LaserPro®
www.laserproi.com

SmartCut X380

User Manual

www.laserproi.com

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Dear Sir or Madam,

Thank you for choosing GCC and the LaserPro SmartCut X380 Series. You can be assured that this machine meets all of the highest safety standards while using technological innovations shared by no other laser cutter. The SmartCut X380 is backed by GCC, a truly international company that is dedicated to helping your business grow.

We at GCC are proud to introduce the LaserPro SmartCut X380, our most economical laser cutter manufactured to date. This easy to operate machine has been designed with quality, productivity, and safety in mind. With innovations like the QSM™, Drag-N-Engrave, SmartFILE file management, and reliable motion system, the LaserPro SmartCut X380 is clearly on the cutting edge of all laser systems.

GCC understands that a creative technical background is the key to successful growth in the ever-changing information economy. We have a strong team of R&D experts who propel our company to new heights. From product development to manufacturing, our engineers are dedicated to innovation and quality.

Guiding our solid technical base is a world-class management team. At GCC, our leaders bring together marketing, technical support, research development and distribution experts to create an international network able to meet your demands. Over the years, this network has been able to span the globe. Our technical support staff is committed to provide you with impeccable service, and when your business is ready to grow, our team will also be there!

Sincerely,

Leonard Shih
President of G.C.C.

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Chapter I - Safety

1.1 Principles of a CO2 Laser

LASER is the acronym for Light Amplification by Stimulated Emission of Radiation. A CO_2 laser works by electrically stimulating the molecules within a carbon dioxide gas mixture. When focused through a lens, this highly-intense, invisible beam will vaporize many materials. Depending on the speed and intensity of the projected beam, a CO_2 laser may be used to engrave or cut through a wide variety of materials.

1.2 Safety Ratings

The LaserPro SmartCut X380 is equipped with a sealed carbon-dioxide laser that emits intense and invisible laser radiation with a wavelength of 10.6 microns in the infrared spectrum. The laser system is designated as a Class I laser device, meaning that the system is equipped with key safety features and an enclosed laser head to completely contain the laser under normal use. One of the key safety features found on the LaserPro SmartCut X380 is a Class 3R red dot safety guidance pointer (similar to a laser-pointer presentation pen) allowing the operator to see the exact location where the laser beam will fire. Even though the LaserPro SmartCut X380 is equipped with our most powerful laser to date, proper usage and hardware safeguards make it an extremely safe machine.

1.3 The Safety Interlock System

The laser system is equipped with a safety interlock system utilizing magnetic sensors on the top and side access doors, laser-activation and door LED lights on the control panel. The magnetic sensors will deactivate the laser when either door is opened. At this time, the “door” LED light found on the control panel will illuminate, indicating an open or improperly closed door. When the laser is in operation, the “laser” LED will illuminate to inform the operator that the laser is activated. If at any time, any of the access doors are open and the “laser” LED is illuminated, **IMMEDIATELY** unplugs the laser system and contact GCC technical support for service instructions.

WARNING

- **DO NOT** operate the laser system if any component of the safety system is malfunctioning.
- **DO NOT** attempt to remove or modify any component of the safety interlock system.

1.4 Safety Labels

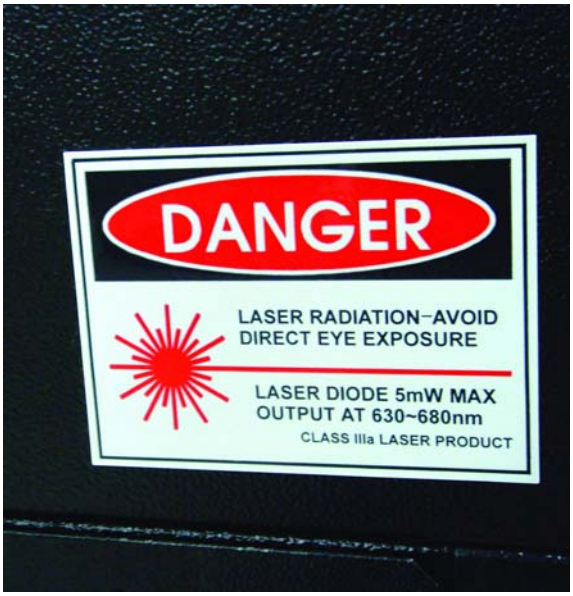
According to CDRH standards, all fixed or removable covers that allow access to a laser beam must have the appropriate laser warning labels attached to them. These warning labels must be clearly visible to the operator prior to removing the cover. Additional labels must be applied inside of the machine and be visible in the event the covers are removed. A label clearly displaying the manufacturer’s name, date of manufacture, description of product, model

number, serial number, and compliance statement must be attached to the outside of the machine.

In compliance with CDRH standards, the required warning labels are affixed at the time of manufacture to the LaserPro SmartCut X380 in the appropriate locations. These labels are not to be modified in any way or removed for any reason. Please familiarize yourself with the specific labels and their locations on the machine. Below is a list of all the safety labels and their locations on the machine.

Product Label

This label is located at the right-back side of machine. All the product information such as Serial Number, Model Numbers, Laser Power and Electric power can be found here. Before requiring any tech support, always provide service person the information on this label.



CDRH Label

This label indicates the class level of CDRH.

Warning Label

Warning Label is written all the necessary information to be aware of in every operation.

Laser Path Warning Label

LaserPro machines are very safe under normal function. However, in case of any accident, Laser Path Warning Label will be stick on the possible laser path. When operators close to these paths should be careful of the possible injury while machine working.

Laser Path Danger label

This label indicates the laser path. Normally you can find this label inside of machine. Please be very careful of this area when you do the maintenance.

1.5 Safety Measures

- **LASER RADIATION WARNING:** Exposure to laser radiation may result in physical burns and severe eye damage. Proper use and regular maintenance of this machine is important to the safety of all people in the immediate area.

- Prior to operation, carefully read and familiarize yourself with the warning labels located on both your laser system and in this manual.

- Never leave the machine unattended during the laser cutting process. The laser may ignite combustible materials. A well-maintained fire extinguisher and operational smoke or fire detector should be kept in the vicinity of the machine.

NOTE
SmartGUARD™ is an optional fire detection alarm system developed by GCC. Contact your local GCC authorized distributor for more details for having this safety option installed onto your system.

- Always wear safety goggles when the laser system is in operation. Reflective materials such as mirrors, enameled brass and anodized aluminum may partially-reflect some of the invisible laser radiation. Severe eye damage may occur if appropriate safety goggles are not worn.

NOTE
Each LaserPro laser machine is shipped with a single pair of safety goggles. If additional safety goggles are required, please contact GCC directly or an authorized GCC distributor. If you wish to purchase one on your own, please make sure the safety goggles meet these requirements:

190 - 398 nm OD5+
10,600 nm OD5+
Visible Light Transmission: 92.9%

- Connect the machine to a properly grounded power outlet. Ensure the voltage of the power source is identical to the voltage of the machine.

- Do not open the laser access panel when the machine is plugged in.

- Do not attempt to modify or disassemble the laser module.

- Do not attempt to remove or modify any component of the machine's laser interlock safety system.

- Ensure the immediate work area of the machine is well-ventilated. Odors, vapors, and dust are byproducts generated during the laser cutting process. An exhaust system, vacuum cutting box, and honeycomb table are recommended. Please contact GCC or your local GCC distributor for more information.

- Do not laser heat-sensitive surfaces or materials that may generate toxic fumes, such as PVC and Teflon.

Regularly clean and maintain your machine according to our cleaning and maintenance instructions. Doing so will ensure a machine that will operate effectively and safely over a long period of time.

1.6 Operating Environment

Please follow the guidelines when considering a suitable location to set the LaserPro SmartCut X380. Improper work environments may lead to operational malfunction and/or unsafe working conditions. The LaserPro SmartCut X380 should be placed and operated in a standard office-type environment.

- Avoid environments where the machine is exposed to high levels of dust, temperature (temperatures exceeding 30°C or 85°F) or humidity (humidity exceeding 70% or where the ambient temperature is near the dew point).
- Avoid small, enclosed areas with poor ventilation.
- Avoid areas with high levels of noise and electrical noise.
- Select a location that is large enough to accommodate the LaserPro SmartCut X380, an exhaust system, a computer and a work or storage table.
- Select a location in which the ambient temperature remains between 15°C and 30°C (60°F to 85°F).
- Select a location in which there is a short, direct path to the fume exhaust system.
- Set the LaserPro SmartCut X380 on a floor surface that is completely even.
- Make sure your smoke or fire detection system in the immediate area is functioning.

NOTE
SmartGUARD™ is an optional fire detection alarm system developed by GCC. Contact your local GCC authorized distributor for more details for having this safety option installed onto your system.

Chapter II - Unpacking & Contents

2.1 Unloading and Unpacking

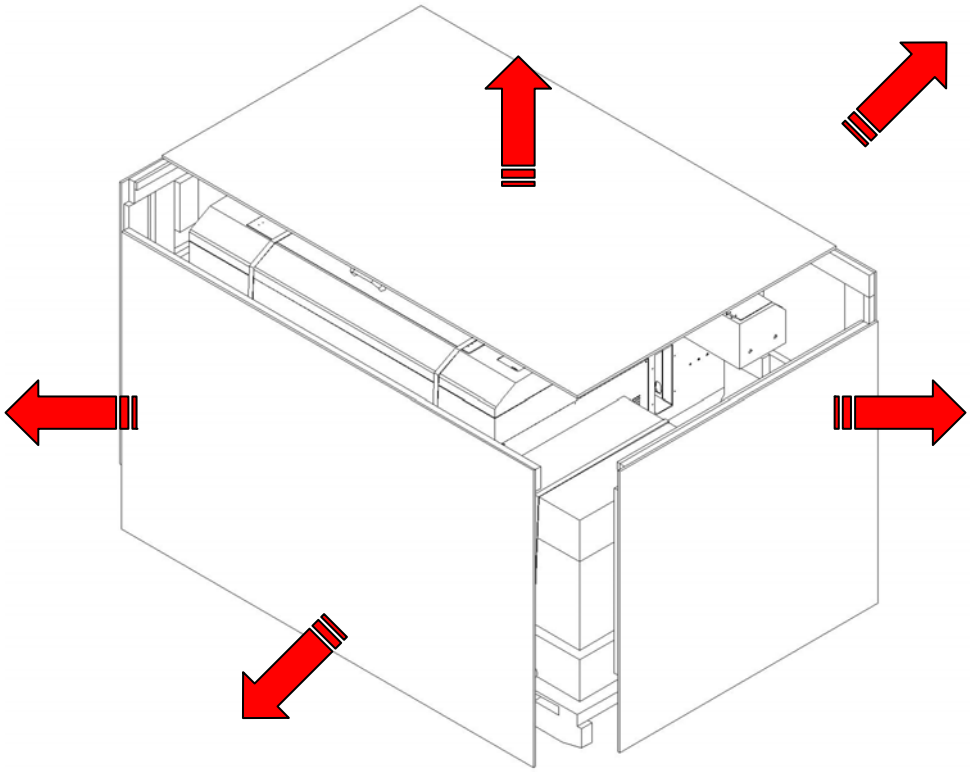
The LaserPro SmartCut X380 is shipped in one crate that contains the machine, the software, and all of the necessary accessories. The following section contains detailed step-by-step instructions for unpacking and assembly of the machine.

> ***WARNING***
> To prevent personal injury or damage to the machine, please obtain assistance when loading and unloading the shipping crate.

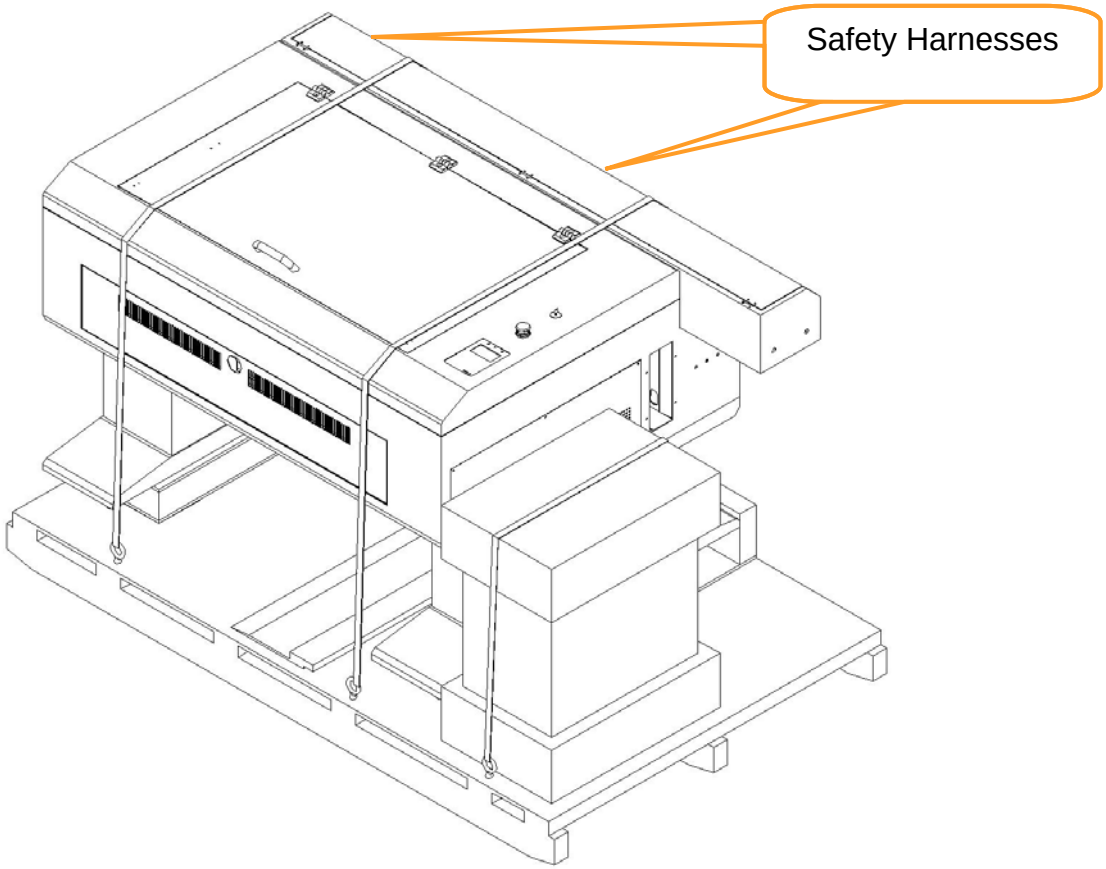
> ***NOTE***
> Please save the original shipping crate. If the machine must be returned for product servicing, it will need to be packed in its original shipping crate.

Unpack via the following steps:

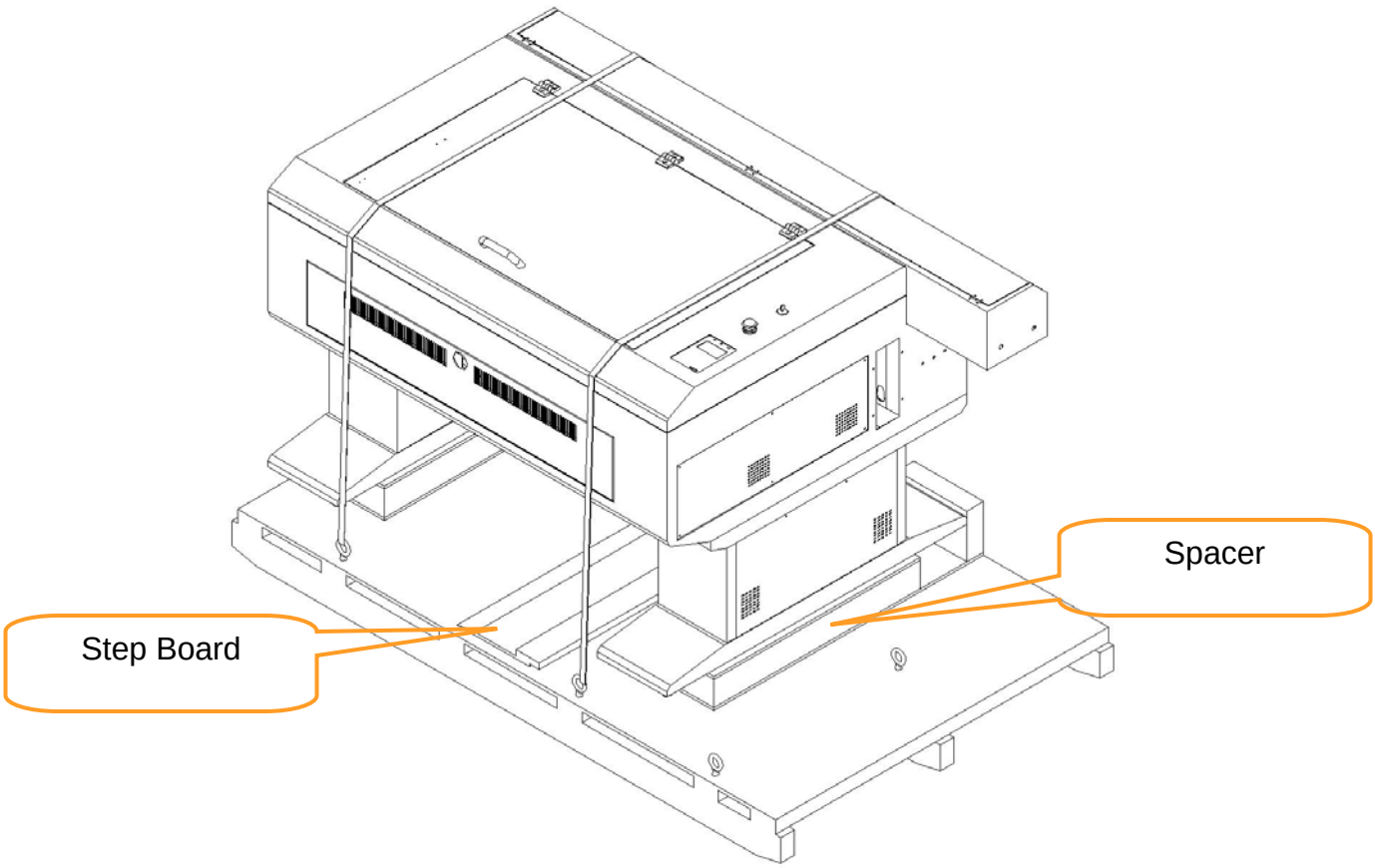
1) Move the shipping crate near the designated work area.
2) Unscrew the screws fastening the top board and remove the top board.
3) Unscrew the screws fastening the sideboards for each side and remove each sideboard.



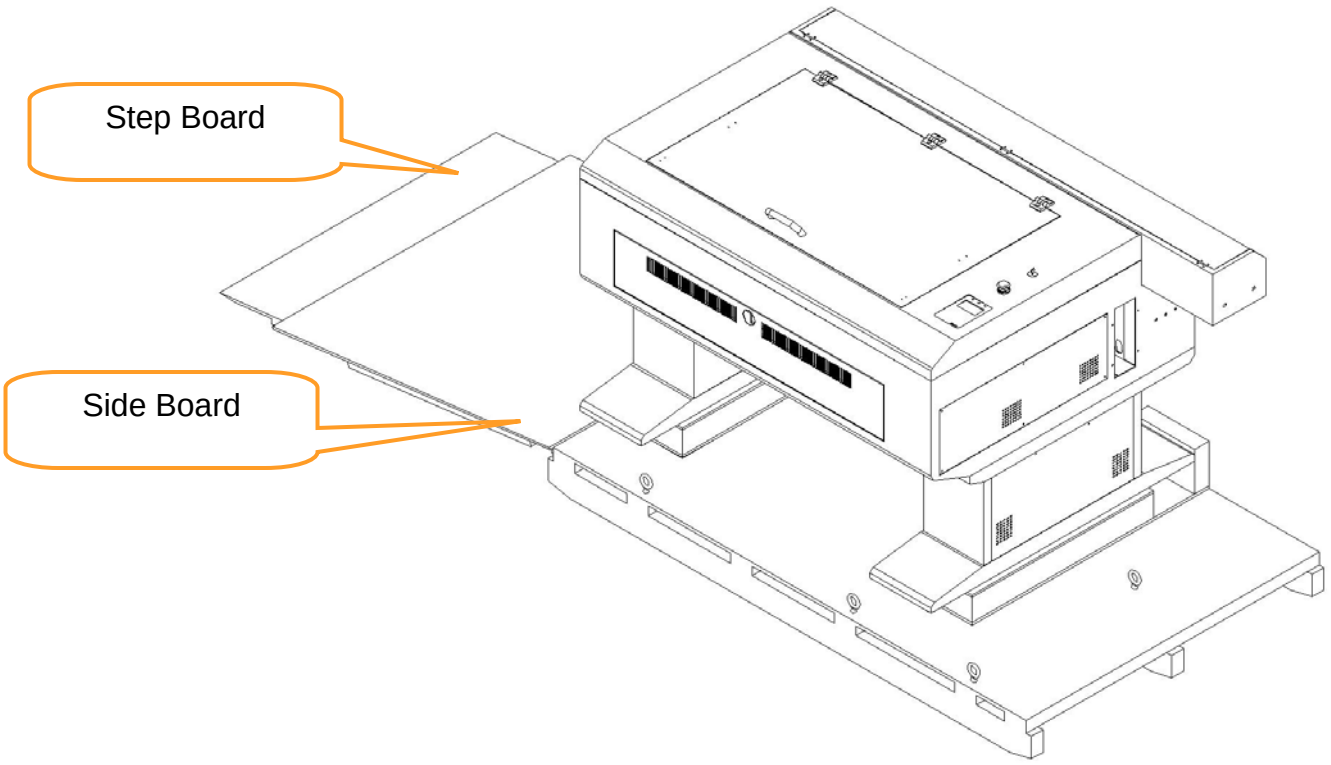
4) Unfasten and remove the two safety harnesses via the safety belt buckles on the front side.



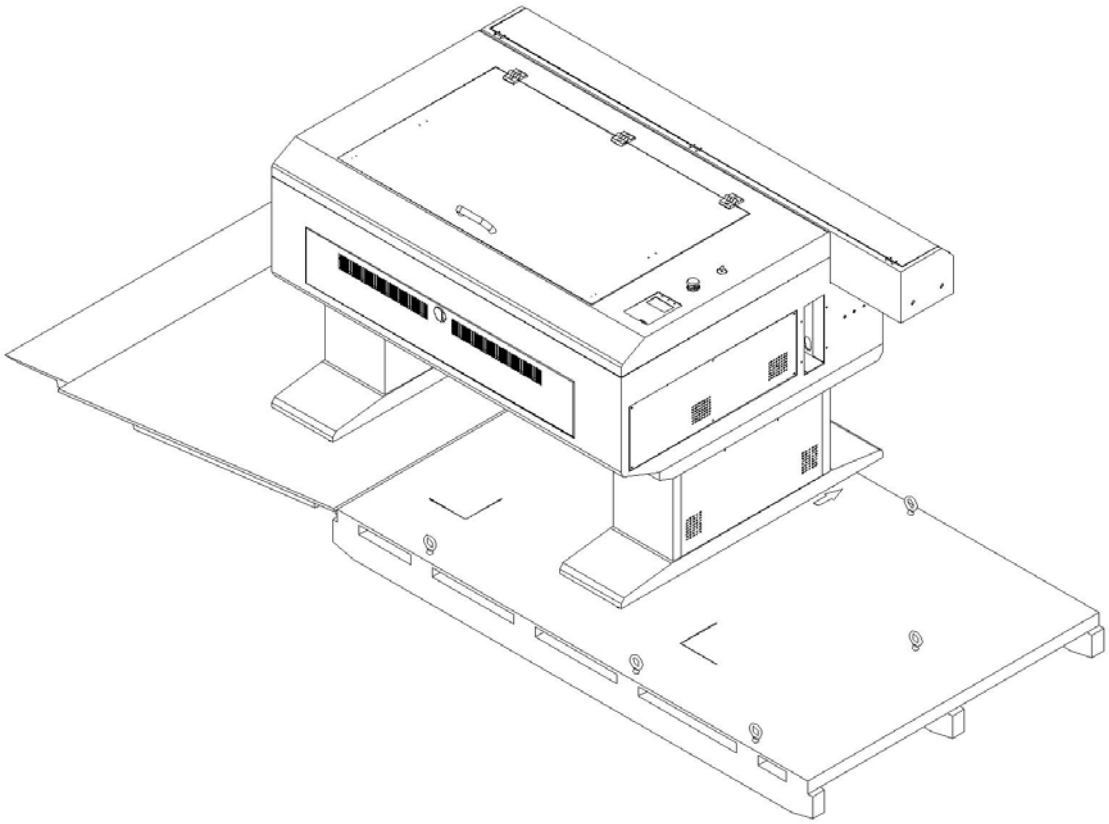
5) Unscrew the screws holding the spacers (left and right side of the machine) and the step board (front and rear of the machine). Remove the two spacers and the step board.



6) With the removed left / right sideboard, place one against the left or right side of the shipping crate to form an incline. Place the step board against the inclined sideboard to form a complete ramp.



7) Carefully roll the machine off the shipping crate and position it into your work area.



2.2 Contents and Accessories Checklist

Please check to make sure that all of the following items are included within the shipping crate. If any of the following items are missing, immediately contact your local GCC distributor.

ITEM	QUANTITY
Cleaning Kit: Cotton swab Lens Cleaner Solution Lens Tissue	 1 1 1
Hex Screw Wrench	1
Manual Focus Gauge for 2.0” or 4.0” focal lens	1
AC Power Cord	6
Printer Port Cable	1
USB Port Cable	1
Installation CD (LaserPro SmartCut X380 user manual, driver, and firmware)	1
Safety Goggles	1
Cutting Sample and Material Starter Kit	1 pack

Chapter III - Mechanical Overview

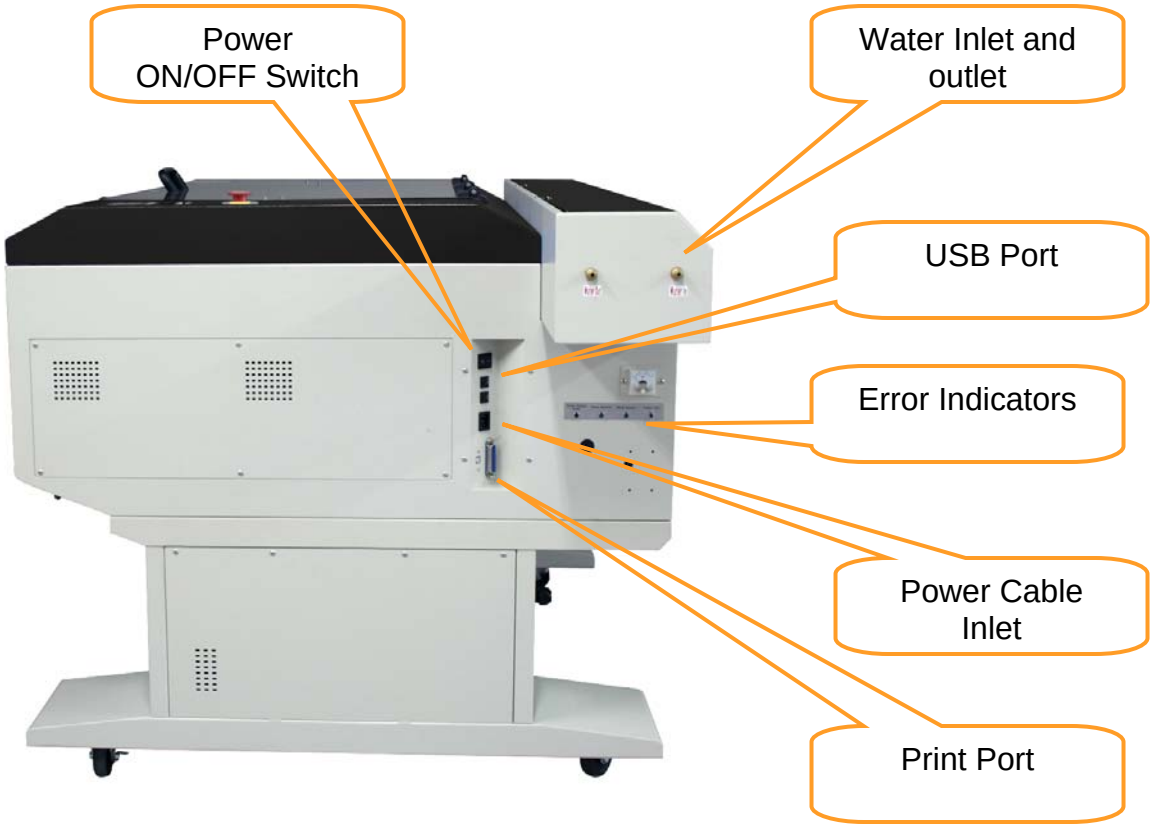
Please take some time to familiarize yourself with this section regarding the mechanical overview of the LaserPro SmartCut X380. References will be made back to the different parts of the LaserPro SmartCut X380 in later sections.

3.1 Front View

SmartEXT™ Pass-Through Door (Front)

3.2 Top View

3.3 Right (Profile) View



3.4 Left (Profile) View

3.5 Rear View

Chapter IV - Setup and Installation

4.1 Machine Setup

4.1.1 Before Powering Up the Machine

Connect the water hoses between the machine and the water chiller. Make sure the hoses are connected correctly with the right water flow directions.

Always turn on the water chiller before turning on the machine.

CAUTION
Make sure to add water to the water chiller before turning on the machine.

NOTE

De-ionized water is recommended as the coolant. Propylene glycol can be used as an anti-freeze agent.

The coolant used with the water chiller should have the following properties:

- Good heat conduction and low viscosity
- Anti dirt forming
- Low electric conductivity < 2μS/cm
- Non-corrosive

4.1.2 Powering Up the Machine

> ***CAUTION***
> Make sure both the LaserPro SmartCut X380 and computer are turned off before connecting either to a power source.

1) Connect the male end of the power cord to a quality surge protector and then connect the surge protector into a properly grounded outlet.
2) Do the same for the computer system.
3) Connect the female end of the power cord into the machine's power cable inlet located on the right side of machine.

> ***NOTE***
> - Ensure that the LaserPro SmartCut X380 is connected to a 220V power source.

4.1.3 Connecting the Computer

The LaserPro SmartCut X380 can communicate with a computer through a USB Port or Parallel Printer Port connection interface. The USB Port connection offers faster file transfer rates and greater flexibility over the Parallel Printer Port connection. Regardless of the connectivity method chosen, you will need to connect the respective connection cable from the LaserPro SmartCut X380 to your computer.

USB Connectivity: Connect the included USB Port Cable to the USB Port on the right side of the LaserPro SmartCut X380.

Printer Port Connectivity: Connect the included Printer Port Cable to the Printer Port on the right side of the LaserPro SmartCut X380.

> ***NOTE***
> If you have purchased additional Optional Accessories for the LaserPro SmartCut X380, please refer to chapter VII for instructions on how to properly setup your optional accessories. These should be setup prior to working with your LaserPro SmartCut X380.

4.2 Graphics Software Setup

The LaserPro SmartCut X380 is compatible with graphics software that can output HPGL commands, such as CorelDraw, Adobe Photoshop, AutoCAD, Illustrator etc.

Supported Graphic Software

- Photoshop
- CorelDraw
- Illustrator
- AutoCAD

Other software such as EngraveLab and PhotoGrav may work with the LaserPro SmartCut X380, but these are not supported. Any software that can output to the LaserPro Print Driver should work.

NOTE
Support will not be offered, if you experience output problems with non-supported graphics software.

4.2.1 Recommended Computer Configuration

The LaserPro SmartCut X380 operates under Windows operating systems and is designed to work on a computer that meets the following minimum requirements.

Computer

- CPU Pentium 90 (or equivalent) or greater
- RAM 32MB or higher
- FDD One 3.5" 1.44 MB Floppy Disk Drive
- HDD 1.2 GB Hard Drive or greater
- SVGA 15" Super VGA Monitor
- On Board Parallel Mode (Enabled from your motherboard's BIOS):
- SPP – Preferred Mode
- ECP – Cable (Less than 1.8 meters)

Software

- The LaserPro SmartCut X380 drivers are designed for Windows 2000, XP, or newer operating systems.

4.2.2 Installation of the LaserPro USB Driver

This section is only required for users that use USB connectivity. If you use the Parallel Printer Port connectivity, then you can skip this section.

NOTE

- Do NOT connect the USB cable to the PC before you have completed both the LaserPro USB driver and LaserPro print driver installation.
- Install the LaserPro USB driver BEFORE installing the LaserPro SmartCut X380 print driver.
- This set of USB drivers are not the same as the native USB drivers for Microsoft Windows.

1) Turn on your computer and insert the LaserPro CD.
2) From the auto run menu, select **X380→ USB Driver** to start the LaserPro USB Driver installation.
3) The LaserPro USB Driver installation program will update your Windows USB driver. When the notification pops up, select **Yes** to continue the installation.
4) Click **Start** to the installation.

4.2.3 Installation of the LaserPro Print Driver

1) Insert the LaserPro CD.
2) From the auto run menu, select **X380→ LaserPro Driver** to start the LaserPro Print Driver installation.
3) When the Add Printer Wizard menu comes up, click **Next** to continue.
4) At the Local or Network Printer page, select <Local printer attached to this computer>, then click **Next** to continue.
5) At the Select a Printer Port page, select <Use the following port> and select the port that the LaserPro X380 will be attached to, then click **Next** to continue.
6) The next screen will prompt you with a list to select the manufacturer and model of your printer. From this menu, click **Have Disk**. Another menu will now pop up for you to indicate the location of the print driver. With the LaserPro CD still in your drive, click **Browse** and point to the file located at: D:\X380\LaserPro driver\WIN XP\Dv3.45\GL345.inf (where D is the driver letter assigned to your CD-Rom drive) and click **OPEN** to have X380 displayed as a valid printer.
7) Now select X380 from the list of printers (X380 should be the only printer displayed on the list) and click **Next** to continue.
8) If a screen comes up informing you of the detection of a previous driver and asks to keep the existing driver or use the new one, select **Replace Existing Driver** and click **Next** to continue.
9) This screen will prompt you to provide a printer name. Simply type in <X380> and select **Yes** or **No** if you want to use this printer as the default printer and click **Next** to continue.

NOTE
When working with the LaserPro SmartCut X380 Print Driver within your graphics software, you will need to have the X380 set as the default printer to get proper output. If you select to not have the X380 be the default printer, please remember to manually change this on your own from within the graphic software printer selection area or from the Windows Control Panel → Printers and Faxes section.

10) At the Printer Sharing screen, select <Do not share this printer> and click **Next** to continue.
11) Select <No> when asked if you want to print a test page and click **Next** to continue.
12) Now simply click **Finish** to complete the Add Printer Wizard.
13) Now the installation will proceed, if you get a Hardware Warning about the software you are installing for this hardware has not passed Windows Logo testing… simply click **Continue Anyway** to ignore this warning.
14) Congratulations, your printer driver has been successfully installed!
15) (This step is required only for USB connections) If you are using the X380's USB connection interface, then you will need to go to your Windows → Control Panel → Printer and Faxes. Right-click on the X380 listing, and select properties. Go to the Ports menu and place a check next to GCC USB0, then click **OK**.

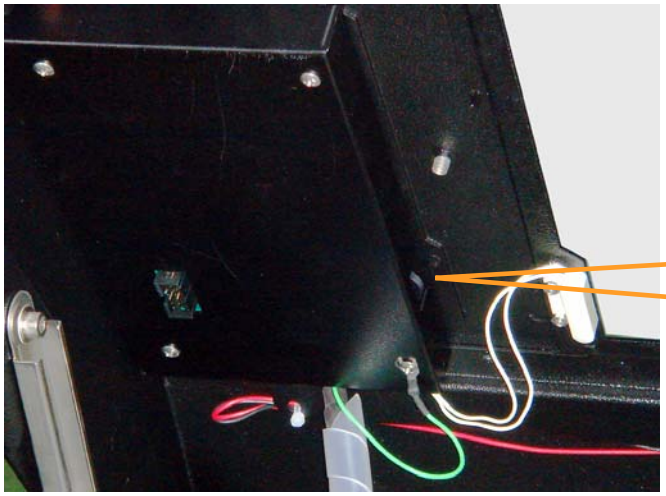
Chapter V - Operating the LaserPro SmartCut X380

Once you have installed the LaserPro USB Driver (USB connectivity only), LaserPro Print Driver, and have connected the LaserPro SmartCut X380 to your computer, you will need to familiarize yourself with the LaserPro SmartCut X380's control panel and LaserPro Print Driver. The print driver will be where you spend most of your time configuring specific laser parameters for your jobs, while the control panel will allow you to set repeat times, manipulate the file order, perform auto / manual focusing, configure the start point, and more.

5.1 Using the Hardware

5.1.1 Adjusting the LCD Display Screen's Contrast Setting

Depending on the lighting of your immediate work area, you may need to adjust the LCD display screen's contrast. You may increase or decrease the display screen's contrast via the contrast adjustment wheel found on the inside of the front cover on the bottom, right side. You can access this area by opening the top window and looking inside to the near, right side of the work area (as shown in the picture below).



* The contrast adjustment dial is locating underneath the control panel

5.1.2 Graphic Control Panel Overview (Description)

The Control Panel

The control panel on the LaserPro SmartCut X380 provides easy access to all of the manual controls needed for cutting. The liquid crystal display (LCD), functional, directional and selection buttons make navigating through the machine's manual controls easy to do.

LED INDICATOR LIGHTS

Three indicator lights on the LaserPro SmartCut X380's control panel are part of the system's safety interlock system.

- **DOOR** - The door light will illuminate when any of the following doors or function is not working properly. The top lid, the pass through doors, the rear laser access panel and the water flow sensors that ensures the flow of cooling water.
- **POWER** - The power light will illuminate when the LaserPro SmartCut X380 is powered on.
- **LASER** - The laser light will illuminate when the laser is active and in operation.

> ***WARNING***
> - **DO NOT** attempt to remove or modify any component of the safety interlock system.
> - If at any time, any of the access doors are open and the "laser" LED is illuminated, **IMMEDIATELY** unplugs the laser system and contact GCC technical support for service instructions.
> - **DO NOT** operates the laser system if any component of the safety system is malfunctioning.

DIRECTIONAL AND SELECTION BUTTONS

Function (F1 / F2 / F3 / F4) – Four function buttons allow you to select various functions, which will change depending on what section of the menu you are in. Each function button's corresponding function will be displayed right above its respective button on the LCD display screen. Please note that in certain menus, not every function button will always be mapped to a corresponding action. In these situations, that particular button will not have a function.

Directional (△ / ▽ / ◁ /▷) - Four directional buttons allow you to navigate the selection cursor through the control panel menu and adjust the value of specific settings. In general, the **△ / ▽** directional buttons cycle through the various selections, while the **◁ / ▷** directional buttons adjust the value of that particular selection.

Enter – Confirms the current selection.

Start / Stop – Allows you to start or stop jobs, once those jobs have been successfully loaded onto the system.

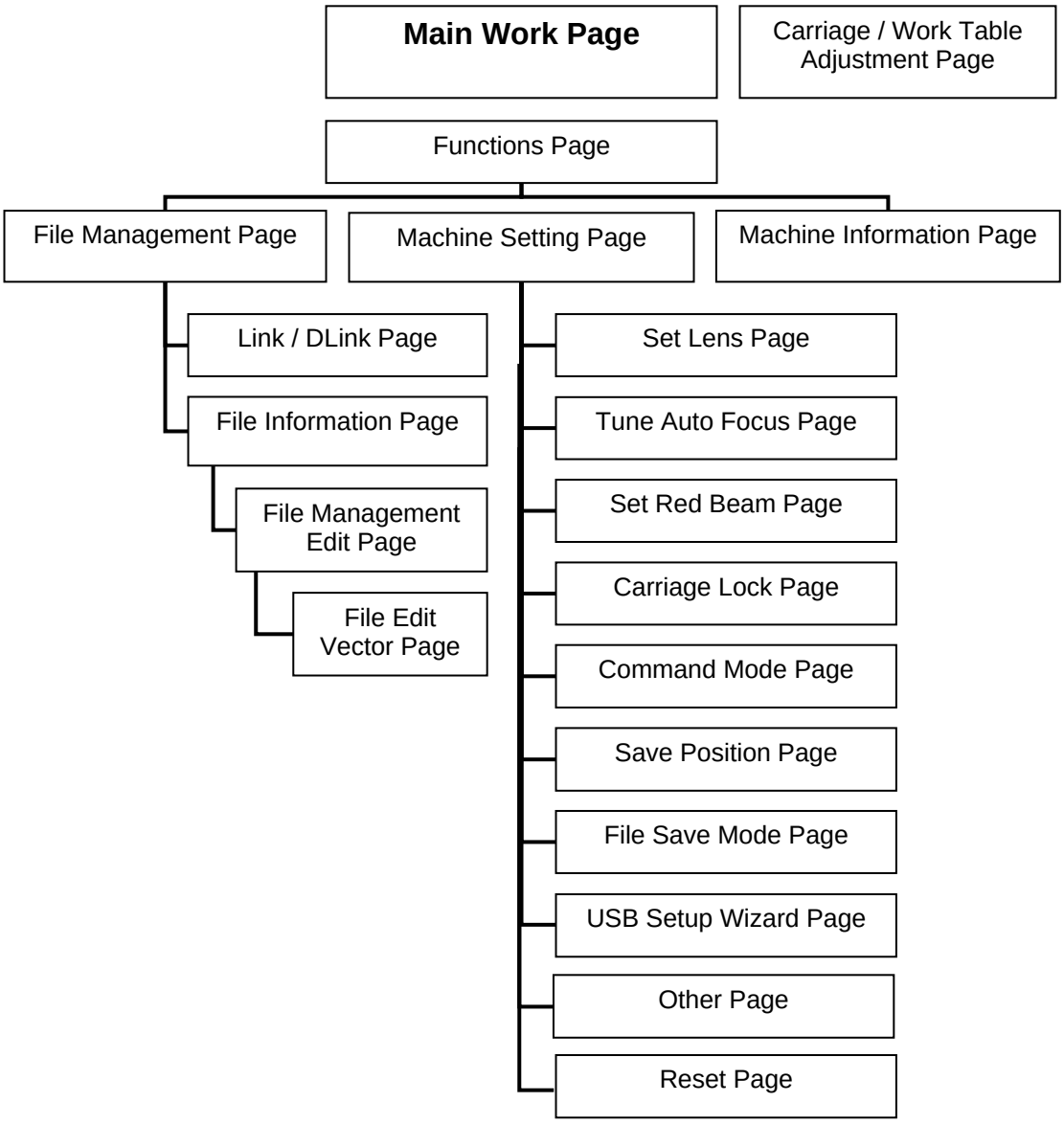
Delete - Provides quick access to delete the current job.

Pause – Pauses the current job process. Press again to resume the current process.

Auto Focus – After you have positioned your material and moved the laser carriage head to the area you want to work, press this button and the system will automatically adjust the optimal vertical focal distance for the laser.

Manual Focus (▲ / ▼) – To manually adjust the vertical focal distance between the laser head and the material, you can use the **▲ / ▼** buttons to do so. Doing so will adjust the vertical height (z-axis) of the worktable.

5.1.3 Graphic Control Panel Navigation Chart



5.1.4 Graphic Control Panel Function Pages

When the LaserPro SmartCut X380 is powered on, the machine will perform a series of safety checks and initializing routines. The LCD display screen will display the GCC copyright, LaserPro logo, and machine initialization pages before going to the main work page.

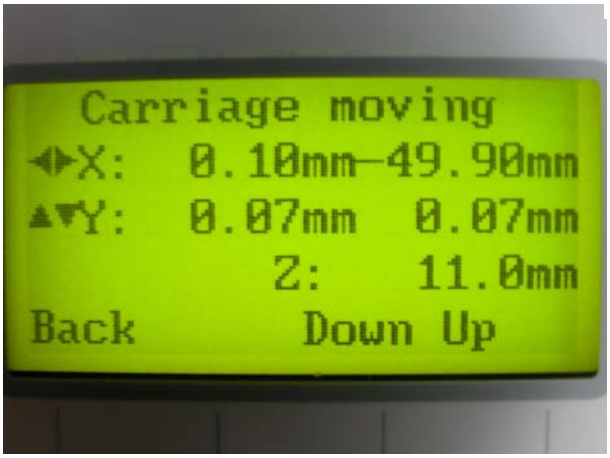
Main Work Page

The main work page is the page that the LaserPro SmartCut X380 will default to upon startup and will be the "home base" for when navigating through the various functions of the control panel. This will be the page that is displayed when you are processing your jobs. This page contains specific job information such as the current job's name, Speed, Power, PPI, DPI, processing / remaining times, and jobs loaded.

Main Work Page	
Relevant Buttons	**Function**
F1 (Prev)	Scroll through previous jobs
F2 (Next)	Scroll through next jobs
F3 (Z)	Go to Carriage / Work Table Adjustment Page
F4 (Func)	Go to Functions Page
△ / ▽ / ◁ / ▷ Directional	Go to Carriage / Work Table Adjustment Page
Start / Stop	Start / Stop the current job
Delete	Delete the current selected job
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

Carriage / Work Table Adjustment Page

☼ **navigating to this page:**



Main Work Page

Press △, ▽, ◁, ▷, or **F3**

Carriage / Work Table Adjustment Page

The Carriage / Work Table Adjustment Page allow you to manually increase and decrease the height of the work table (Z-axis). In addition, you can manually adjust the Y-axis and X-axis of the laser carriage.

Carriage / Work Table Adjustment Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F3 (Down)	Manually decrease the height of the work table (Z-axis)
F4 (Up)	Manually increase the height of the work table (Z-axis)
△ / ▽ Directional	Manually adjust the Y-axis position of the laser carriage
◁ / ▷ Directional	Manually adjust the X-axis position of the laser carriage
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

Functions Page

☼ **Navigating to this page:**

Main Work Page

Press **F4**

Functions Page

The Functions Page allows you to edit file management and machine settings. From this page, you will be able to access the File Management, Machine Setting, and Machine Information pages.

- **File Management Page** – this page allows you to manage the files that you have loaded onto the LaserPro SmartCut X380.
- **Machine Setting Page** – this page allows you to access and modify a variety of your machine settings, including: Set Lens, Tune Auto Focus, Set Table Down, Set Red Beam, Carriage Lock, Set Command Mode, Save Position, Flash Memory, Set File Save Mode, Set Vector Mode, Tune Image Power, Set Laser Wattage, Set Fine Mode, Other, Reset.
- **Machine Information Page** – this page allows you to view information regarding the system such as the GCC logo, machine name, firmware version, and other information.

Functions Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F3 (Help)	Display help
F4 (Recall)	Back to previous page
△ / ▽ Directional	Scroll through the menu selections
Enter	Perform the selection
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

File Management Page

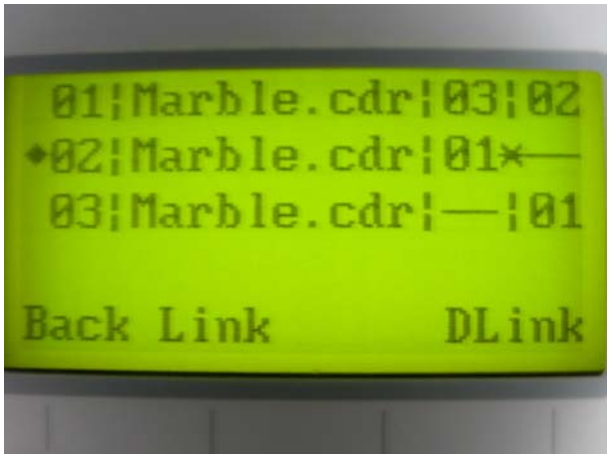
☼ **Navigating to this page:**

Main Work Page
↓ Press **F4**
Functions Page
↓ Select <**File Management**> from the menu
File Management Page

The File Management Page allows you to manage the files that you have loaded onto the LaserPro SmartCut X380. You can scroll through your jobs, delete a selected job, delete all jobs, and go to the Link/DLink Page to set and arrange multiple loaded jobs into a single job queue for processing.

File Management Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F2 (Link)	Go to the Link/DLink Page
F3 (D-All)	Delete all loaded jobs
F4 (Del)	Delete the selected job
△ / ▽ Directional	Scroll through your loaded jobs
Enter	Go to the File Information Page for the selected job
Start / Stop	Go to the Main Work Page for the selected job
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

Link/DLink Page



☼ **Navigating to this page:**

Main Work Page
↓ Press **F4**
Functions Page
↓ Select <**File Management**> from the menu
File Management Page
↓ Press **F2**
Link / DLink Page

The Link/DLink Page allows you to set, arrange, and remove loaded jobs to and from a job queue for processing. Use the directional keys to cycle through your loaded jobs, then simply press the <F2 (Link)> key to add a file to the job queue. The job queue will be set in a sequential order based on the order you link the files. To remove a job from your job queue, press the <F4 (DLink)> key.

The first column field (before the file name) displays the job number. The sequence for your job queue is displayed in the two columns to the right of your file names. The first column to the right of your job file name displays the job number of the previous file in the job queue sequence. The second column after the file name displays that job's next file in the job queue sequence. First and last jobs in the job sequence you set will have a (---) in the first and second columns respectively. So according to the image above, the job queue sequence has been set to be processed in this order: 03:Marble.cdr → 01:Marble.cdr → 02:Marble.cdr.

Link/DLink Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F2 (Link)	Add the currently-selected job to the job queue
F4 (DLink)	Remove the currently-selected job from the job queue
△ / ▽ Directional	Scroll through your loaded jobs
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

File Information Page

☼ Navigating to this page:

Main Work Page
↓ Press **F4**
Functions Page
↓ Select <**File Management**> from the menu
File Management Page
↓ Select a job file and press **Enter**
File Information Page

The File Information Page allows you to view the speed, power, DPI, and PPI settings of the selected job. In addition, you will be able to go to the File Management Edit Page from this menu to change raster / vector speed and power settings for the selected job.

File Information Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F4 (Edit)	Go to the File Management Edit Page for the selected job
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

File Management Edit Page

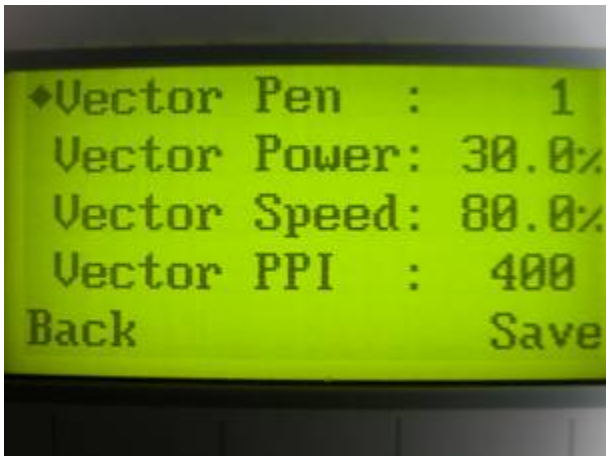
☼ Navigating to this page:

Main Work Page
↓ Press **F4**
Functions Page
↓ Select <**File Management**> from the menu
File Management Page
↓ Select a job file and press **Enter**
File Information Page
↓ Press **F4**
File Management Edit Page

The File Management Edit Page allows choosing to modify your raster or vector settings for the selected job, as well as setting the number of times to repeatedly process the selected job (Repeat Num).

File Management Edit Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
△ / ▽ Directional	Scroll through the menu selections
◁ / ▷ Directional	Cycle through the available selections
Enter	Perform the selection
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

File Edit Vector Page



☼ **Navigating to this page:**

Main Work Page
↓ Press **F4**
Functions Page
↓ Select <**File Management**> from the menu
File Management Page
↓ Select a job file and press **Enter**
File Information Page
↓ Press **F4**
File Management Edit Page
↓ Select <**Vector Setting**> from the menu
File Edit Vector Page

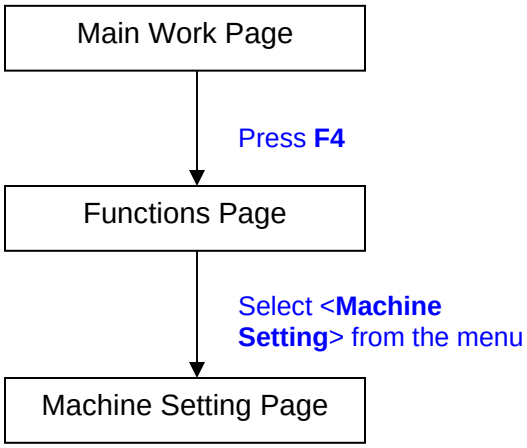
The File Edit Vector Page allows you to edit the vector pen, vector power, vector speed, and vector PPI, and power ramp settings for the selected job. These settings correspond to the same settings found on the LaserPro SmartCut X380 print driver. This page allows you to easily adjust these values to make immediate adjustments while processing your loaded jobs, even when you have disconnected your computer from the LaserPro SmartCut X380.

- Vector Pen: 1 - 16
- Vector Power: 0.0% - 100%
- Vector Speed: 0.0% 100%
- Vector PPI: 30 - 1524
- Power Ramp: YES / NO

File Edit Vector Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F4 (Save)	Save your current settings
△ / ▽ Directional	Scroll through the menu selections
◁ / ▷ Directional	Adjust the value for that selection
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

Machine Setting Page

☼ **Navigating to this page:**



The Machine Setting Page allows you to access and modify a variety of your machine settings, including: Set Lens, Tune Auto Focus, Set Table Down, Set Red Beam, Carriage Lock, Set Command Mode, Save Position, Flash Memory, Set File Save Mode, Set Vector Mode, Tune Image Power, Set Laser Wattage, Set Fine Mode, Other, Reset.

Machine Setting Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
△ / ▽ Directional	Scroll through the menu selections
Enter	Perform the selection
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

Set Lens Page

☼ Navigating to this page:

Main Work Page
↓ Press **F4**
Functions Page
↓ Select <**Machine Setting**> from the menu
Machine Setting Page
↓ Select <**Set Lens**> from the menu
Set Lens Page

The Set Lens Page allows you to modify the lens setting after you have changed to a different focal lens. Remember to save your settings after you have made the proper changes. Now by pressing the Auto Focus button, the LaserPro SmartCut X380 will auto focus properly using the new lens setting. The LaserPro SmartCut X380's default setting is <4.0">

- Lens: 2.0" / 4.0"

Set Lens Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F4 (Save)	Save your current settings
◁ / ▷ Directional	Cycle through selections
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

Tune Auto Focus Page

☼ Navigating to this page:

Main Work Page
↓ Press **F4**
Functions Page
↓ Select <**Machine Setting**> from the menu
Machine Setting Page
↓ Select <**Tune Auto Focus**> from the menu
Tune Auto Focus Page

The Tune Auto Focus Page allows you to manually set the default auto focus distance / vertical height of the worktable (Z-axis) for when the Auto Focus button is pushed.

Tune Auto Focus Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F4 (Save)	Save your current settings
△ / ▽ Directional	Manually adjust the height of the work table (Z-axis)
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

Set Table Down Page

☼ **Navigating to this page:**

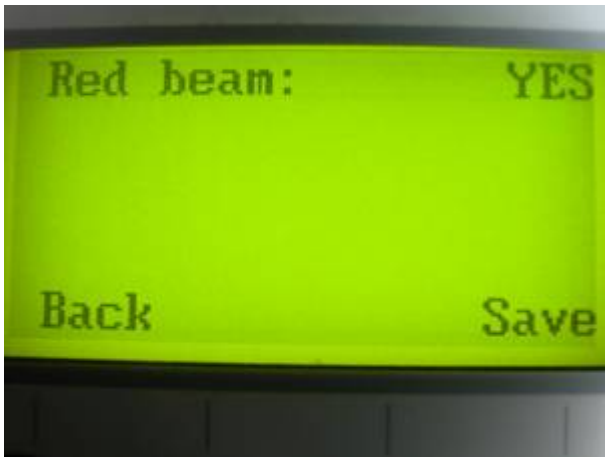
Main Work Page
↓ Press **F4**
Functions Page
↓ Select <**Machine Setting**> from the menu
Machine Setting Page
↓ Select <**Set Table Down**> from the menu
Set Table Down Page

The Set Table Down Page allows you to select whether or not the LaserPro SmartCut X380 displays a warning prompt at startup. If the Table Down selection is set to <YES>, the LaserPro SmartCut X380 will display a "Table will move down and remove objects on table" warning prompt on startup. Pressing the Enter key at this point will confirm the prompt to move the work table to its lowest position. If the Table Down is set to <NO>, then the LaserPro SmartCut X380 will not display this warning prompt at system startup.

- Table Down: YES / NO
- Distance: 0 - 165 mm

Set Table Down Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F4 (Save)	Save your current settings
△ / ▽ Directional	Scroll through the menu selections
◁ / ▷ Directional	Adjust the value for that selection
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

Set Red Beam Page



☼ Navigating to this page:

Main Work Page
↓ Press **F4**
Functions Page
↓ Select <**Machine Setting**> from the menu
Machine Setting Page
↓ Select <**Set Red Beam**> from the menu
Set Red Beam Page

The Set Beam Page allows you to turn on or off the red dot laser pointer on the laser carriage. Enabling this function will indicate the exact location where the laser will fire upon.

- Red Beam YES / NO

Set Red Beam Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F4 (Save)	Save your current settings
◁ / ▷ Directional	Cycle Red Beam between YES / NO
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

Carriage Lock Page

☼ **Navigating to this page:**

Main Work Page
↓ Press **F4**
Functions Page
↓ Select <**Machine Setting**> from the menu
Machine Setting Page
↓ Select <**Carriage Lock**> from the menu
Carriage Lock Page

The Carriage Lock Page allows you to set whether the laser carriage is locked or free. If the Carriage Free setting is set to <YES>, then you will be able to manually move the laser carriage along the X and Y axis by hand with the top door open. Whereas setting the Carriage Free to <NO> will lock the laser carriage and movement or positioning can only be done by the control panel.

- Carriage Free YES / NO

Carriage Lock Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F4 (Save)	Save your current settings
◁ / ▷ Directional	Cycle Carriage Free between YES / NO
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

Set Command Mode Page

☼ Navigating to this page:

Main Work Page
↓ Press **F4**
Functions Page
↓ Select <**Machine Setting**> from the menu
Machine Setting Page
↓ Select <**Set Command Mode** > from the menu
Set Command Mode Page

The Set Command Mode Page allows you to configure vector settings when outputting in Default or HPGL mode. Default mode is the standard Windows print driver recognized by the most popular graphic software programs such as CorelDraw, Photoshop, Illustrator, etc. Whereas, HPGL mode is a less common output format generated from some RIP applications (signage industry). Regardless of which format you will be working with, both output formats are supported.

- Mode: Default / HPGL
- Vector Pen: 1 - 16
- Vector Speed: 0.0% - 100%
- Vector PPI: 0.0% - 100%
- Power Ramp: YES / NO

Set Command Mode Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F4 (Save)	Save your current settings
△ / ▽ Directional	Scroll through the menu selections
◁ / ▷ Directional	Adjust the value for that selection
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

Save Position Function

☼ **Navigating to this page:**

Main Work Page

Press **F4**

Functions Page

Select <**Machine Setting**> from the menu

Machine Setting Page

Select <**Save Position** > from the menu

The Save Position Function allows you to save the current X-axis and Y-axis positions of the laser carriage and sets this position to be the origin for subsequent jobs.

TIP

This is an excellent function to use when you are processing identical items or cutting relatively smaller objects positioned away from the default start position (top left) of the work table.

Set File Save Mode Page

☼ Navigating to this page:

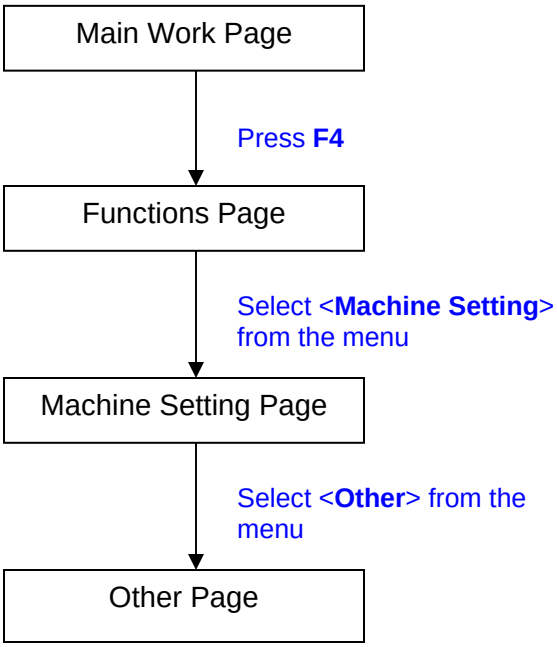
Main Work Page
↓ Press **F4**
Functions Page
↓ Select <**Machine Setting**> from the menu
Machine Setting Page
↓ Select <**Set File Save Mode** > from the menu
Set File Save Mode Page

The Set File Save Mode Page allows you to set whether or not the LaserPro SmartCut X380 automatically deletes each job file after processing. Setting File Save to <NO> will automatically and immediately delete each job file from the LaserPro SmartCut X380 after the cutting process. Setting File Save to <YES> will retain all job files on the LaserPro SmartCut X380, even after each job has been processed.

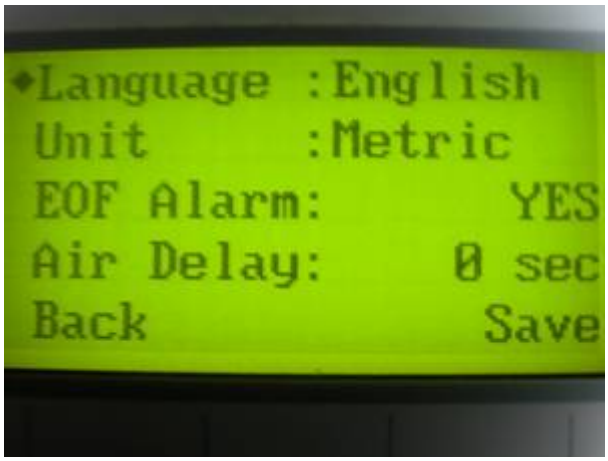
- File Save: YES / NO

Set File Save Mode Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F4 (Save)	Save your current settings
◁ / ▷ Directional	Cycle File Save between YES / NO
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

☼ **Navigating to this page:**



Other Page



The Other Page allows you to change various settings relating to the control panel. The Language setting will allow changing available languages displayed by the control panel. The Unit setting will allow you to chance whether the units displayed by the control panel is in the metric or imperial system. The EOF (end of file) Alarm setting will enable or disable an audible notification when your jobs are complete. The Air Delay setting allows you to specify the delay in seconds of the SmartAIR air-assist after the point of laser firing.

- Language: ENGLISH (others dependent on Firmware)
- Unit: METRIC / ENGLISH
- EOF Alarm: YES / NO
- Air Delay: 1-100 seconds

TIP

Depending on the material you are working with, your laser settings, and the desired results, please experiment with the air delay to achieve your desired results.

Other Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F4 (Save)	Save your current settings
△ / ▽ Directional	Scroll through the menu selections
◁ / ▷ Directional	Adjust the value for that selection
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

Reset Page

☼ **Navigating to this page:**

Main Work Page
↓ Press **F4**
Functions Page
↓ Select <**Machine Setting**> from the menu
Machine Setting Page
↓ Select <**Reset**> from the menu
Reset Page

The Reset Page allows you to reset all changes made to the LaserPro SmartCut X380's Machine Settings Page to their default settings. This does not affect the settings saved to an image file on the computer. The User Reset setting will set all settings back to the default. After any firmware updates, you must use the System Reset setting (your previous settings are saved).

- User Reset (will pop up a confirmation, press Enter to confirm and continue)
- System Reset (will pop up a confirmation, press Enter to confirm and continue)

Reset Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
△ / ▽ Directional	Scroll through the menu selections
Enter	Perform the selection
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

Machine Information Page

☼ **Navigating to this page:**

Main Work Page

↓ Press **F4**

Functions Page

↓ Select <**Machine Information**> from the menu

Machine Information Page

The Machine Information Page allows you to view information regarding the system such as the GCC logo, machine name, firmware version, and other information.

Machine Information Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
△ / ▽ Directional	Scroll through pages
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons	Manually adjust the height of the work table (Z-axis)

5.2 The LaserPro X380 Print Driver

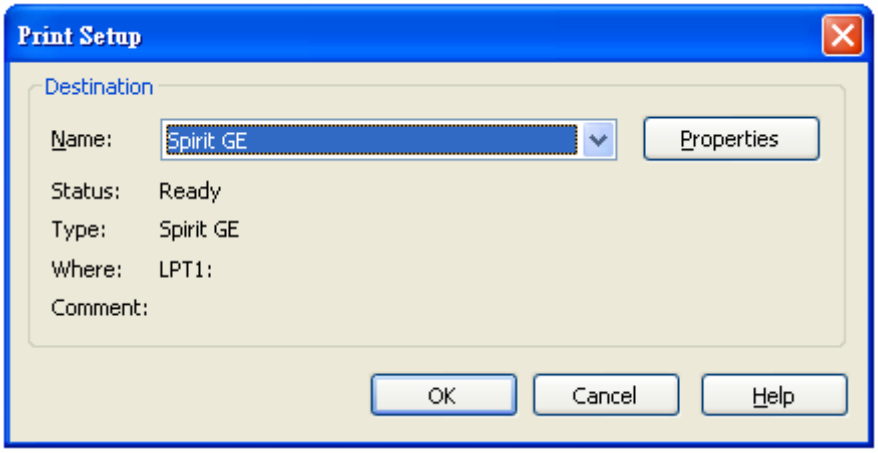
With the LaserPro SmartCut X380 print driver successfully installed, you will need to adjust the printer and page size default settings before you can begin editing and completing jobs. By doing so, you will be setting the work area in your graphics software to match the LaserPro SmartCut X380's worktable area.

> ***NOTE***
> Please make sure X380 is set to the default printer before proceeding to the page and layout setup.

Ensure that the LaserPro SmartCut X380 has been selected as the DEFAULT PRINTER. You can do so by going into your Windows Control Panel → Printers and Faxes.

If LaserPro SmartCut X380 is not selected as DEFAULT PRINTER, you may set it up through the graphics software as well. The following is taking Corel Draw as example of how to set up LaserPro SmartCut X380 as the Printer.

1) From the primary menu, click FILE → PRINT SETUP.
2) From the navigation bar Name, click X380 → OK



5.2.1 Page Setup and Orientation

The first thing you must do before working with the LaserPro SmartCut X380 Print Driver will be to make sure the page and layout settings are properly configured within your graphics software. You will need to access and edit the Page Setup or Layout page of your graphics software to set your graphics software's page layout to match the LaserPro SmartCut X380's work table's dimensions and orientation.

From your graphic software's Page Setup page:

- Set the page orientation in the graphics software to Landscape mode.
- Set page size horizontal length to 900 mm (36 inches) and vertical height to 600 mm (24 inches).

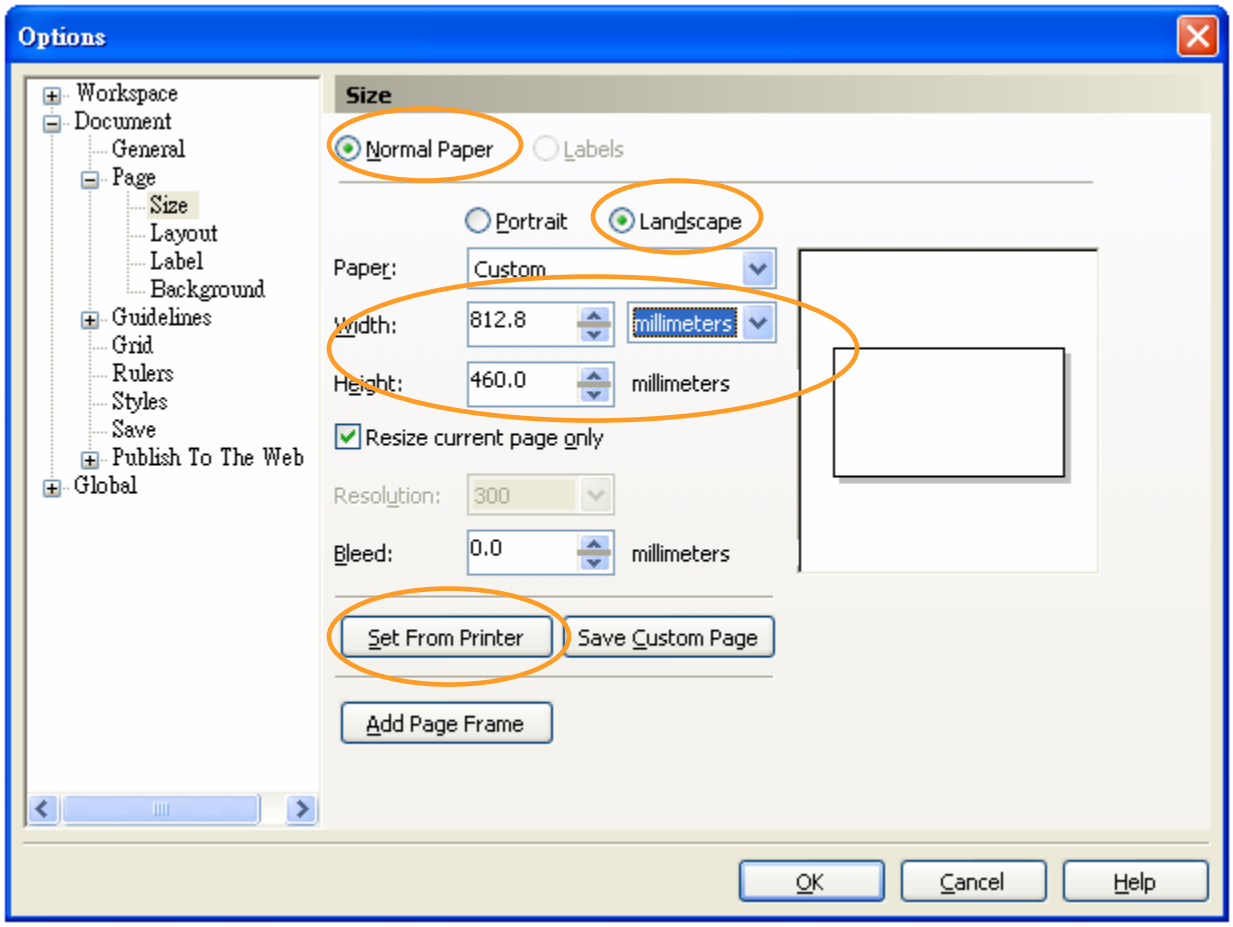
Corel Draw Example (Page Setup and Orientation)

The following is an example of how to set the Page Setup and Orientation in the graphics software. CorelDraw is the designated graphics software used for this example. For other graphics software, you will need to access the corresponding Page Setup page.

3) From the primary menu, click LAYOUT → PAGE SETUP.
4) From the navigation bar on the left, click DOCUMENT → PAGE → SIZE.
5) Ensure that NORMAL PAPER and LANDSCAPE are selected.
6) Ensure the Paper Width and Height dimensions match the LaserPro X380's work table dimensions of 960 mm (37.7 inches) and 610 mm (24.0 inches).
7) Click OK to complete the paper size adjustment.

TIP

Instead of manually selecting the Landscape and setting the Paper Width and Height, you can simply click the Set From Printer function and CorelDraw will automatically set the proper orientation and dimensions based on LaserPro SmartCut X380's work table. (You MUST have the X380 set as the default printer prior to doing this.)



5.2.2 Color Management

LaserPro driver uses pen color settings to control laser cutting parameters. In addition to having your Page Setup and Orientation properly set in your graphics software, you will also need to make sure Color Management is DISABLED prior to working with the LaserPro SmartCut X380 Print Driver. If you do not properly

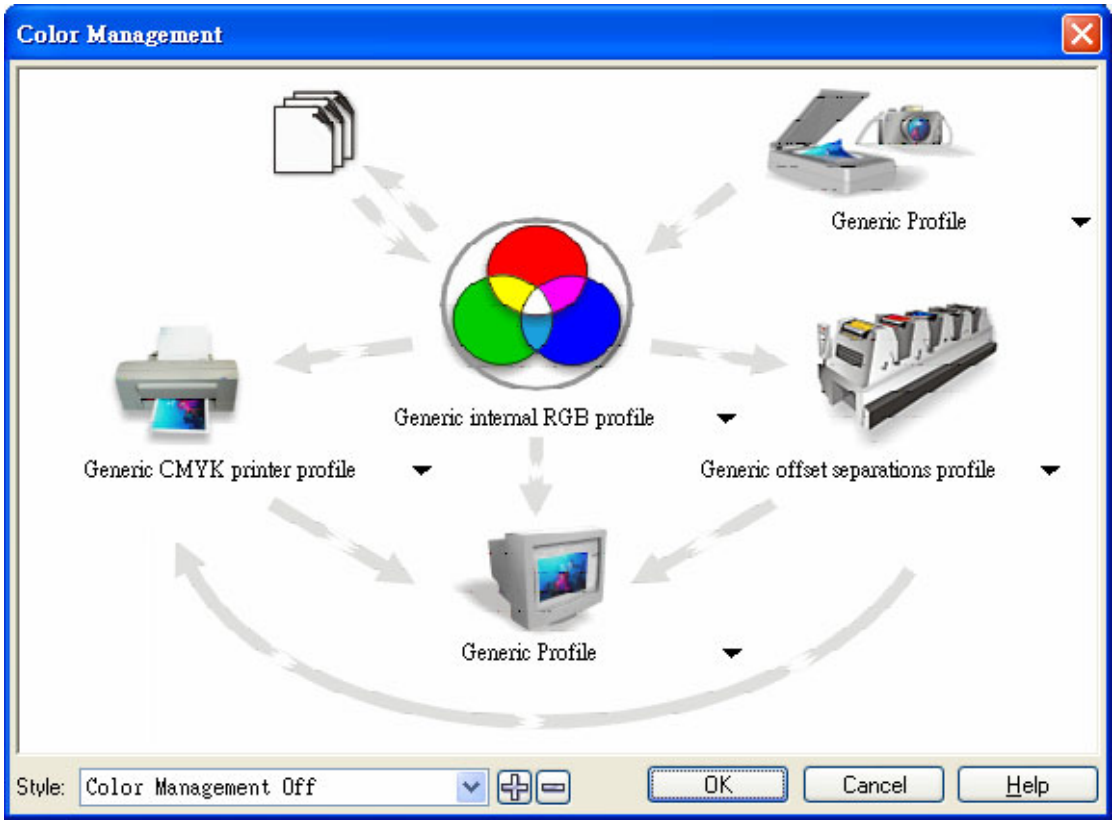
From your graphic software's Color Management page:

- Disable Color Management or set Color Management to Off.

Corel Draw Example (Color Management)

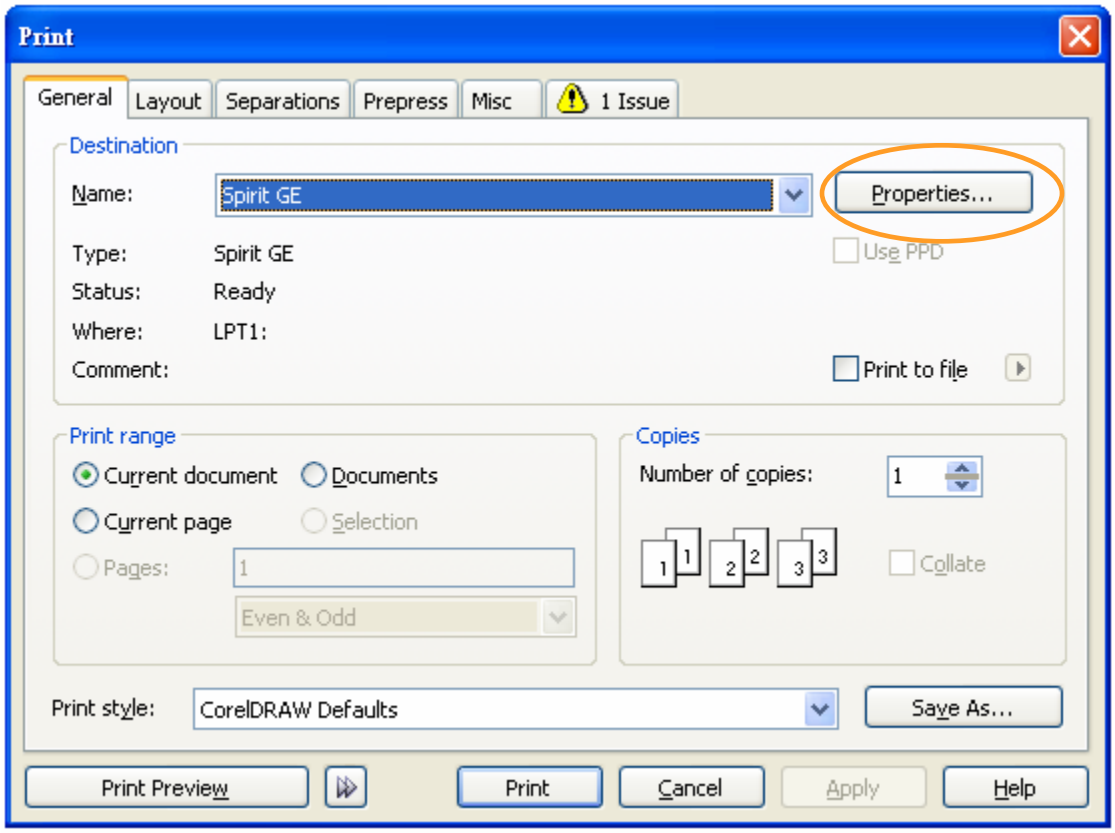
The following is an example of how to properly disable Color Management in the graphics software. CorelDraw is the designated graphics software used for this example. For other graphics software, you will need to access the corresponding Color Management page.

1) From the primary menu, click TOOLS → COLOR MANAGEMENT and CorelDraw's Color Management will appear.
2) Under the Style pull down menu, select COLOR MANAGEMENT OFF.
3) Click OK to complete the color management adjustments.



5.2.3 Using the LaserPro X380 Print Driver

Now after you have properly set the Page and Layout and Color Management of your graphics software, you are ready to configure the details of your actual job through the LaserPro SmartCut X380 Print Driver. The LaserPro SmartCut X380 print driver allows you to adjust your cutting options. After you have setup your image, design, or text to be processed in your software application, you can access the LaserPro SmartCut X380 print driver by going to FILE → PRINT → PROPERTIES.



Note
For this screenshot example, CorelDraw was used as the software application.

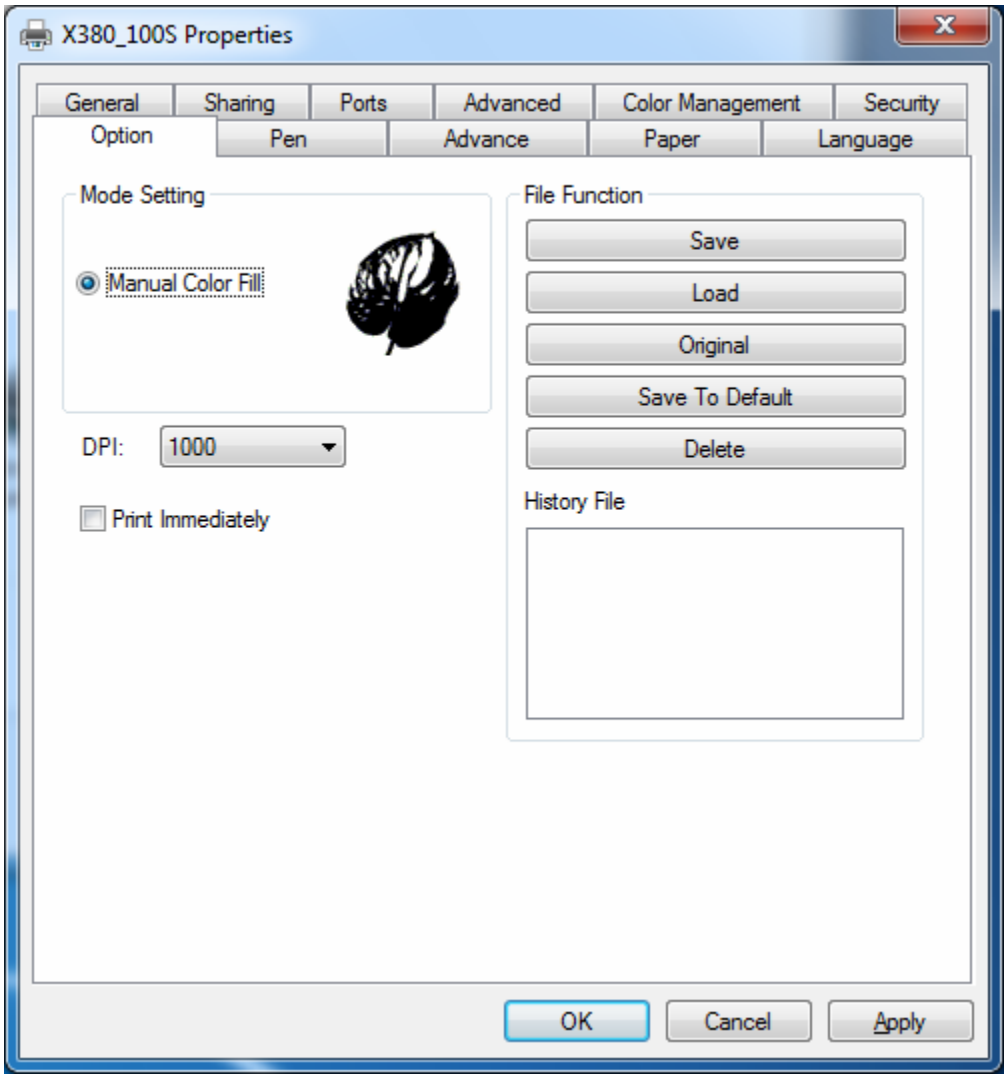
The LaserPro SmartCut X380 Print Driver consists of seven primary sections (pages) in which you will be able to choose various cutting options and settings:

- Option Page
- Pen Page
- Advance Page
- Paper Page
- Language Page

TIP

The following sections describe the specific functions for each of the settings found in the LaserPro SmartCut X380 Print Driver. If you are new to laser cutting, it is recommended that you first familiarize yourself with the general principals of the laser process in Section 6, especially the Vector Cutting concepts. This will make it easier to understand the various descriptions and terminology used in this section.

5.2.3.1 LaserPro X380 Print Driver >> Option Page



Mode Setting (OPTION PAGE)

[DEFAULT SETTING: Black & White]

Manual Color Fill: Select this mode when you would like to designate specific power and speed settings and link them to certain colors of your image. The LaserPro X380 print driver allows a maximum of 16 pen parameters to be set.

Print Immediately (Option Page)

[DEFAULT SETTING: Unselected]

Checking this will instruct the LaserPro X380 to immediately begin the laser process, when you select Print from your graphic software program. If Print Immediately is not checked, then selecting Print will transfer the job file to the LaserPro X380 system and will need to be initialized from the LaserPro X380 control panel.

File Function (Option Page):

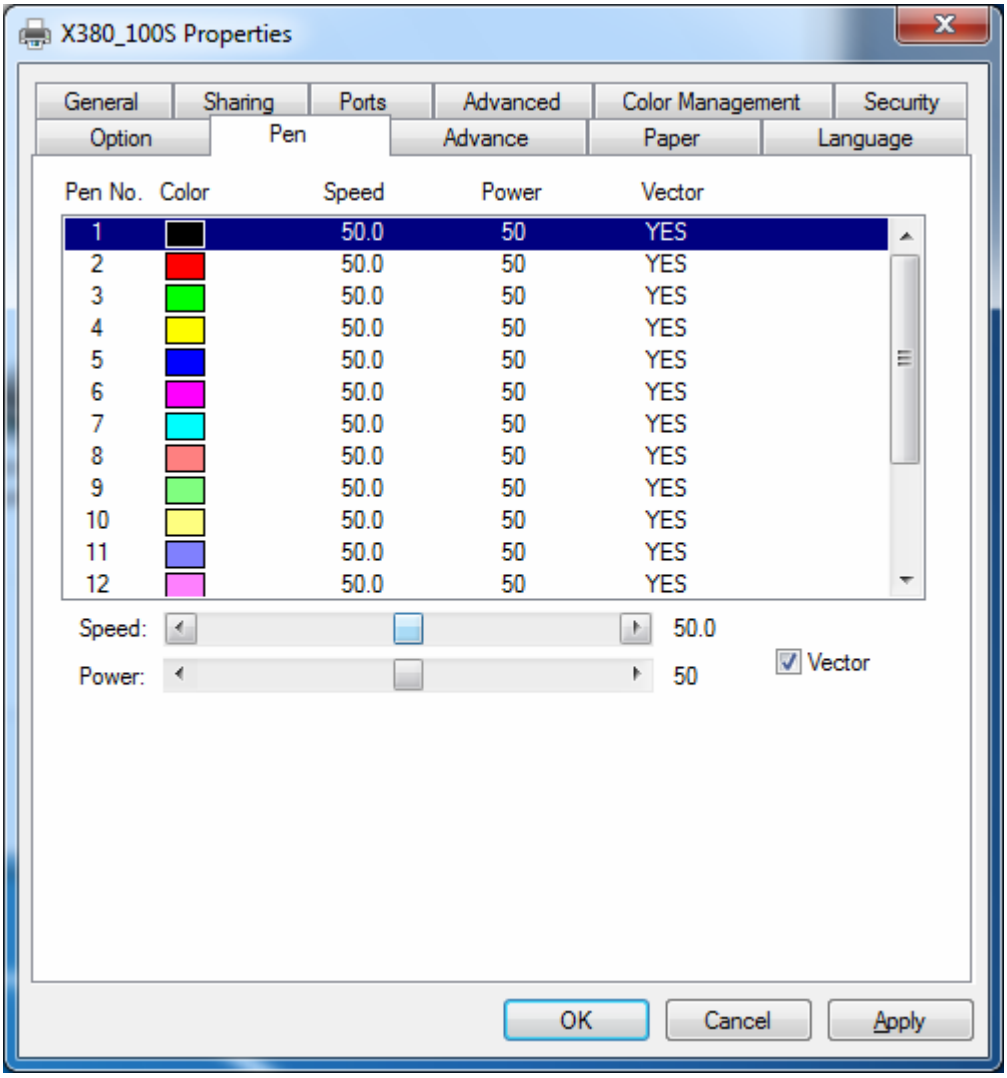
The file function section allows you to manage various laser parameters. This section is useful when performing repeat jobs on a variety of objects, allowing you to save your frequently used laser parameters and load them in the future.

- **History File:** This section contains a list of the recent files you have recently created and worked with, please note that.
- **SAVE:** This function will save the current print driver parameter settings to a file and location on your computer of your selection. (Saved parameter setting files will be tagged with the .H2O extension)
- **LOAD:** This function allows you load a previously saved print driver parameters.
- **ORIGINAL:** This function will load the print driver's original factory parameter settings.
- **SAVE TO DEFAULT:** This function allows you to save your current print driver parameters as the default startup settings.
- **DELETE:** This function will delete the file you select from the History File section. Please note the delete function only removes the file from the history file section, it does not remove the .H2O file from your hard drive, if you wish to completely remove the file from your hard disk, and you will have to manually delete the file from your operating system.)

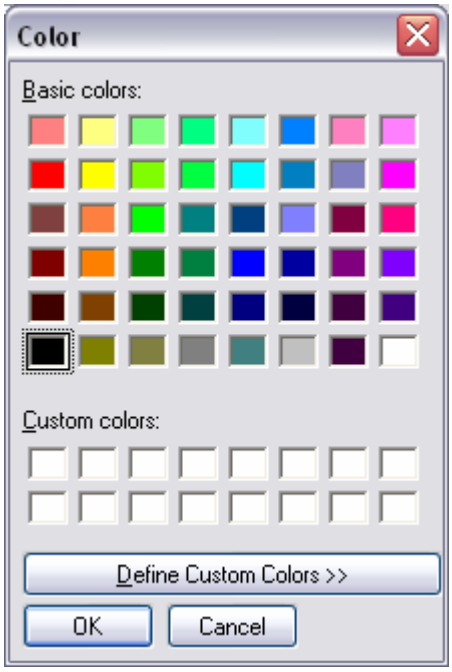
> ***NOTE***
> If you are using Windows 2000 or XP as your operating system, then make sure you log in with an administrator or administrator-rights account in order to properly save laser parameter settings.

5.2.3.2 X380 Print Driver >> Pen Page

The LaserPro SmartCut X380 incorporates the use of 16 different colors to represent 16 different laser power and speed settings when cutting. These colors are referred to as “Pens”. Think of each pen as a designated laser setting, rather than as a color. As an example, a black and white image will use only one power and speed laser setting (Black). An image that is made up of black, red and blue colors will be processed using the laser settings designated for each particular color. In order to utilize up to 16 different pens (laser parameter settings), make sure your graphics software can recognize and utilizes the 16 pen colors designated by the SmartCut X380 print driver.



If you would like to specify your own colors to designate to a particular laser setting, then all you have to do is to double-click on that particular pen color from the pen menu and a color manager window will open where you can select “define custom colors” to define your own color (shown in the picture below). This is useful when your image is composed of colors that are not part of the pen menu’s default color selection, and instead of modifying your image, you simply would like to assign the laser settings based on the existing colors based on your current image.



NOTE
The X380 print driver cannot store more than 16 pen colors or different laser parameter settings per file.

Speed (Pen Page)
[DEFAULT SETTING: 50]

The speed slider controls the laser machine's speed during operation with a range setting from 0.1 – 100%. The SmartCut X380's maximum laser processing speed is 40 inches per second, therefore a setting of 100% speed is equivalent to 40 inches per second and a 10% speed setting would be equivalent to 4 inches per second. Keep in mind, this is the speed the laser moves at when cutting straight lines. The machine will automatically slow down when processing curves.

TIP
Cutting depth and quality are determined by a combination of power and speed. Slower speeds at higher power will produce deeper cuts, whereas higher speeds at lower power will produce more shallow cuts.

Power (Pen Page)
[DEFAULT SETTING: 50]

The power slider controls the laser's power during operation (engraving power) with a range setting from 1 – 100%. The percentage setting represents the power for each laser pulse fired.

TIP
Cutting and quality are determined by a combination of power and speed. Higher power

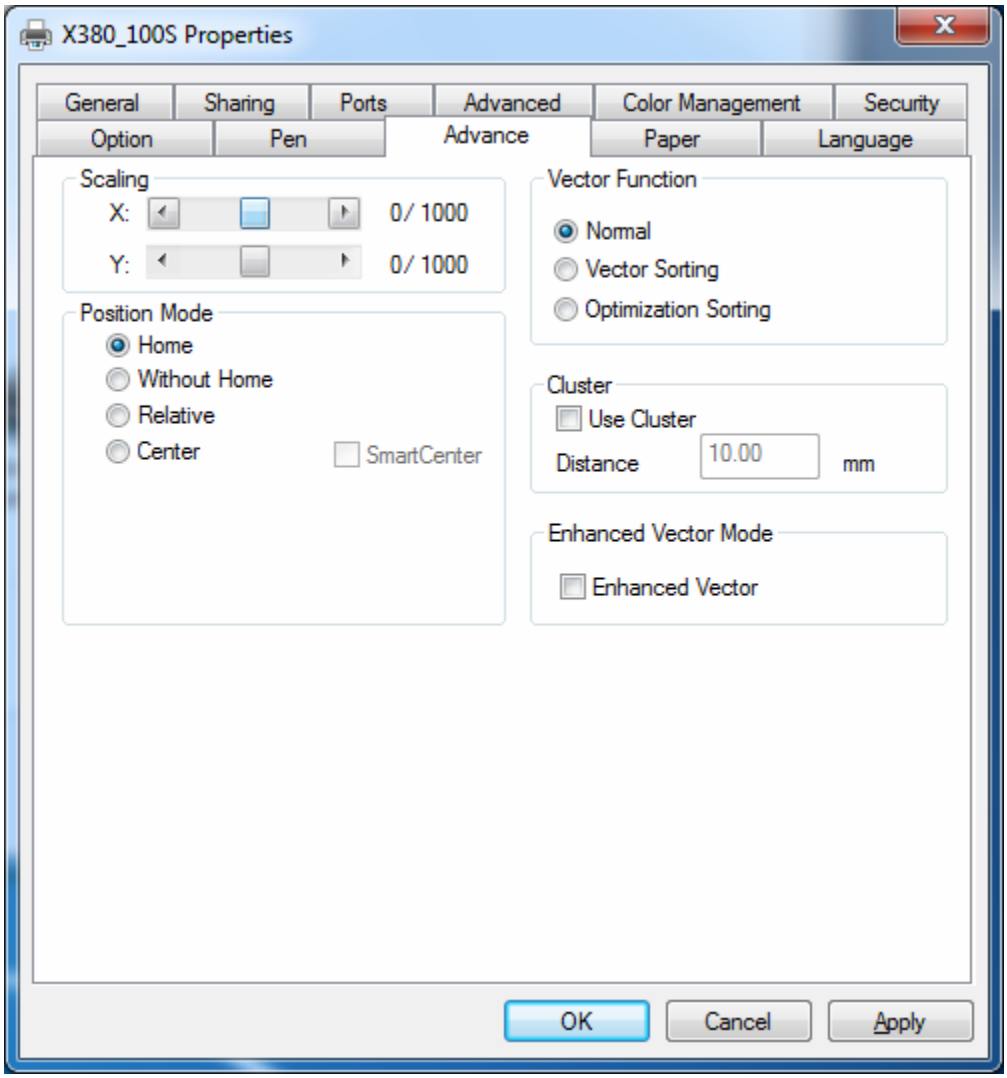
and slower speeds will produce deeper cuts, whereas lower power and higher speeds will produce more shallow cuts.

Vector (Pen Page)
[DEFAULT SETTING: Selected]

Checking the Vector checkbox will process the vector functions for the areas of your design that correspond to that particular “pen” color.

As an example: a particular “pen” color may be assigned to areas in your design containing color fills (raster engraving) and very thin lines (vector cutting). By checking / unchecking Vector will force the driver to process / ignore the color fills / thin lines.

5.2.3.3 X380 Print Driver >> Advance Page



Scaling (Advance Page)

[DEFAULT SETTING: 0]

In some cases you may find a slight output inaccuracy in the actual output compared to what you have set in the computer. This margin of error or offset is extremely small (approximately 1/300). What this means that there may be a 1-unit offset for every 300 unit increments. As an example, if you engrave a 300mm straight line, it may end up measuring only 299mm or 301mm in the final output. In this case, you will want to set the scaling setting to +1 / 1000 or -1 / 1000, respectively to compensate. A general rule of thumb is for every 300 unit increment, you will want to adjust the slider by +1 if the final output is 1 unit increment shorter or -1 if the final output is 1 unit increment longer than your graphic design setting.

Position Modes (Advance Page)

[DEFAULT SETTING: Home]

These selections allow you to control the positioning of the laser head after each job completion and before the next subsequent job.

- **Home:** Resets the positioning of the laser head to the 'home position' (upper-right) before and after each job.
- **Without Home:** The laser head will start the next job based on its position from its graphic application software setting, from the last position of the previous job. Upon completion of the current job, the laser head will remain at the last position of the previous job.
- **Relative:** This mode sets the current laser head position to correspond to the origin (top left) position of the graphic software. Therefore, the laser head will process the job from its current position relative to its setting in the graphics software.
- **Center:** Sets the current position of the laser head as the center point for your subsequent job. As an example, if the subsequent job is to vector cut a circle and you have the Position Mode set to Center, then the X380 will vector cut a circle around the initial position of the laser head.

TIP

It is highly recommended you enable the red dot laser pointer when setting / adjusting the Position Modes, as this makes accurate positioning of your laser carriage for your particular jobs much easier.

Vector Function (Advance Page)

[DEFAULT SETTING: Normal]

- **Normal:** This selection will not apply any special advanced vector function to your job. This is the default Vector Function setting.
- **Vector Sorting:** When performing a vector cutting job in which your image has one vector cut area enclosing within another vector cut area, select the vector sorting mode. This mode will automatically instruct the print driver to process the inside vector image and moving outwards. If you try to process a vector image that has multiple layers without using this mode, what may occur is the laser machine may process the outer vector cutting first, and any inner vector cutting will not

be possible as your centerpiece material may have dropped to the cutting table. This setting will always automatically direct the laser to cut from the inner most vector shape and move outwards.

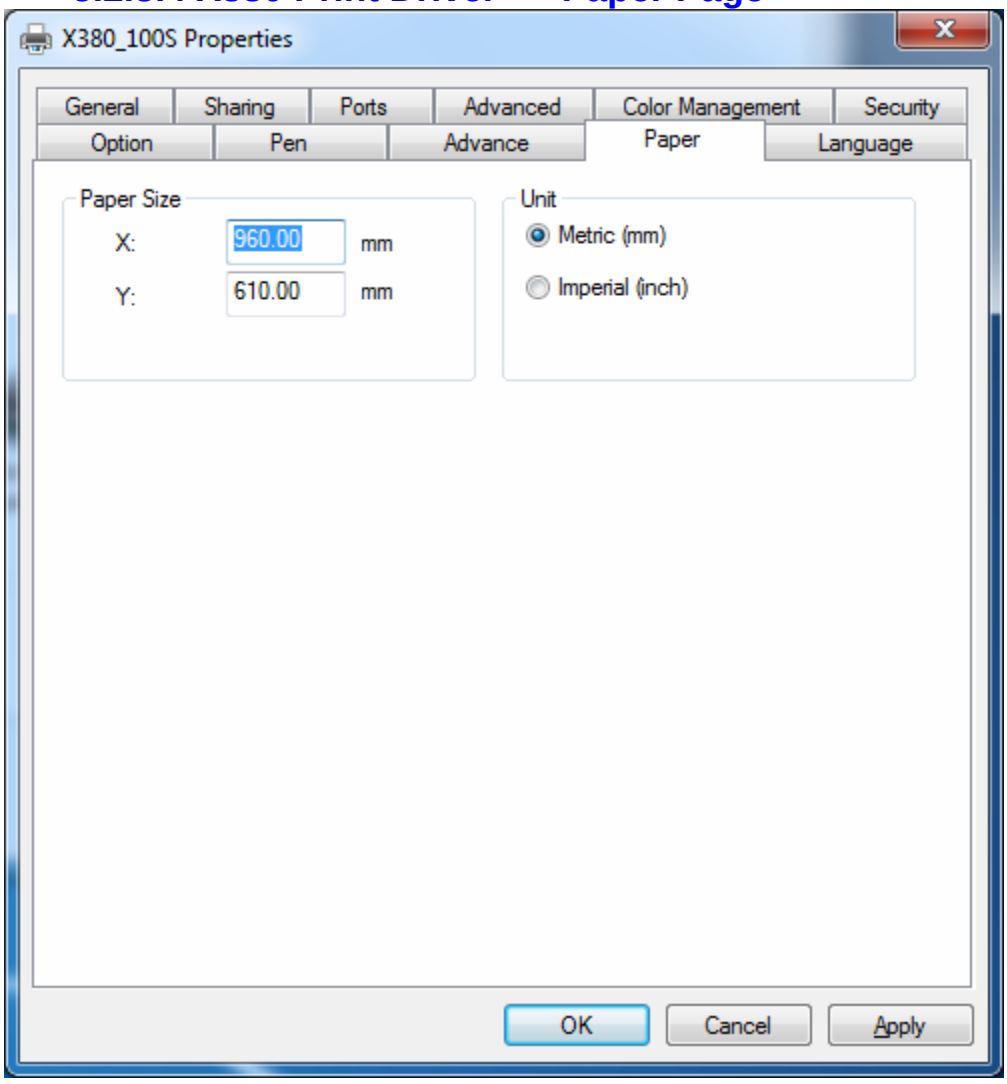
- **Optimization Sorting:** This is a setting that will minimize your process time. When selected, the print driver will analyze your image and automatically determine the most efficient processing path to process your image.

Enhanced Vector Mode (Advance Page)

[DEFAULT SETTING: Unselected]

This setting allows you to improve the cutting quality at the expense of speed. We recommend you enable this function when cutting thicker materials.

5.2.3.4 X380 Print Driver >> Paper Page



Paper Size (Paper Page)

The paper size represents your total work area. Ensure that the paper size is never set greater than the X380's worktable area of 36" x 24" (900mm x 600mm). The X value represents the length and the Y value represents the width.

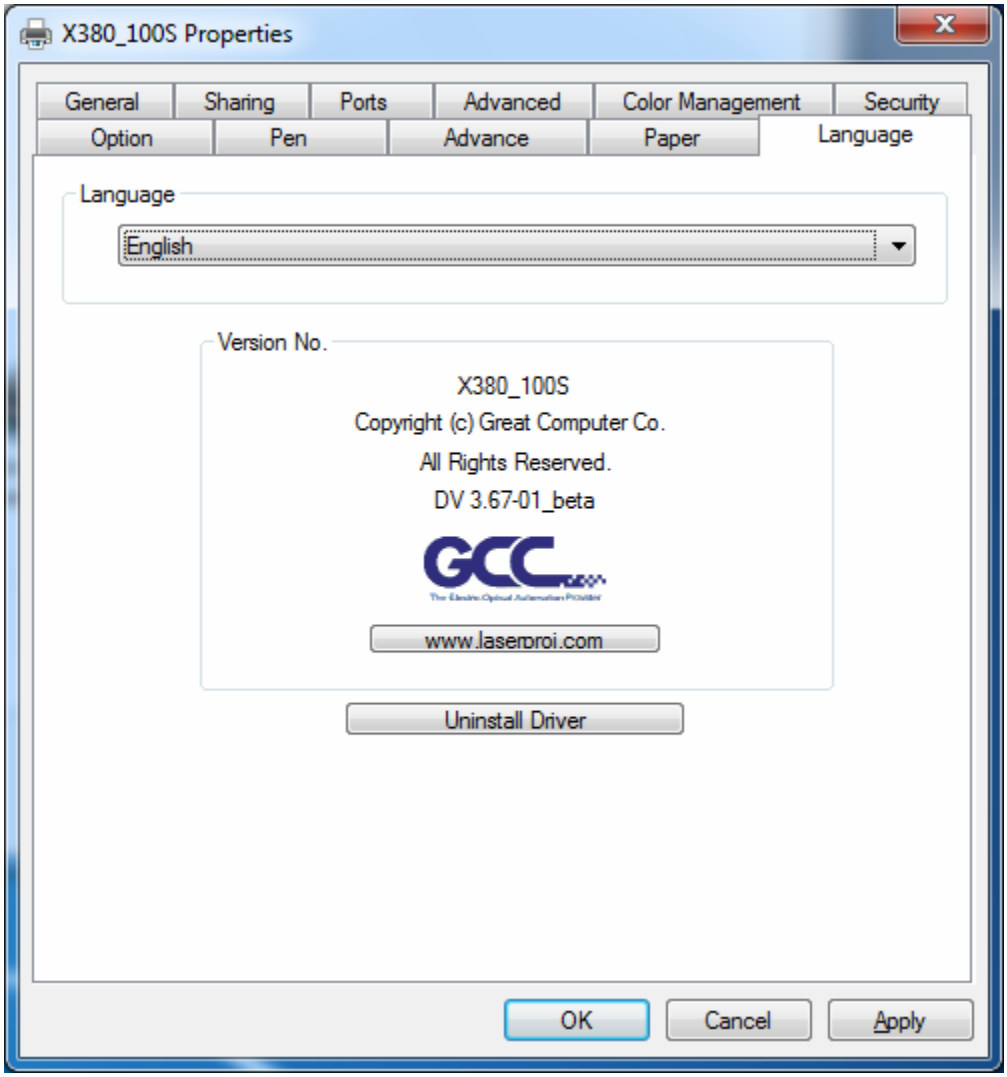
Unit (Paper Page)

[DEFAULT SETTING: Metric (mm)]

Here you can set your preferred measurement standard in which you would like use with the X380 print driver. You can choose between metric or imperial standards.

5.2.3.5 X380 Print Driver >> Language Page

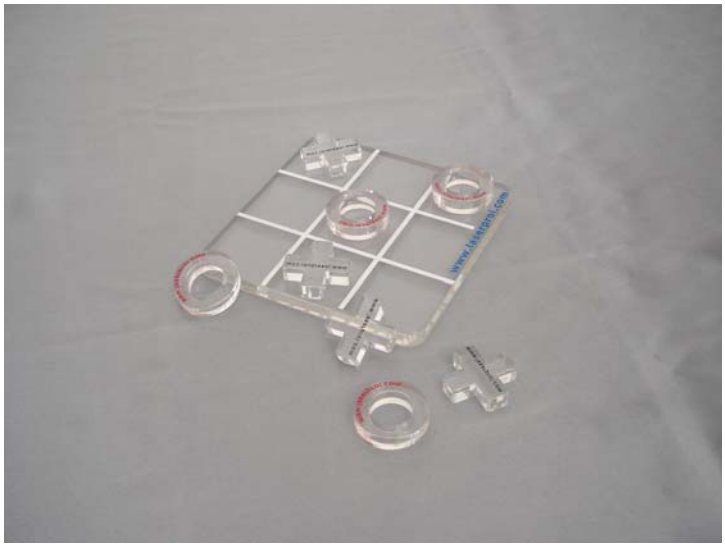
This page allows you specify the language displayed by the SmartCut X380 Print Driver. Current language options allow for: English, Spanish, French, And Chinese (Simplified, Traditional), Japanese, and German.



Chapter VI - Cutting Techniques

6.1 Vector Cutting

A laser engraver can process text, design, and images composed of lines through continuous-firing of the laser to cut out various shapes. When performing vector cutting operations, imagine the laser head as a pair of scissors cutting out the lines specified in your design. An example of a vector cut piece would be a customized dining mat, as shown in the picture below.



The LaserPro SmartCut X380 Print Driver determines vector cut based on the outline width of that particular area or section of the design. In order to prep a particular section for vector cutting, you will need to set that object's fill color to white and set its outline thickness between 0.001" (0.025mm) to 0.004" (0.1mm) via the graphics software.

Below is an example of how to prep an area (in this case, we will use a section of text) for vector cutting. CorelDraw will be used as the selected graphics software.

1) With the text function, create a string of characters and select those characters by clicking on the text.

2) Change the text fill color of the selected characters to white by left clicking on the white color from the CorelDraw Color Palette (located on the right hand side of the screen).

3) Change the outline color of the selected characters outline by right clicking on the desired color from the CorelDraw Color Palette.

4) Change the selected characters outline thickness to the thinnest width by right clicking on the selected text → select <Properties> → Click on the <Outline> tab and change the Width to its thinnest dimension. Click on "OK" to apply the changes.

5) Now your string of characters has been properly designated as an area to be vector cut. Simply "print" your job (output the file to the X380) and watch as your string of characters is vector cut.

Chapter VII - Optional Items

When purchasing the LaserPro X380 from your local authorized GCC distributor, you will be provided a chance to purchase optional items to enhance your experience with your system. If anytime after the purchase of your X380, would you like to purchase any optional item, please contact your local authorized GCC distributor.

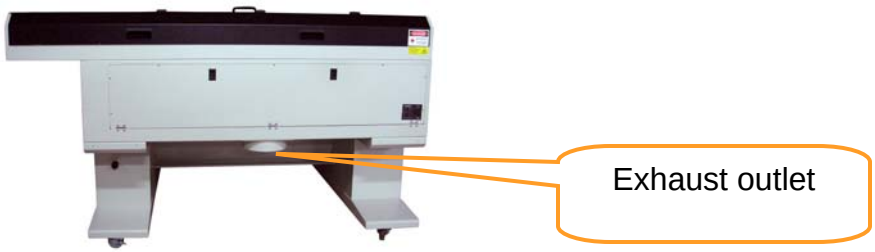
7.1 Air Extraction System Option

To properly remove dust, vaporized materials and chemical smoke from the working area and machine, it is necessary to install a suitable air extraction system. The air extraction system and other components are readily available from your local authorized GCC distributor or you can elect to purchase and install one yourself with components found at your local industrial supply store.

LaserPro's Air Extraction Systems are specifically designed to prevent personnel from inhaling hazardous fumes and dust generated by the laser process. Available for all LaserPro engravers, the LaserPro Air Extraction System represents the latest in fume extraction and odor reduction technology for all types of applications. Quiet operation, high vacuum capacity, compact design and long life expectancy are but a few outstanding features. Each LaserPro Air Extraction System is powered by a maintenance-free, continuous-running turbine. In order to ensure personnel safety and legal compliance, the LaserPro Air Extraction System is CE-compliant for Europe and ETL-certified for the United States and Canada. To purchase a LaserPro Air Extraction System, contact your local authorized GCC distributor

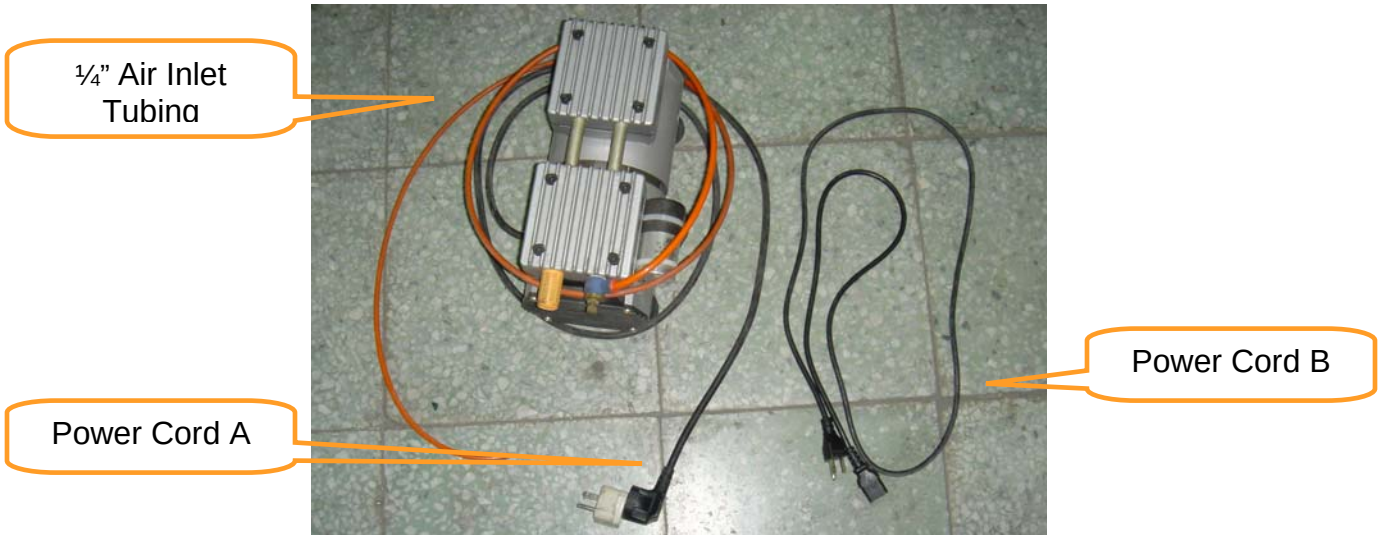
INSTALLATION (Self-Assembled Unit):

1) Purchase an exhaust system at your local industrial supply store, we recommend you have a contractor install the exhaust system. We highly recommend you install the exhaust system outside of the building for both noise considerations and if it does not possess filtering capabilities.
2) Mount the exhaust system in an obvious and accessible location, not too far from the X380, so it can be routinely switched on prior to laser engraving. The maximal distance you should mount the exhaust system away from the X380 depends on the blower's vacuum capacity. We recommend you consult with the vendor regarding the unit's vacuum force, maximal distances, based on the available models.
3) Connect rigid and smooth walled tubing such as PVC or sheet metal with an 8" diameter to the ventilation opening located on the rear side of the X380. (As shown in the picture below). Try to keep this tubing as straight as possible as bends reduce the exhaust efficiency. Use the appropriate sized tube clamps and sealants to ensure a tight and secure attachment.



7.2 Air Compressor Option

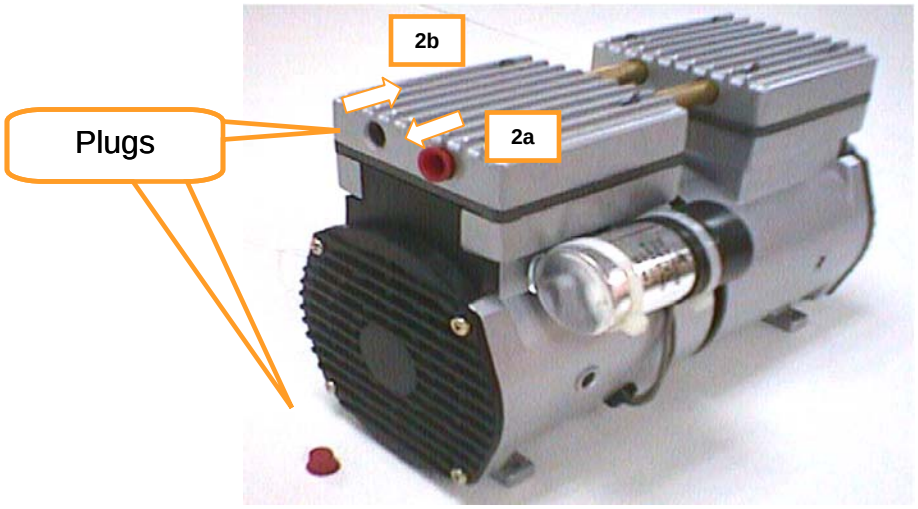
Specifically designed for laser engravers, the air compressor utilizes an oil-free diaphragm. The air compressor helps eliminate harmful and potentially damaging moisture from the laser optics, maximizing laser optic life. In addition the air compressor provides the optimal air flow to the SmartAIR nozzles to minimize flaming, suppress working temperatures, and blow away dust and particle byproducts generated from the laser process.



INSTALLATION:

1) Remove the plugs on the air compressor to expose the air inlets.

2) Fasten the included air tube fastener valve to the outgoing air inlet (indicated by 2a) and the air filter into the ingoing air inlet (indicated by 2b).

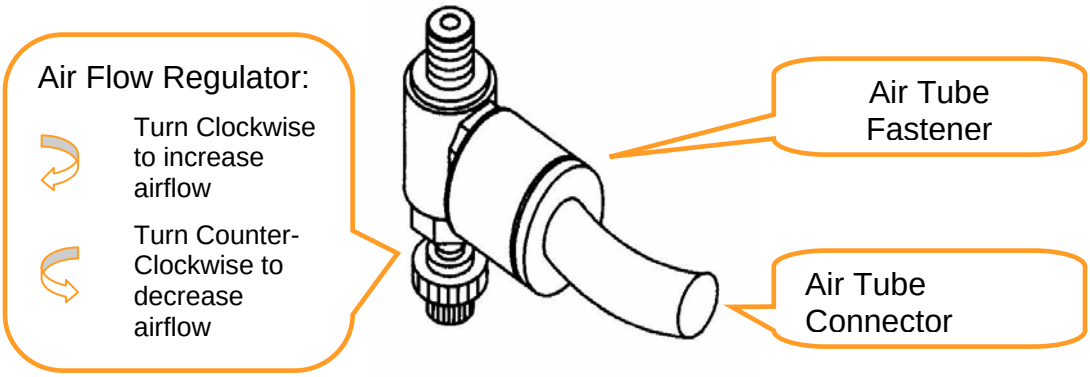


3) Connect a ¼" tubing to the air tube fastener valve on the air compressor.

NOTE
It is important that the ¼" air tubing has clean, straight cuts on each end. Jagged or slanted cuts will not produce adequate sealing capabilities.

4) Locate the air tube valve positioned towards the front side of SmartCut X380. As indicated below:

5) Take the unattached end of the ¼" air tubing (other end already connected to air compressor) and connect it to the air tube connector on the air assist valve. Make sure you press down on the air tube fastener when inserting the ¼" air tubing, to form a tight, secure attachment as indicated in the diagram below.



6) Congratulations, you have finished setting up the air compressor. Make sure you have the proper SmartAIR nozzle installed (depending on your application), before you turn on and utilize the air compressor.

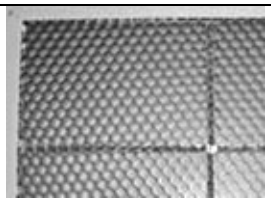
OPERATION:

1) Switch on the air compressor unit and make sure that the airflow regulator on the air assist valve is opened (turn clockwise to increase the airflow, counter-clockwise to decrease the airflow). The air nozzle under the laser head should emit a steady flow of air.

With the SmartAIR nozzle and air compressor properly installed and operating, all configurations and settings relating to air-assist functions are controlled through the LaserPro X380 print driver and hardware control panel. Please refer to the LaserPro X380 print driver and graphic control panel sections of this manual for details on how to enable and configure air-assist functionalities.

7.3 SmartBOX Option

The SmartBOX is an innovative combination of a cutting box, honeycomb table, and material support stands. During the cutting and engraving process, unwanted scrap, dust, and vapor byproducts are left behind. The cutting box collects the larger scrap byproducts while venting out the smaller dust particles, vapors, and smoke to minimize excess buildup on the machine, worktable, and your project. The SmartBOX allows you to maintain a clean worktable and minimizes backside burning of your media, whether you are working with thick and firm materials or thin and flexible materials.

SmartBOX Components	
Cutting Box	
Honeycomb Table	
Material Support Stands	 
Thumb Screws	

It is highly recommended that you use different setups of the SmartBOX depending on the physical properties of the material you will be working with. Here is the recommended SmartBOX component setups based on your working material.

Component / Application	Cutting Box	Honeycomb Table	Material Support Stands
Thin, Flexible Materials	Required	Required	Not Required
Thick, Firm Materials	Required	Not Required	Required

NOTE
Advanced users may choose to try other component setups to suit their particular engraving / cutting techniques or working material. Feel free to explore different ways to setup the various SmartBOX components to adapt to the results you wish to achieve.

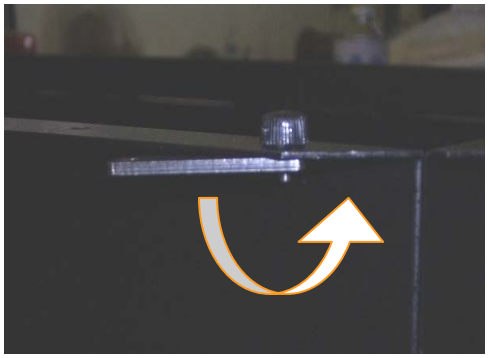
INSTALLATION / OPERATION (Cutting Box and Honeycomb Table):

1) Open the front pass-through door and lower the X380's worktable to the lowest possible position through the X380 control panel.
2) Insert the cutting box and attached honeycomb table through the open front pass-through door onto the worktable, with the air extraction opening facing towards the back end of the X380. Ensure the rear and left side of the cutting box is aligned flush to the edges of the left and right rulers on the worktable.
3) Open the honeycomb table to find the four screw holes at the bottom of the cutting box. With the included thumbscrews, secure the cutting box to the work table and close the honeycomb table.
4) **[OPTIONAL]** If you have an air extraction system option installed, then you will need to attach the air extraction system's pipe connector to the SmartBOX's air extraction opening from the X380's rear side. (For detailed instructions to setup the air extraction system, please see the AIR EXTRACTION UNIT section in section 7.1).

Congratulations, you are now ready to position your thin, flexible materials on top of your honeycomb table / cutting box and start working.

INSTALLATION / OPERATION (Cutting Box and Material Support Stands):

1) In order to use the cutting box along with the material support stands, you must first remove the honeycomb table from the cutting box. Before you position the cutting box in the LaserPro SmartCut X380, first unscrew the screws that attach the hinges of the honeycomb table to the cutting box.
2) Remove the honeycomb table. Please keep in mind the honeycomb table surface is fragile; therefore, it is suggested to keep it in a safe place.
3) Open the front pass-through door and lower the LaserPro SmartCut X380's worktable to lowest possible position through the X380 control panel.
4) Insert the cutting box through the open front pass-through door onto the worktable, with the air extraction opening facing towards the back end of the LaserPro SmartCut X380. Ensure the rear and left side of the cutting box is aligned flush to the edges of the left and right rulers on the worktable.
5) Find the four screw holes at the bottom of the cutting box. With the included thumbscrews, secure the cutting box to the worktable.
6) On the front right hand side of the cutting table, there will be a metal guard, which must be swiveled so that it is perpendicular to the front side of the cutting table (as shown in the picture below). This allows the LaserPro SmartCut X380 to properly account for the extra height the cutting table adds to the cutting table.



CAUTION
Damage may occur to the system if you try to raise the work table without proper setting of the metal guard.

7) Now position the included material support stands so they support the thick, firm material you will be working with, while avoiding the laser path. In other words, avoid placing the support stands underneath any section of the material that will be lasered, especially during laser cutting.

7.4 SmartAIR Fine / Ultra Nozzles Option

The SmartAIR™ Fine and Ultra Nozzles minimize flaming, suppress working temperatures, and blow away dust and particle byproducts generated from the laser process.

The SmartAIR Fine Nozzle is recommended for engraving or cutting thin material such as textile. The smaller caliber nozzle is positioned closer to the object for a concentrated blast directed over a small area to eliminate burning on the cutting edge. The vertical design of the SmartAIR Fine Nozzle produces a concentrated airflow to blow away dust and unwanted residue, leaving a clean product surface.

The SmartAIR Ultra Nozzle is recommended for cutting thick material such as acrylic. The larger caliber nozzle produces strong airflow over a wider area to prevent flaming when the laser is cutting at slower speeds.

NOTE
The LaserPro SmartCut X380 comes standard with the SmartAIR Standard Nozzle, but for specialized jobs on specific materials, we highly recommend the use of the SmartAIR Fine or Ultra Nozzles.

INSTALLATION:

1) Unscrew the thumbscrews securing the front plate of the laser head, and remove the faceplate.
2) Remove the currently installed nozzle by simply sliding it outwards (towards you).
3) With either the SmartAIR Fine or Ultra Nozzle, simply slide into the slot (where you removed the original nozzle), with the pointed end face down.
4) Position the faceplate back onto the laser head and screw the thumbscrews back into place.

OPERATION:

1) With the air compressor unit and applicable SmartAIR Nozzle properly installed. Switch on the air compressor unit and make sure that the airflow regulator on the air assist valve is opened (turn clockwise to increase the airflow, counter-clockwise to decrease the airflow). The air nozzle under the laser head should emit a steady flow of air.
2) With the SmartAIR nozzle and air compressor properly installed and operating, all configurations and settings relating to air-assist functions are controlled through the LaserPro SmartCut X380 print driver and hardware control panel. Please refer to the LaserPro SmartCut X380 print driver and graphic control panel sections of this manual for details on how to enable and configure air-assist functionalities.

Chapter VIII Basic Maintenance

Keeping your LaserPro SmartCut X380 clean and well maintained will ensure quality output, consistent reliability, and extended product life. Smoke, dust or residue build-up inside the laser system or the mechanical components can cause a reduction in the laser power, irregularities in the motion system, reduced product life cycle, and a host of other avoidable problems. This section will cover how to perform regular maintenance on the SmartCut X380's worktable, motion system, mirrors, and focal lens.

The frequency of the cleaning schedule will depend on number of variables such as the types of material you work with, the immediate work environment, the frequency of use, the quality of the exhaust system, etc.

WARNING

- Electrical Shock may occur if you do not turn off and unplug the X380 before cleaning.
- Damage may occur to the system if you do not turn off and unplug the X380 before cleaning.
- Always turn off and unplug the X380 before cleaning!

8.1 Suggested Cleaning and Maintenance Supplies

Cleaning / Maintenance Tool	Special notes
Soap Solution or All-Purpose Cleaner	
Paper Towels	
Cotton Cloth	
Denatured Alcohol	DO NOT use alcohol on any painted surface, plastic, or the laser system!
Acetone	ONLY to be used on the working table
Vacuum Cleaner with a Flexible Nozzle	Only to be used in and around the worktable and motion system
Light Grade Machine Oil	
Cotton Swabs	Supplied
Lens Cleaner	Supplied
Lint Free Lens Tissue	Supplied
#2 Phillips Screwdriver	
Allen Wrench .050"	

8.2 Maintaining the Worktable and Motion System

8.2.1 Accessing the Worktable and Motion System

Remove the screws of the top of the machine and lift the top off

8.2.2 Cleaning the Worktable and Motion System

Clean the working table and the motion system on a frequent basis through the following steps:

1) Turn the power off and unplug the SmartCut X380 before cleaning.
2) Use a vacuum cleaner with a flexible nozzle to remove dust and debris from the worktable and motion system.
3) Apply small amounts of all-purpose cleaner, alcohol, or acetone to a paper or cotton towel to clean the working table.
4) Apply a soap solution, all-purpose cleaner, or alcohol to a paper or cotton towel to wipe down the rails of the motion system.
5) Wait for all cleaning residue to dry completely before plugging in and operating the X380.

> ***CAUTION***
> - Never pour or spray alcohol or acetone directly to the working table.
> - Oil, alcohol and acetone can cause fires or smoke build-up if improperly used.

8.2 Cleaning the Optics System

8.2.1 Removing the Mirrors

We recommend you check the mirrors once or twice a week to see if they require cleaning. If any debris or smoke residue is present, use the following steps to clean them.

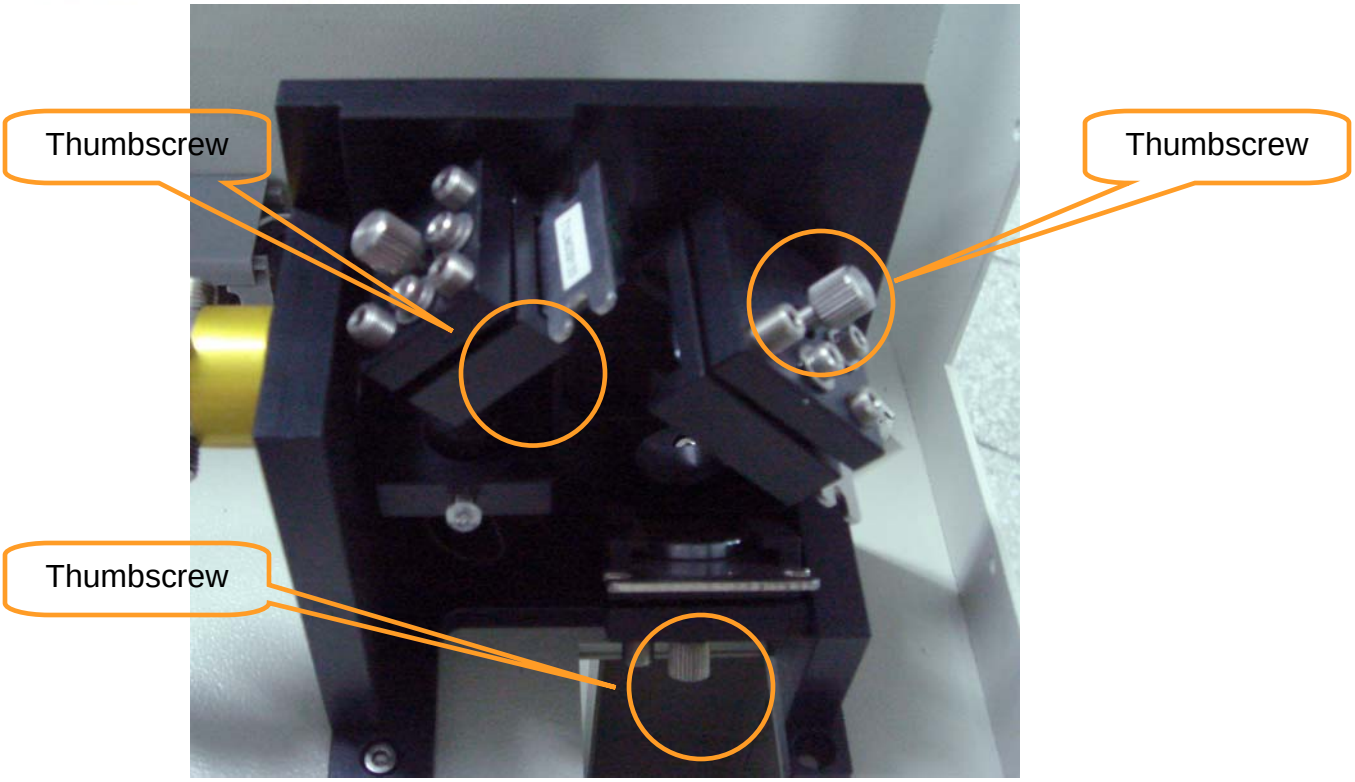
> ***NOTE***
> - It is highly recommended you remove, clean and replace each mirror **one at a time**!
> - Refer to section 8.2.2 on how to clean the mirrors.

The following section will detail how to access and remove each of the four mirrors found on the LaserPro X380 for cleaning.

Mirror 1

This mirror is located inside the laser cabinet of the LaserPro SmartCut X380.

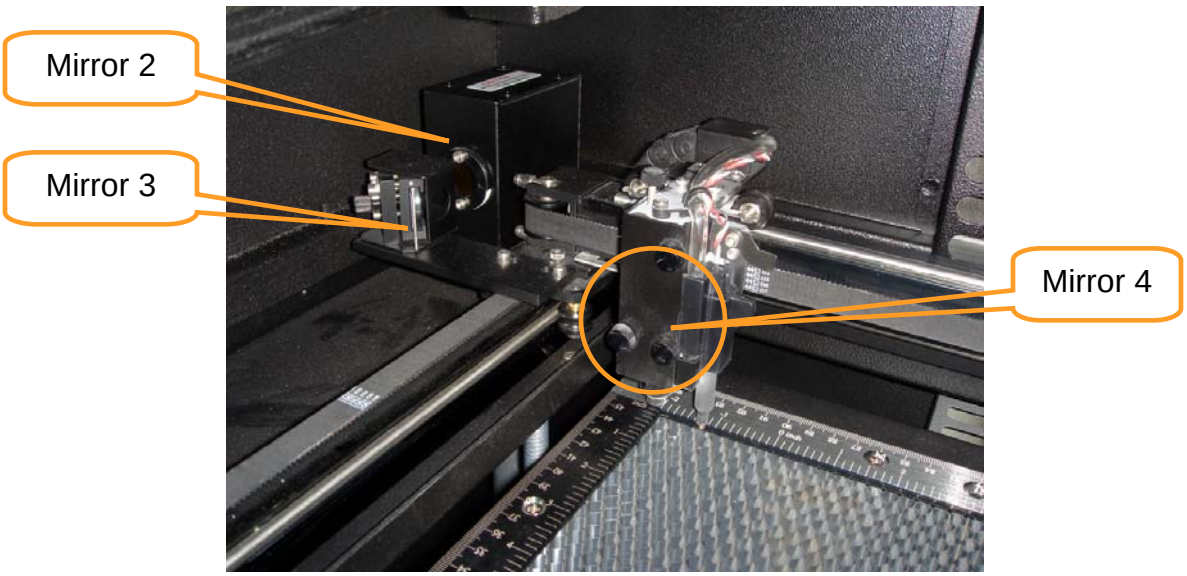
1) Use a #2 Phillips Screwdriver to open the rear laser cabinet of the LaserPro SmartCut X380.
2) Loosen the thumbscrew and remove the dust cover securing the mirror. (As shown in the picture below).



3) Clean the lens in the proper manner.
4) Re-install the mirror after cleaning.
5) Tighten the thumbscrew.
6) Replace and secure the outer access panel.

Mirror 2, 3, 4

These mirrors are located in the worktable area of the LaserPro SmartCut X380.



Mirror 2

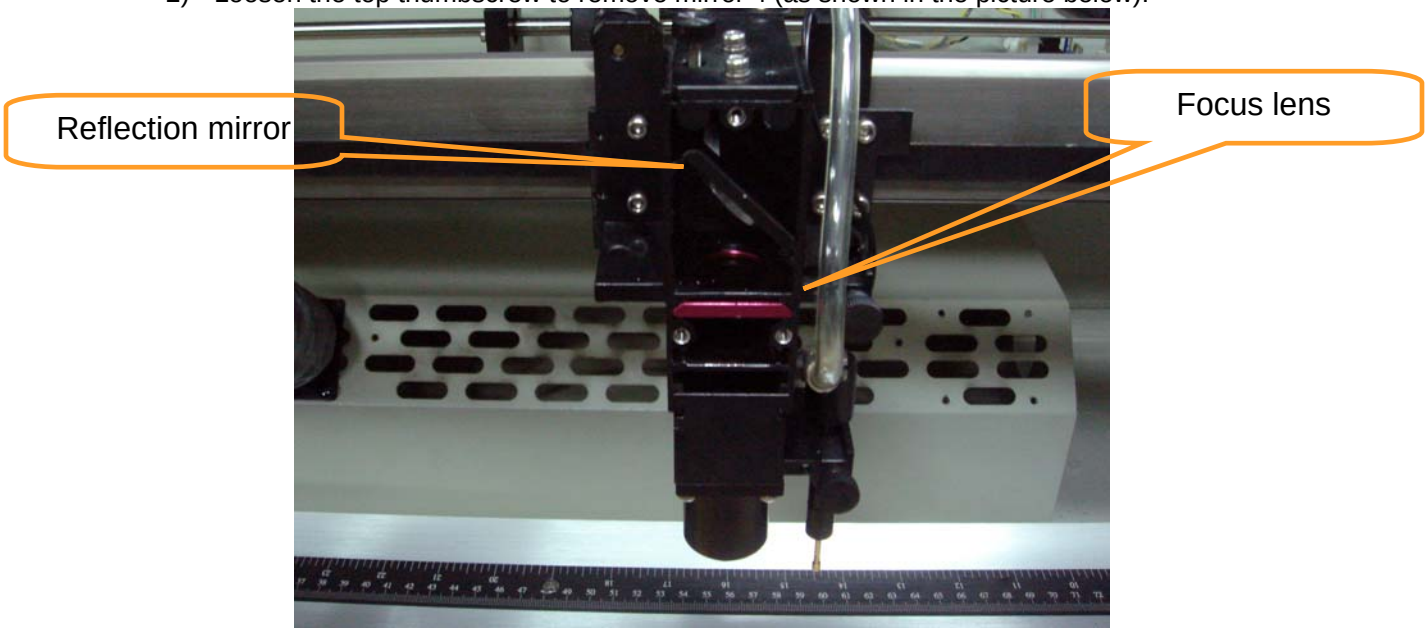
1) Unscrew and remove the black dust cover covering mirror 2.
2) Unscrew the thumbscrew holding mirror 2 in place.
3) Clean the lens in the proper manner.
4) Re-install mirror 2 after cleaning.
5) Tighten the thumbscrew.
6) Replace and secure the black dust cover.

Mirror 3

1) Unscrew the thumbscrew holding mirror 3 in place.
2) Clean the lens in the proper manner.
3) Re-install mirror 3 after cleaning.
4) Tighten the thumbscrew.

Mirror 4

1) Unscrew the three thumbscrews (front face of the laser head) securing the laser carriage panel and remove the laser carriage panel to reveal mirror 4 and the focal lens.
2) Loosen the top thumbscrew to remove mirror 4 (as shown in the picture below).



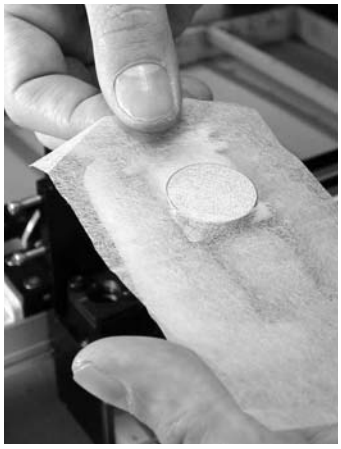
3) Clean the lens in the proper manner.
4) Re-install mirror 4 after cleaning.
5) Tighten the top thumbscrew.
6) Reinstall the laser carriage panel and tighten the three thumbscrews.

8.2.2 Cleaning the Mirrors

After you have removed each mirror, you will want to inspect each mirror for scratches, smoke residue, or debris. If any residue or debris is present, use the following steps to clean the mirror.

1) Hold the mirror with the reflective side up, without touching the reflective side of the mirror (DO NOT apply any finger pressure or any other cleaning solutions to the mirror surface).
2) Drape a new sheet of lens tissue over the mirror.

3) Apply a few drops of lens cleaner on the tissue covered mirror (apply enough so that the tissue absorbs just enough to cover the mirror surface).
4) Pull the tissue across the mirror in only one direction.
5) Repeat the cleaning processes if the mirror is not completely clean after the first attempt.
6) Make sure that the mirror is completely dry before reinstalling it.

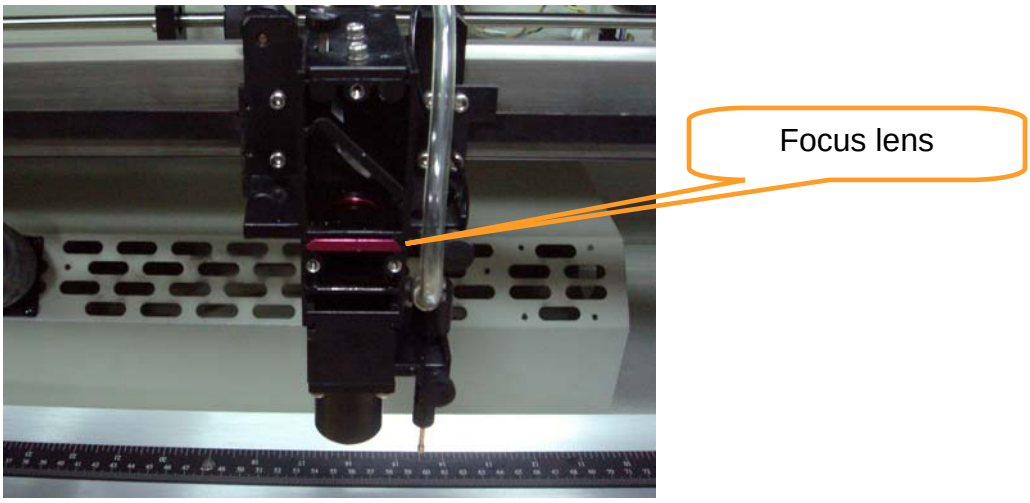


CAUTION

- If the center of the mirror is scratched, contact your LaserPro SmartCut X380 dealer for a replacement.

8.2.3 Removing and Cleaning the Focal Lens

1) Unscrew the three thumbscrews (front face of the laser head) securing the laser carriage panel and remove the laser carriage panel to reveal the focal lens.
2) Carefully pull out the focal lens (as indicated in the picture below).



3) Clean the focal lens with a cotton swab and lens cleaner solution. Be sure to clean both sides of the focal lens (DO NOT apply any finger pressure or other cleaning solutions to the lens surface).
4) After cleaning, use a cotton swab to gently dry the focal lens and lens cover.

Chapter IX - Basic Troubleshooting

Quality Problems

- Check focal length setting under F4 function key-> Machine Setting-> Set Focus Lens to see if it matches the type of the lens installed.
- Check if the focal Lens is installed correctly or if focal Lens is not fixed properly.
- Check if it is caused by the debris or dust builds up in the bearing tracks or x rail.
- Check if it is caused from the damaged or dirty focal lens and mirror 4 in the laser carriage which can not deliver the laser beam effectively.

Non-operational Problems

- **Laser beam does not generate**
  1. If the red alignment beam is not revealed, the laser beam is misalignment. Adjust reflection mirrors for exact focus.
  2. If the red alignment beam is revealed, please check the driver power. The laser power may be too low to be detected. Please increase the percentage setting of the Laser Power from the software driver or the control panel.
  3. Please check if the laser power connector is loose.
  4. For safety purpose, the laser beam will not be generated when the top or front door is opened unless you short the connector of the magnetic switches.
  5. Check water level or temperature of water cooler for the machine. If over-heated, laser beam will shut down automatically.

NOTE: Unplug the machine before examining the mirrors, lens, motion system or any other part of the laser system.

Other Problems

- **Graphic Was Clipped…" Message**

The size or location of graphic image may be bigger or beyond legal working area.

Do not place graphic object, especially vectors, right from (3,0) origin position, or 0 at either x or y rail of working area on application software, Corel Draw for instance, even vector line's width has been set to the thinnest. Because at thinnest line width, it still goes beyond the boarder and causes the error.

If the message appears randomly but frequently even image object is smaller or within the legal boarder, check or change DRAM module, a bad contact or faulty DRAM could cause such error.

- **Auto Focus Pin is Not Functioning**

The focus pin could be stocked by greasy residue that coats on it. Clean the probe with alcohol or acetone.

Check the cable of focus pin, there might be a bad contact or breakage.

Chapter X - Appendix

10.1 Glossary

Color Fill – Term within the awards and engraving industry used to describe the variety of techniques used to add color or contrast to engraving.

DPI – Dots Per Inch or Pixels Per Inch. The resolution of an image as defined by the amount of dots/pixels included in an inch. The DPI setting of 1000, will include tell the machine to include 1000 laser firings within an inch.

Driver – A software program that allows the computer to communicate with its components and peripherals: printers, scanners, monitors, etc.

Firmware – Programming permanently set into a computer's ROM chips. This information is burned into the computer chips and can only be changed by replacing the chips, or in the case of EEROM, by special procedure.

Parallel Cable – The cable connection between the computer and another device (usually the printer). This allows the computer to send several bits of data simultaneously.

Parallel Port – An outlet on your computer or electronic device that allows the computer and device to be connected and share information simultaneously. Another common name for the parallel port is the LPT port.

PPI – Pulses Per Inch. PPI determines the gross amount of laser pulses there will be per linear inch. PPI is exclusively for the vector setting. A PPI setting of 500 results in the laser firing every .002" (500 times per inch). If the standard lens is producing a vector laser focal point of .007", then higher PPI settings will result in deeper, overlapping laser pulses. PPI settings lower than 150 will result in the individual laser pulses being spread far apart, so they will not touch each other. Low PPI settings are a good example of perforate paper.

Serial Port – A connection that allows a computer to send data to a peripheral device one bit at a time. Usually a COM port that meets the RS232C specification.

Vector – The process of cutting an image by using single horizontal, vertical and curved lines. For example: when cutting out the outline of a square, the vector setting will make the laser use a thin single line to follow the outline of the shape.

10.2 LaserPro SmartCut X380 Specification Sheet

X380			
Models		X380LS	X380RX
Wattage		100W	
Laser source		Sealed CO2 Laser	
Cooling		Water Cool	
Working Area		38 x 24 in. (960 x 610 mm)	
Max. Part Size (W x L x H)	All doors closed	40.9 x 29.5 x 6.5 in. (1040 x 750 x 165 mm)	
	All doors open	40.9 x ∞ x 6.5 in. (1040 x ∞ x 165 mm)	
Table size		42.7 x 29.5 in. (1085 x 750 mm)	
Dimensions		70.8 x 42.9 x 40 in. (1800 x 1092 x 1017mm)	
Drive		Closed-loop DC servo control	
Maximum Motor Speed*		40 IPS	
Speed Control		Adjustable from 0~100% (Up to 16 color-linked speed settings per job)	
Power Control		Adjustable from 0~100% (Up to 16 color-linked power settings per job)	
Z-axis movement		Automatic	
Computer Interface		Standard pointer port and USB adaptor	
Memory buffer		32MB standard (Upgradeable to 64MB)	
Safety		Class 3R for red pointer	
Facility Requirement			
Power Consumption		1540W	
Water Chiller		Water Chiller is required	
Air Extraction System		External exhaust system is required