

DT-1630

PROFESSIONAL CUTTING MACHINE

Precision Cutting.
Smart Performance.

Engineered for high efficiency and accuracy, DT-1630 delivers smooth, stable, and precise cutting for a wide range of materials and industries.



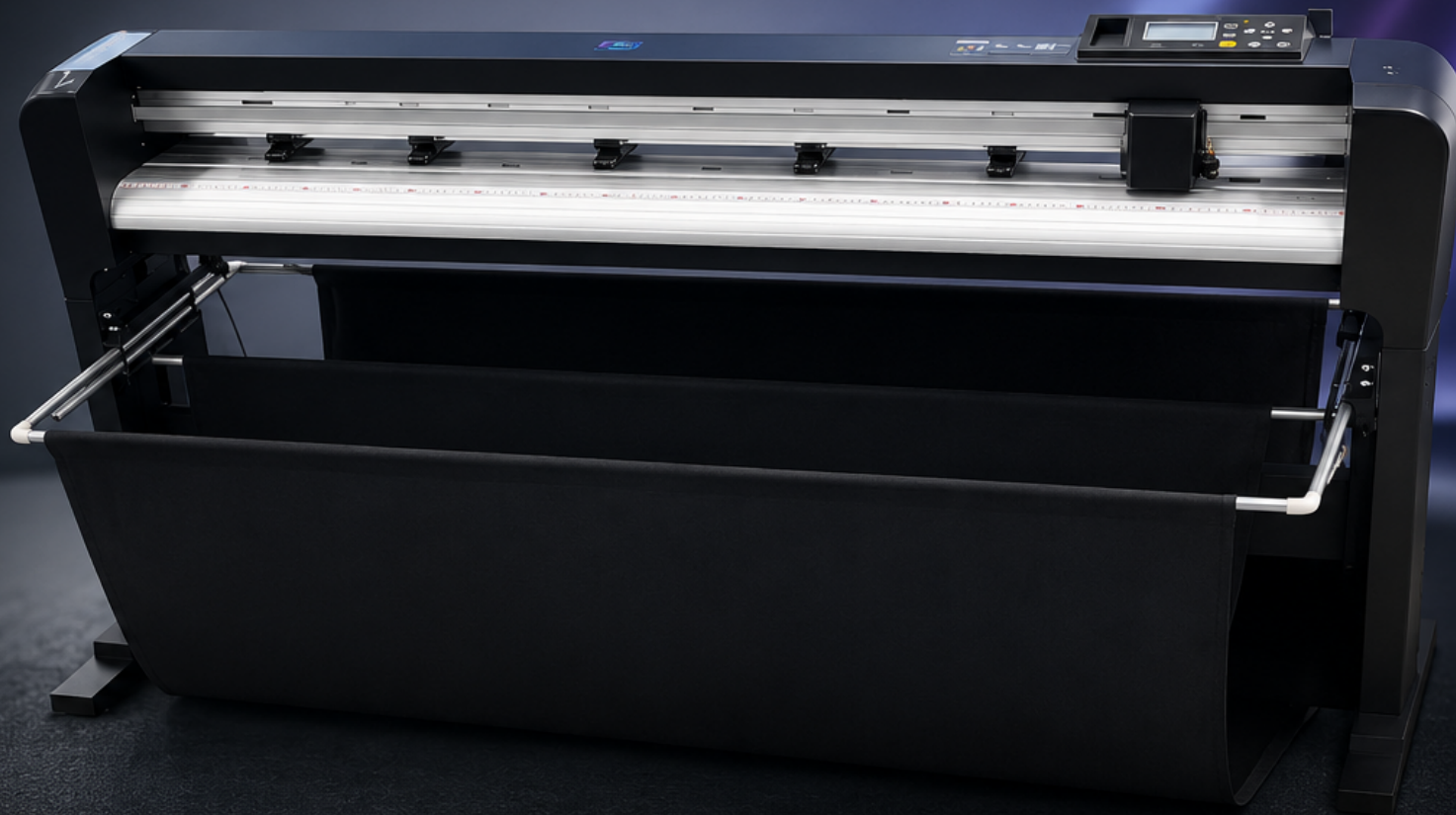
HIGH
PRECISION



FAST
SPEED



RELIABLE
PERFORMANCE



MAX CUTTING WIDTH

1630 mm

Wide cutting area for versatile applications.



MAX CUTTING SPEED

800 mm/s

High-speed performance boosts productivity.



MAX CUTTING FORCE

450 gf

Powerful cutting for various materials.



MECHANICAL ACCURACY

0.0125 mm

Precision engineering ensures consistent results.



SERVO MOTOR

High-precision servo motor for smooth and stable operation.



CCD POSITIONING

High-precision CCD camera for contour cutting.



INTELLIGENT TABLE
COMPENSATION

Automatically compensates for table irregularities to ensure accurate cutting.



INTUITIVE CONTROL PANEL

User-friendly interface for easy operation and efficiency.



DT-1630 is your reliable partner for precision, speed, and productivity.
Built for professionals. Designed for performance.



Multi-Material
Compatibility



High Efficiency



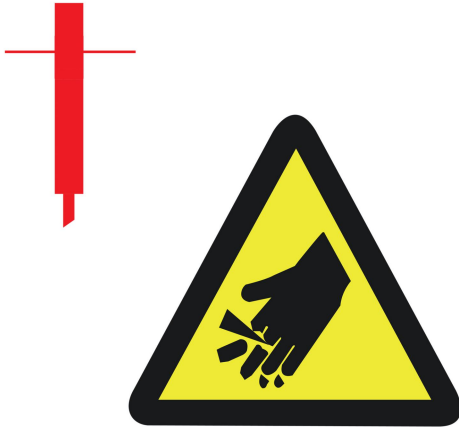
Stable & Durable



Professional
Support

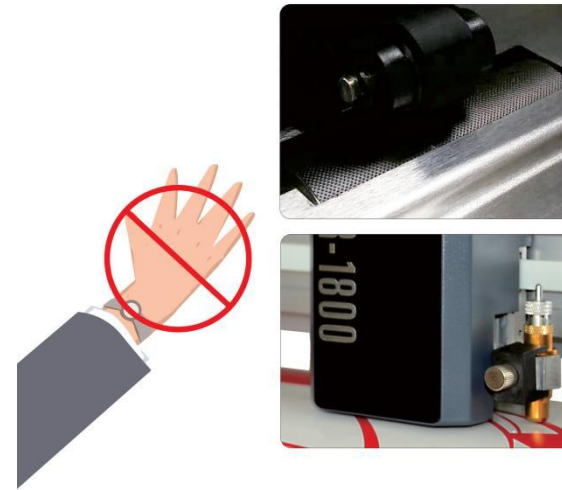
Safety Precautions

- **Do not allow small children to touch the plotter.**
- **To ensure the safe and correct use of your plotter, read this manual thoroughly prior to use.**
- **Keep the manual in a handy location for quick reference as necessary.**
- **The following describes important points for safe operation. Be sure to observe them strictly.**



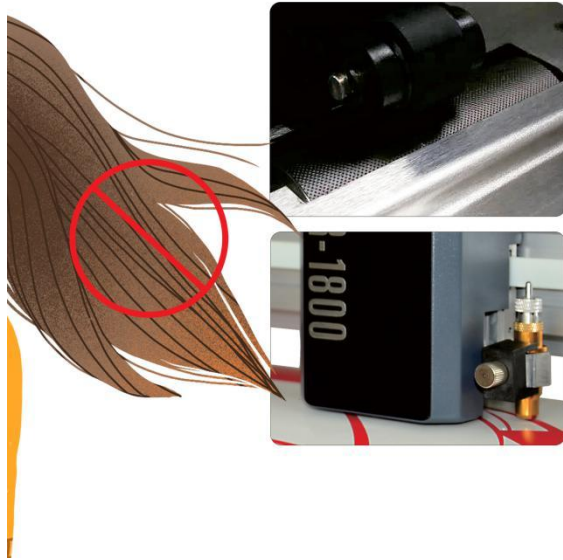
Be careful when handling the cutter blade.

- * Touching the blade with your bare hand may cause injury.
- * Do not touch the cutter blade while cutting is in progress.



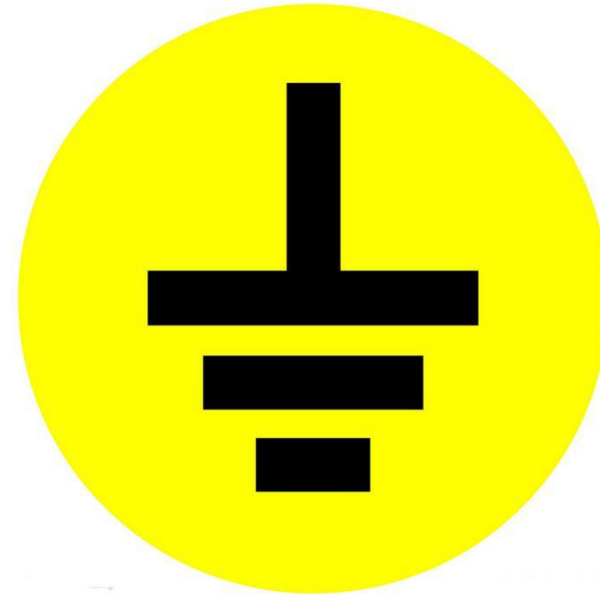
Do not touch the rollers or moving parts such as the carriage while cutting or plotting is in progress.

- * Such action may result in injury.



Keep your hands, hair, wearings, etc., away from the rollers or moving parts such as the carriage even if the plotter is stopped, as it may suddenly start moving when data is received.

* Such action may result in injury.



Be sure to ground the earth terminal.

* If the plotter is not grounded, the operator could suffer an electric shock in the event of current leakage.



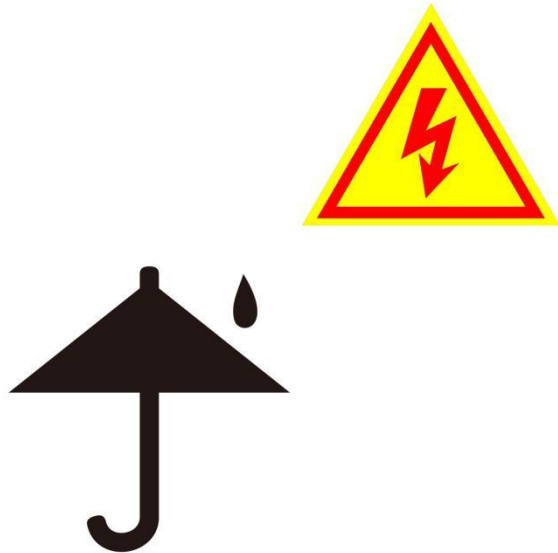
Do not disassemble, repair, or remodel the plotter.

- * Such action may cause electric shock or a fire hazard due to current leakage.
- * Contact with the high-voltage parts within the plotter may cause electric shock.
- * If the plotter requires repairs, contact your sales representative or dealer .



Do not connect the plotter to a non-rated power supply.

- * Such action may cause electric shock or a fire hazard due to current leakage.



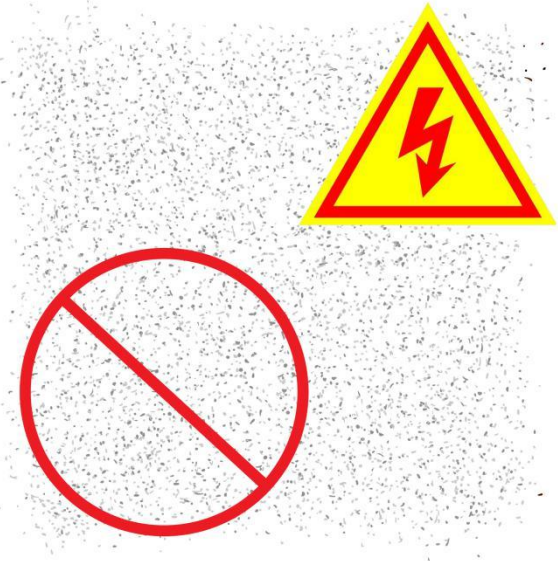
Do not use the plotter in a location where it will be exposed to water, rain or snow.

* Such action may cause electric shock or a fire hazard due to current leakage.



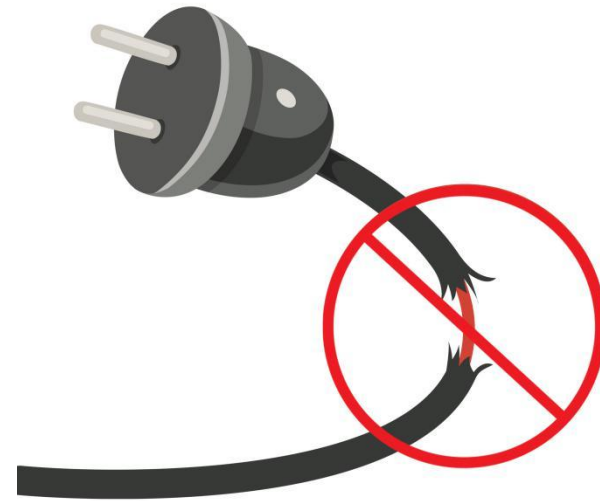
If the plotter generates smoke, overheats, emits a strange odor, or otherwise functions abnormally, do not continue using it. Turn off the power and unplug the power cord from the electrical socket.

- * Use of the plotter in such a condition may result in a fire hazard or electric shock.
- * After confirming that smoke is no longer being emitted, contact your sales representative or dealer for repairs.
- * Never attempt to perform repairs yourself. Repair work by inexperienced personnel is extremely dangerous.



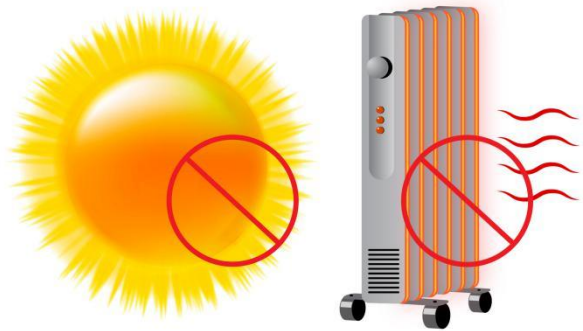
Do not allow dust or metal scraps to adhere to the power plug.

* Such action may cause electric shock or a fire hazard due to current leakage.



Do not use the power cord if it is damaged.

* Use of a damaged cord may result in electric shock or a fire hazard due to current leakage.
* Replace the power cord with a new one.



Do not use or store the plotter in a location exposed to direct sunlight or the direct draft of an air conditioner or heater.

* Such locations may impair the performance of the plotter.



When using indoor lighting such as fluorescent or other electrical lamps, provide a distance of at least one meter between the plotter and the light source.

* Close proximity of such a light source may cause the sensor to malfunction and prevent proper size detection of the media.



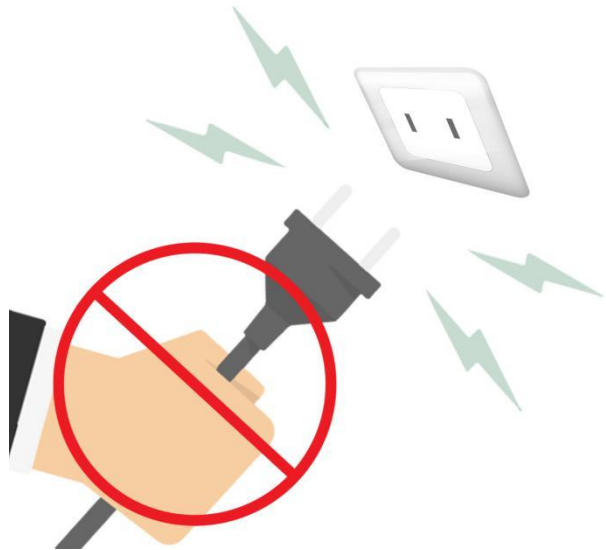
Do not use the plotter in an excessively dusty or humid location.

* Such locations may impair the performance of the plotter.



Do not use the plotter in a location subject to excessive mechanical vibration or electrical noise.

* Such locations may impair the performance of the plotter.



When disconnecting the power cord or interface cable, do not pull on the cord/cable.

* Such action will damage the cord/cable, resulting in a fire hazard or electric shock.



Do not attempt to lubricate the cutting-plotter mechanisms.

* Such action may cause it to break down.



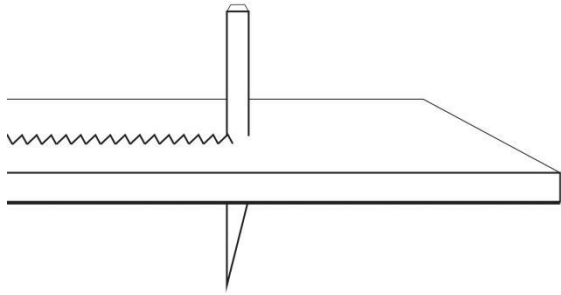
Do not clean the plotter using volatile solvents such as thinner or benzene.

* Such action may impair its performance.



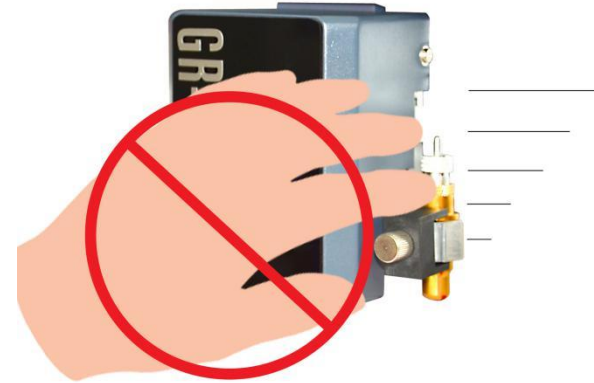
Provide sufficient space around the plotter so that it does not strike any objects in its vicinity during cutting.

* Such contact may cause misalignment in cutting or plotting.



When using the cutter, take care not to extend the blade more than necessary.

* An overly extended blade will damage the cutting mat and adversely affect the cutting quality.



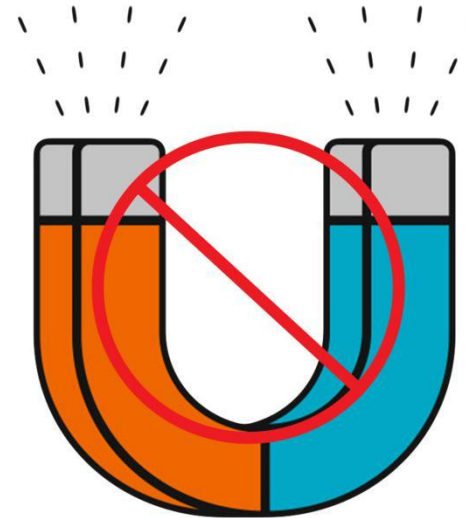
Move the tool carriage slowly when moving it manually in order to load the medium or for other reasons.

* Moving it quickly may damage the plotter.



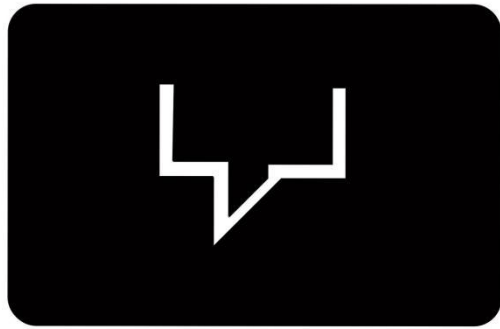
Do not place the plotter on an incline, areas subject to many vibrations, or other unstable locations.

* If the plotter falls, it may sustain damage.



Do not place magnetic cards, diskettes or similar items in the vicinity of the tool carriage.

* The magnetic force may destroy the data on the magnetic cards or diskettes.



TEST

Run a test cut when cutting media with unknown condition settings.

* Running a cut operation with incorrect setting values may cause a large overload to the blades and device or a system breakdown.



Preface

Thank you for choosing a series of cutting plotter. Please read this manual carefully before using to guarantee the best cutting quality and productivity.

Though the provided information is detailed and accurate to the maximum, if you find anything unclear or incorrect, or wish to make other comments or suggestions, please contact your sales representative or your vendor. Notwithstanding the stipulations in the preceding paragraph, We assume no liability for damages resulting from either the use of the information contained herein or the use of the product. The product specifications and other information in this manual are subject to change without notice.

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Assembling

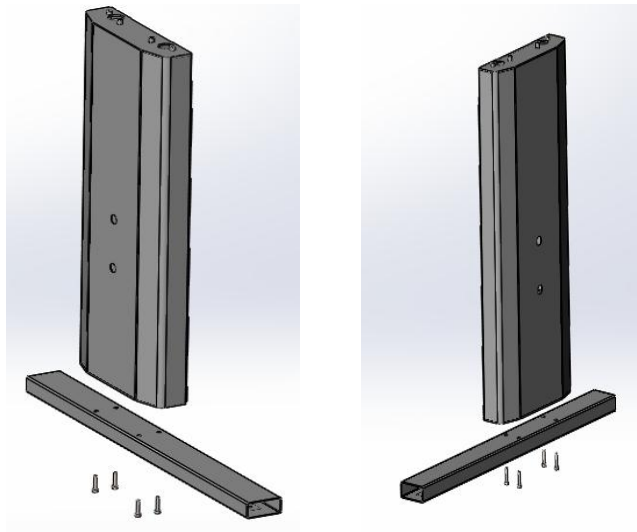
Precautions:

- * Get someone to help.
- * Make sure it is in a dust-free,dry area.
- * Avoid placing in direct sun.
- * Position near a rated power outlet.
- * Provide enough room around cutter.
- * Don't clean with solvents.
- * Don't use lubricants.
- * Don't try to repair unit on your own.
- * Handle the blade with care.
- * Don't over extend the blade.
- * Don't get close to the moving parts.

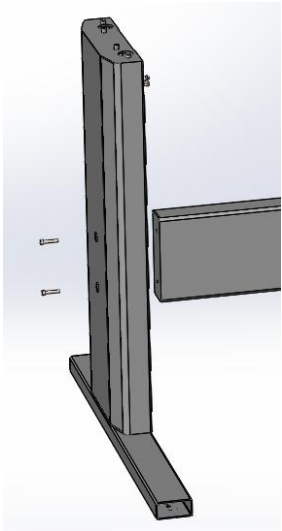
Process to building the cutter:

1st,Mount bottom of the left and right stand legs with M5 socket head screws, please don't tight screws until the cutter is put on the stand and is seated properly.

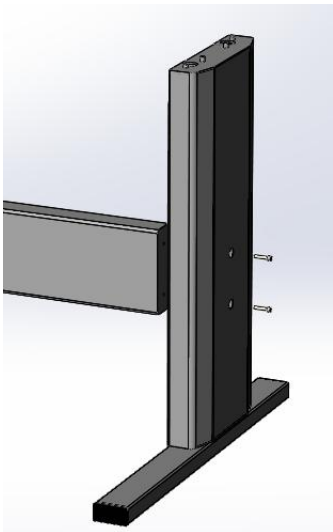
Please take a note that the longer stem of the footers should be toward the back of the cutter.



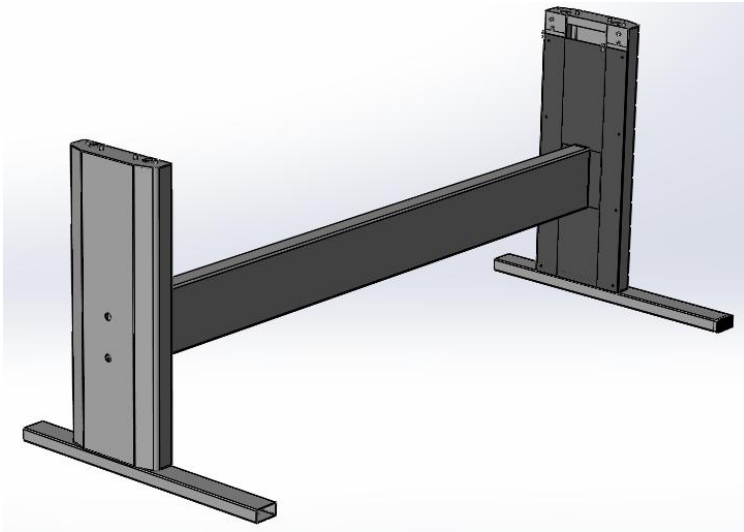
2nd,Mount the left stand leg and cross-member with socket head screws.



3rd ,Mount the right stand leg and cross-member with socket head screws.

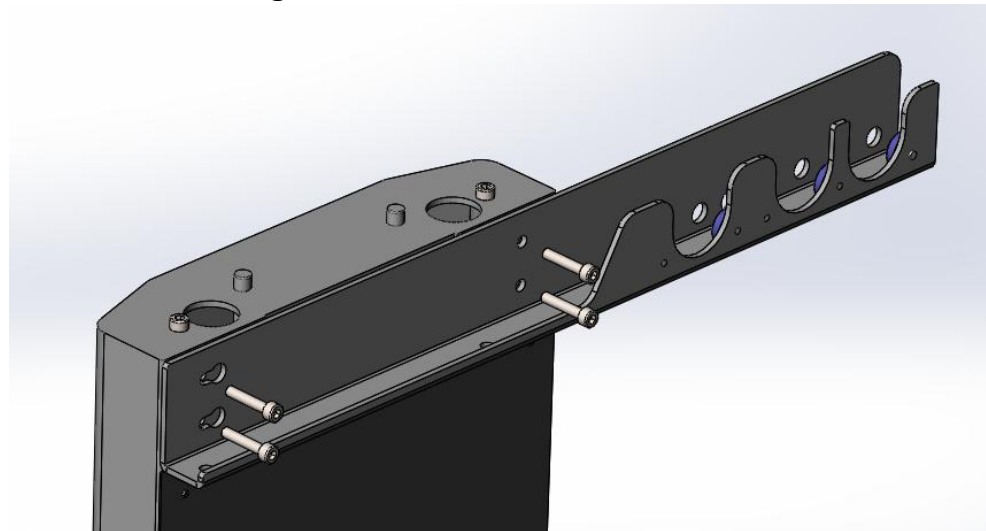
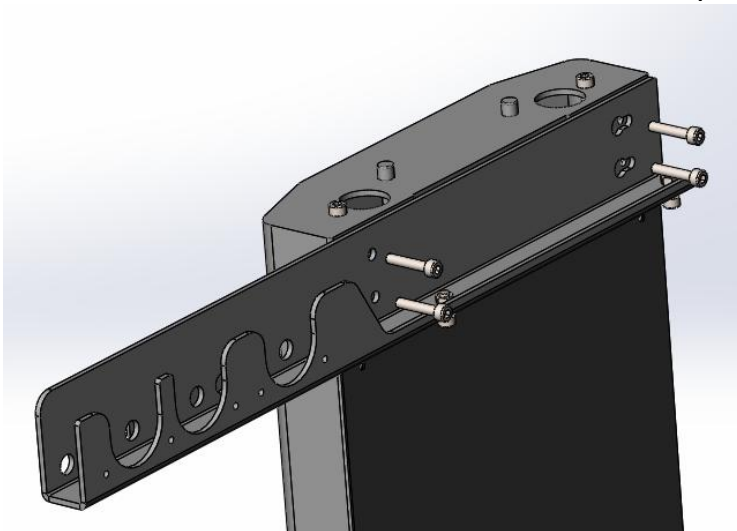


The installation of stand legs and footers is finished picture as below:

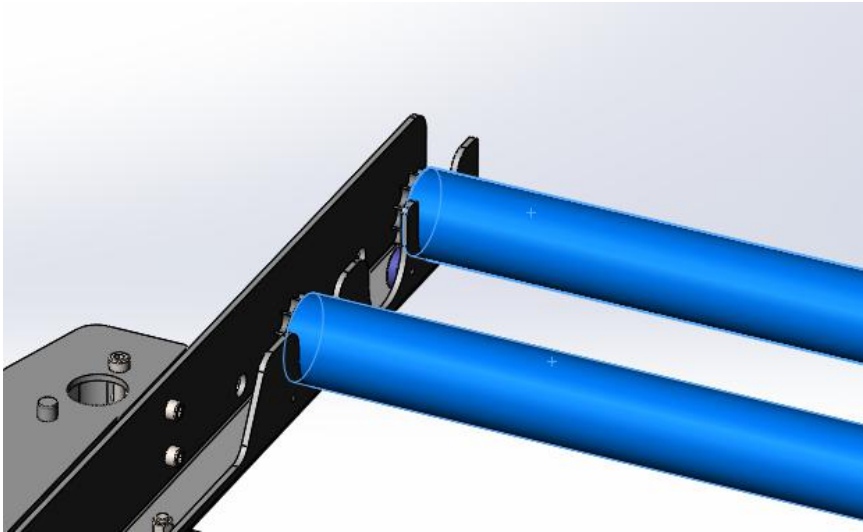


4th, Amount the stock roller plates of left and right side.

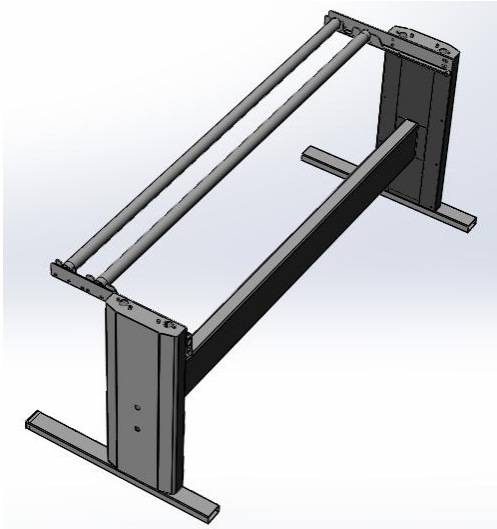
Please take a note that the media stock roller plates should be facing the back of the cutter.



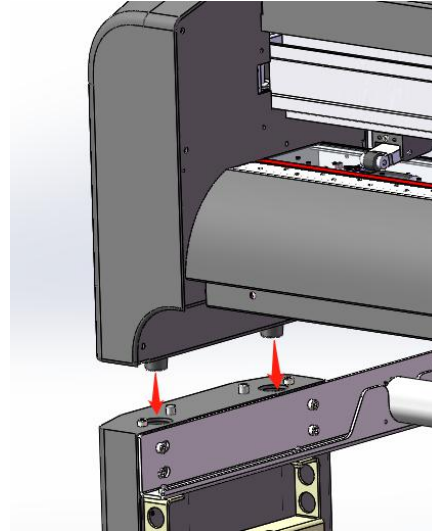
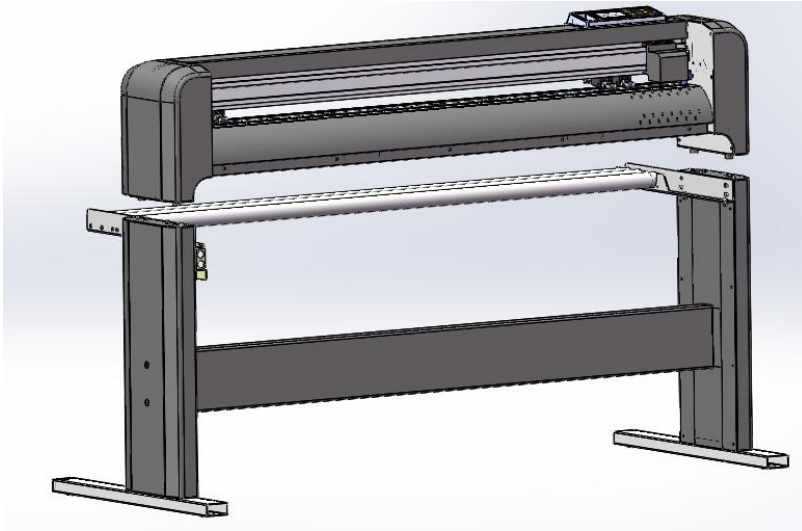
5th, Place the media stock rollers



Installation of machine stand is finished as picture below:

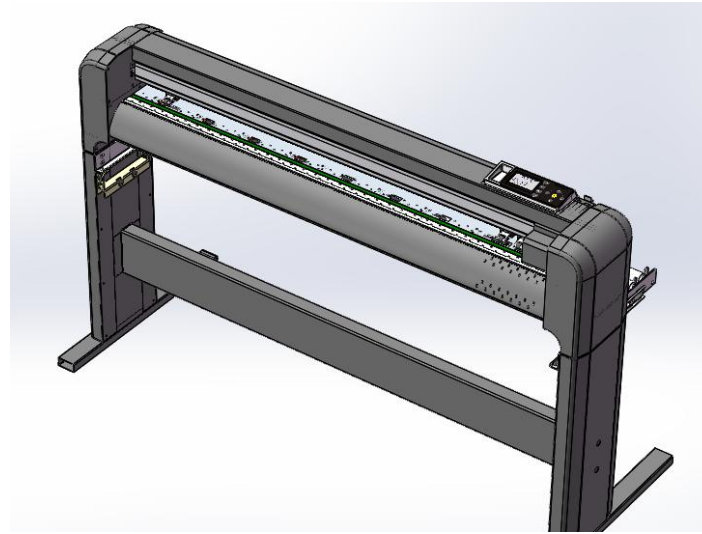
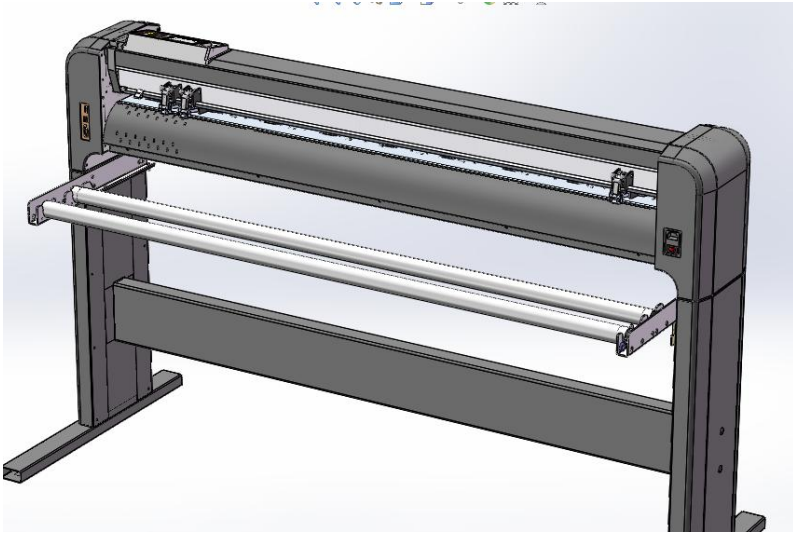


6th,Place the cutter on top of the left and right stand legs,make sure the 4 rubber feet are plugged into the 4 holes in the stand legs.



7th ,Fasten all the screws.

8th ,The installation of whole unit is finished as below:

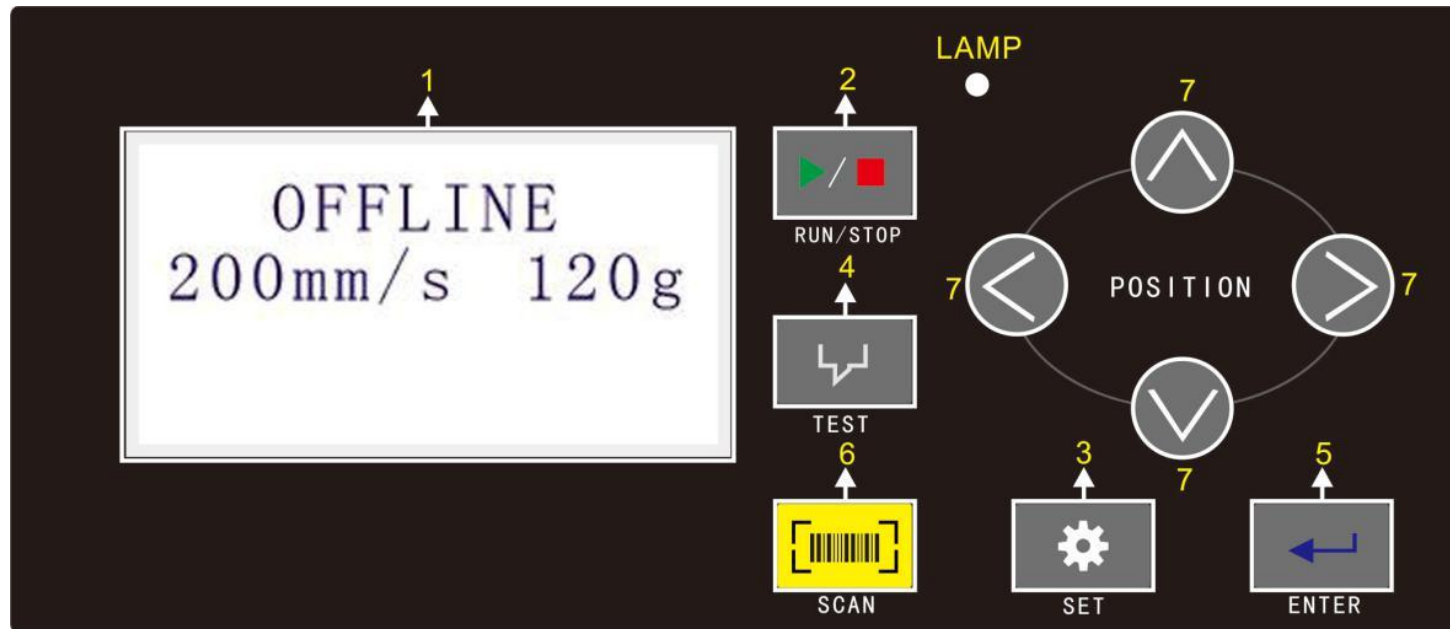


Chapter I Specifications

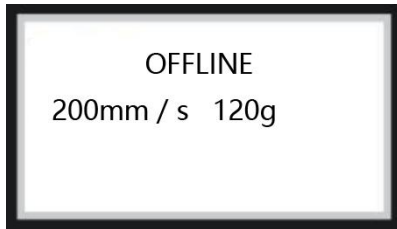
Model	Model 80	Model 140	Model 140F	Model 180
Max.Cutting Width (Non-contour Cutting)	690mm	1290mm	1290mm	1630mm
Max.Cutting Width (Contour Cutting)	600mm	1220mm	1220mm	1520mm
Max.Mountable Media Width	840mm	1440mm	1440mm	1780mm
Min.Mountable Media Width	70mm	70mm	70mm	70mm
Max.Cutting Speed	800mm / s			
Max.Cutting Force	600gf / 5.8N in 8 steps			
Cutting Force Setup	Adjustable in every 1gf			
Drive	Servo			
Mechanical Resolution	0.0125mm			
Min.Character Size	3 x 3mm			
IOS	Win10 / 8 / 7 / XP			
Memory Buffer	2MB			
Software	Windows Driver, SignWorkPro ,CADtoPlotPro			
LCD	In English or Chinese			
File Format	HP-GL ,PLT			
Port in Standard	USB,RS-232			
Dotted Line Cutting	Included			
Registration Marks Sensing	GARMS			
Power Input	90V -240V AC,50-60Hz			
Power Consumption	60w			
Cutter Holder / Pen Holder	1 for each			
Cutter Blade Diameters	1.5mm,2.0mm			
Cutter Blade Angles	30°,45°,60°			
Types of Pen	Water based fiber-tip pen & Oil based ball pen			
Method to Fix Media	Push rollers			
Media Bracket	Included			
Cloth Basket	Option	Option	Option	Option
Package Size L-W-H	1180x400x570mm	1710x400x570mm	1710x400x570mm	2200x400x570mm
Gross / Net Weight	42/27kg	80/46kg	80/46kg	105/72kg

Chapter II About Control Panel

2.1 Function explanations



Number 1. Liquid Crystal Display (LCD): It will show the current status of the plotter. There are:



OFFLINE: in this status, you can change settings or move the tool carriage to Origin position. Please do not send any cutting job in offline status, incomplete or wrong transmission may happen if not and cause error in cutting or plotting operation afterward.



ONLINE : in this status, the cutter is ready to receive cutting job and perform cutting and plotting operations.



STOP : the cutting or plotting is paused in this status. The speed can be adjusted by pressing **POSITION** buttons   while

the pressure can be adjusted with buttons  or . The cutting or plotting can be canceled by pressing **ENTER** button  or be resumed by pressing **RUN/STOP** button .

Number 2 button- **RUN/STOP** : it will start or pause the cutting or plotting operation. When pressing the button in the **Offline** status, the machine will be switched to **Online**. When pressing the button during cutting or plotting operation, the machine will be Paused, the cutting or plotting operation can then be stopped by pressing the **ENTER** button  and return to **Offline**. If any USB memory is connected to the cutter, cutting jobs will be retrieved from the USB memory in priority after pressing the button. After selecting a cutting job, the machine will enter into the **Online** status and start processing.

Number 3 button- **SET** : When it is pressed in the **Offline** status, it will enter the menu for setting various cutting-related parameters.

Number 4 button- **TEST** : When pressed during the **Offline** status, the cut settings can be tested and the cutting speed can be observed. It can also be used to observe if the pressure and blade-tip compensation meet the cutting requirements.

Number 5 button- **ENTER** : it will confirm the menu bars selected or define the settings.

Number 6 button- **SCAN** : it will scan the bar-code when pressed in the **Offline** status. As scanning is finished, the machine will retrieve corresponding cutting file name from USB memory disk and enter the **Online** status to automatically complete the cutting job.

Number 7 button-Position     : it will move the cutting head to the cutting origin during **Offline** , adjust the speed and pressure when being paused, and adjust the settings or switch the menu bars under the menu functions.

2.2 How to operate the control panel

Press button **SET**  when **OFFLINE** to switch to the menu settings,  and  keys can be used to switch the menu bars to each other. Menu bars are as following:



1.Force: press buttons  and  to adjust the values of cutting force; press **ENTER**  to save it. Without pressing **ENTER** , the cutting force will not be saved after leaving the menu bar. After returning to the **Offline** status, it is allowed to press **TEST**  to do test cut and observe if the cutting force meets the requirement or not.

2. Speed
200mm / s

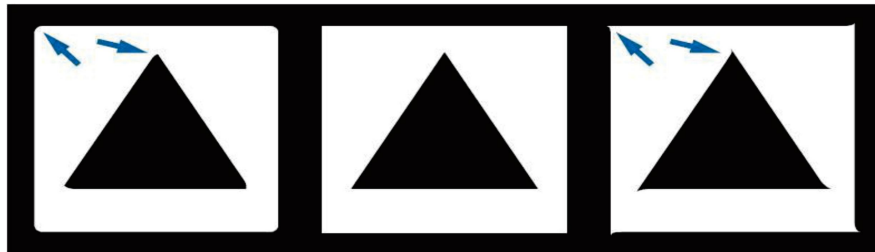
2. **Speed** : it refers to the cutting or plotting speed. Please press  and  buttons to adjust the values of speed and press **ENTER**  to save the values. Without pressing **ENTER** , the values of speed will not be saved after leaving the menu item. After returning to the **Offline** mode, it is allowed to press **TEST**  to run the test cut prior to actual cutting or plotting operation.

3. Travel Speed
600mm / s

3.Travel Speed: it refers to the traveling speed of cutter blade/pen above the media(when cutter blade/pen is in up position). Please press  and  buttons to adjust the values of speed and press **ENTER**  to save the values. Without pressing **ENTER** , the value of travel speed will not be saved after leaving the menu bar. After returning to the **Offline** status, it is allowed to press **TEST**  to run test cut prior to actual cutting or plotting operation.

4. Knife Offset
0.53mm

4.Knife Offset: it refers to the cutting correction to blade eccentricity.The offset effect is shown as below.



Excessively small offset

Exact offset

Excessively large offset

The eccentricity of randomly-configured blade is normally 0.25mm or 0.50mm. If excessively small or large offsets shown as the figure above occur, please press  and  buttons to adjust the offset to an appropriate value and press **ENTER**

 to save the values. Without pressing **ENTER** , the values of knife offset will not be saved after leaving the menu bar. After returning to the **Offline** status, it is allowed to press **TEST**  to run test cut .

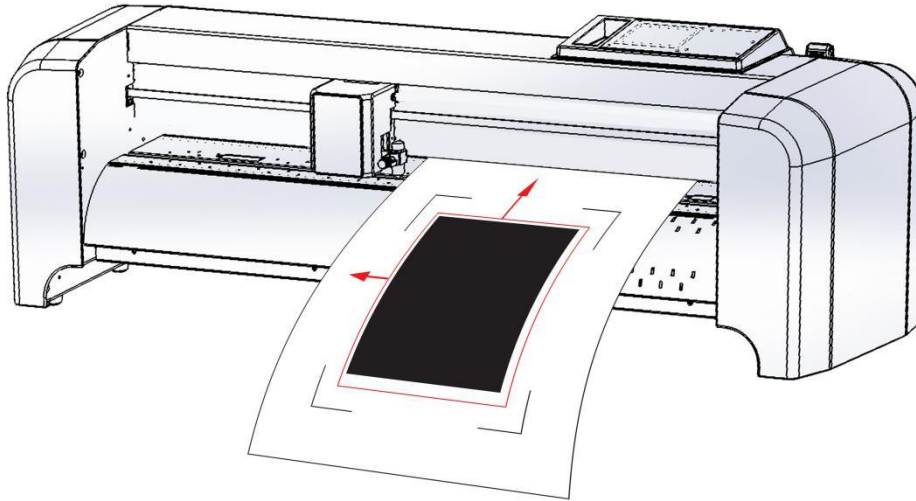
5. User Preset
 # S:010 F:050
 SET for set
 ENTER for save

5. **User Preset:** Showing cutting forces which have been set with software when cutting multiple layer media.

6. Mark Offset
 SET for change

6. **Mark Offset:** it will adjust the error between the actual cutting position and contour printed. Press **ENTER**  to set as below:

Move Cut Line To
 Left:0.00mm
 UP:0.00mm
 ^v<> to change



The red line in the picture above refers to the tool path, which deviates from the black square. If you keep pressing the



button, the leftward value will increase. If you keep pressing the



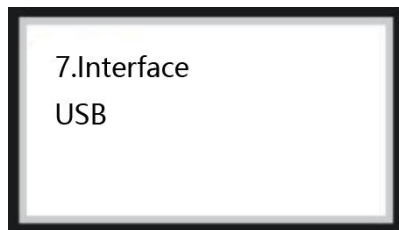
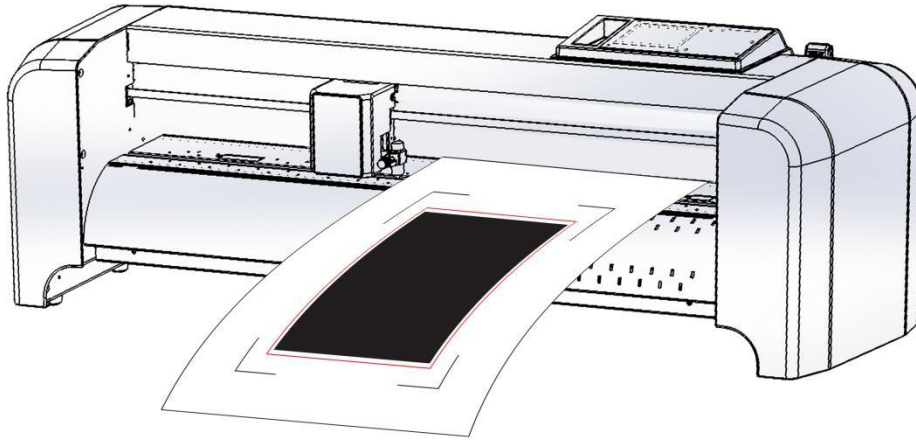
button, the upward value will increase. After

adjustment, please press **ENTER**



to save. When the pattern is positioned for cutting again, the cutting deviation will

be eliminated, as shown in the following picture:



7.Interface: press  and  buttons to choose the appropriate data interface as default. USB and other interfaces are optional items according to actual hardware configuration. Please **ENTER**  to save. Without saving, what selected will be ignored.

Note: the machine can only accept the data input from one interface at one time. If there are two interfaces inputting at the same time, the interface data that is not selected will be ignored.



8.Language: press  and  buttons to choose the language. The languages supported by the machine include Chinese and English. Press **ENTER**  to save.



9.Version: it is required to advise us the firmware version of display system in maintenance to help to figure the machine failure.

Chapter III How to Install Software

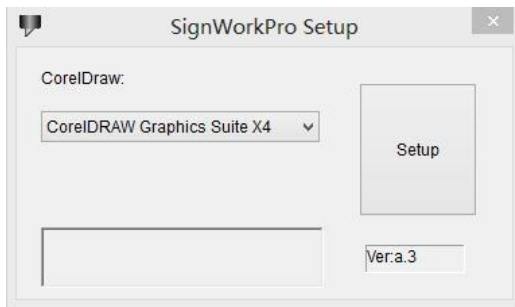
3.1 Install SignWorkPro

If you use the software CorelDRAW, you can directly output the cutting job to the cutter with steps below:

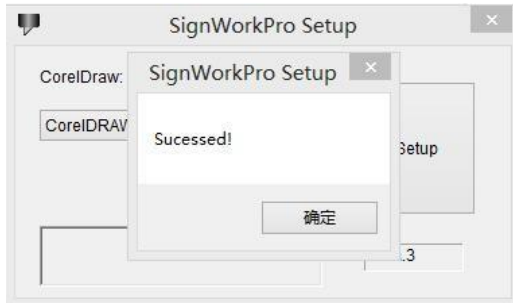
1st, Get the installation package from your sales representative or dealer



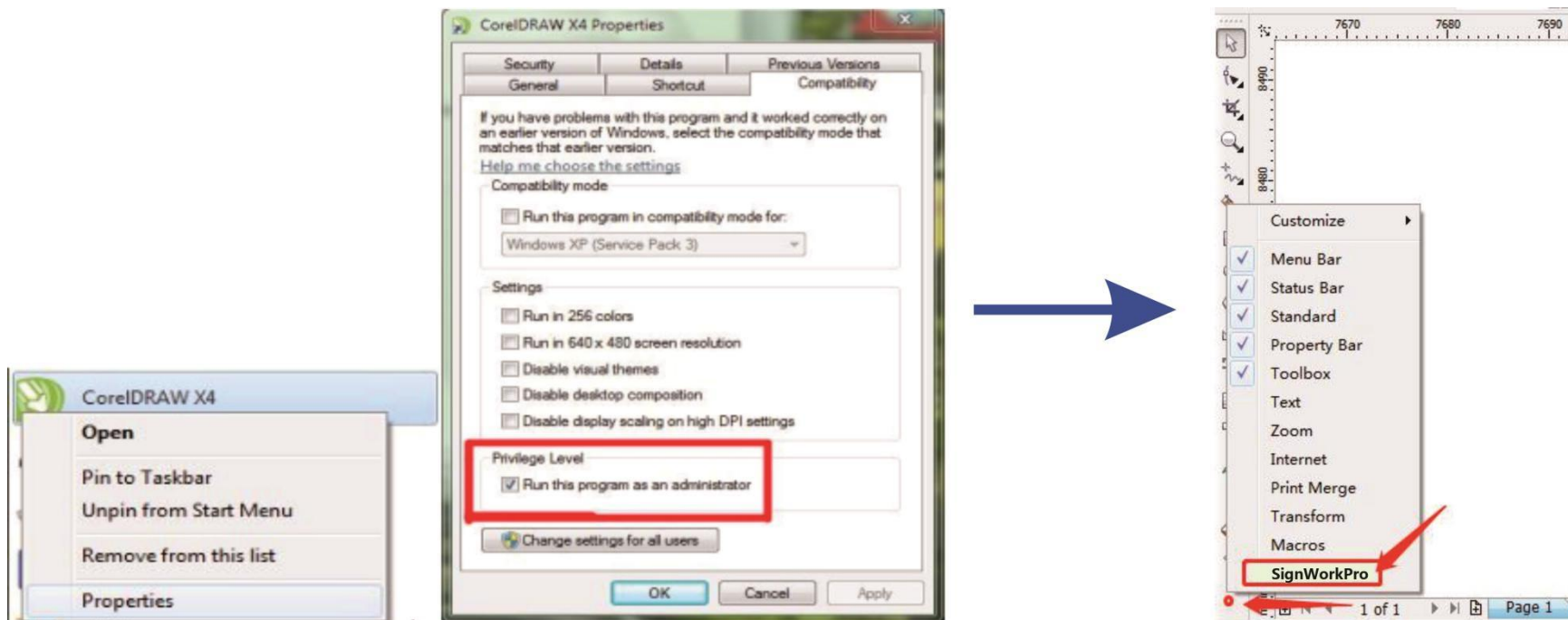
2nd, Double click to run, then choose the corresponding CorelDRAW version, then click to install.



3rd, The installation is completed successfully.



4th, Right click the short-cut icon of CorelDRAW to choose **Properties Compatibility** and click **Run This Program as an Administrator** in the following picture.



5th, Run CorelDRAW, then right click the item in red , then choose **SignWorkPro**. When the toolbar in the following picture pops up, the installation is fully completed.



3.2 Introduction to icons of software



* Generate the cutting path with the selected icon and send to cutter.



* Create Registration Mark to the selected contour.



* add auxiliary bar code to the selected Mark.



* Automatically create the contour for the selected object(s).



* software settings.

3.3 How to install Print Driver

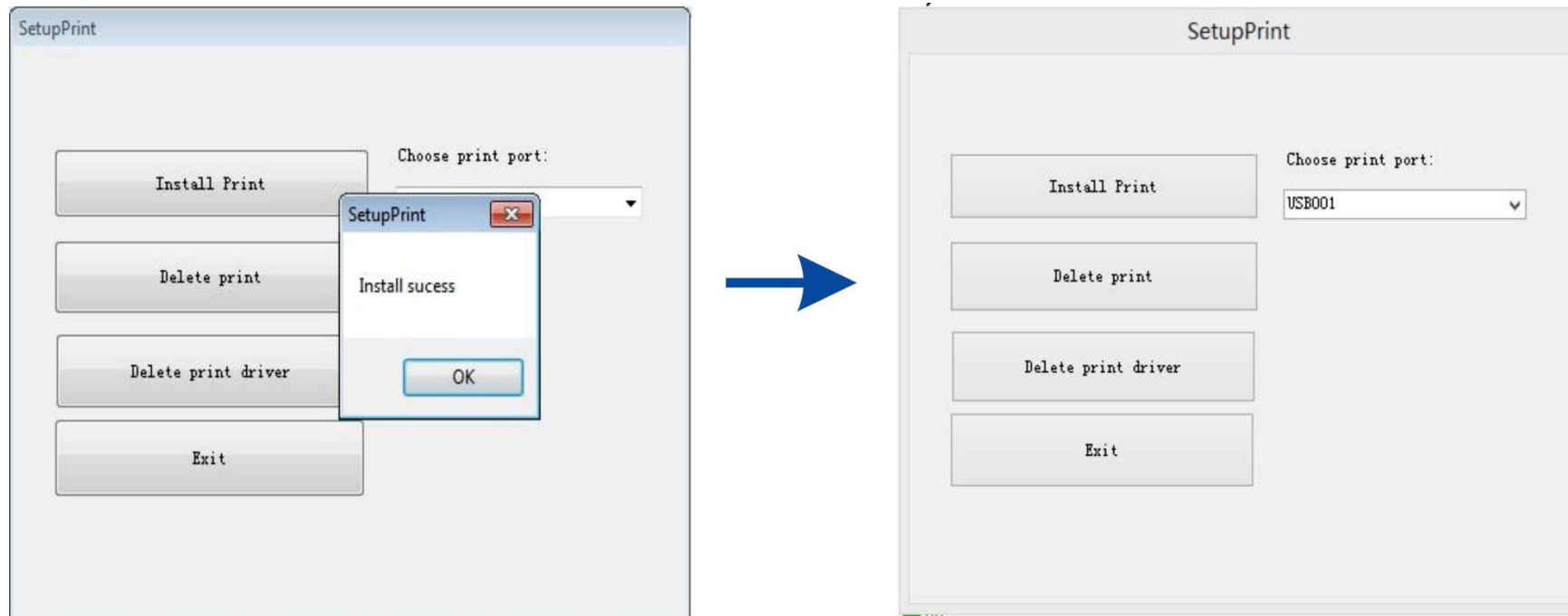
It is necessary to install the print driver program if you want to output with CAD software, see steps below:

1st, Get the installation package from your sales representative or dealer

2nd, Choose the corresponding system file to run the installation program.



3rd, Choose the print port. **USB001** is generally chosen, if USB001 is not available please try USB002, USB003 and USB004 in the list.



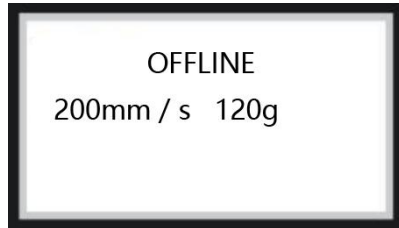
Following icon will pop up when the installation is completed.



Please choose the **printer** in CAD for printing output.

Note: it is necessary to set the line width to the minimum in CAD, otherwise double-lines will appear in printing.

Chapter IV How to Operate the Cutter



1st, Connect the power cord to power supply and turn on the cutter, then the machine will show **Offline** mode. Press  buttons to check the machine running. If there is any machine failure, please turn off the machine, unplug the power cord and contact your sales representative or dealer for help.

2nd, If machine is ready for work:

2-1, Lower the media set lever to raise the push rollers.

2-2, Put the roll media on media stock rollers and then push the tip of the roll media forward from the back of the machine. Make sure to pull it so that there is no slackening across the roll media's route.

2-3, Pulled from the front, the roll media should be long enough so that its tip completely covers the front panel. If you pull it too long, wind the roll and adjust the length.

2-4, Position the media and the push rollers to correspond with the width of the media. The push rollers push down on either side of the media. Use the grit roller position guide to make sure the push rollers are set on top of the grit rollers.

2-5, Pull the media taut to make sure that there is no slack in the conveyance path, and then raise the media set lever to lower the push rollers.

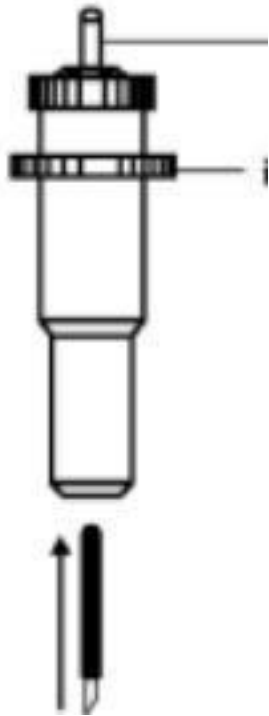
2-6, When the set lever is up (and the media is held down by the push rollers), pull out the roll media and give it slack.

2-7, Create the same amount of slack in the media as will be used for the back of the machine.

3rd, How to install cutter blade into cutter holder

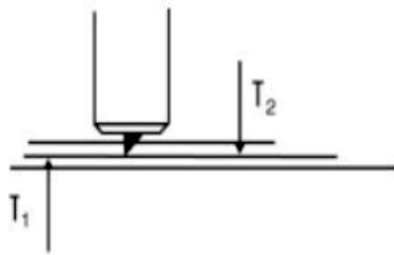
3-1, The cutter is available with standard cutter blade of Roland and Graphtec, we will take the cutter blade of Roland as an example.

3-2, there are three cutter blades with angles of 45° and general eccentricity of 0.25 or 0.50mm



pic.1

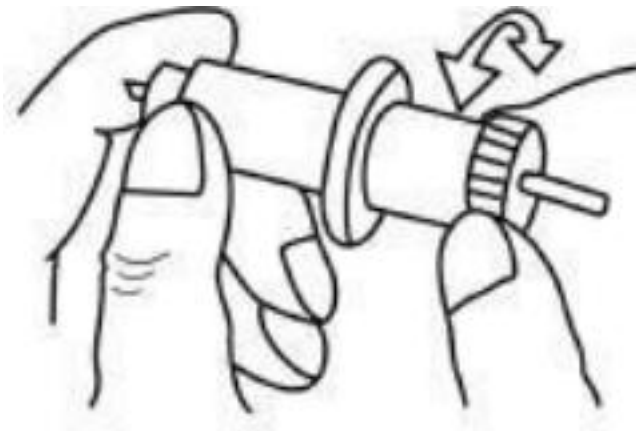
3-3, The cutter blade is installed as shown by pic.1 and the protruding length of cutter blade tip is adjusted by depth adjustment knob.



T1: the sacrificial substrate thickness.
 T2: the material thickness.
 $T1+T2 > \text{protruding length of tool tip.}$

pic.2

3-4, After adjusting the protruding length of cutter blade tip as shown by pic.2, tighten the knob. (Appropriate protruding length of cutter blade tip is of vital importance to the writing panel and the media).



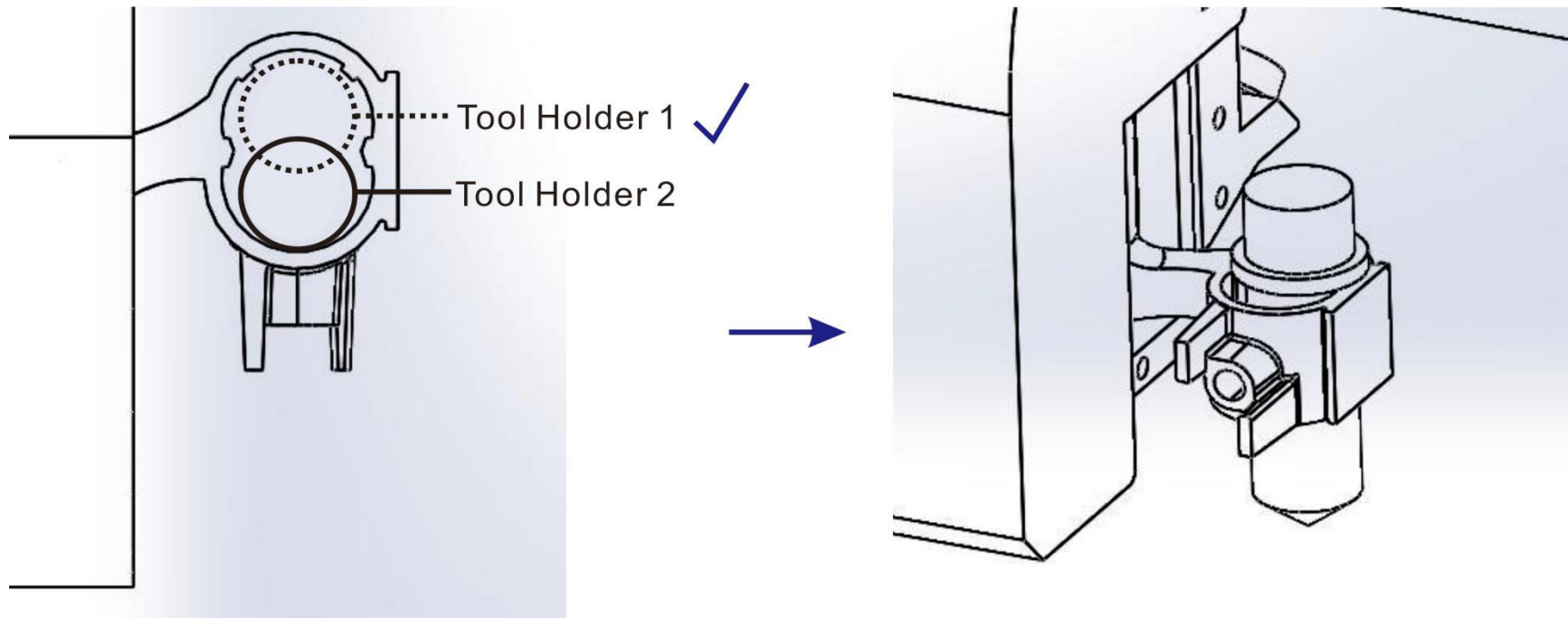
pic.3

3-5, The protruding length of the cutter blade tip is shown as pic.3



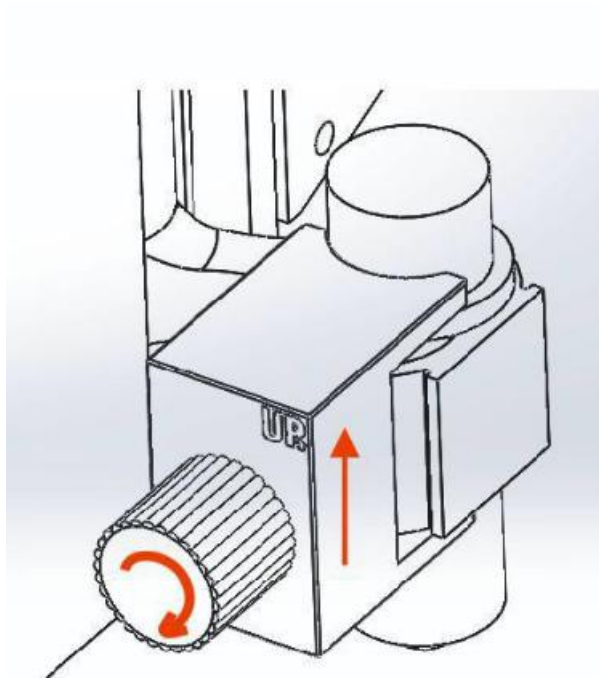
pic.4

3-6,Use the drawing pen to draw patterns in paper. Please reduce the pressure or it may break paper. Please install the drawing pen as pic.4



pic.5

4th,When the cutter holder is correctly installed into cutter holder, please put cutter holder into the tool holder 1,see pic 5:



pic.6

5th, Make sure that the c-clamp is engaged on the cutter holder, and then tighten the screw, see pic.6.

6th, Adjust the cutting and plotting pressure:

6-1, Press     buttons to move the blade tip to an appropriate position within the media and confirm the protruding length of blade tip again.

6-2, Press **TEST**  to cut a pattern in the media, then remove the scraps with tweezers. Some light trace lines should remain on the sub-face indicating the correct pressure setting. If it is difficult to remove them cleanly and clearly, please press **SET**

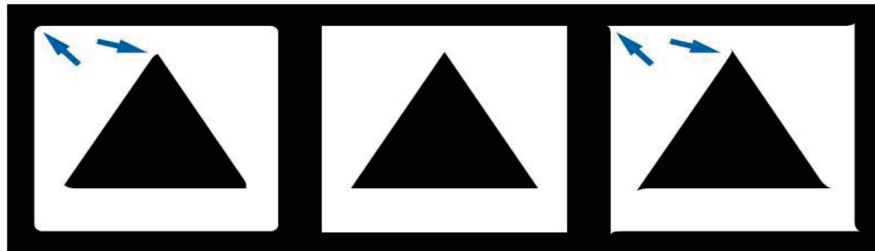
 to enter the menu to change the pressure. Please increase 5g-10g of pressure each time. After returning to the

Offline status, please try to test cut again until the media is easily removed. If there are deep cutting trace lines on the sub-face or it is completely cut through, it is necessary to decrease the pressure and try to cut again.

7th, Adjust the cutting speed when cutting thicker medias or better cutting quality is required, it is necessary to appropriately reduce the speed to guarantee quality cutting.

8th, Adjust the eccentricity:

8-1, Press **SET**  to enter the menu.



Excessively small offset

Exact offset

Excessively large offset

8-2, Press  to find the menu item of closed angle offset for setting the blade eccentricity. When dealing with situation I and III in the picture above, it is necessary to adjust the closed angle offset.

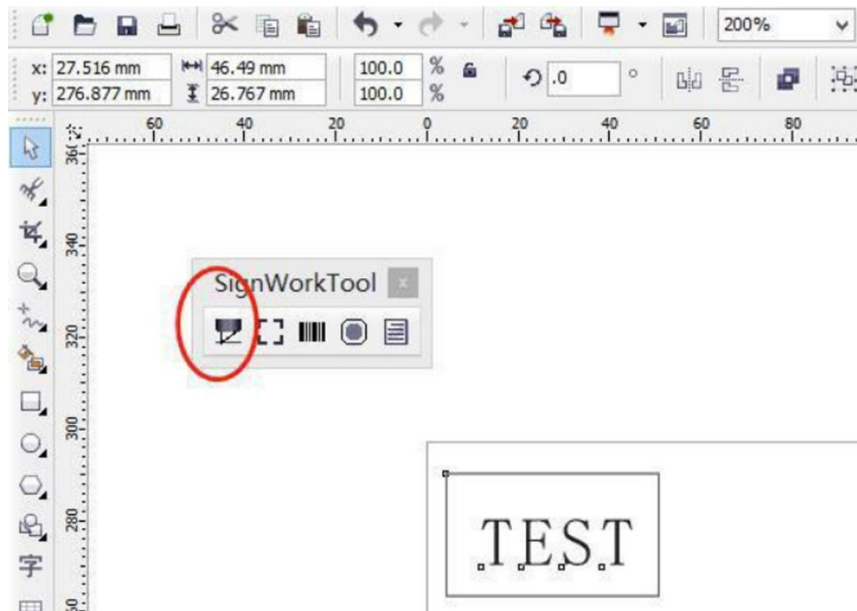
9th, After accomplishing the aforementioned settings, please move the blade tip to the work origin for the oncoming cutting job and make sure that the remaining media is larger than the size required.

10th, Connect the cutter to the computer with the USB cable for printing.

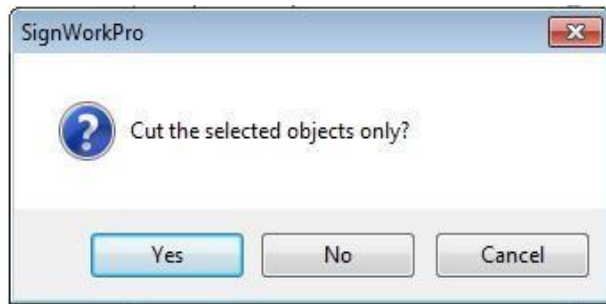
11th, Press **RUN/STOP**  to make the machine **Online** to get ready for receiving the cutting job coming from software.



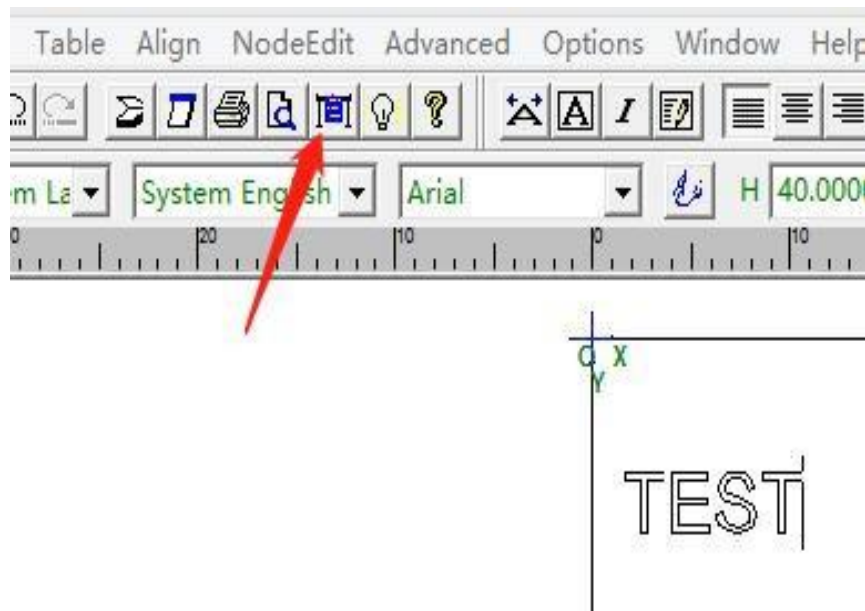
12th, Take **SignWorkPro** to output the cutting job, please refer to **Chapter III** for software installation.



13th, Open CorelDRAW and input text, TEST for example, then click , then following window will pop up:



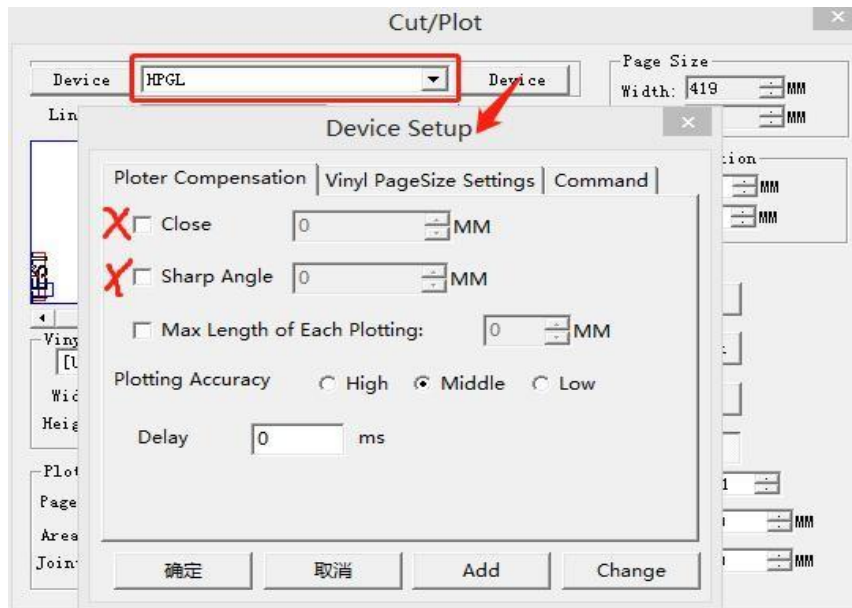
14th, Choose **Yes** to cut the chosen object or choose **No** to cut all the objects of the design. If USB cable is correctly connected, the machine will stay **Online** and correctly cut the objects. If it reads "**the machine is not ready, please press the online key**", then the machine is not in the **Online** status. Please press **RUN/STOP**  to switch to the **Online** status. If it reads "**the machine is not connected or the port is not available**", please check or replace the USB cable.



15th, Output the cutting job from ARTCUT

15-1, Install the print driver program, please refer to **Chapter III** for software installation. ARTCUT is only supported by version

2009 or newer versions, otherwise it is impossible to output. After input the cutting objects, please press .

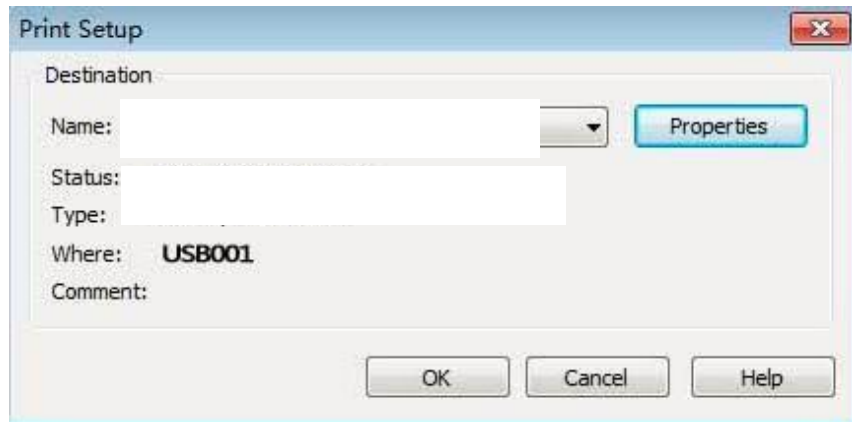


15-2, Cutting and plotting settings: support cutting job in HP-GL format . Normally connect to USB001, If it is not available, please try USB002, USB003 and USB004. Please **do not** choose closed and angle offset for the setting window of cutter.

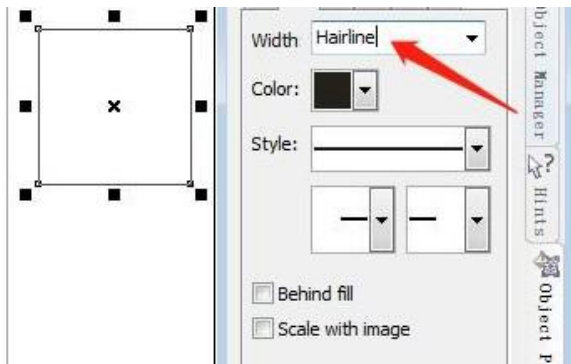
15-3, After accomplishing the settings, please click **Output** to send the cutting job.

16th, Output the cutting job by printing from other CAD software

16-1, install the print driver, please refer to **Chapter III** for opening the CAD software and choose **the plotter** in the print window as below:



Attention: please set the line width in the CAD to the minimum value allowed by software, for instance, set the line width as “HairLine” in CorelDRAW, otherwise the cut lines can happen to be double lines.



The contents in this manual are subject to change without notice.