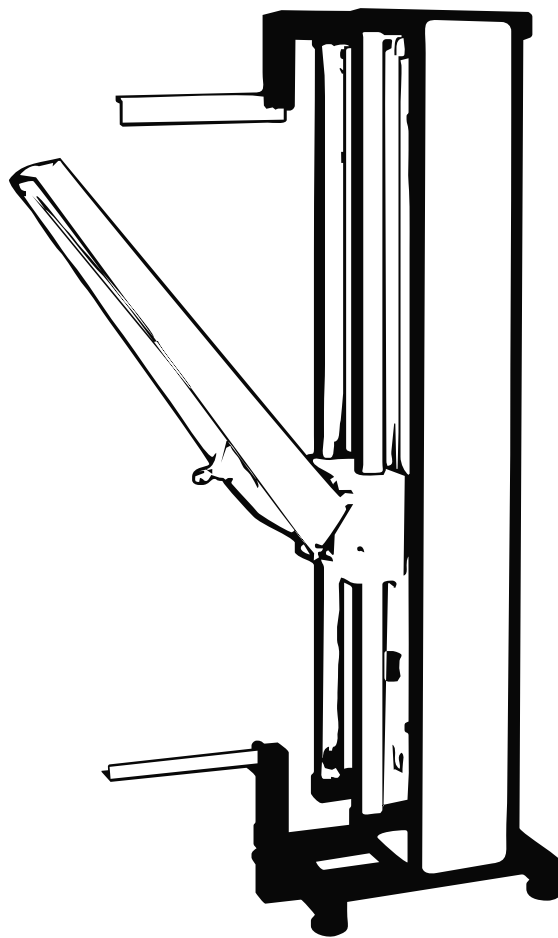


plasticut
OBELISK
TURBO

User's Manual



 **VASCO**

Plasticut Obelisk Turbo

The foam cutting machine is a unit course-controlled along x,y axis, driven by stepmotor, which will cut the foam panel separated with small voltage (about 10-12 V) with heated resistance wire. In the unit the foam panel can be placed vertically, standing. It needs a small place in the graphic studio in shut form.

The cutting thread runs continuously in the job, therefore the thread must be led into the objects with inner outline through a cut, and afterwards led out from there, possible on the same route, so that no redundant cuts are made.

The foam panel will get weak by cutting by cutting several cuts, therefore gradual care should be taken so that no draught is around the machine, and it is not pushed, as the panel becoming unstable can fell off the machine. If it is stopped with Pause upon moving along the line approaching the cutting (thus not on the final product), you can get the already ready pieces during the work as well. The designing of cutting is absolutely recommended, so that you run from up downwards, and if it is possible, leave a slip uncut on the panel side to the machine, as this will ensure the stability during cutting. To help this the machine default setting is (0;1210) point, the coordinate directions are essentially the same, as in other graphic programmes.

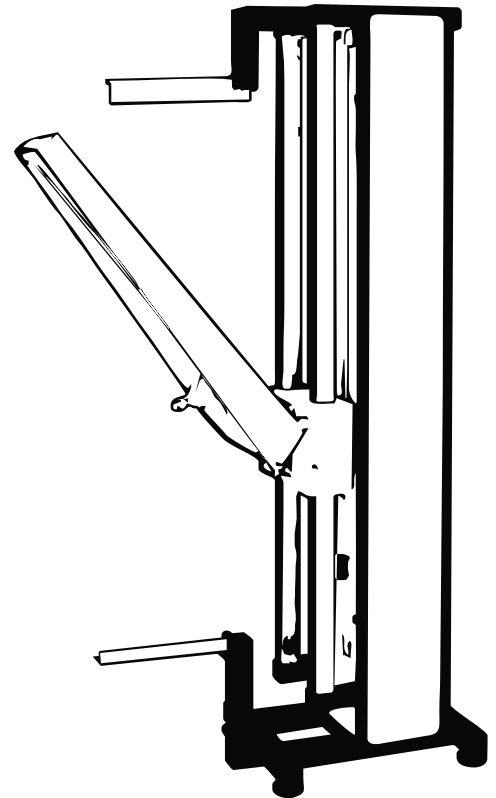
The panel rough size is 600 x 1250 mm, from this 20 mm is left due to the lower hold and an additional 20 mm due to the upper hold, therefore the height size to be used can be 1210, the height size of the blue sheet on the software working area is of this size as well. 20 mm is also left on the panel side to the machine due to the hold. The working sheet's set width size is 580 mm.

Cutting can be started at any point along the outer, longer edge of the panel, as the thread can be freely lead 5-8 mm next to it.

The cuttings are to be designed so that the last operation is to lead the thread off, possibly at the left upper position. In this case the panel or the ready pieces can be taken out from the machine without any problem.

The free cutting thread part is cooled with one ventilator each, therefore the cutting slit is thin, but it is a bit wider in the panel inner. The cutting speed is adequate, if the thread does not get visibly tight to the table, but remains straight. The recommended cutting speed is maximum 10-11 mm/s, at thicker materials it is less by 2...5 mm/s. It is always worth testing the speed, as it is possible that certain thicker basic materials require lower speed. The cutting speed can be set even during operation through the software by moving the roller; nevertheless the new setting will not get enforced till the cutting does not reach the next section end points. At too high speed adverse resonance will appear, the motors can miss steps. If there is no panel in the machine, the speed can be put to the maximum for the fast move of the head.

It can happen that the cutting thread gets broken during cutting due to oxidation. In this case the machine will immediately stop, the green light on the JOB panel will turn red, and the switch will automatically cut off power from the cutting thread (see 5.3.11 and 5.3.12). New thread can be threaded, the power is turned on with the switch, and cutting will automatically re-start in 3 seconds.



To Ensure Safe Use

Improper handling or operation of this machine may result in injury or damage to property. Points which must be observed to prevent such injury or damage are described as follows.

Keep children away from the machine.

The machine includes areas and components that pose a hazard to children and may result in injury, blindness, choking or other serious accident.



Never attempt to disassemble, repair or modify the machine.

Doing so may result in fire, electrical shock, or injury. Entrust repairs to a trained service technician.

Install in a location that is level and stable.

Installation in an unsuitable location may cause an accident, including a fall or tipover.

Be sure to follow the operation procedures described in this documentation. Never allow anyone unfamiliar with the usage or handling of the machine to touch it.

Incorrect usage or handling may result in unexpected injury.

Connect to an electrical outlet that complies with this machine's ratings (for voltage, frequency and current)

Incorrect voltage or insufficient current may cause fire or electrical shock.



Never use out doors or in any location where exposure to water or high humidity may occur. Never touch with wet hands.

Never place any flammable object nearby. Never use a combustible aerosol spray nearby. Never use in any location where gases can accumulate.

Handle the power cord, plug and electrical outlet correctly and with care. Never use any article that is damaged.

When using an extension cord or power strip, use that adequately satisfies the machine ratings.



When the machine will be out of use for a prolonged period, disconnect the power cord.

If sparking, smoke, burning odor, unusual sound, or abnormal operation occurs, immediately unplug the power cord. Never use if any component is damaged.

The head area becomes hot. Never touch the head immediately after cutting has finished.

Warning label is affixed to make areas of danger immediately clear. The meaning of the label is as follows. Be sure to heed its warnings. Also never remove the label or allow it to become obscured.



⚠ MUCIO CUIDADO	⚠ ATTENTION		⚠ WARNING	⚠ WAARSCHUWING	⚠ ATTENZIONE	⚠ WARNUNG
Riesgo de choque eléctrico. Adentro, no hay Piezas reparables para el usuario. Man enimiento solamente para personal calificado.	Risque de secousse électrique. Ne pas pièces réparables par l'utilisateur Entretien par personnel qualifié.		Electrical shock hazard. Do not open. No user serviceable part inside. Refer servicing to qualified service personnel.	Kans op elektrische schok. Niet openen. Bevat geen door gebruik te repareren onderdelen. Door bevoegd servicepersoneel laten repareren	Pericolo di scarica elettrica. Non aprire. Nessuna parte riparabile dall'utente. Chiamare un servizio di riparazioni qualificato.	Spannungsführende teile. Nicht öffnen. Enthält keine vom Endverbraucher zu wartende Teile. Für Service bitte an qualifiziertes Service-Personal wenden.

Installation

The unit will be put upright from the transportation position (lying on the back side).

Loosening is ceased with the adjustable supports.

The fastening screw on the back of the machine is removed.

The electric and data cable supplied are connected to the appropriate socket.

The software (attached) is installed to the computer.

The calibration is done (software description 1.7 JOB/Calibration).

The correct thread tightness is set – when the machine is off: 5 mm stretching clearance at spring thread tightening.

The machine communicated with the computer through LTP cable. During operation the data exchange is continuous, therefore it is forbidden to remove the cable, or turn the computer off during cutting.

The software continuously takes the cutting data, and the motors are also driven by the computer, therefore no other work can be done with the computer during cutting. Turn off the virus protection, network, etc.

Connect to the 200 V network through standard cable, the main switch on the machine is next to the connection point. The red LED on the machine will show that the machine is under power.

The thread heating can be turned on/off through the software (see above). If the heating does not work, the machine cannot move.

Order of putting the machine into ready-to-use state:

- 1. Open the lower and upper panel holder till buffer**
- 2. Lower the hand till half-height, then open carefully**
- 3. Push the hand to upper buffer**
- 4. Install panel**
- 5. Move the hand with hand in the position, where it can be connected to the magnetic adjusting component of the ribbed belt.**
- 6. Cutting**
- 7. Open the magnetic connection, raising the hand to the upper end stand**
- 8. Take the ready pieces and rest panel out**
- 9. if work is finished, perform point 2.) and 1.) in reverse order**

Programme description and control

Introduciton

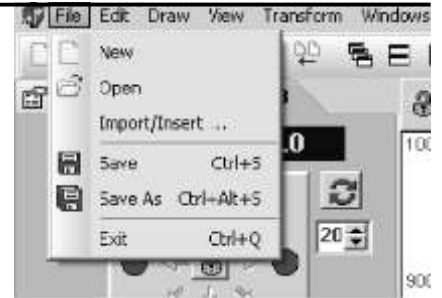
The programme is suitable to control Plasticut 1307V, Plasticut Obelisk, Plasticut Obelisk Turbo foam-cutting units, to design the cutting lines, to set the cutting parameters.

1. Menu structure

1.1 File

All instructions are according as generally used.

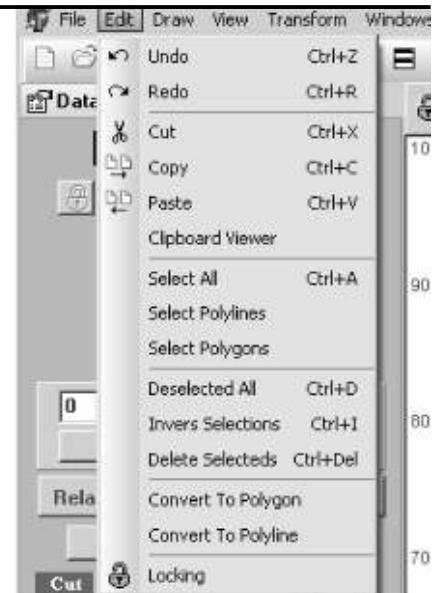
The software is capable of reading .plt, .dxf and .sb files, the own saving has the extension .sbn format. The previous software versions however do not recognize this format! In case not .sbn extended file is opened, but save through clicking on the save button, the extension is automatically re-written, nevertheless the initial file name is kept. If saving is done with Save as, new file name can be given.



1.2 Edit

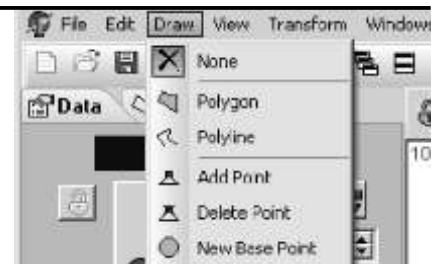
Most commands follow logically.

- Undo-Redo: Withdraws the last instruction
- Cut: Cuts the marked object from the drawing to the cutting plate
- Copy: Copies the marked objects from the drawing to the cutting plate
- Paste: Insert the object on the cutting plate to the drawing
- Clipboard Viewer: Shows the cutting plate content
- Select All: Marks all objects
- Select Polylines: Marks only all open objects
- Select Polygons: Marks only all closed objects
- Deselect All: Cancels the markings
- Inverse Selection: Reverses the markings
- Delete Selected : Cancels the marked items
- Convert to Polygon: Makes all marked objects closed
- Convert to Polyline: Makes all marked objects open
- Locking : Locks the jobs, afterwards no more changes can be made



1.3 Draw

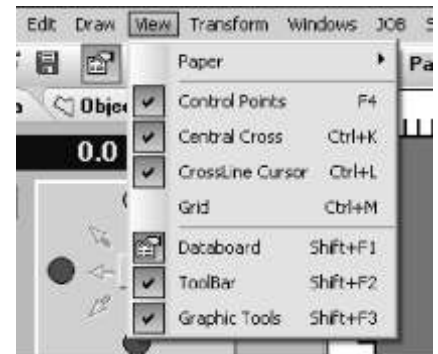
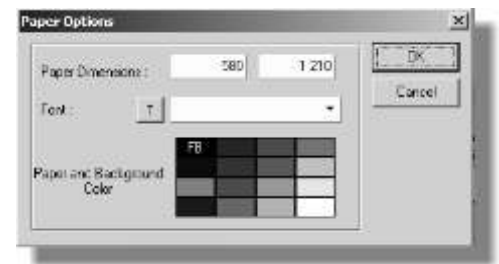
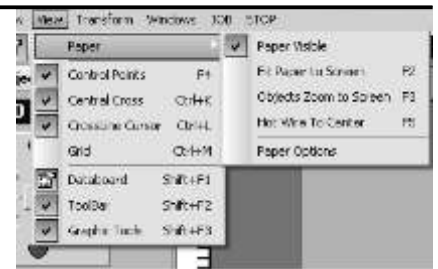
The instructions can be given from the icon, therefore see explanation at the presentation of drawing!



Programme description and control

1.4 View

- Paper/
- Paper visible: The panel view can be switched on/off
- Fit Paper to Screen: Full area on the screen, same as key (F2)
- Objects Zoom to Screen: Shows all drawing elements, (F3) fast key
- Hot wire to centre: Puts the present position of the line into the centre of the shot (F5)
- Paper Options: Sets the working area.
- Paper Dimensions: Size setting in the window. (Default setting: 580 x 1210 mm)
- Background colour: Right mouse click on the colour panel
- Paper colour: Left mouse click on the colour panel.
- Control Points: Shows the chapter end points, accessible also with F4 fast key
- Central Cross: Centre cross on/off (accessible also with Ctrl+K)
- Cross-line Cursor: Cursor cross on/off (accessible also with Ctrl+L)
- Grid: Scale grid on the drawing sheet on/off (accessible also with Ctrl+M)
- Data board: Hides the content of the left side of the screen (Shift+F1)
- Toolbar: Tools on/off (Shift+F2)
- Graphic Tools: Graphic tools on/off (Shift+F3)

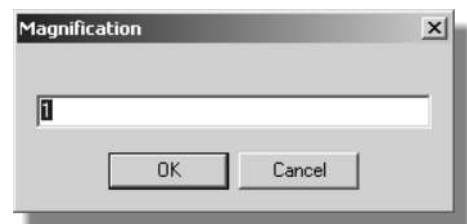


1.5 Transform:

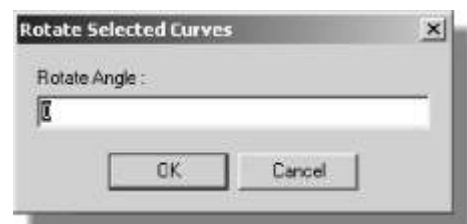
- Align: Objects to Top/Objects to Bottom: places the objects (in group) to the bottom/to the top



- Scale: A window appears, adding an index number the drawing can be reduced/enlarged



- Rotate: The marked object can be rotated (relevant use see at the description of the icons!) Use: mark the object - give the instruction - click on the rotation centre - add the angle number in the appearing window - Enter



Programme description and control

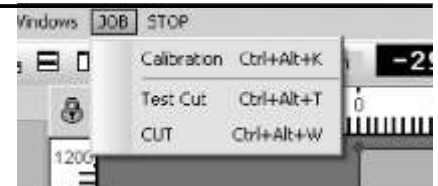
1.6 Windows:

The window arrangement of several opened drawings can be selected here



1.7 JOB:

From this menu point you can start the command on the default panel

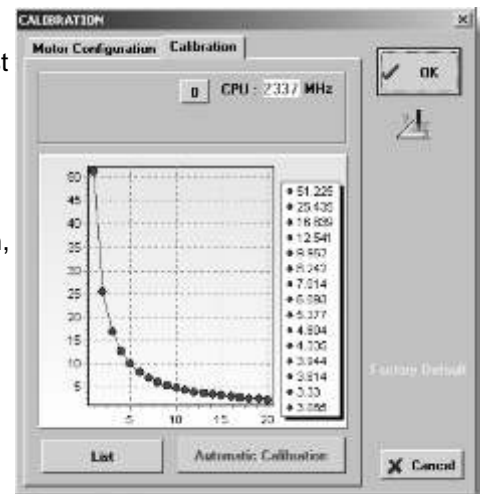


- Calibration:

You can set the different parameters of the cutting. You will use it only at the first installation or if you re-install the software. After giving the Automatic Calibration command the software will run a test and assess the computer parameters.

You can run only in 'Heater Off' position, in 'Test' mode.

No need to change the Motor Configuration, the default setting there of are standard!



1.8 STOP:

You can stop the cutting in two ways:

- Emergency stop

Emergency STOP, (F12) or (Esc), After using the emergency stop you cannot continue the cutting, you can release the command either with the STOP Reset button or with the (F9) button.

- PAUSE

i.e. with the (Space) button After STOP the cutting will continue through re-pressing the (Space) key after pressing.



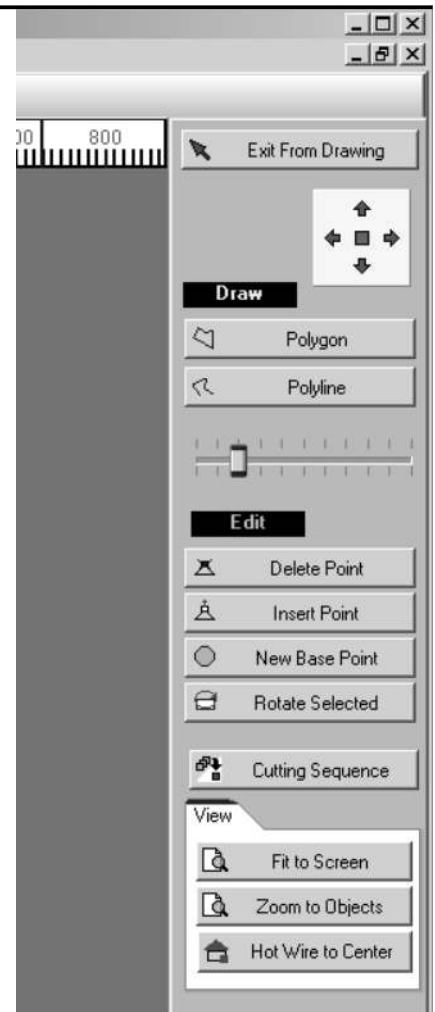
Programme description and control

2. Drawing tools

The graphics to be cut are generally made in vector graphic software (e.g. CorelDraw), only the transfer routes between the objects are to be drawn in Stella programme, and the starting points of the cutting are to be determined, and the final cutting sequence can be set.

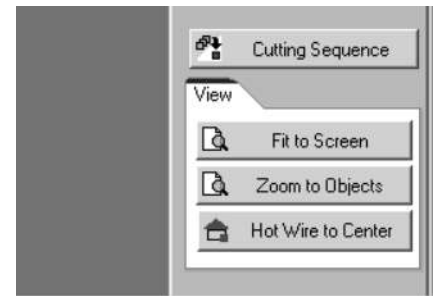
A few icons next to the upper right corner of the working area serve to do this:

- 2.1 Red arrow:** Exit From Drawing - is the tool to quit the drawing. The programme remains in the drawing mode in use, as long as we do not change, or exit from it.
- 2.2 Arrows:** Around the magenta square: the paper is moved through clicking on any of them
- 2.3 Magenta square:** The paper will cover the whole working area (Fit to Screen)
- 2.3 Polygon:** Command to draw a closed form, the cursor form will also change to a similar form.
Use: click with left mouse to the cursor arrow head on appropriate place, afterwards additional section points can be placed with left button, as long as you want to draw the polygon, at the end drawing is finished with the right mouse button.
- 2.4 Polyline:** Command to draw the open form, the cursor form will also change to similar one.
Use: click on the place adequate to the cursor arrowhead with the left mouse button, and then additional section points are placed with the left button, afterwards the drawing is ended with the right mouse button. The line style is different to that at the closed object.
- 2.5 Roller tool:** Will set the size of the square showing the section end points. The squares can be appeared with (F4) key.
- 2.6 Delete Point:** Deletes point. The cursor will change form, placing on top of a point and clicking the point will be deleted.
- 2.7 Insert point:** Inserts point to the graphics. It can be often needed. Use: after giving the command move the cursor above the line, then click down. A new point will appear on the line. If you wish to move this point as well, then move it direction after clicking down without releasing the mouse button, and release it on the desired place.
- 2.8 New Base Point:** To set a new starting point. Apply only at closed object! As a result the blue point marking of the starting point will get to the clicked-down point. The starting points are on any place; generally it is necessary to be re-located.
- 2.9 Rotate Selected:** To rotate the forms. Pressing together with the Shift key the marked objects are rotated. After giving the command the rotation angle is written in the appearing window.



Programme description and control

- 2.10 Cutting Sequence:** To set the cutting sequence. (See the relevant use in the sample programme as well!)
- 2.11 Fit to Screen:** Shows the full sheet.
- 2.12 Zoom Objects:** Will magnify the working field on all objects.
- 2.13 Hot Wire to Centre:** Will place the present position of the hot wire (red dot) into the picture centre.



3. Marking

Most of the operations are deemed to be executed not with all, but only with one or with a few objects. If the cursor is taken above the line of an object and is clicked on, it becomes active, the colour turns to red. It is still not marked, what happens is that the details of this object will be visible on the datasheet. If it is required to be marked to have any operation done with it, we have to click on it with the cursor simultaneously pressing the (Shift) button.

Even more objects can be marked. The object can be seen on the datasheet, thus is actual which is not blue, but magenta.

Operations with marked ones:

- 3.1** upon pressing the (Shift) button: the marked ones can be moved with the left mouse button kept pressed
- 3.2** Clicking on the Section end point the point can be moved upon pressing the (Ctrl) button
- 3.3** (Ctrl+Del) buttons The marked ones can be deleted
- 3.4** (Ctrl+D): To cancel the marking
- 3.5** (Ctrl+A): To mark all objects

4. Operations with mouse buttons

- 4.1** If we are not in drawing mode, thus the cursor has an arrow-form, the drawing sheet can be dragged with the left mouse button kept pressed
- 4.2** With clicking the right mouse button the place of clicking will be the centre point
- 4.3** Moving the roller will result in reducing-enlarging the picture. The same is achieved with pressing the Ctrl + / - buttons.
- 4.4** If double-clicking is made on any point of the drawing area, the cutting line will move in that point moving at the speed of the cutting.

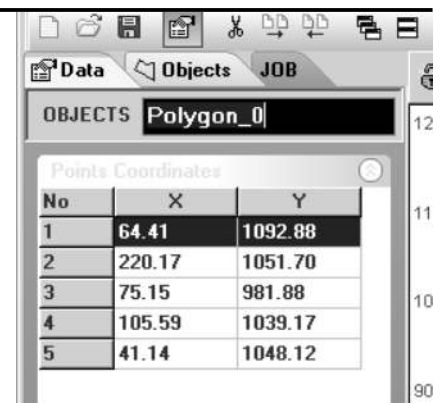
5. Working areas

On the working areas three function „ears” are available; clicking on them these will open and become active.

5.1 Data:

The table shows the controll points of the actual object coordinate (marked with red or magenta colour).

If you wish to change any point of an object numerically due to any reason (thus to change the position thereof not through dragging, but coordinate writing), then click on the coordinate line and you can re-write the "x" and "y" values, and validate them with Enter.



No	X	Y
1	64.41	1092.88
2	220.17	1051.70
3	75.15	981.88
4	105.59	1039.17
5	41.14	1048.12

Programme description and control

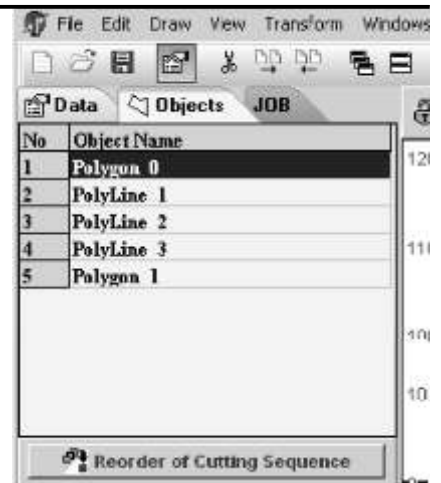
5.2 Objects:

Opening it the list of our drawing elements will appear in the order, they were made. As long as this is not changed (Cutting Sequence), this is also the cutting sequence!

The name of the closed objects is Polygon + number, while that of the open object Polyline + number.

If clicking on the upper line of the list, the object will become actual (colour turns red), and you can move around in the list with the navigation arrows of the keyboard (up/down), you can check in which sequence the cutting will be done.

Under the list there is a wide button with Reorder of Cutting Sequence on it. The pattern thereon is the same as on the patter of the small icon of the drawing tools, having the same function as well. Pressing it you will set the cutting sequence of the objects, the operational logic is presented at the sample programme.



5.3 JOB

5.3.1 Coordinate line

Coordinate line (yellow position numbers in dark blue field): shows the present position of the cutting line as a red disk on the working area of the screen. If cutting starts absolutely from '0' position, this is at the same time the real coordinate, otherwise it is not.

5.3.2 Test tour:

it shows the cutting process at the speed multiplied with the index complying with the value set in the window under it. It is advisable to start it before cutting, as you can notice the errors lefts in the cutting plan!

5.3.3 Navigation square:

shows the allowed movement directions (green circle) and the lines can be moved through manual control with the allowed press buttons. In the direction the circle colour is red, the line is at the end position, the cutting head cannot be moved in that direction.

5.3.4 Position line:

the line can be led into the x,y points written here (Go to New Position) If e.g. the line is exactly in the absolute zero position, and the numbers 20;30 are given as x,y values, the line will move visibly on the screen as well as a result of pressing this button in conformity with the value given.

5.3.5 Relative Null:

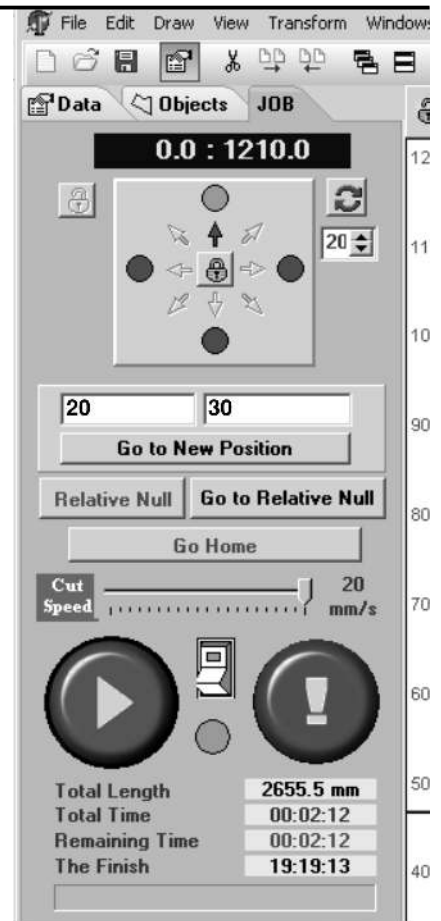
To select the relative „0” point. You can determine any panel point as starting point, thus relative '0' point. At the start the equipment relative '0' position is the left lower (0;0) point on the panel. (In case of Obelisk and Obelisk Turbo machines, the upper left (0;1210) point). See explanation in the sample programme!

5.3.6 Go to Relative Null:

The line moves from the present position into the 0;0 coordinate on the shortest route. Do not mix it up with the movement into the absolute 0 point, as this point can be the initially chosen relative 0, too!

5.3.7 Go Home:

Upon pressing it the thread moves to the absolute zero position, first along the x axis, then along the y axis. Upon reaching it, the left, then the lower or upper circle colour depending on the machine type will turn red, and you see the '0' value in the coordinate line. The same can be reached, if you double-click with the left mouse button on the area outside the panel, far from the zero position. The cutting line will stop upon reaching the end positions, and in this case you will zero there.



Programme description and control

5.3.8 Speed line:

You will set the desired cutting speed with sliding the indicator.

Recommended speeds:

ObeliskTurbo:

20-30 mm materials: 10-11 mm/sec

40-60 mm: 7-8 mm/sec

above 60 mm : 5-7 mm/sec

5.3.9 Cut/Test:

It starts the cutting. If the thread-heating is off, the programme can be used only in Test mode. Turning the heating on will automatically change the button text to White Arrow on Green Background. In Test mode the machine does not receive signs, the thread remains stable, and nevertheless the software apparently performs the cutting.

5.3.10 STOP/RESET:

Emergency stop, complies to the (F12) or (Esc) key.

Re-pressing it will release the emergency stop.

PAUSE instruction can be given from Stop falling menu or by pressing (SPACE) button. Pressing the button again the cutting will continue.

5.3.11 Switch between the Cut and STOP button:

Turning the cutting thread on-off. If it is off, the cutting can be started only in test mode. The on position is shown by a green colour on the switch.

5.3.12 Green circle under the switch:

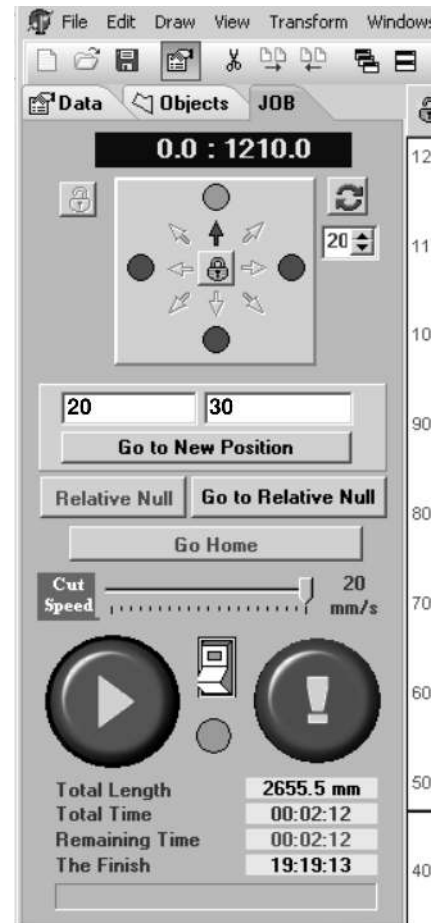
Shows the cutting thread is torn from OBELISK TURBO types (if the wire broken it turns to red).

5.3.13 Information lines :

- Total length : Shows the total length of the cutting
- Total Time: Shows the total time of the cutting
- Remaining Time: Shows the time remaining from the cutting
- The Finish: Shows the real time of ending the cutting, if the computer watch is correctly set.

5.3.14 Toolbar

The ratio of time spent with cutting is shown compared to the total time.



How to use the software

Presentation with a sample

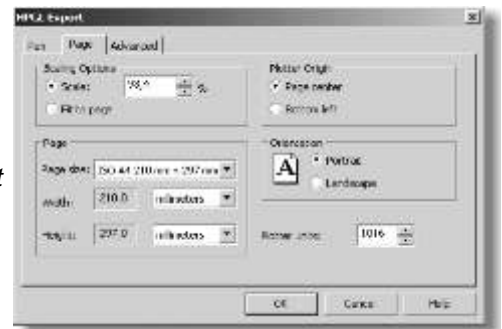
In this sample we will cut the ABC letters.

1.) The text was designed in a vector designer software.

As the cutting is done diverted many times in order to stabilize the panel, if necessary the drawing can be rotated already in the designer software by 90 grade (Sample file on the CD: **ABC.cdr**).

2.) It is exported into *.plt.

*Only for CorelDraw users: Let us correct the CorelDraw's rounding error! Upon setting HPGL format a setting window will appear at exporting, select here Page, and set the Scaling option from 100% to 98,4 %, in this case the cut piece will be scaled. There is no need to do this setting another time, the given CorelDraw will remember. (**ABC.plt**)*



3.) Open the exported file in StellaObelisk programme.

The software will position the letters in the upper left corner. The reason is if a new panel is placed into the machine, we should always proceed with the cutting from up to down, as the panel bottom part is still entire, thus remains stiff. The machine default setting is also the upper left corner, placing the new panel is done comfortably with completely raised hand.

The software cannot decide what is what we need in the course of cutting, on what route and in which sequence to proceed during cutting. When designing cutting you have to decide where the starting points of the cutting should be and how the cutting thread should get there.

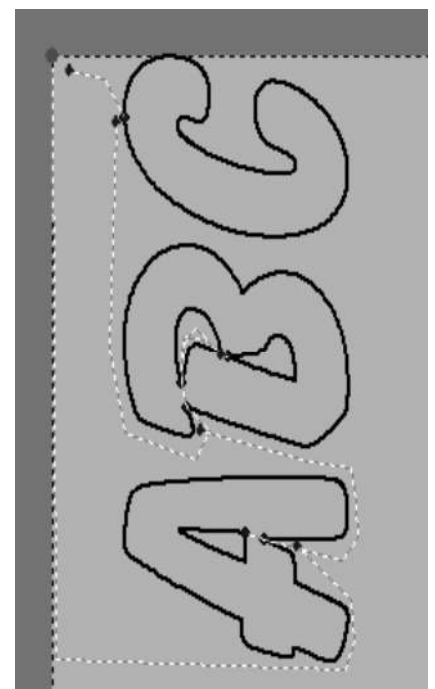
As the first step it should be decided where the starting points should be. These should be placed through the **ABC** letters. As it often happens that the letters also have inner cutting outline, therefore we should choose points opposite to each other as starting point, and possibly where the section to be cut is the shortest. Letter **B** is special in this as well, as it has 2 inner outlines. Letter **C** is curved all over, there is not much possibility to choose, the length of the route leading to the cutting will determine where the starting point should be (it should be the shortest possible). The starting points on the letters are re-located, as shown in the file **ABC1.sbn**.

If the Objects panel is opened now, 6 objects are found in the list. Studying it you will see in what sequence the **ABC.plt** file took the objects over. The sequence is not appropriate, already the first two objects (the inner and outer side of letter **A**) are in reverse sequence, as the piece are to be always cut from inner toward outer!!!! Later the sequence will be established automatically, if the lines are correctly drawn.

Thus the lines approaching the starting points will be drawn.

As the letters are completely on the edge of the panel, move them a bit down and right. (Edit...Select all...Move upon pressing Shift ... (Ctrl+D) Start drawing the approaching lines. Important rule: start the line always next to the starting point, possible place it on the starting point!

Afterwards think with the computer brain. The software will use a special logic to making the sequence, which we also employ:



How to use the software

4.) What is the starting position?

Generally the point Absolute Zero (0;1210), therefore start a line from next to it (drawing mode: Polyline). Draw the line next to the starting point of letter **C**. As the drawing is fairly small, it does not matter if the starting point is not hit, if the end point is put (left, then right mouse button), press (ESC) button (exit drawing function). Click with right mouse button to close to the starting point of letter **C** (this will be a picture centre point), enlarge the drawing with the Mouse Scroll, after pressing (Ctrl) click on the cutting line, then keeping (Ctrl) pressed pull the section end point to the starting point of **C**. (No matter if the approaching line goes over the working sheet, the thread cannot move there due to the end position.)

5.) We have thus reached the starting point of **C**, the machine will go around the letter and looks for the additional route. Draw another approaching line (Polyline) from the starting point of **C**, but visible farther, than the distance between the end point of our first line and the starting point of **C**. If the end point of the first line gets on the starting point of **C**, this is not a difficult task, yet if not, then take care that it should happen like this!

You should get into the starting point of one of the inner outlines of letter **B** with the second line. You will draw it so that the left side of letter **B** is avoided, go to the starting point of outer contour, from here to the starting point of the left inner contour, from here to the left side of the short section between the two inner outlines on optional route in the waste, afterwards to the starting point of the right inner outline. This line is thus ready – (right mouse click).

The machine will run along this line, and goes around the Object 3 points. The next step is to get on the starting point of the left inner contour. To this start the line with Polyline command (you are still in, if you haven't exited it due to any reason!) from the end point of the small section between the two inner outlines, draw the approaching line till the starting point in the waste. As after cutting the right inner contour the next point is the starting point of this section, therefore the thread will move in the cutting split, in which it has not been in, thus no redundant cutting takes place in the letter.

6. The thread will go along the left inner outline, and will step straight over (see below!) to the outer outline of letter **B**. No line is required here!

7. After the outer outline of **B** we have to get to the starting point of an inner object. Polyline 9 line serves this, which is started from next to **B** outer starting point. It leads to the starting point of **A** inner outline, but so that the point of the line before the last gets on the starting point of **A** outer outline. The thread thus goes to the inner outline, after running it around it gets back to the outer outline through the cut. It runs over and the thread has to be led out to close to the machine's absolute '0' point, so that the panel can be taken out from the machine. Together with the 5 lines drawn so far we already have 11 objects on our Objects list, in the order as the drawing is taken over from CorelDraw, then the approaching lines are drawn to it (**ABC2.sbn**)

8. ESTABLISHING SEQUENCE

How does the machine think when doing the automatic order? The object is placed in the first line on the list, the starting point of which was the closest to the thread's present position, in our case to pint (0,1210). From here it goes to the end of this object and will ask: which is the closest starting point? It will be the next object in the list! It will go over on it as well, and will ask again: which is the closest starting point? Now it will identify an approaching line that will be the next object. At the end thereof it will find the **B** right inner starting point, this will be the next in the list. Afterward it finds the polyline as the closes starting point leading to the

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left inner outline, it will put it next, then the left inner outline. Is a line needed now to the **B** outer starting point? No, because that is the next starting point, thus obviously that will be the next outline on the list. If it is also run over, the next starting point will be the polyline starting point leading to A inner, and no other line is necessary to be drawn to the A outer starting point, as this is the closest to the A inner starting point, which it got to after running over the outline. The **A** outer is run over, afterward the next starting point will be the first point of the last line, that will be the finishing polyline.

Thus the Reorder of Cutting Sequence button is pressed, and the software will put the objects into sequence according to the above logic (ABC3.sbn)

General cutting design principle :

Design in any vector-designer software export selection of new starting points (almost always necessary) dragging to the appropriate place on the working area drawing polylines establishing automatic sequence saving CUTTING.