GCC
LaserPro

X252/X380

User Manual

Dear Sir or Madam,

Thank you for choosing GCC and the LaserPro X-Series. You can be assured that this machine meets all of the highest safety standards while using technological innovations shared by no other laser engraver. The X252RX & X380RX 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 X252RX & X380RX, our most economical laser engraver manufactured to date. This easy to operate machine has been designed with quality, productivity, and safety in mind. With innovations like the QSM^{TM}, Drag-N-Engrave, SmartFILE file management, and reliable motion system, the LaserPro X252RX & X380RX 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.

Content

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 X252RX & X380RX 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 X252RX & X380RX is a Class 2 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 X252RX & X380RX is equipped with our most powerful laser to date, proper usage and hardware safeguards make it an extremely safe machine. When the front door and back door are open, machine becomes a Class 4 equipment and users must wear goggles to operate the 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 X252RX & X380RX 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.

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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.

GCC LaserPro

Serial Number **I50357**

Manufacturer	Great Computer Corporation
Product	Laser Engraver
Model	X252
Model Number	X252RX-80
Wavelength	10.57-10.63 μm
Power	CO_2 80W
Input	200-240VAC, 50-60Hz, Max 8A
Manufactured	May 2012

Class I Laser Product Complies with EN60825-1:2007
Class II Laser Product Complies with CDRH
Designed by GCC in Taiwan Assembled in China
No.1,Chen Feng Road, Yushan, Kunshan, Jiangsu, China

GCC LaserPro

Serial Number **I50357**

Manufacturer	Great Computer Corporation
Product	Laser Engraver
Model	X252
Model Number	X252RX-80Y
Wavelength	10.57-10.63 μm
Power	CO_2 80W
Input	200-240VAC, 50-60Hz, Max 8A
Manufactured	May 2012

Class I Laser Product Complies with EN60825-1:2007
Class II Laser Product Complies with CDRH
Designed by GCC in Taiwan Assembled in China
No.1,Chen Feng Road, Yushan, Kunshan, Jiangsu, China

GCC LaserPro

Serial Number **I50357**

Manufacturer	Great Computer Corporation
Product	Laser Engraver
Model	X252
Model Number	X252RX-100
Wavelength	10.57-10.63 μm
Power	CO_2 100W
Input	200-240VAC, 50-60Hz, Max 8A
Manufactured	May 2012

Class I Laser Product Complies with EN60825-1:2007
Class II Laser Product Complies with CDRH
Designed by GCC in Taiwan Assembled in China
No.1,Chen Feng Road, Yushan, Kunshan, Jiangsu, China

GCC LaserPro

Serial Number
I50357

Manufacturer	Great Computer Corporation
Product	Laser Engraver
Model	X252
Model Number	X252RX-100Y
Wavelength	10.57-10.63μm
Power	CO_2 100W
Input	200-240VAC, 50-60Hz, Max 8A
Manufactured	May 2012

Class I Laser Product Complies with EN60825-1:2007
Class II Laser Product Complies with CDRH
Designed by GCC in Taiwan Assembled in China
No.1,Chen Feng Road, Yushan, Kunshan, Jiangsu, China

GCC LaserPro

Serial Number
I50357

Manufacturer	Great Computer Corporation
Product	Laser Engraver
Model	X380
Model Number	X380RX-80
Wavelength	10.57-10.63μm
Power	CO_2 80W
Input	200-240VAC, 50-60Hz, Max 8A
Manufactured	May 2012

Class I Laser Product Complies with EN60825-1:2007
Class II Laser Product Complies with CDRH
Designed by GCC in Taiwan Assembled in China
No.1,Chen Feng Road, Yushan, Kunshan, Jiangsu, China

GCC LaserPro

Serial Number
I50357

Manufacturer	Great Computer Corporation
Product	Laser Engraver
Model	X380
Model Number	X380RX-80Y
Wavelength	10.57-10.63μm
Power	CO_2 80W
Input	200-240VAC, 50-60Hz, Max 8A
Manufactured	May 2012

Class I Laser Product Complies with EN60825-1:2007
Class II Laser Product Complies with CDRH
Designed by GCC in Taiwan Assembled in China
No.1,Chen Feng Road, Yushan, Kunshan, Jiangsu, China

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Manufacturer	Great Computer Corporation
Product	Laser Engraver
Model	X380
Model Number	X380RX-100
Wavelength	10.57-10.63μm
Power	CO_2 100W
Input	200-240VAC, 50-60Hz, Max 8A
Manufactured	May 2012

Serial Number I50357

Class I Laser Product Complies with EN60825-1:2007
Class II Laser Product Complies with CDRH
Designed by GCC in Taiwan Assembled in China
No.1,Chen Feng Road, Yushan, Kunshan, Jiangsu, China

Manufacturer	Great Computer Corporation
Product	Laser Engraver
Model	X380
Model Number	X380RX-100Y
Wavelength	10.57-10.63μm
Power	CO_2 100W
Input	200-240VAC, 50-60Hz, Max 8A
Manufactured	May 2012

Serial Number I50357

Class I Laser Product Complies with EN60825-1:2007
Class II Laser Product Complies with CDRH
Designed by GCC in Taiwan Assembled in China
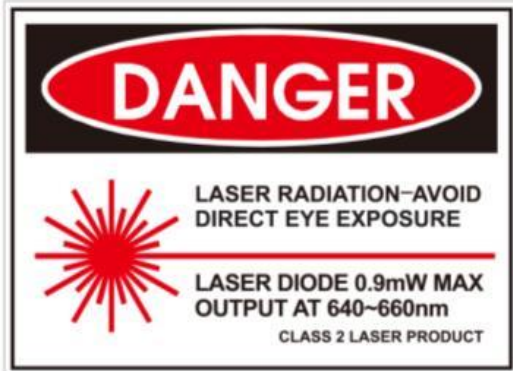No.1,Chen Feng Road, Yushan, Kunshan, Jiangsu, China

CDRH Label
This label indicates the class level of CDRH.

DANGER

LASER RADIATION–AVOID DIRECT EYE EXPOSURE

LASER DIODE 0.9mW MAX OUTPUT AT 640~660nm

CLASS 2 LASER PRODUCT

CE Label
This label identifies the classification of the Model in accordance with IEC 60825-1. It is located on the rear of the machine's cabinet.

LASER RADIATION –
AVOID DIRECT EYE EXPOSURE
CLASS 2 LASER PRODUCT
LASER DIODE 0.9mW MAX
OUTPUT AT 640~660nm
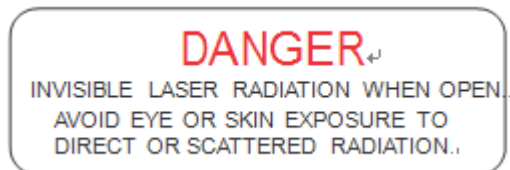Classified by EN 60825-1:1994+A1.2002+A2:2001   LASER APERTURE

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.

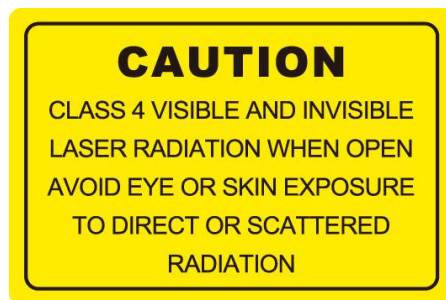**CAUTION**
AVOID PLACING YOUR EYES IN
THE RED BEAM PATH

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.

DANGER
INVISIBLE LASER RADIATION WHEN OPEN.
AVOID EYE OR SKIN EXPOSURE TO
DIRECT OR SCATTERED RADIATION.

Door open warning labels

CAUTION
CLASS 4 VISIBLE AND INVISIBLE
LASER RADIATION WHEN OPEN
AVOID EYE OR SKIN EXPOSURE
TO DIRECT OR SCATTERED
RADIATION

Warning Label

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

WARNING

Invisible laser radiation when door open and interlock failed. Avoid eye or skin exposure direct to laser radiation.

Do not leave the machine unattended during operation.

Resulting debris and scraps from laser processing may cause fire hazard. Do not leave debris and scraps inside laser machine after job finished.

Please clean the bearings and motion system tracks everyday.

Do not use reflective metals, heat sensitive surfaces or materials that may produce toxic substances or corrosion problems, such as PVC and Teflon.

Please wear goggle to operate while door open.

Dust mask required.

Read and understand operator's manual before using this machine.

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Aperture warning stickers (mirror):

This label indicates the laser path. Normally you can find this label inside of machine or laser exit. Please take extra caution of this area when you conduct maintenance or operate machine.

AVOID EXPOSURE -
VISIBLE AND INVISIBLE
LASER RADIATION IS
EMITTED FROM THIS
APERTURE

Protection Window Label

This label indicates the protection wavelength. You can find this label in the lower right corner of window.

OD5+ @ 10,600 nm
Protection Window

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
*   **Resulting debris from laser cutting are very dangerous and may cause fire hazard.**

*   **Caution—Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.**

*   **DO NOT leave debris and scraps inside laser machine after job finished. Must keep machine clean after job finished.**

> ***i* 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.

> ***i* 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:
>
> **9000-11000nm 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 X252RX & X380RX. Improper work environments may lead to operational malfunction and/or unsafe working conditions. The LaserPro X252RX & X380RX 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 laser machine, 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 laser machine on a floor surface that is completely even.
- Make sure your smoke or fire detection system in the immediate area is functioning.

> ℹ️ *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.

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1.7 EC-Declaration of conformity

Certificate of Compliance

No. 0L160404.QGI0N39

Technical Construction File no. GCC-2016001-A1

Certificate's Holder: Great Computer Corp.
4F-1., No.236, Fude 2nd Rd., Xizhi Dist., New Taipei City 22151, Taiwan

Certification ECM Mark:

European Community — Type Approved ®

Product: Model(s): GCC LaserPro Mercury series Laser Engraver
(see the following annex I)

Verification to: Standard:
EN ISO 12100-2010, EN ISO 11553-1:2008,
EN 60825-1:2014,
EN ISO 13849-1:2008/AC:2009,
EN 60204-1:2006+A1:2009+AC:2010,
EN 61000-6-2:2005,
EN 61000-6-4:2007/A1:2011

related to CE Directive(s):
2006/42/EC (Machinery)
2014/35/EU (Low Voltage)
2014/30/EU (Electromagnetic Compatibility)

Remark: The product(s) has been verified on a voluntary basis. The product(s) satisfies the requirements of the Certification Mark of ECM, in reference to the above listed Standard(s). The above Compliance Mark can be affixed on the product(s) accordingly to the ECM regulation about its release and its use. The regulation can be found at www.entecerma.it. This Certificate of Compliance can be checked for validity at www.entecerma.it

This verification doesn't imply assessment of the production of the product(s).

Additional information, clarification about the CE Marking:

CE We attest that a TCF for the CE Marking process is in place. Whereas the Manufacturer is Responsible to start the CE Marking Certification Procedure and to perform all the necessary activities, as required by the Directive before placing the CE Mark on the product(s).

Date of Issue 04 April 2016   Expiry date 03 April 2021

Chief Manager   Deputy Manager
Tim Mahon   Viola Millar

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Annex I

No. 0L160404.QGI0N39

Technical Construction File no. GCC-2016001-A1

Model(s): LaserPRO X380, Mercury, Mercury II, Mercury III, Mercury IV, Mercury V, X252, MG380Hybrid, X380XX-XXXXX, L-XXXXX, M-XXXXX, ME-XXXXX, X252XX-XXXXX, MF-XXXXX, MV-XXXXX, MG380Hybrid-XXXXX, Mercury MGX-XXXXXX, Mercury MGX-XXXXXX/YYYYYY, (X=alphanumeric, Where XXXXX, XXXXXX & YYYYYY =laser supplier tube model or blank)

# Chapter II - Unpacking & Contents

2.1 Unloading and Unpacking

The GCC LaserPro laser system 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.

ℹ️ **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.
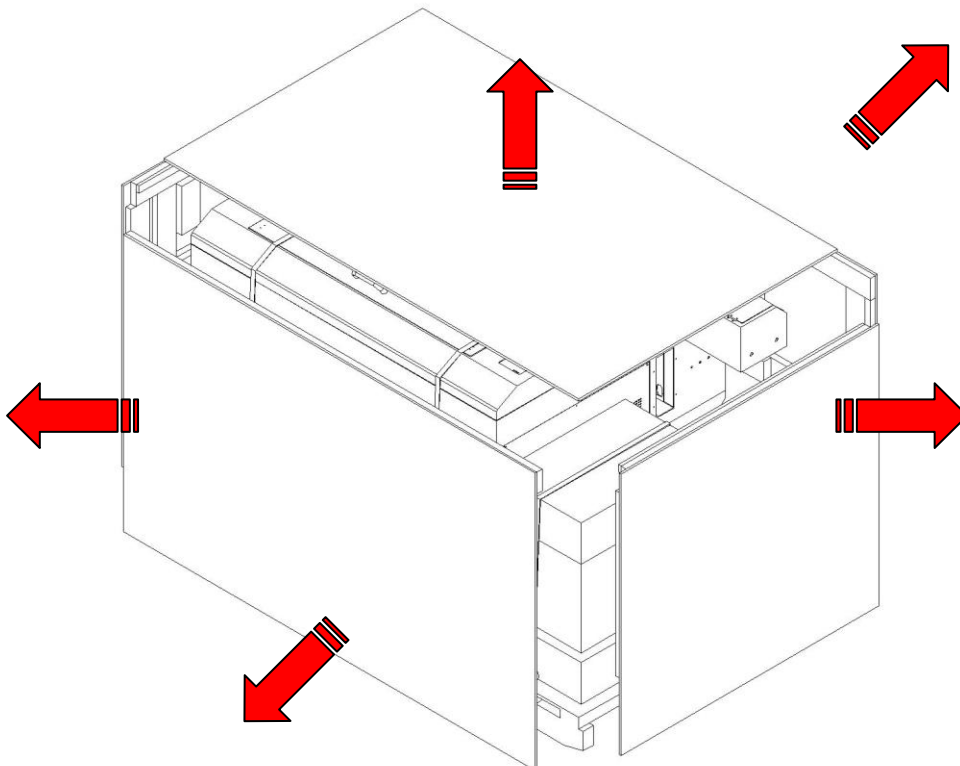
4) Use a slotted screwdriver or a suitable tool to pry the metallic piece as shown below. Once the metal piece has been pried straight as shown below, we can remove the metal strips and remove the wooden panels.
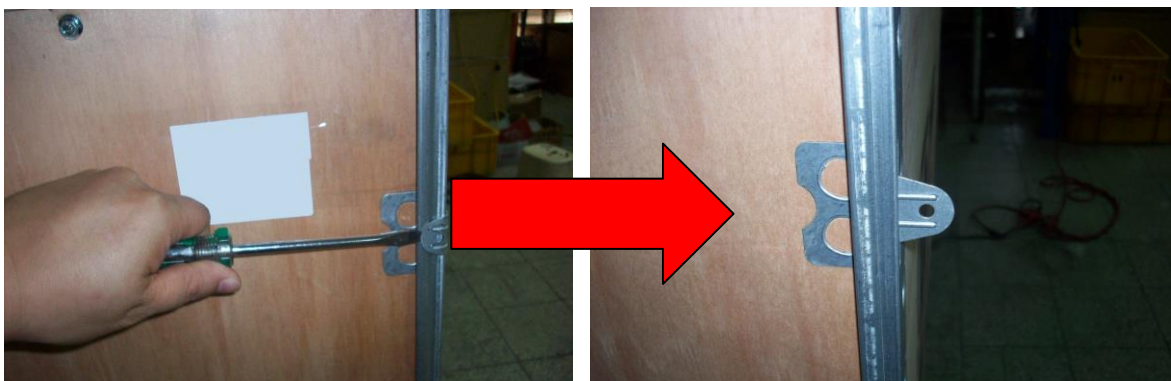
5) Unfasten and remove the two safety harnesses via the safety belt buckles on the front side.


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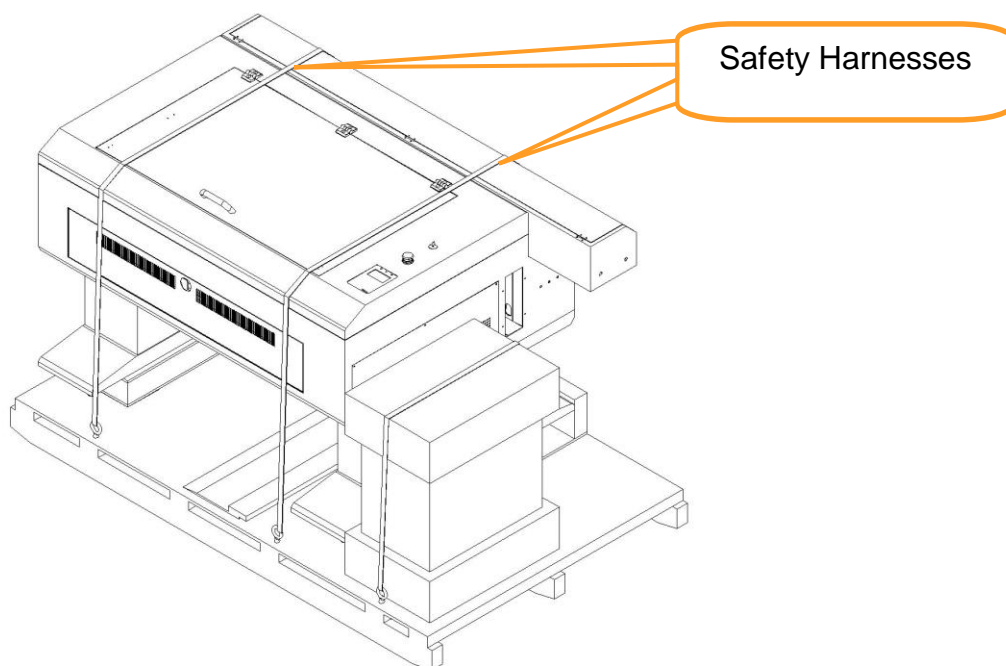
6) Unscrew the screws holding the spacers (left and right side of the machine) and the step board (front and rear of the machine). Remove the two spacers and the step board.

Spacer

Spacer
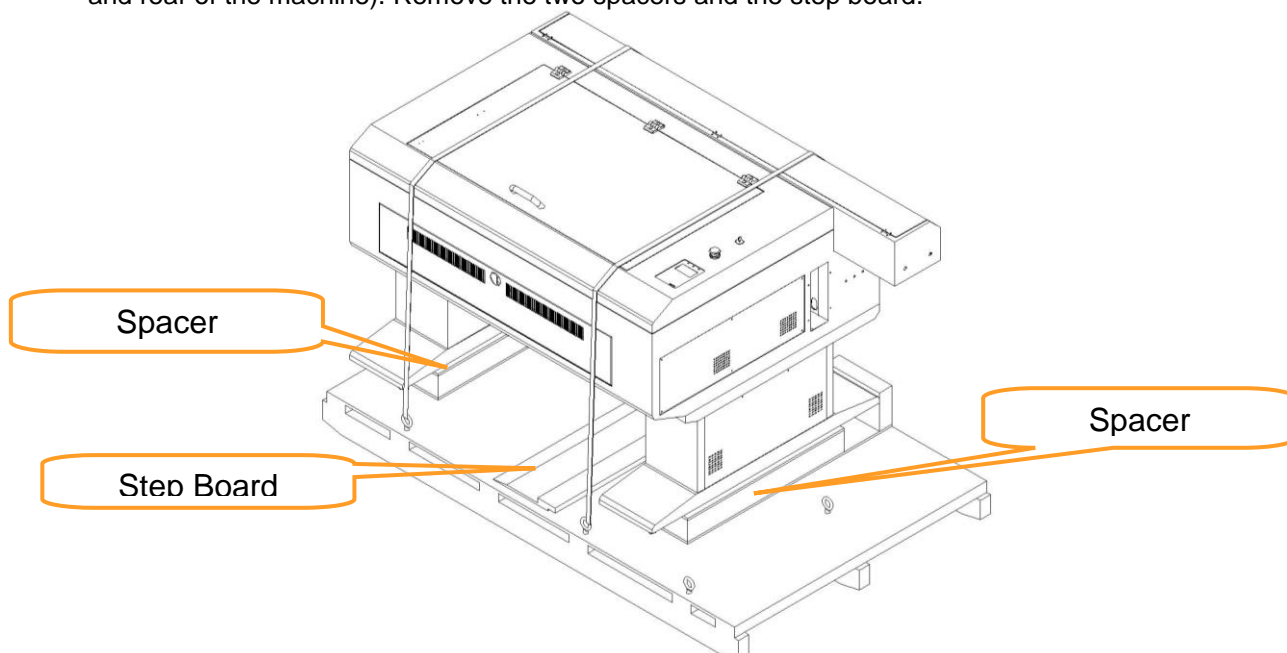
Step Board

7) With the removed left / right sideboard of crate, 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.

Step Board

Side Board
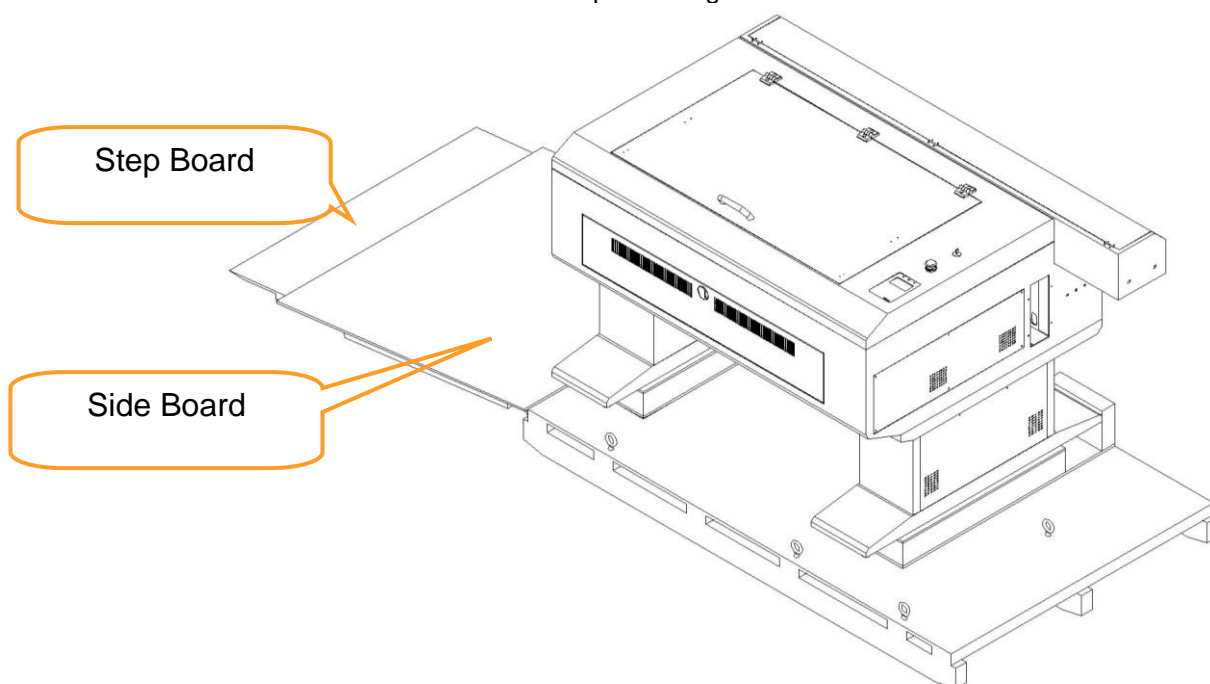
8) Carefully slide the machine off the shipping crate and position it into your work space.
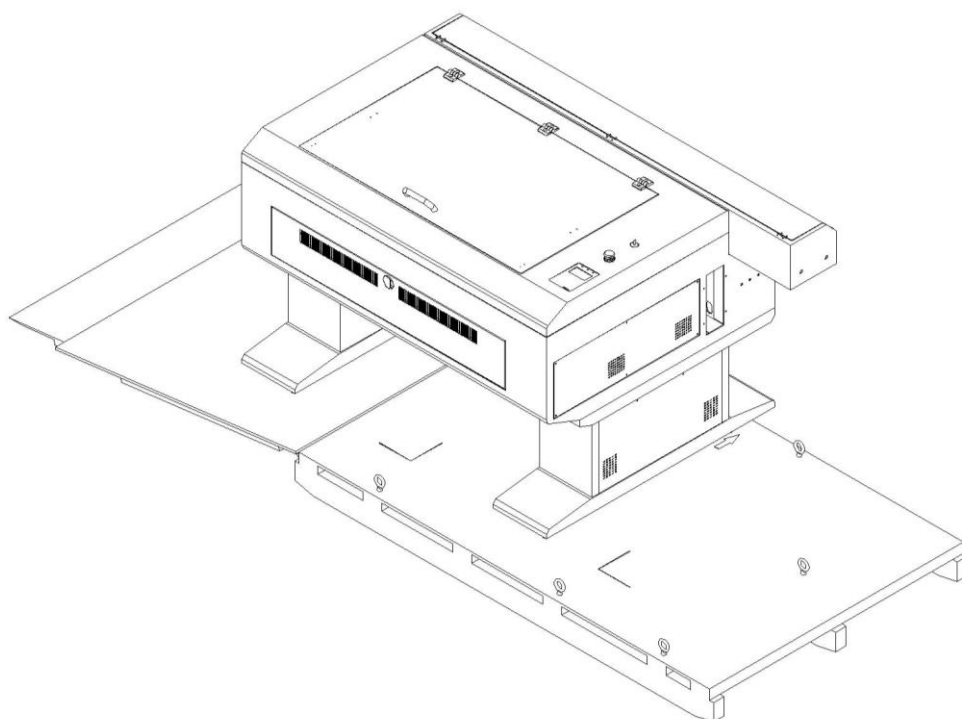
2.2 Contents and Accessories Checklist

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 1
Hex Screw Wrench	1
Manual Focus Gauge for 2.0" or 4.0" focal lens	1
AC Power Cord	6
USB Cable	1
Ethernet Cable	1
Installation CD (user manual, driver)	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 X252RX & X380RX. References will be made back to the different parts of the LaserPro X252RX & X380RX in later sections.
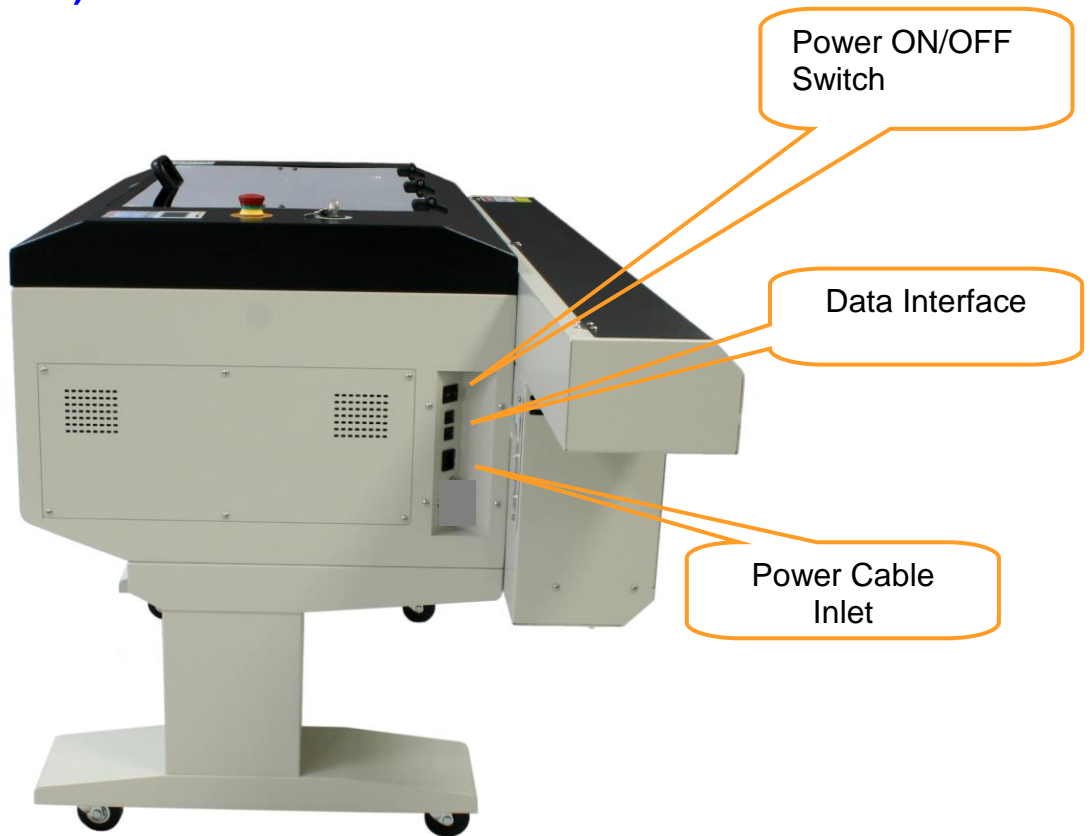
3.1 Front View

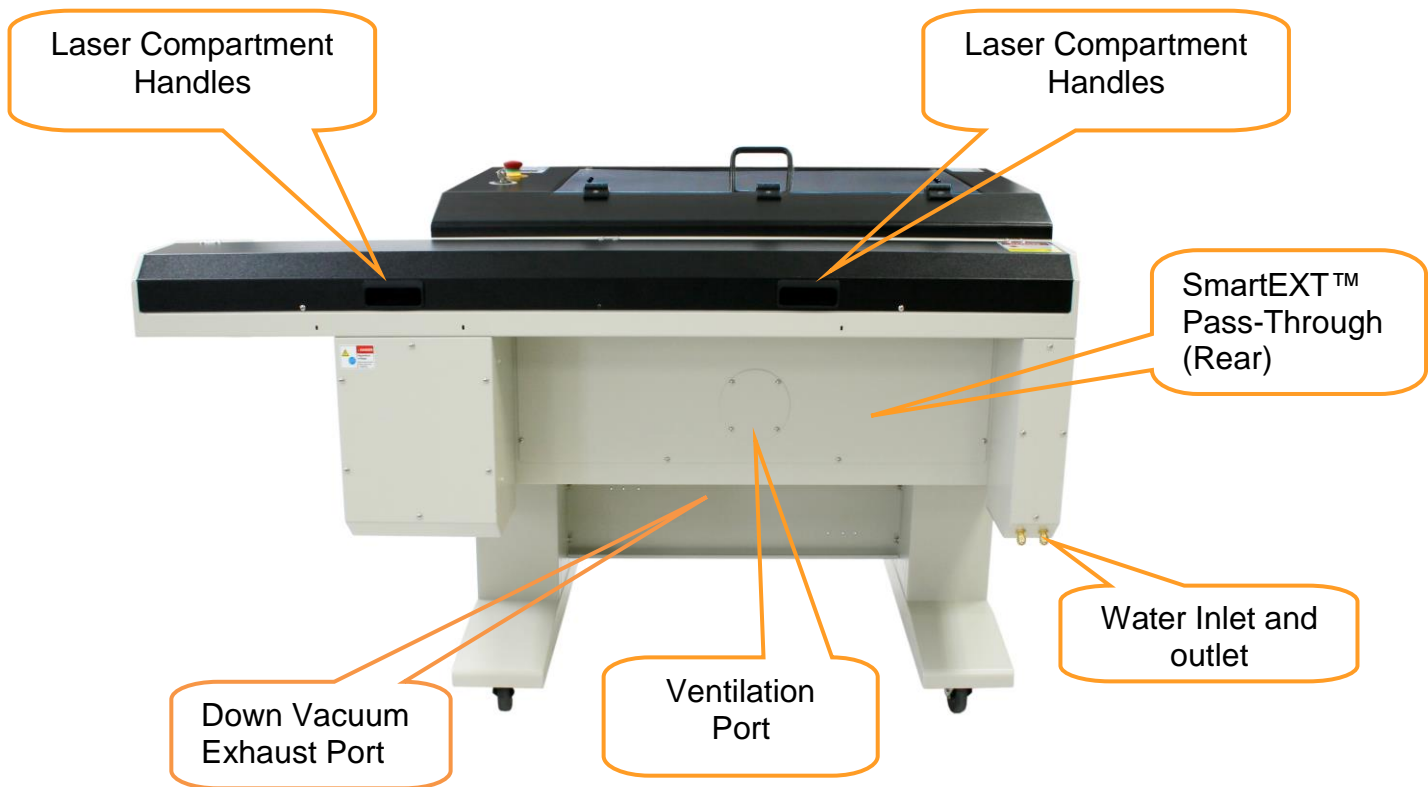SmartEXT™ Pass-Through Door (Front)

Air Assist Valve

3.2 Top View

Laser Key Switch

Emergency Stop Button

Control Panel

3.3 Right (Profile) View

Power ON/OFF Switch

Data Interface

Power Cable Inlet

Access Panel Mirror #1

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3.5 Rear View

Laser Compartment Handles

Laser Compartment Handles

SmartEXT™ Pass-Through (Rear)

Water Inlet and outlet
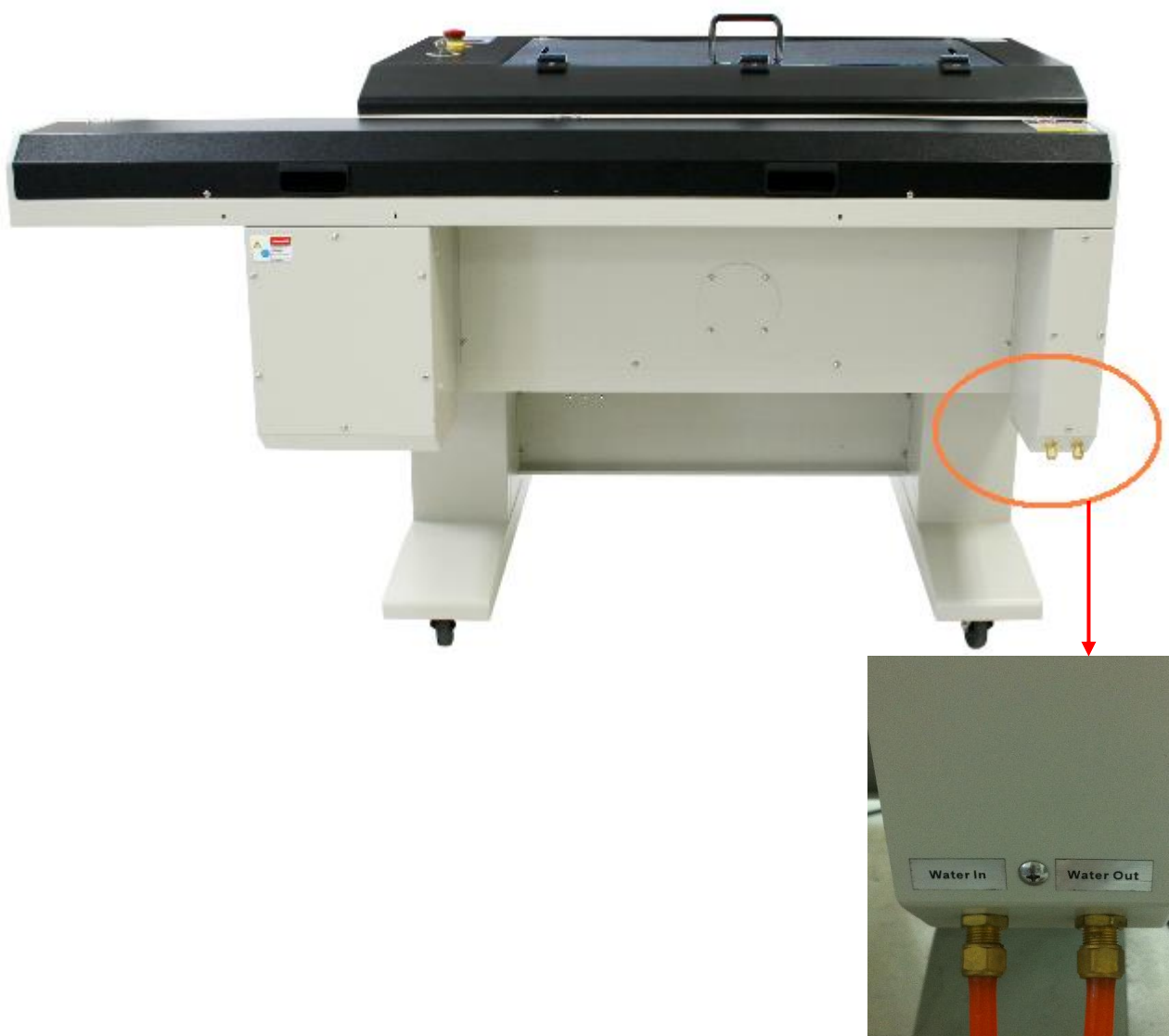
Down Vacuum Exhaust Port

Ventilation Port

Chapter IV - Setup and Installation

4.1 Machine Setup

4.1.1 Water Chiller Installation

Always turn on the water chiller before turning on 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.

1. The water chiller comes with two orange color water tubes

2. Connect the tubes to the machine. Connect the tube to the "Water Out" opening and the "Water In" openings.

3. Connect the tubes to the water chiller system.

● It is recommended to change the cooling water once every month. Remove water from the water chiller if machine will not be operated for an extended period of time.

> ⚠ *CAUTION*
> Make sure to add de-ionized or distilled water to the water chiller before turning on the machine.

4.1.2 Connecting the Peripherals

Connect the fume extraction system and air compressor to the laser system before starting laser processing. Follow the detailed instructions in section 7.1 and 7.2.
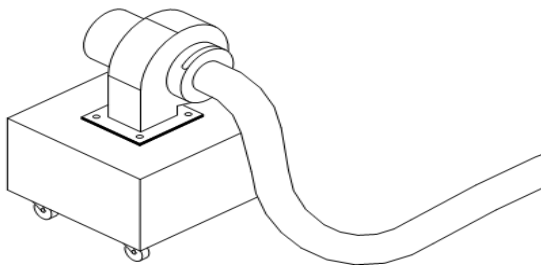
Fume Extraction System

Air Compressor

4.1.3 Powering Up the Machine

> ⚠️ **CAUTION**
> Make sure both the LaserPro X252RX & X380RX 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 X252RX & X380RX is connected to a 200-240V power source.

4.1.4 Connecting the Computer

The GCC LaserPro laser system can communicate with a computer through a USB Port or LAN Port connection interface. Regardless of the connection method chosen, you will need to connect the respective connection cable from the LaserPro Spirit Series to your computer.

USB Connectivity: Connect the included USB Cable to the USB Port on the right-hand side of the laser system.

Ethernet Connectivity: Connect the Ethernet Cable in accessory to the Ethernet port on the right-hand side of the laser system. Follow below instruction for Ethernet connectivity setup.

> 🛈 **NOTE**
> 1. Never leave laser system unattended during laser cutting, engraving, and marking process, even with Ethernet or Wi-Fi connection setup, this requirement cannot be avoided. Exposure to the laser beam may cause ignition flame to combustible materials.
>
> 2. DO NOT connect USB cable to laser machine when going to use Ethernet cable as data transmission.
>
> 3. If you have purchased additional Optional Accessories for the LaserPro X252RX & X380RX, 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 X252RX & X380RX.

4.1.2.1 Networking Connectivity Setup

GCC laser engraver is built-in with LAN port to enable multiple laser engravers to be operated by one PC and multiple PCs to share a single unit of laser engraver. Follow the setup instructions below using GCC Spirit GLS as illustration.
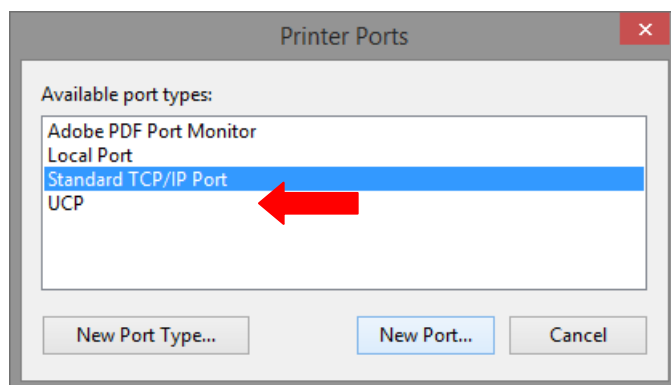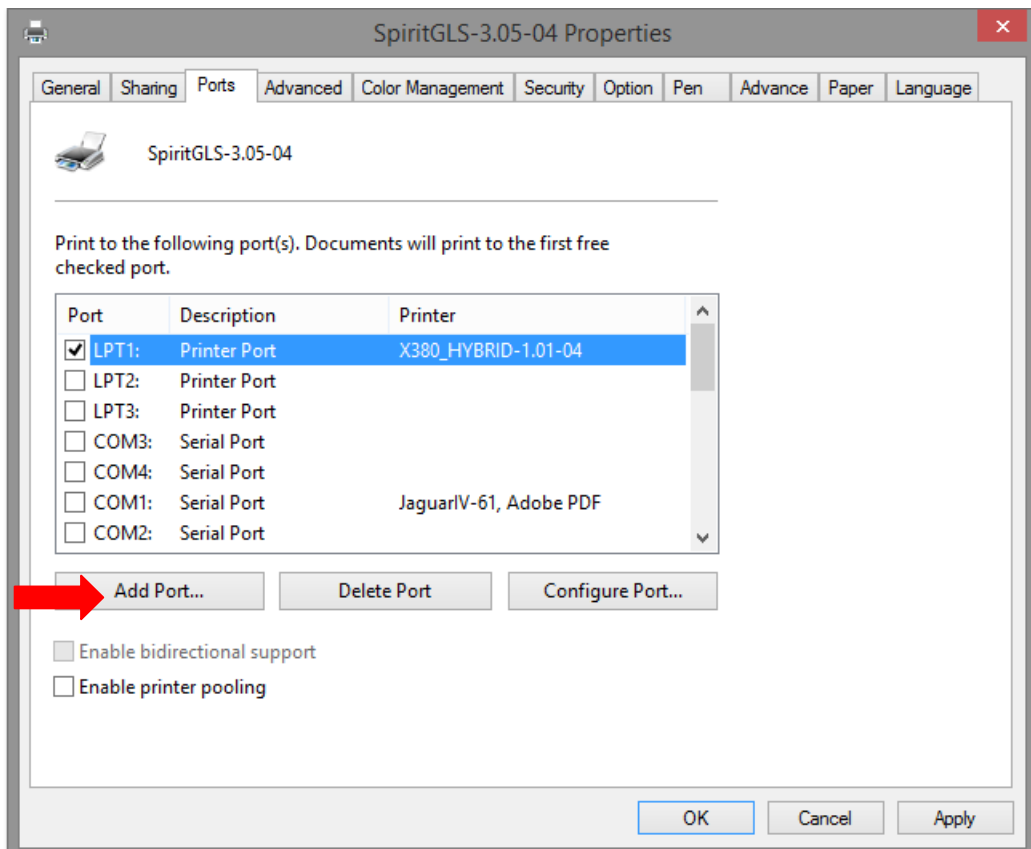
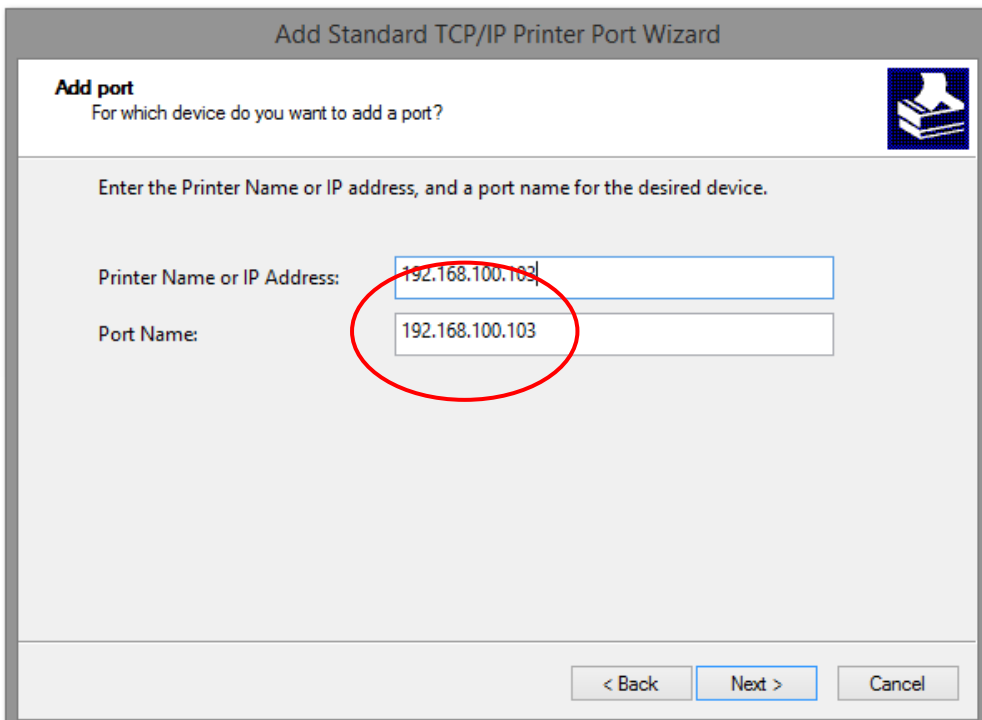Step 1. Connect LAN cable to the LAN port of GCC laser engravers and turn on machine
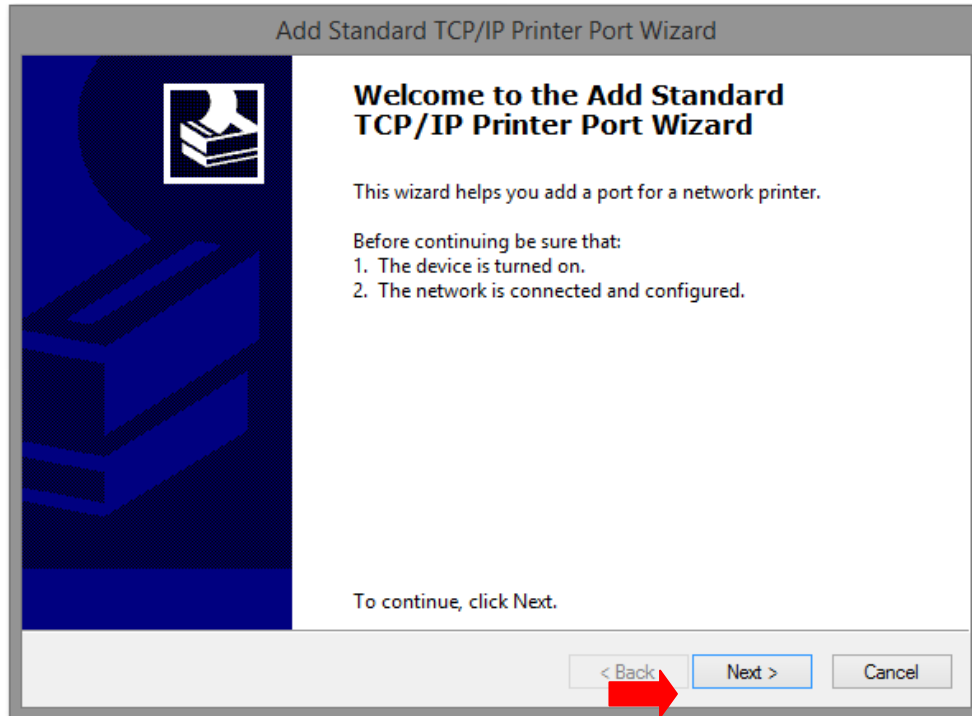Step 2. Navigate the control panel through <F4> Function→ <Machine Setting>→ <LAN Setup Wizard>→ IP Address.

```
IP  : 192.168.100.103
MASK: 255.255.254.  0
GATE: 192.168.100.254

Back
```
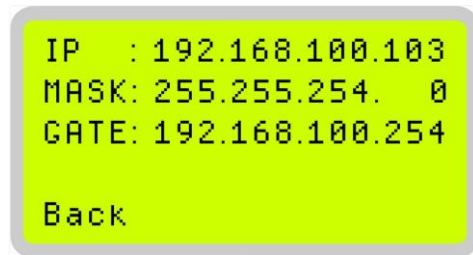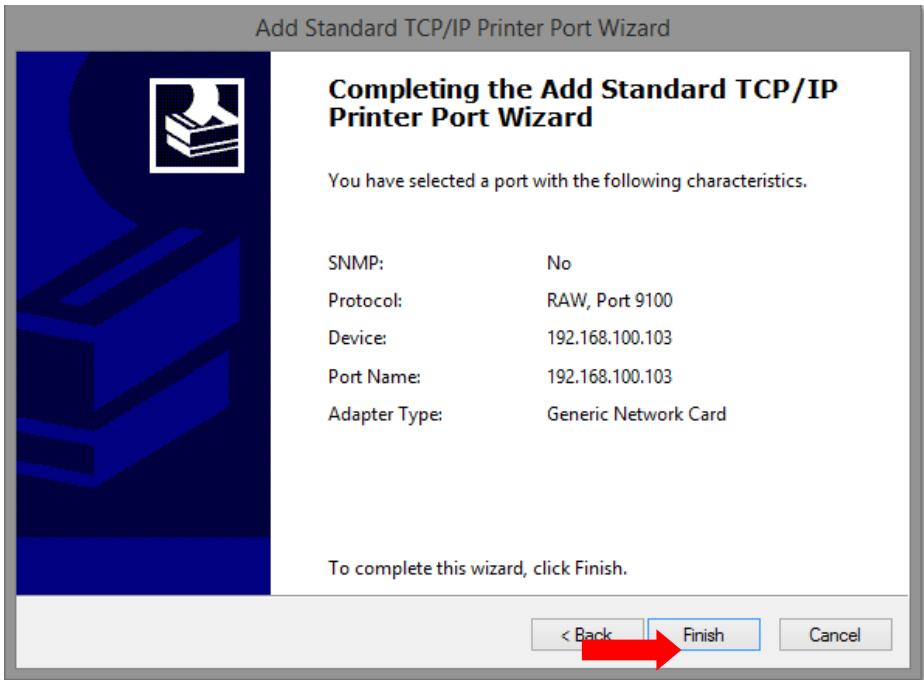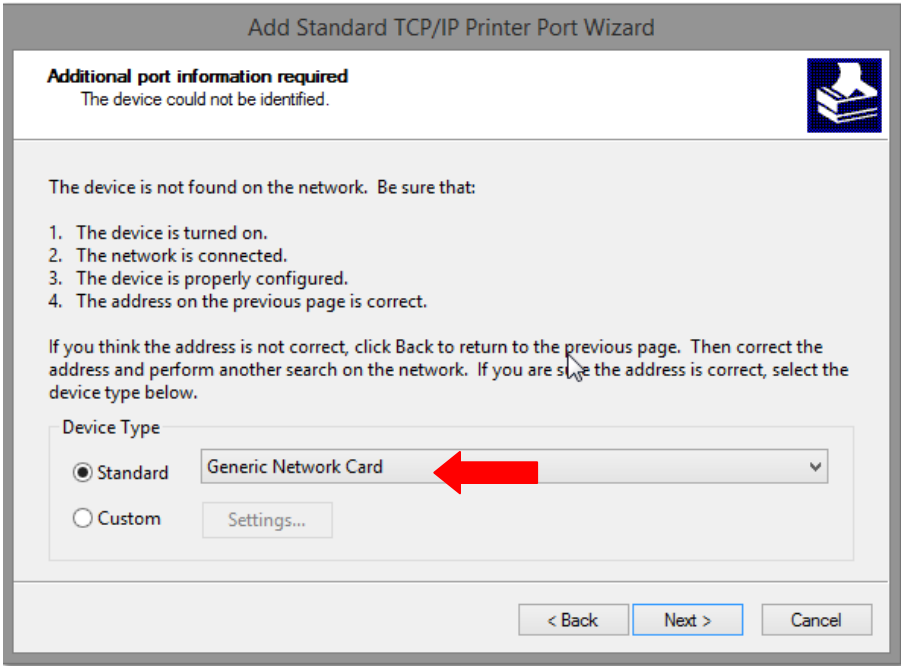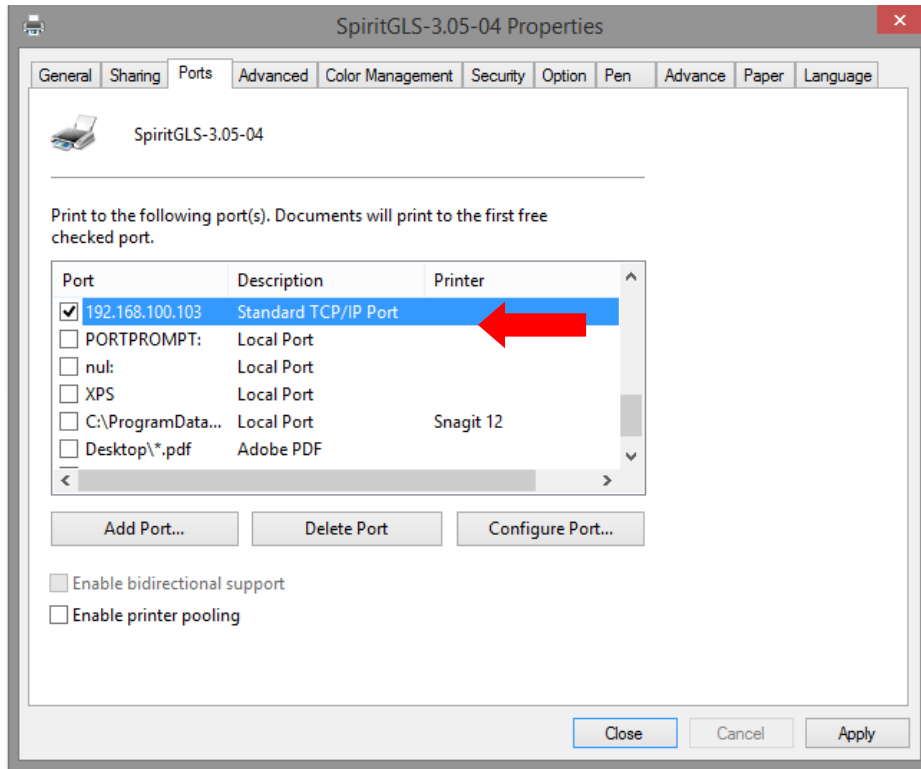
Step 3. Go to Windows <Control Panel>→ <Hardware and Sound>→ <Printer>, and right click on Spirit series printer to check printer properties.
Step 4. Go to <Ports> tab of Spirit series printer properties, and select <Add Port>, and follow the instruction to enter the TCP/IP information received from laser machine control panel in step 2.

Add Standard TCP/IP Printer Port Wizard

Welcome to the Add Standard TCP/IP Printer Port Wizard

This wizard helps you add a port for a network printer.

Before continuing be sure that:
1. The device is turned on.
2. The network is connected and configured.

To continue, click Next.

< Back   Next >   Cancel

Add Standard TCP/IP Printer Port Wizard

Add port
For which device do you want to add a port?

Enter the Printer Name or IP address, and a port name for the desired device.

Printer Name or IP Address: 192.168.100.103

Port Name: 192.168.100.103

< Back   Next >   Cancel

Add Standard TCP/IP Printer Port Wizard

Additional port information required
The device could not be identified.

The device is not found on the network. Be sure that:

1. The device is turned on.
2. The network is connected.
3. The device is properly configured.
4. The address on the previous page is correct.

If you think the address is not correct, click Back to return to the previous page. Then correct the address and perform another search on the network. If you are sure the address is correct, select the device type below.

Device Type

◉ Standard   Generic Network Card   ▼

○ Custom   Settings...

< Back   Next >   Cancel

Add Standard TCP/IP Printer Port Wizard

Completing the Add Standard TCP/IP Printer Port Wizard

You have selected a port with the following characteristics.

SNMP:	No
Protocol:	RAW, Port 9100
Device:	192.168.100.103
Port Name:	192.168.100.103
Adapter Type:	Generic Network Card

To complete this wizard, click Finish.

< Back   Finish   Cancel

4.1.2.2 Ethernet Connectivity Setup

GCC laser engraver is built-in with LAN port to transmit data from PC to laser engraver with ease and higher speed instead of USB port option.

Step 1. Connect LAN cable to the LAN port of GCC laser engravers and turn on machine

Step 2. Navigate the control panel through <F4> Function→ <Machine Setting>→ <LAN Setup Wizard>→ DHCP: OFF.

Step 3. Navigate the control panel through <F4> Function→ <Machine Setting>→ <LAN Setup Wizard>→ IP Address.

Step 4. Enter 192,168,3,X (X refers to 1~255 value which can't be the same value with IP address setting in PC or Notebook) for IP, and 255.255.255.0 for MASK with UP/ DOWN keys.
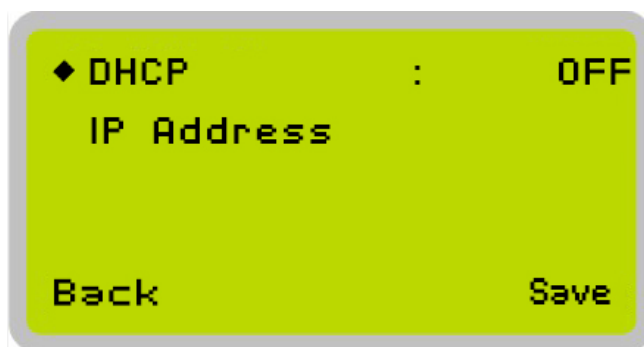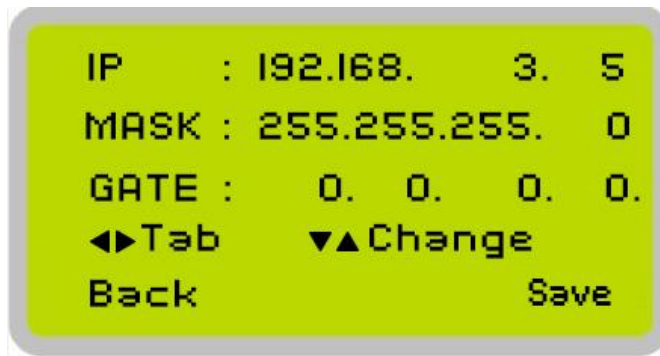
Step 5. Go to <Control Panel→Network and Internet→Network Connections> of computer, right click mouse on the connected internet device, and choose <Properties>
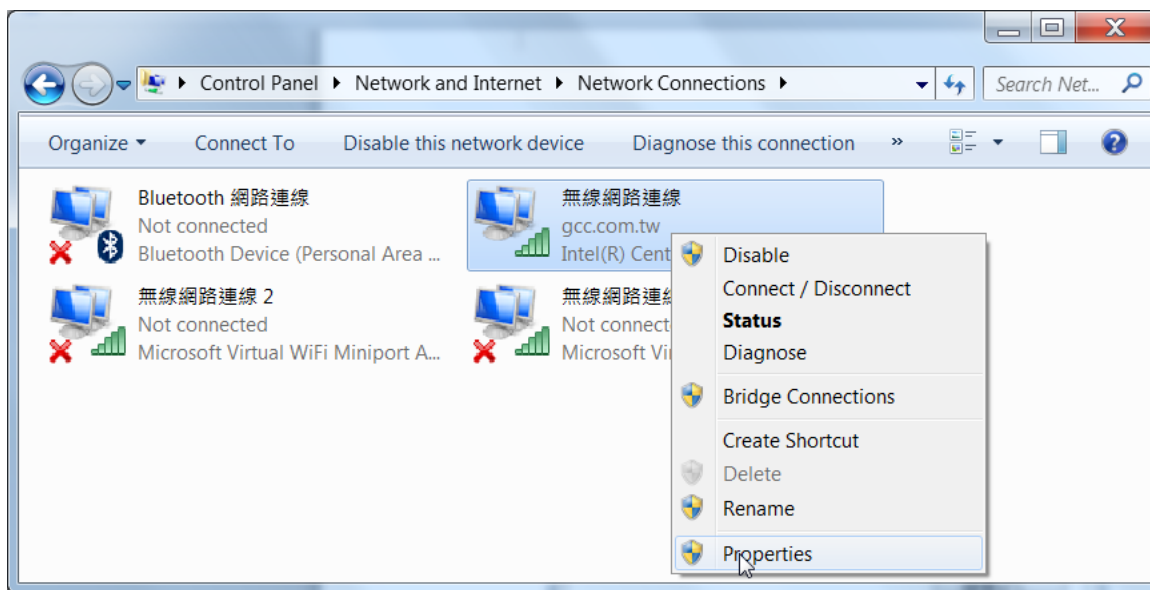
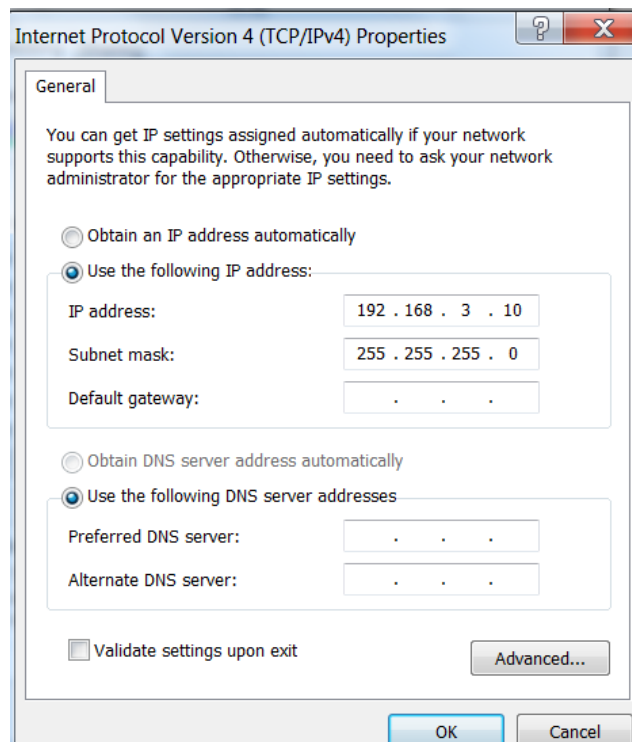Step 6. Choose the <Internet Protocol Version 4(TCP/IPv4)> and click <Properties> to open up the setting window.
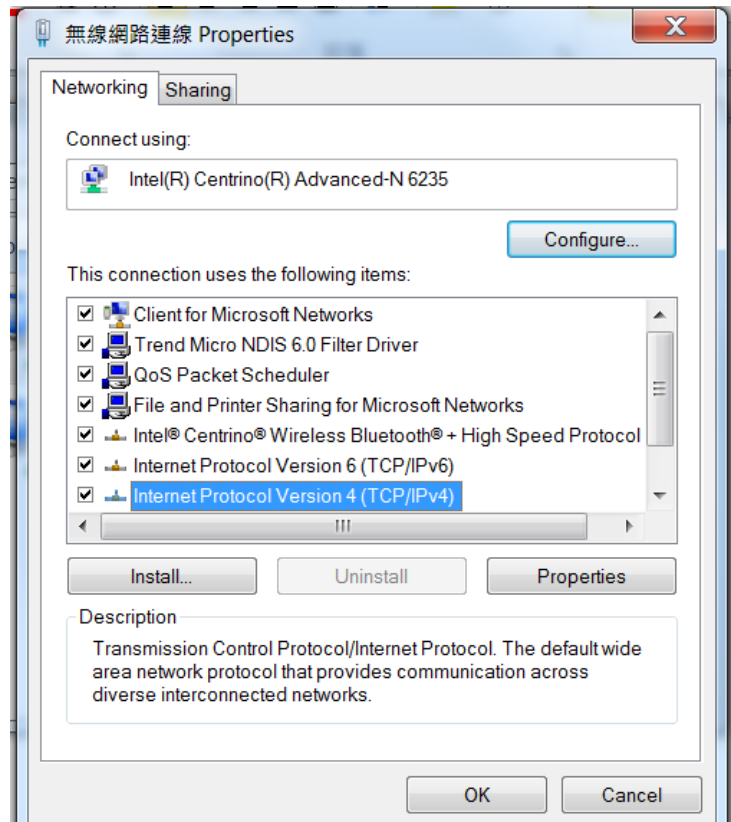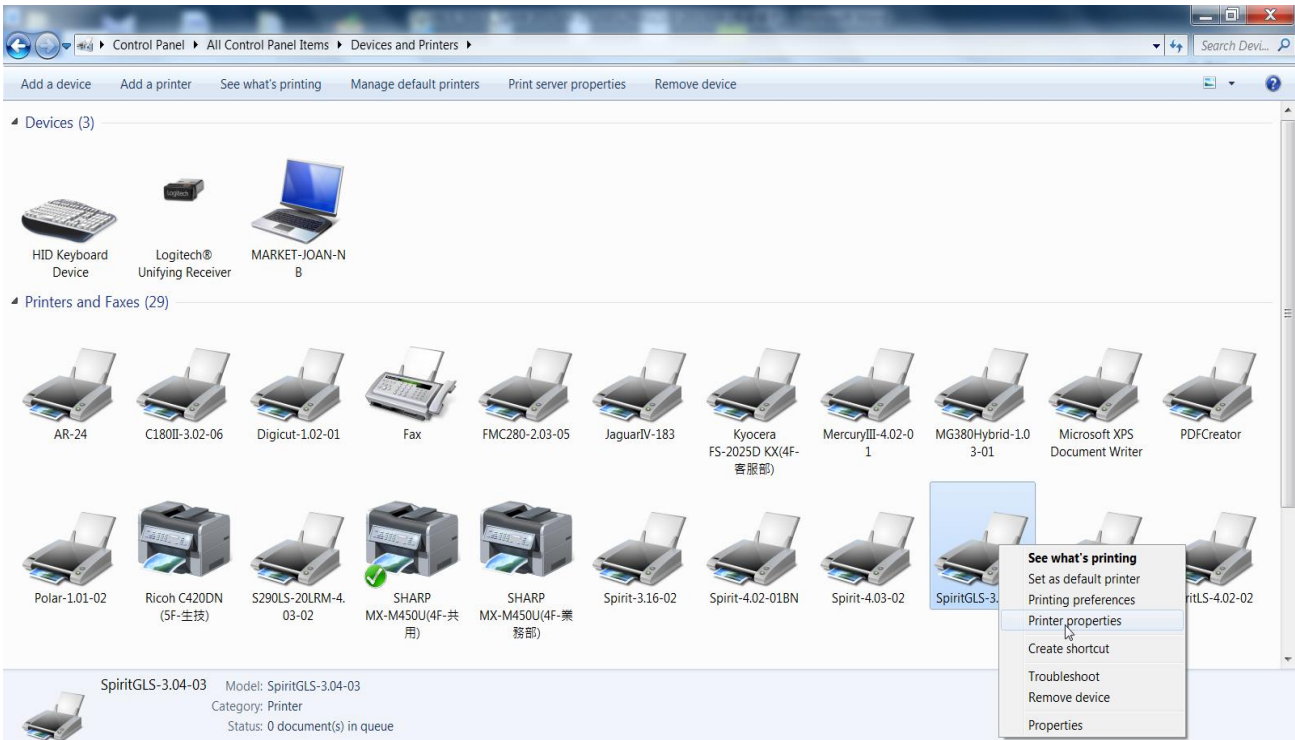

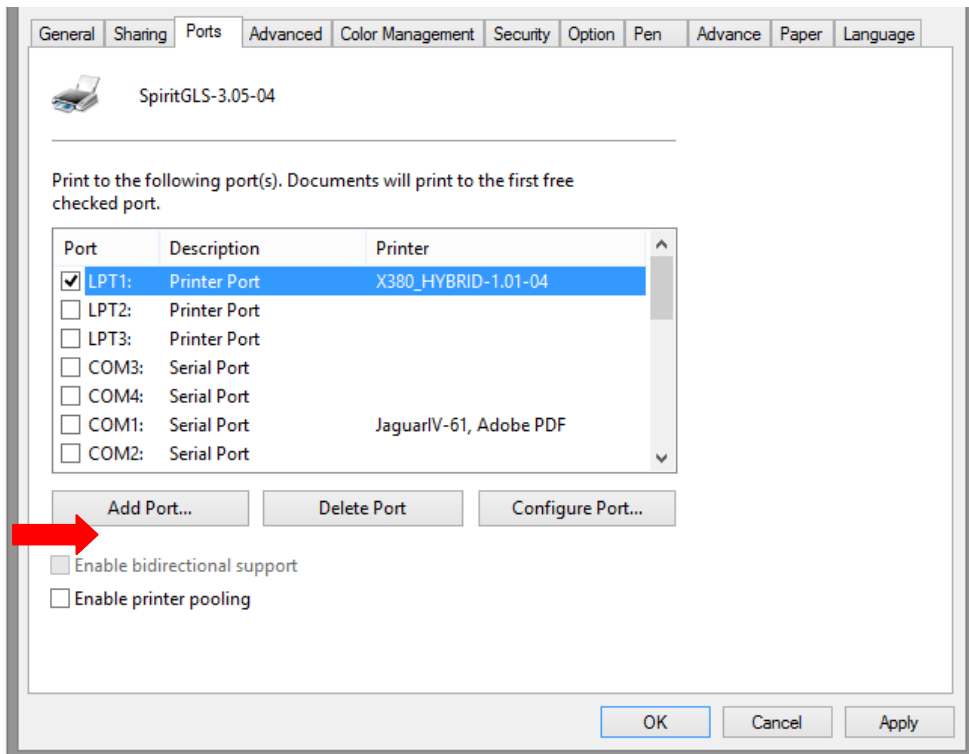Step 7. Enter the IP address and Subnet mask setting values, and choose <OK>

Note the IP address 192.168.3.X (X value can be 1~255, while can't be the same number as machine control panel setting in step 4)
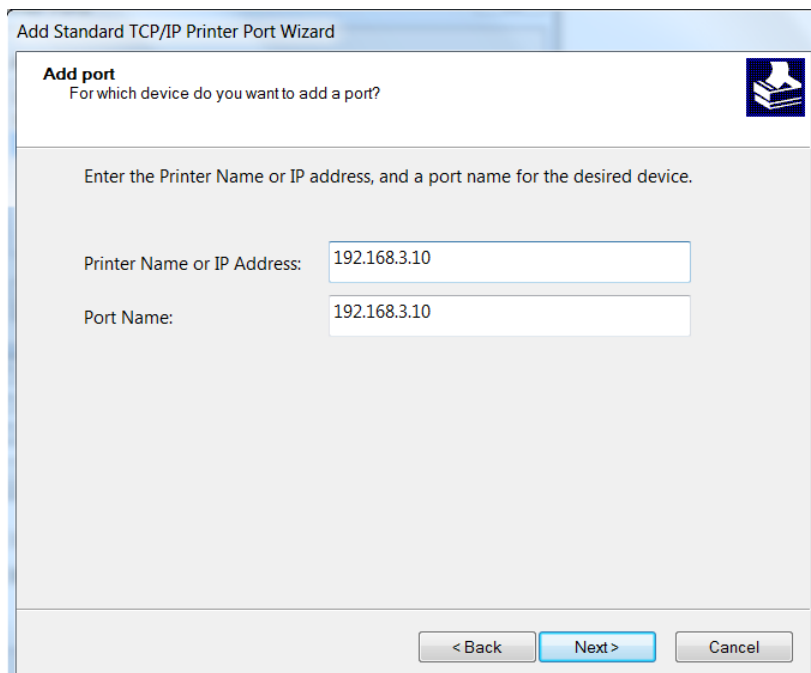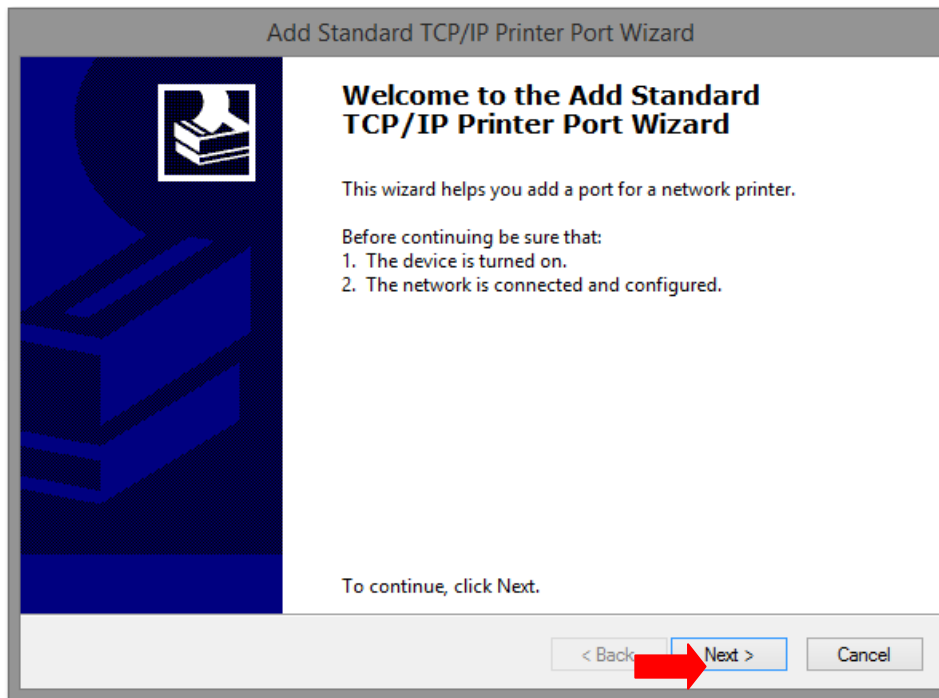

232001240G(11)
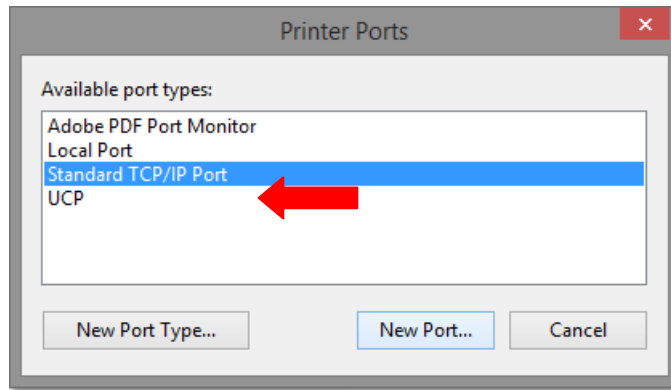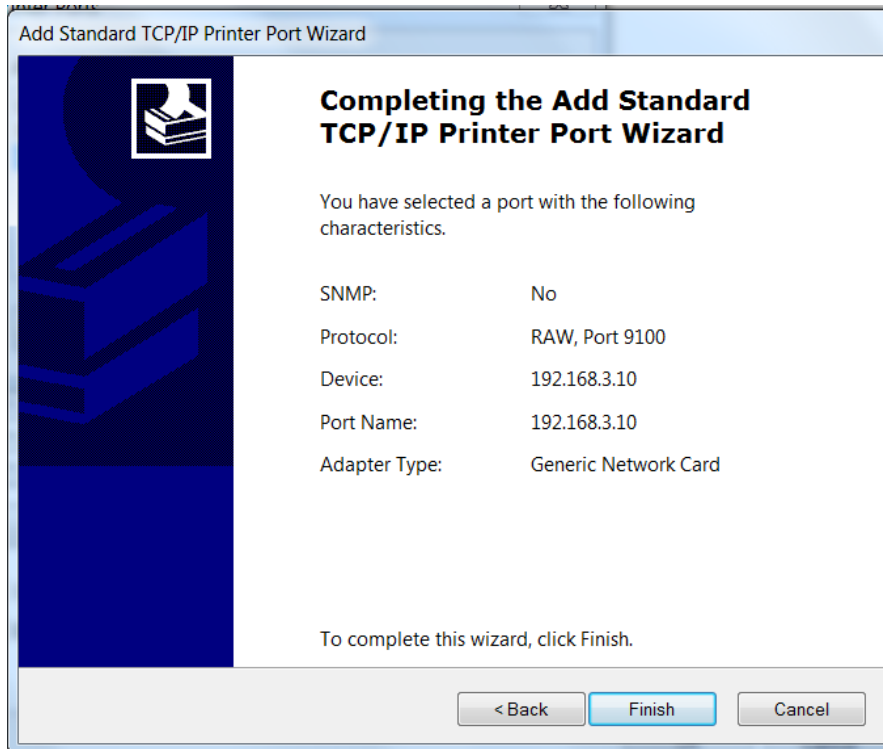
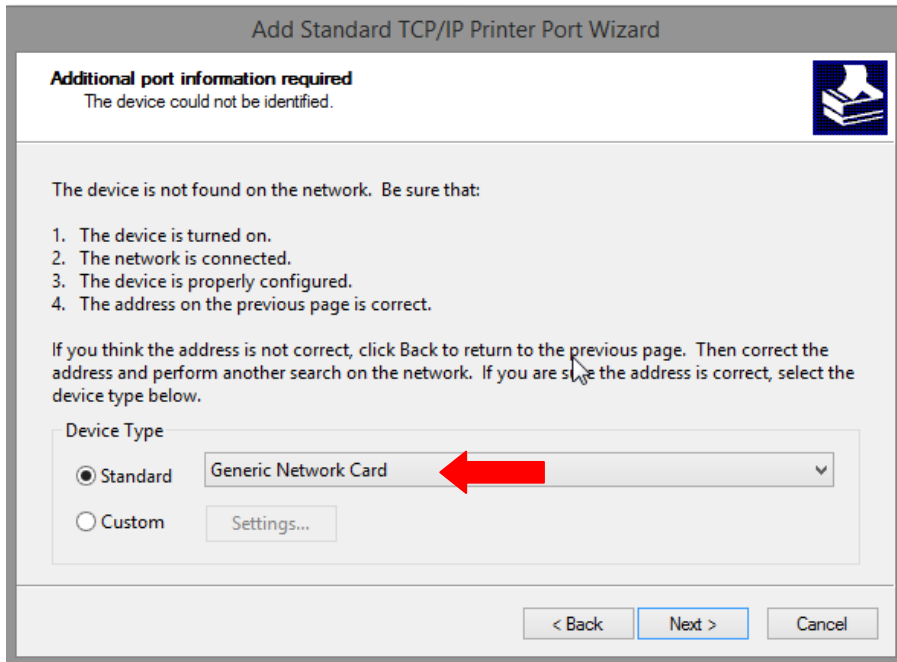Step 8. Go to <Control Panel> → <Device and Printers> of computer and right click on the laser machine printer, choose <Printer Properties>.
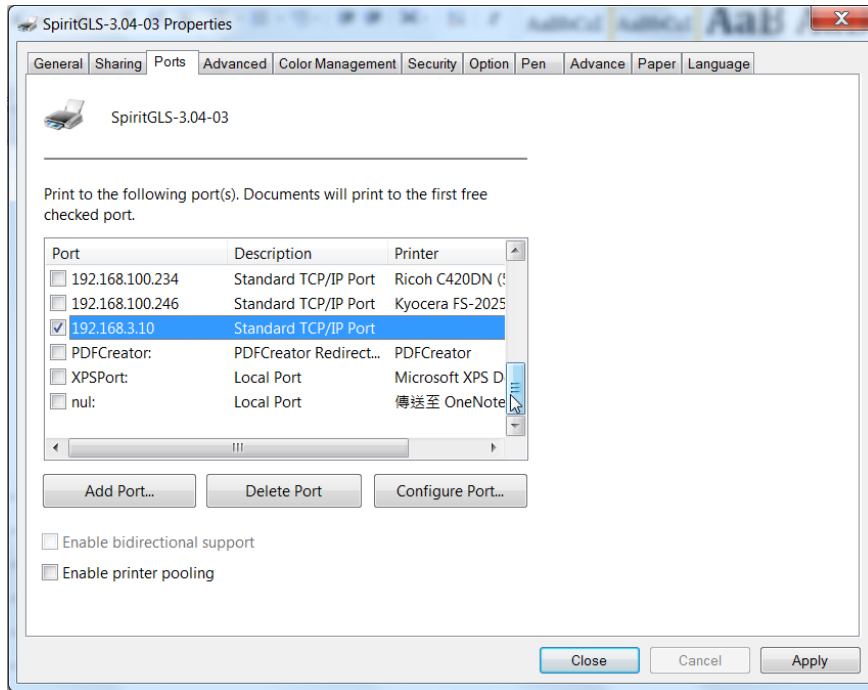

Step 9. Select <Add Pot> under Ports tab, and follow the instruction to enter the TCP/IP information in laser machine's control panel in step 4.
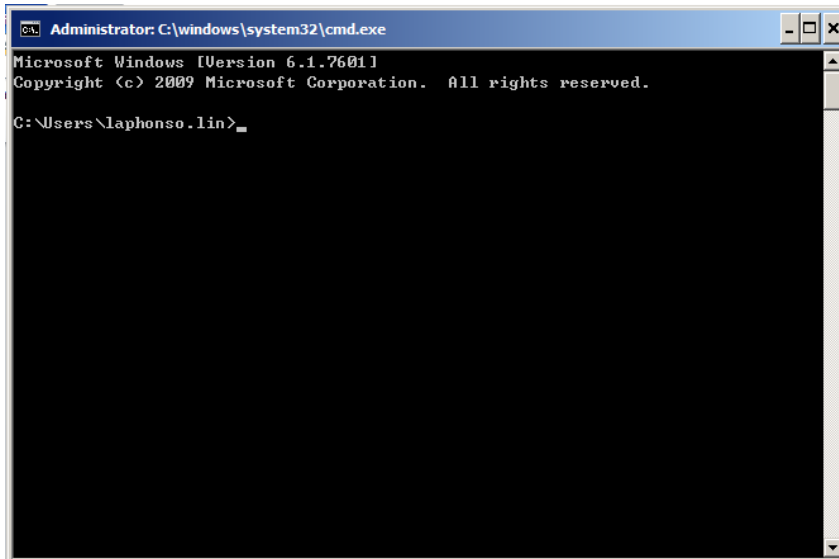
Printer Ports

Available port types:

Adobe PDF Port Monitor
Local Port
Standard TCP/IP Port
UCP

[New Port Type...] [New Port...] [Cancel]

Add Standard TCP/IP Printer Port Wizard

Welcome to the Add Standard TCP/IP Printer Port Wizard

This wizard helps you add a port for a network printer.

Before continuing be sure that:
1. The device is turned on.
2. The network is connected and configured.

To continue, click Next.

[< Back] [Next >] [Cancel]

Add Standard TCP/IP Printer Port Wizard

Add port
For which device do you want to add a port?

Enter the Printer Name or IP address, and a port name for the desired device.

Printer Name or IP Address: 192.168.3.10

Port Name: 192.168.3.10

[< Back] [Next >] [Cancel]

Add Standard TCP/IP Printer Port Wizard

Additional port information required
The device could not be identified.

The device is not found on the network. Be sure that:

1. The device is turned on.
2. The network is connected.
3. The device is properly configured.
4. The address on the previous page is correct.

If you think the address is not correct, click Back to return to the previous page. Then correct the address and perform another search on the network. If you are sure the address is correct, select the device type below.

Device Type

⦿ Standard   Generic Network Card   ⬅

◯ Custom   Settings...

< Back   Next >   Cancel

Add Standard TCP/IP Printer Port Wizard

Completing the Add Standard TCP/IP Printer Port Wizard

You have selected a port with the following characteristics.

SNMP:	No
Protocol:	RAW, Port 9100
Device:	192.168.3.10
Port Name:	192.168.3.10
Adapter Type:	Generic Network Card

To complete this wizard, click Finish.

< Back   Finish   Cancel

Troubleshooting

While users configure the Ethernet setting precisely with DHCP = OFF (assign the machine a static IP) referring to the manual, sometimes the communication might still not be able to work, at this time you can refer to below actions to have a basic troubleshooting with IT technician.

1. Verify the IP addresses you are using to see if they are valid.

    i.   Open command line mode in your windows system (Press Windows key + R, the "Run" window will appear, type "CMD" in the blank bar then press "OK" to open command line mode)
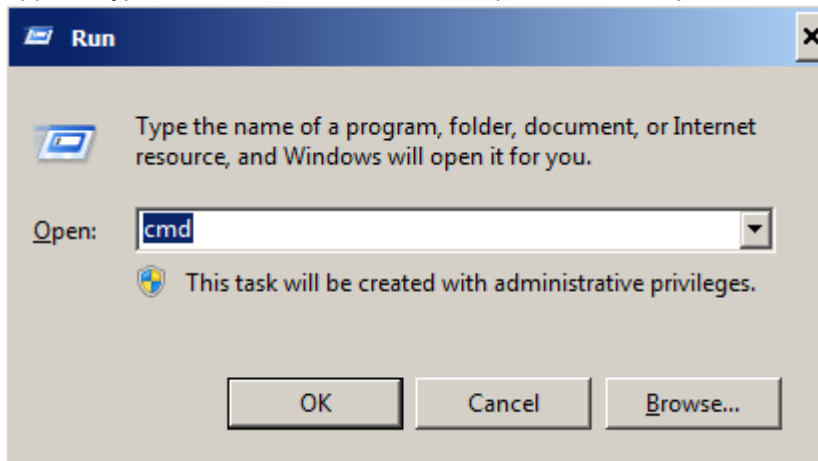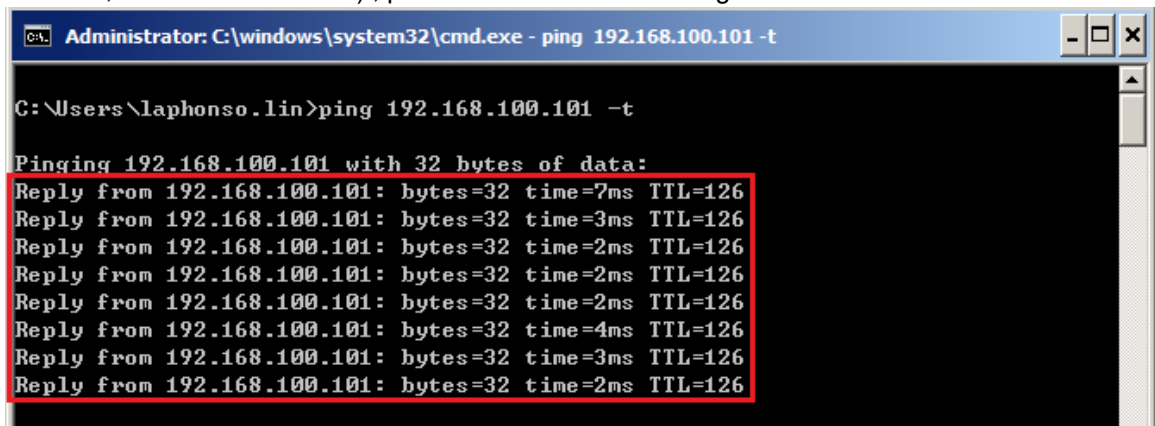
Command line mode window

ii. Type "ping x.x.x.x –t" after the prompt symbol, (x.x.x.x is the IP address you set on the laser machine, ie: 192.168.100.101)., press "Enter" to run the "Ping" tool.
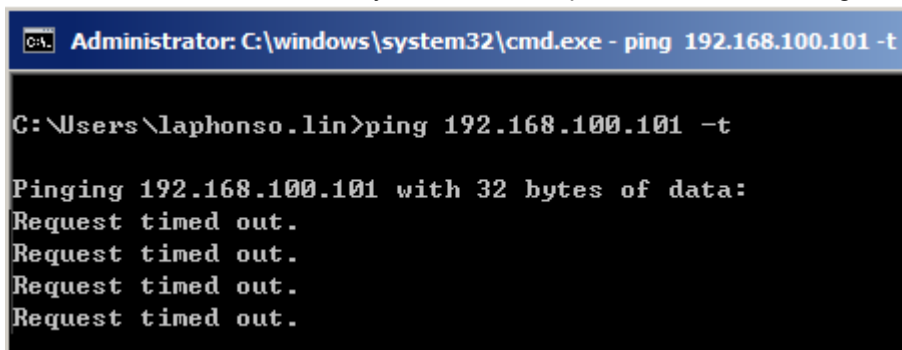
If the communication is OK between your PC and Laser machine, you will see reply from the destination IP.

If the communication is not ok, you will see "Request timed out" message from destination IP.

2. **Diagnostics**

   a. For cases the communication is not ok (can't get response, just have "Request timed out" from destination IP), you can look for two PC/Laptops which are original set in the LAN environment and work ok (they can get normal response from each other by the command "PING"), note down the TCP/IP configurations by running "ipconfig" on both PC/Laptops (press "Windows key + R" to call the "Run" windows, type "CMD" in the blank bar, press enter to start command line mode,
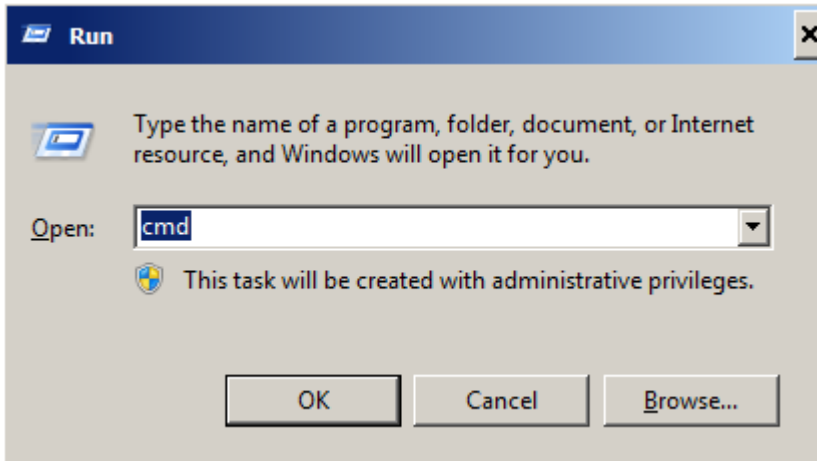
type "ipconfig" after the prompt symbol then press enter, the TCP/IP configurations of this PC/Laptop will show as below)
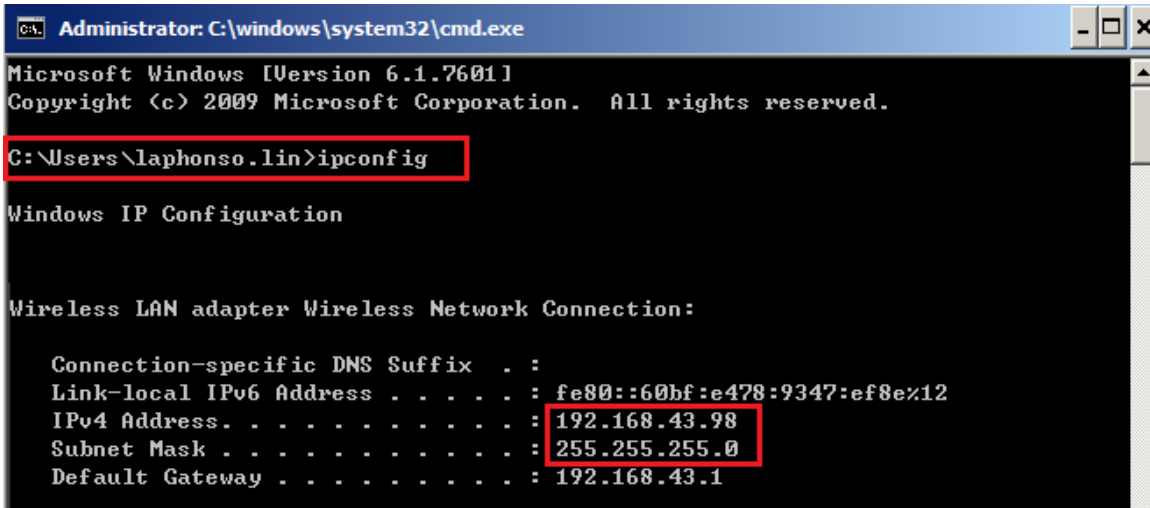
Set those two IP addresses to the laser machine and the PC/Laptop which you want to communicate with laser.

Test Ping again to see if you can get normal response from destination IP, if the communication is normal now (can get reply from destination IP), we can be sure the IP addresses we set originally are invalid, ask the LAN administrator to provide us a proper one.

b. Directly connect the Laser machine and PC/Laptop using the RJ45 cable without any router/switch..etc. in between, test PING and send files, if the files can be sent and the result of PING is normal (can get response from destination IP), the Ethernet function of GCC laser is normal, it should be something wrong in the LAN environment , ask the administrator of the LAN to solve the problem.

4.2 Graphics Software Setup

The LaserPro X252RX & X380RX 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 X252RX & X380RX, but these are not supported. Any software that can output to the LaserPro Print Driver should work.

> ℹ️ *NOTE*
> Support will not be offered, if you experience output problems with non-supported graphics software.
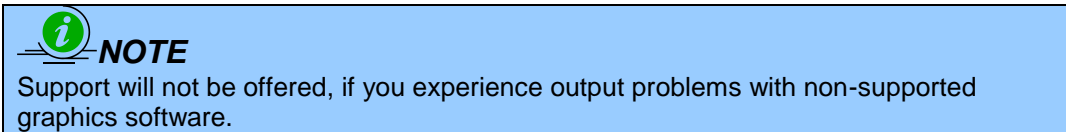
4.2.1 Recommended Computer Configuration

The LaserPro X252RX & X380RX 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
- 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 X252RX & X380RX drivers are designed for Windows 7, or newer operating systems.

4.2.2 Installation of the LaserPro Print Driver

1) Insert the LaserPro CD.
2) From the auto run menu, select **X252RX & X380RX→ LaserPro Driver** to start the LaserPro Print Driver installation.
3) At the Local or Network Printer page, select <Local printer attached to this computer>, then click **Next** to continue.
4) At the Select a Printer Port page, select <Use the following port> and select the port that the LaserPro X252RX & X380RX will be attached to, then click **Next** to continue.
5) 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:\X252RX & X380RX\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 X252RX & X380RX displayed as a valid printer.
6) Now select X252RX & X380RX from the list of printers (X252RX & X380RX should be the only printer displayed on the list) and click **Next** to continue.
7) 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.
8) This screen will prompt you to provide a printer name. Simply type in <X252RX & X380RX> and select **Yes** or **No** if you want to use this printer as the default printer and click **Next** to continue.

9) At the Printer Sharing screen, select <Do not share this printer> and click **Next** to continue.
10) Select <No> when asked if you want to print a test page and click **Next** to continue.
11) 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.
12) Congratulations, your printer driver has been successfully installed!
13) (This step is required only for USB connections) If you are using the X252RX & X380RX's USB connection interface, then you will need to go to your Windows → Control Panel → Printer and Faxes. Right-click on the X252RX & X380RX listing, and select properties. Go to the Ports menu and place a check next to GCC USB0, then click **OK**.

4.2.3 Parallels Desktops for MAC OS Users

MAC users can use GCC LaserPro machines by purchasing the Parallels Desktop software which allows you to install Windows OS in MAC computers and run Windows based software under MAC computer and output with GCC print driver.

1) Purchase Parallels Desktops on its official website.

2) Install Parallels Desktops under Mac OS environment.
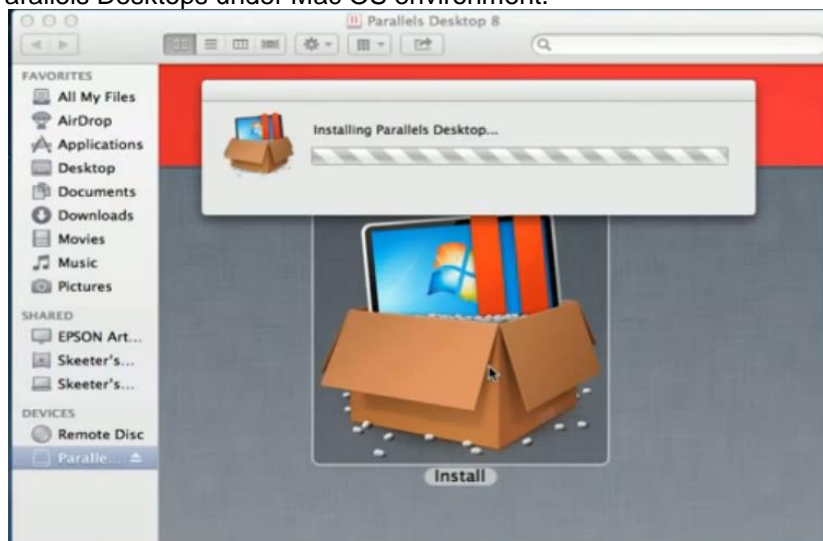
3) Read Software License Agreement and press "Accept" to continue installation
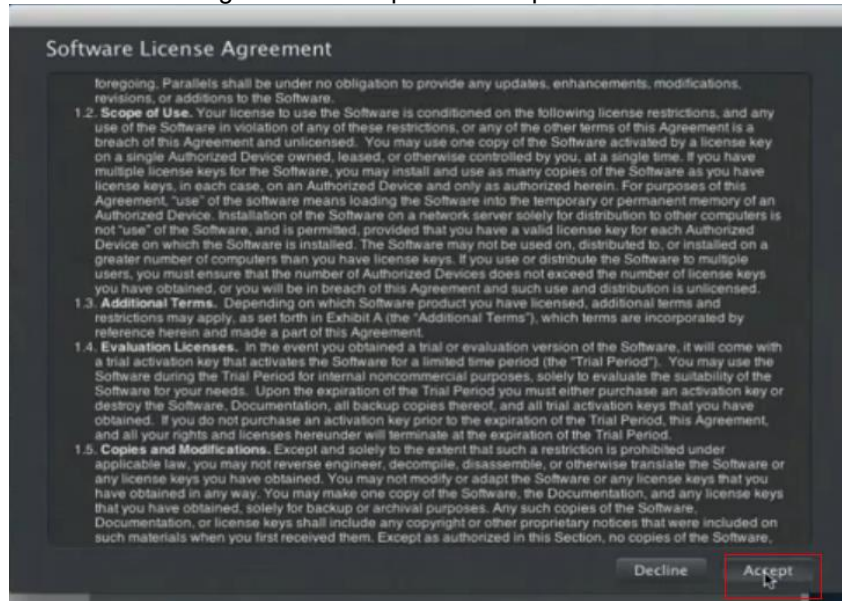
4) Enter your Mac OS X User Name and Password then press "OK"
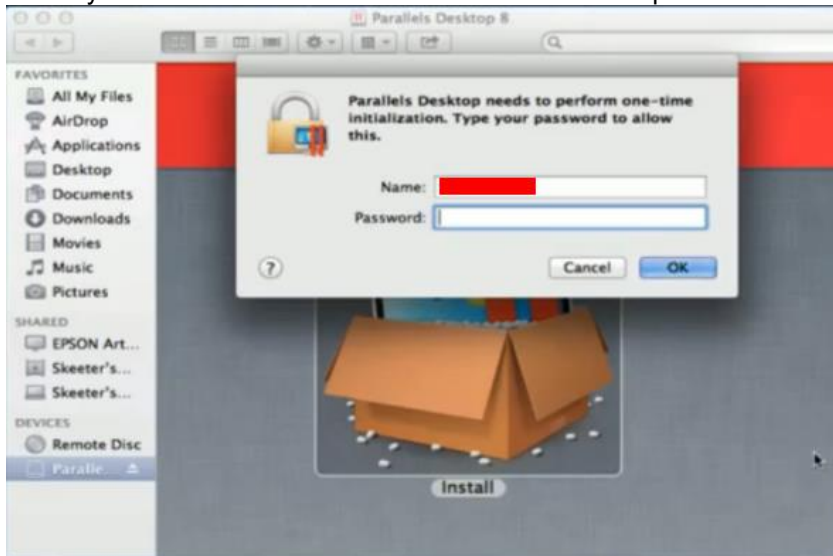
5) Press "Active"
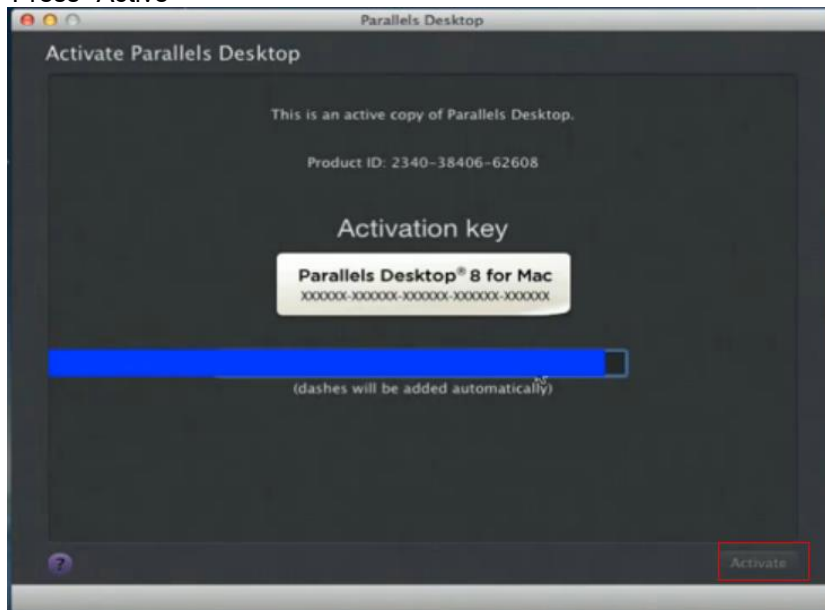
6) Press "OK" when activation is complete.
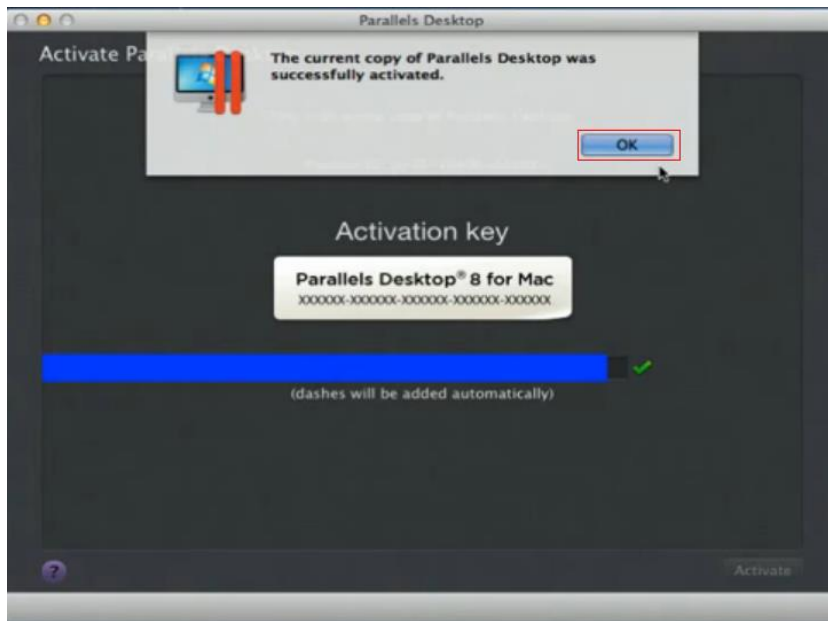
7) Register Parallels Desktop
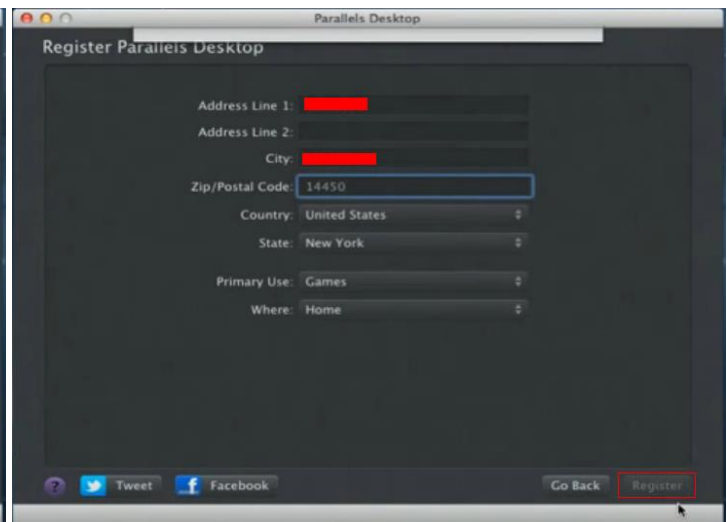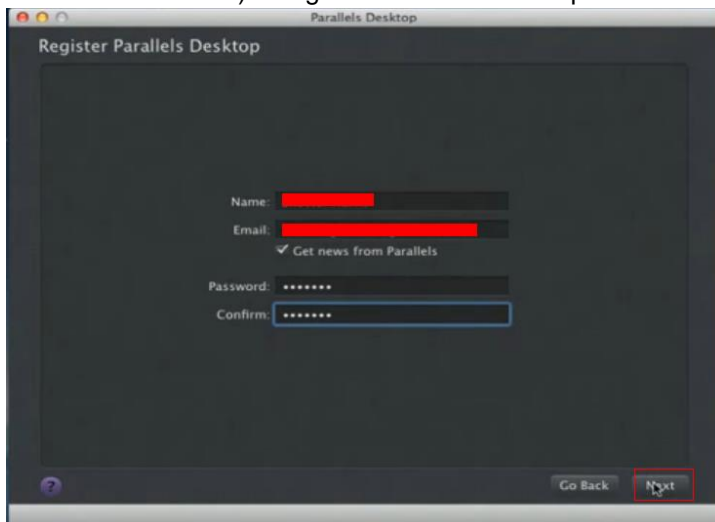
8) Press "Register" and "OK" to complete the installation of Parallels Desktop.

232001240G(11)
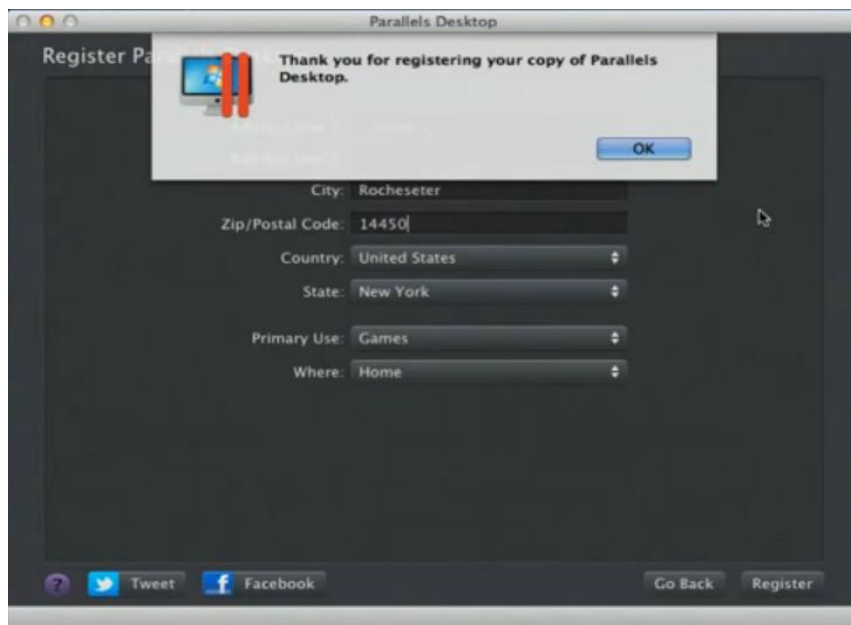
9) Open **Parallels Desktop** (in the **Applications** folder) then choose **File → New**
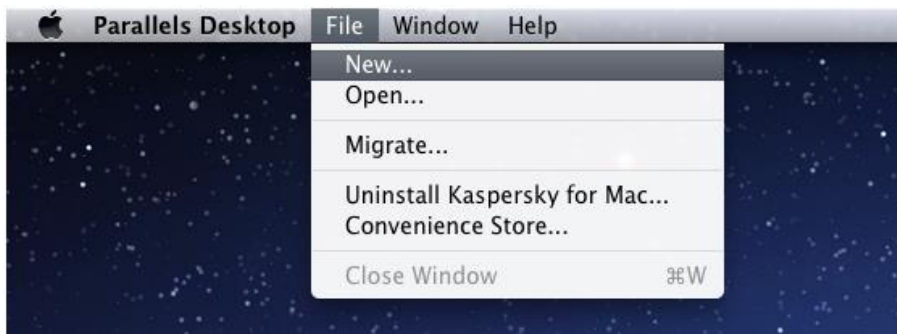
10) Press "Install Windows from DVD or image file" then press "continue" to install windows OS

11) Select CD-ROM drive with the Windows installation CD

12) Enter the Windows OS product key
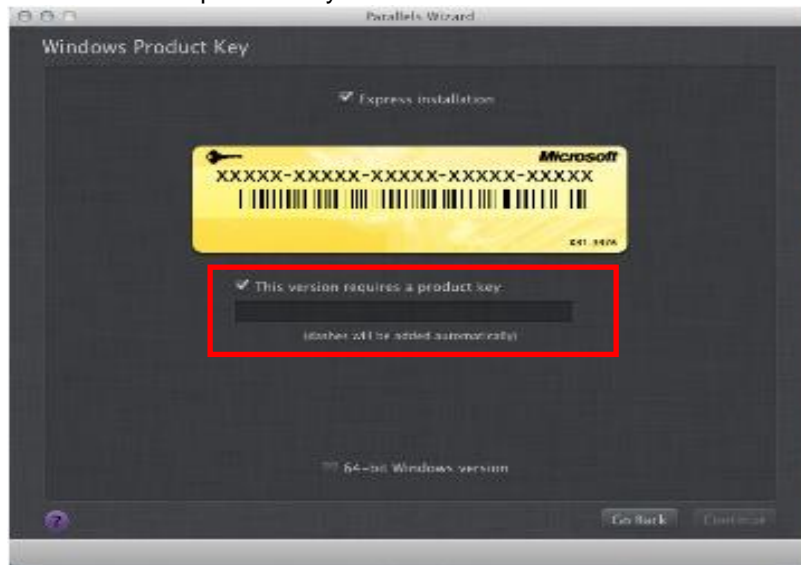
13) Select how you would like to run your Windows program

14) After the prior setting is complete the windows OS installation procedure will start automatically.
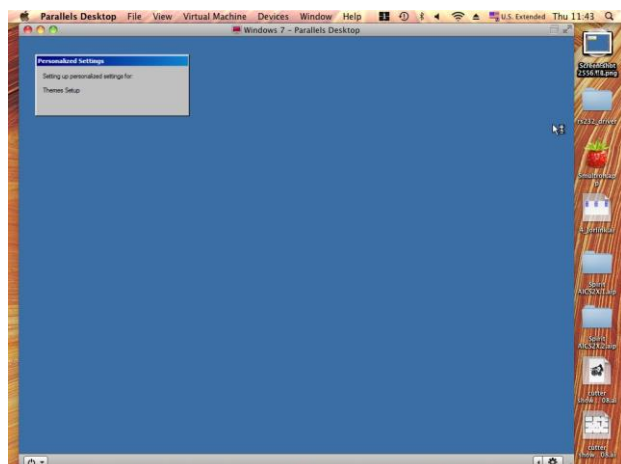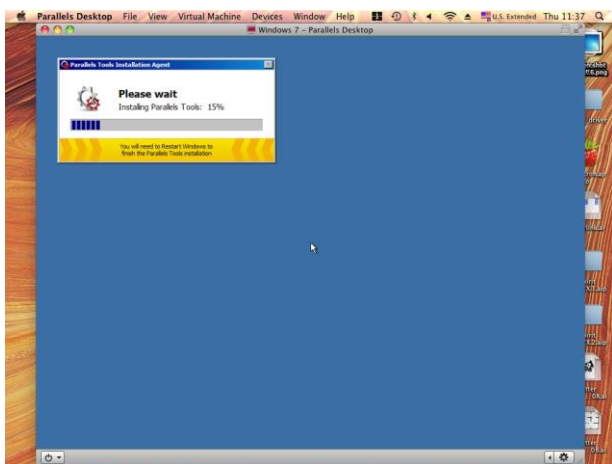
15) Windows OS installation is complete then you can refer to "4.2.5 Installation of the LaserPro Print Driver" to install GCC LaserPro Print Driver.

16) Install the AP that you want to use after the above installation is complete.

232001240G(11)
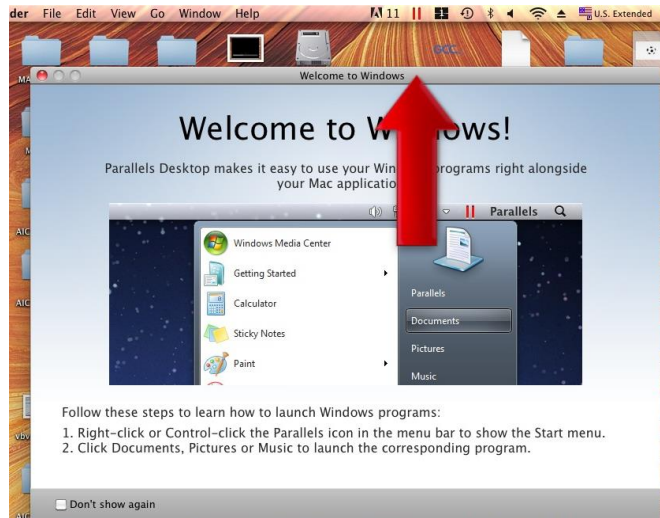
4.2.4 Using Adobe's AP with GCC LaserPro machine

The Adobe's AP (e.g. Illustrator, Photoshop or Acrobat reader) processes files via its Advanced Printing Features; users should firstly deselect Enable Advance Printing Features; otherwise the machine is unable to recognize or read general files when uploaded.

● Deselect "Enable Advance Printing Features"

1) Click to select → Control Panel → Devices and Printers
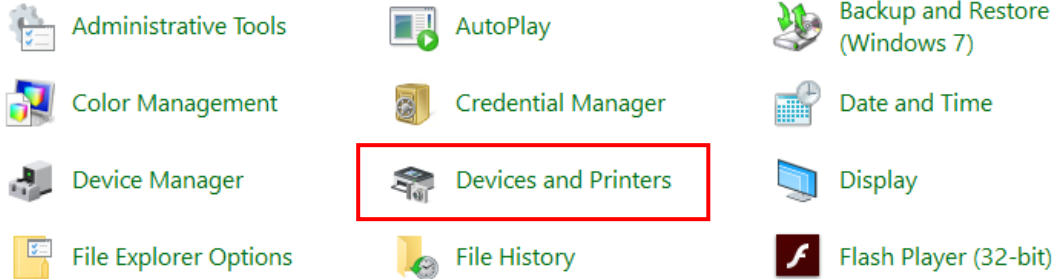
2) Select your printer (for example, Spirit), right-click your mouse and choose Properties to enter Spirit Properties setup
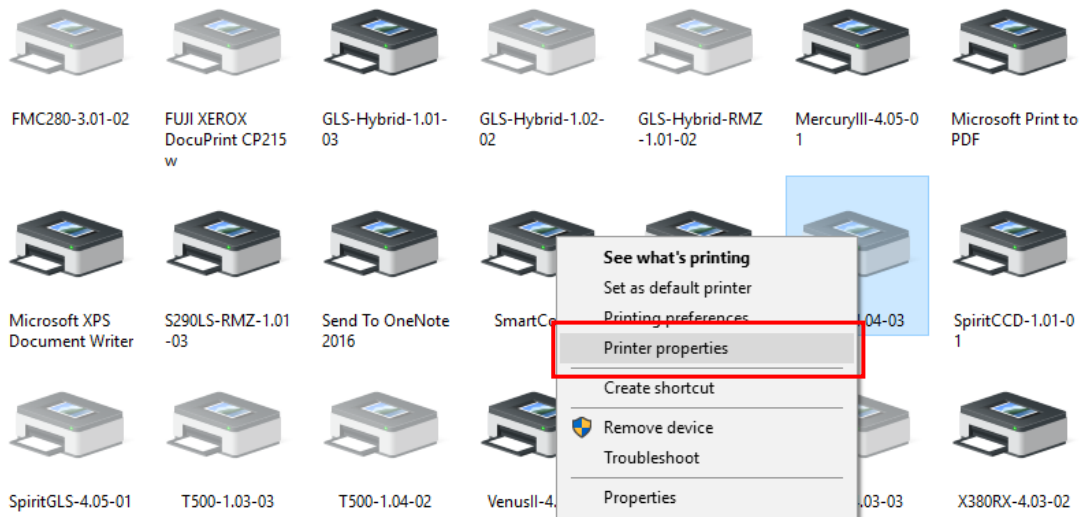
3) The click the Advanced tab, then deselect Enable Advanced Printing Features, now all files can be recognized and uploaded.
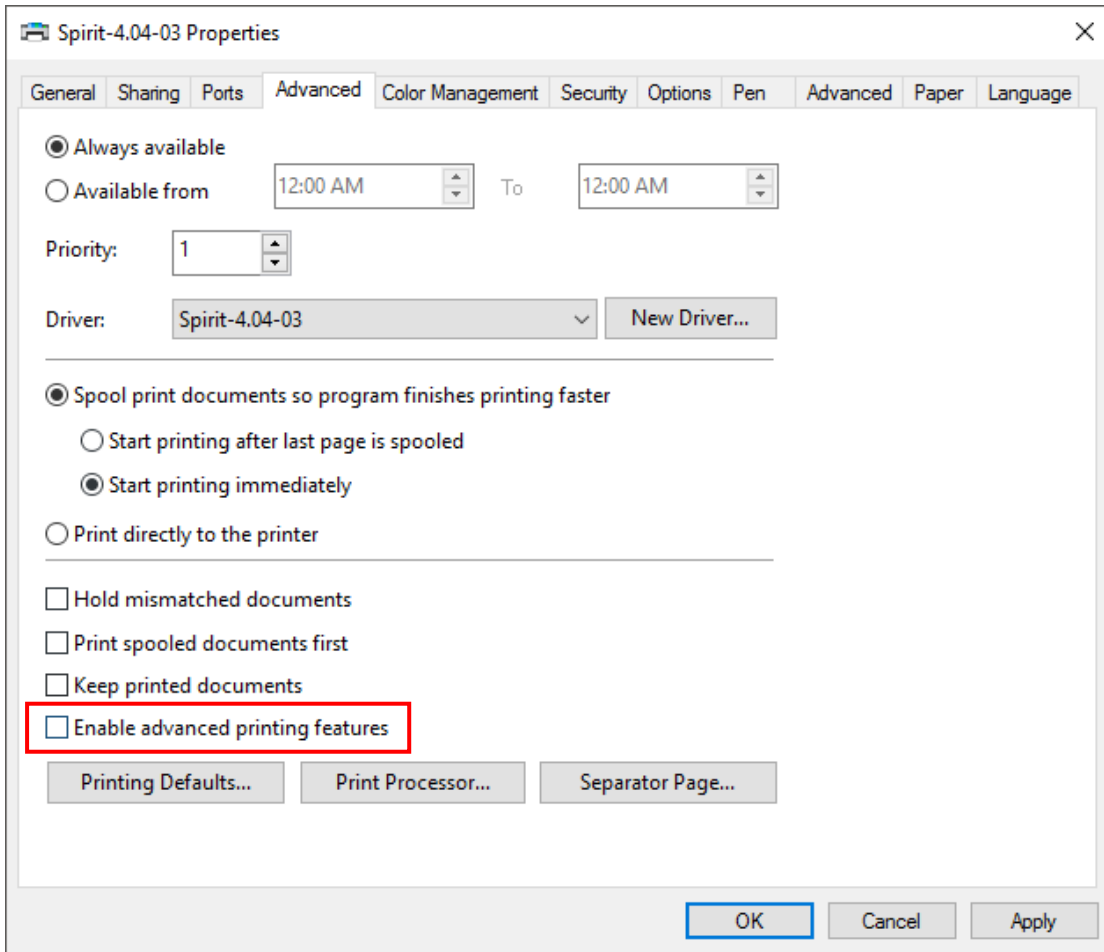
- **File Transfer**
  1) Select your working object, and then at the upper toolbar please choose File → Print.
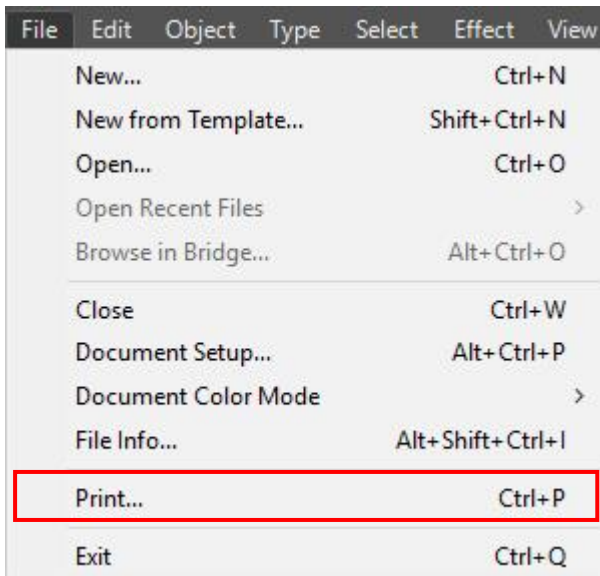
2) At the print setup screen, at Print Preset please select Custom, and choose your printer (e.g. Spirit)
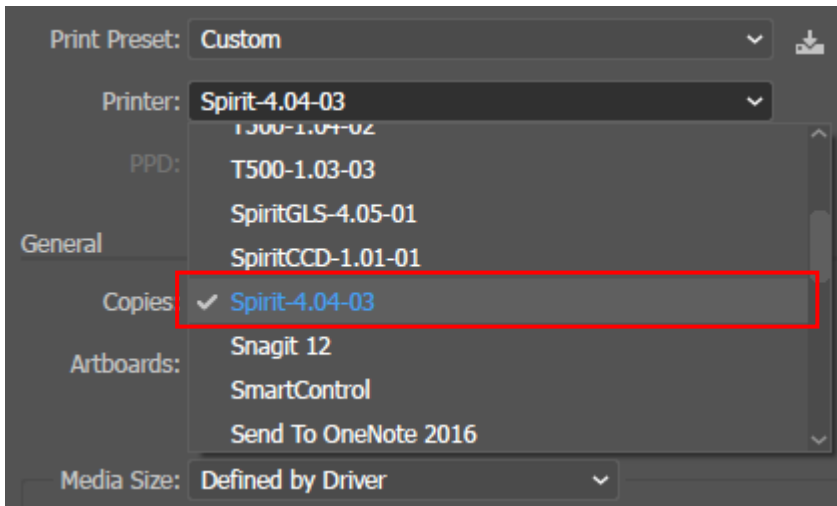
3) Then click on the lower left tab of Setup to enter Preferences settings.
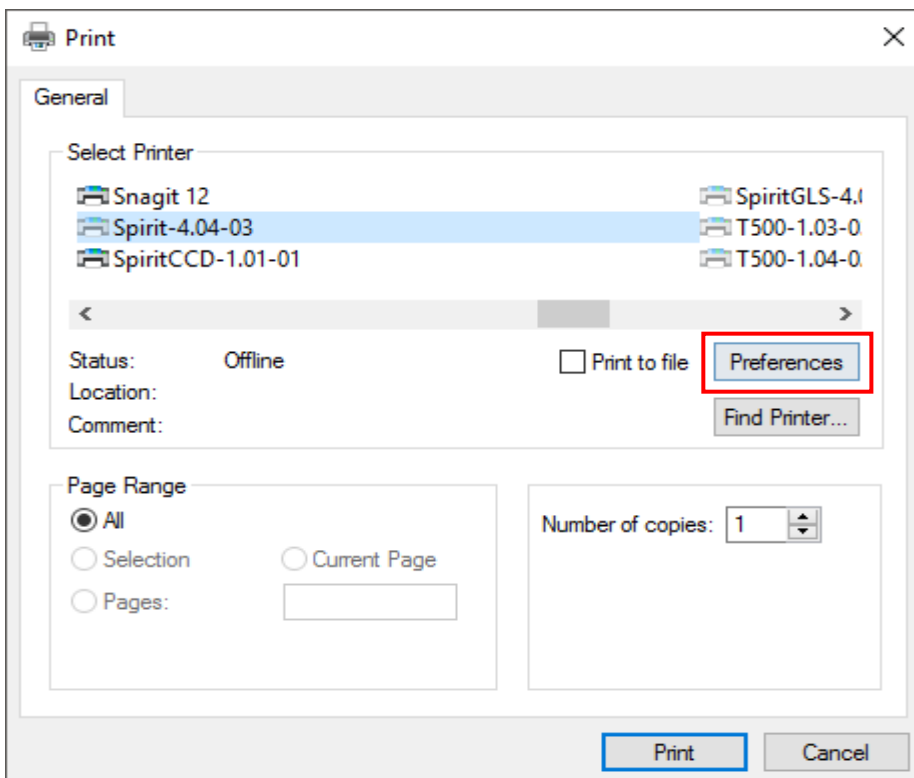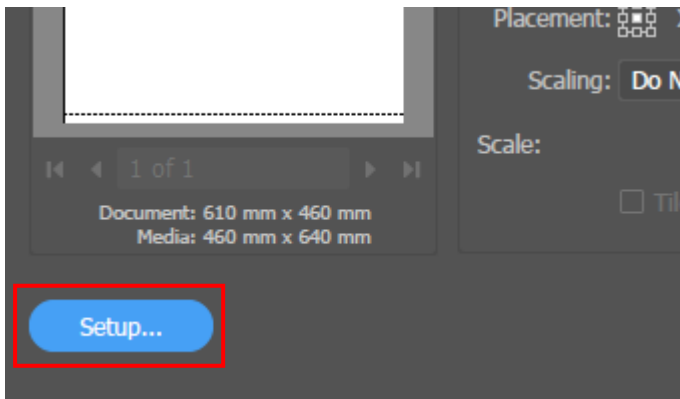
4) After all preferences are set, click Print to send file to the machine for print out.
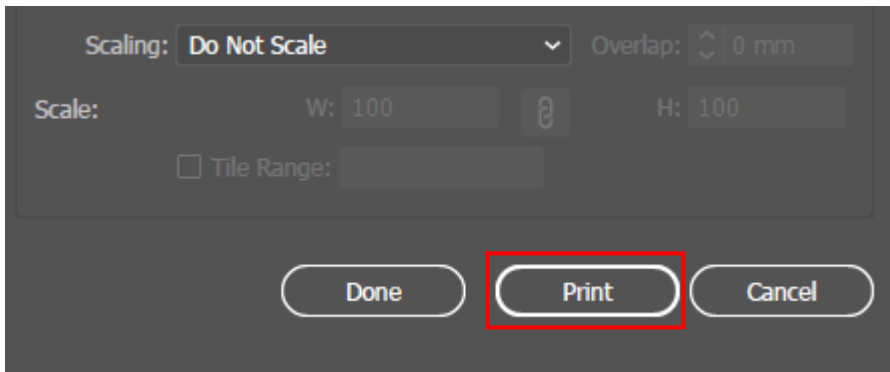
4.2.5 Using Autodesk Inventor with GCC LaserPro machine

1. Start drawing.
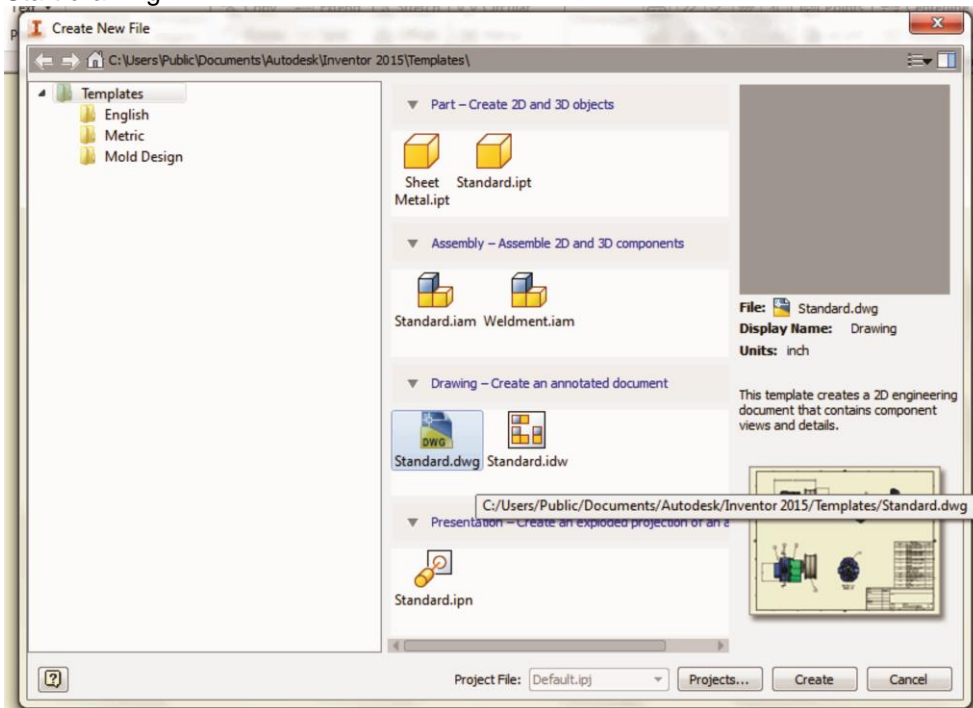
2. Delete border and title block by right clicking on sheet1 and selecting delete.

Right click and delete sheet.
(If you would like border and title block sent to the engraver skip this step.)
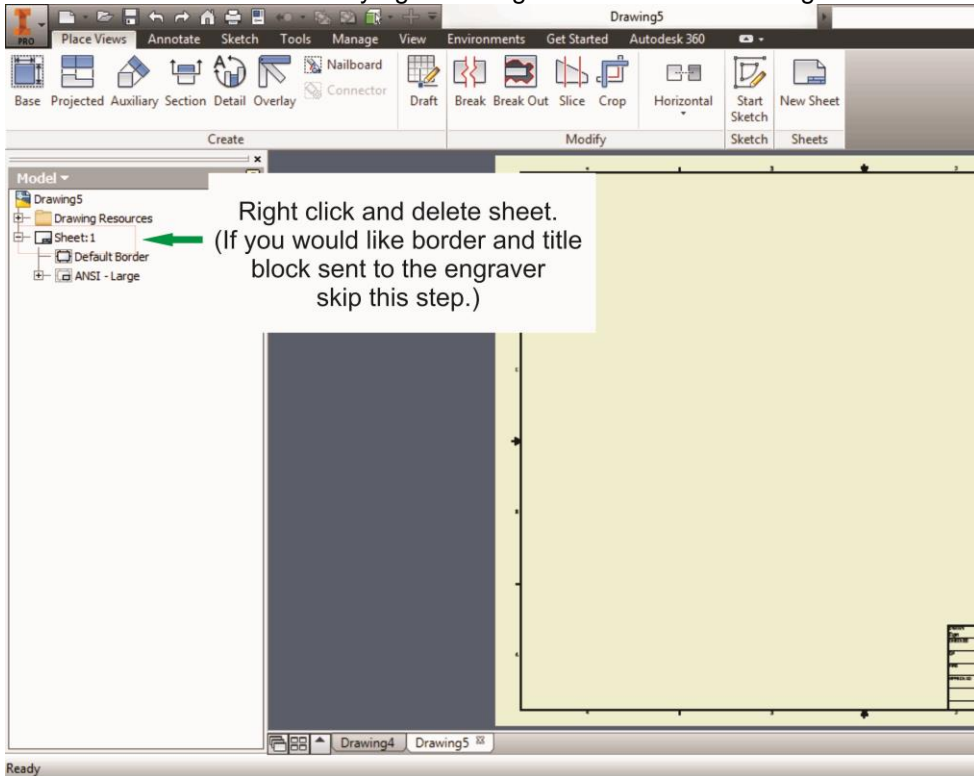
3. Set sheet size to match working area of engraver. Engraver working area can be found on the paper tab of the windows driver.

Right click and select edit sheet.

Select custom size and input dimensions found on paper tab of windows driver.
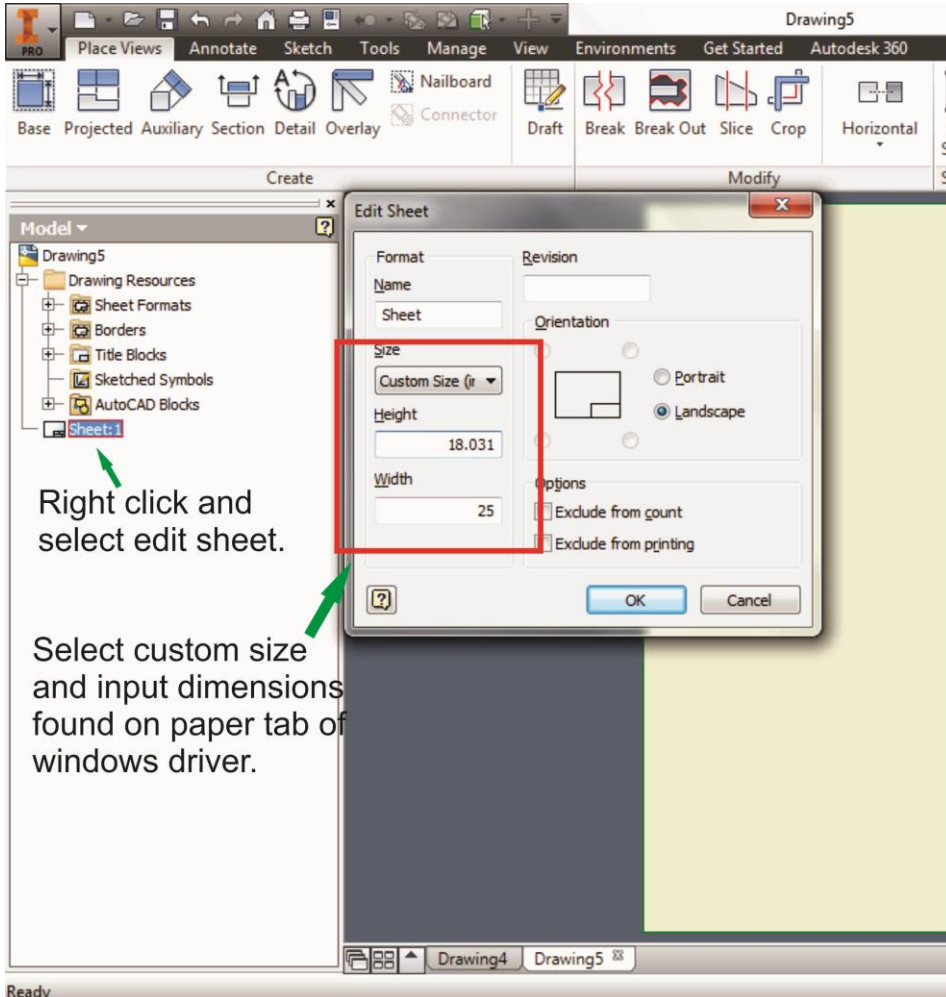
4. Start sketch.
5. Engraving
   a. Finish sketch.
   b. Right click on sketch and select properties.
   c. Line Type: By Layer
   d. Line Weight: By Layer
   e. Set color to match one of the 16 colors available in the pen tab of the windows driver.

Right click and select properties

Select color that matches one of the 16 available colors in the pen tab of the windows driver.
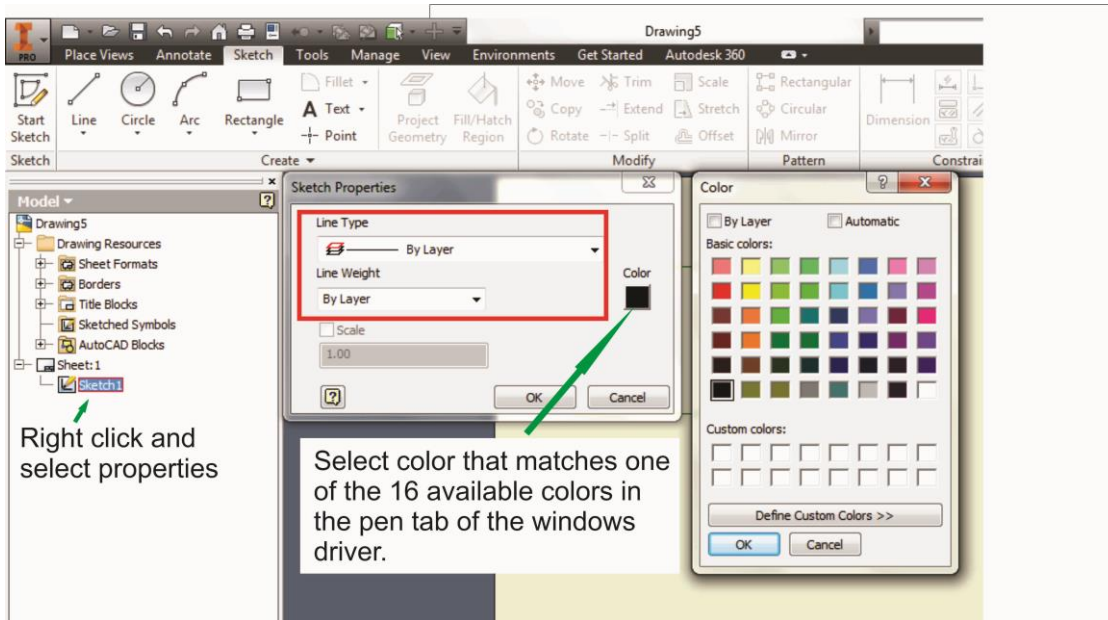
6. Cutting
   a. Finish sketch.
   b. Right click on sketch and select properties.
   c. Line Type: Continuous
   d. Line Weight: .001 in.
   e. Set color to match one of the 16 colors available in the pen tab of the windows driver.

Right click and select properties

Change line type to continuous. Set line weight to .001.

Select color that matches one of the 16 available colors in the pen tab of the windows driver.
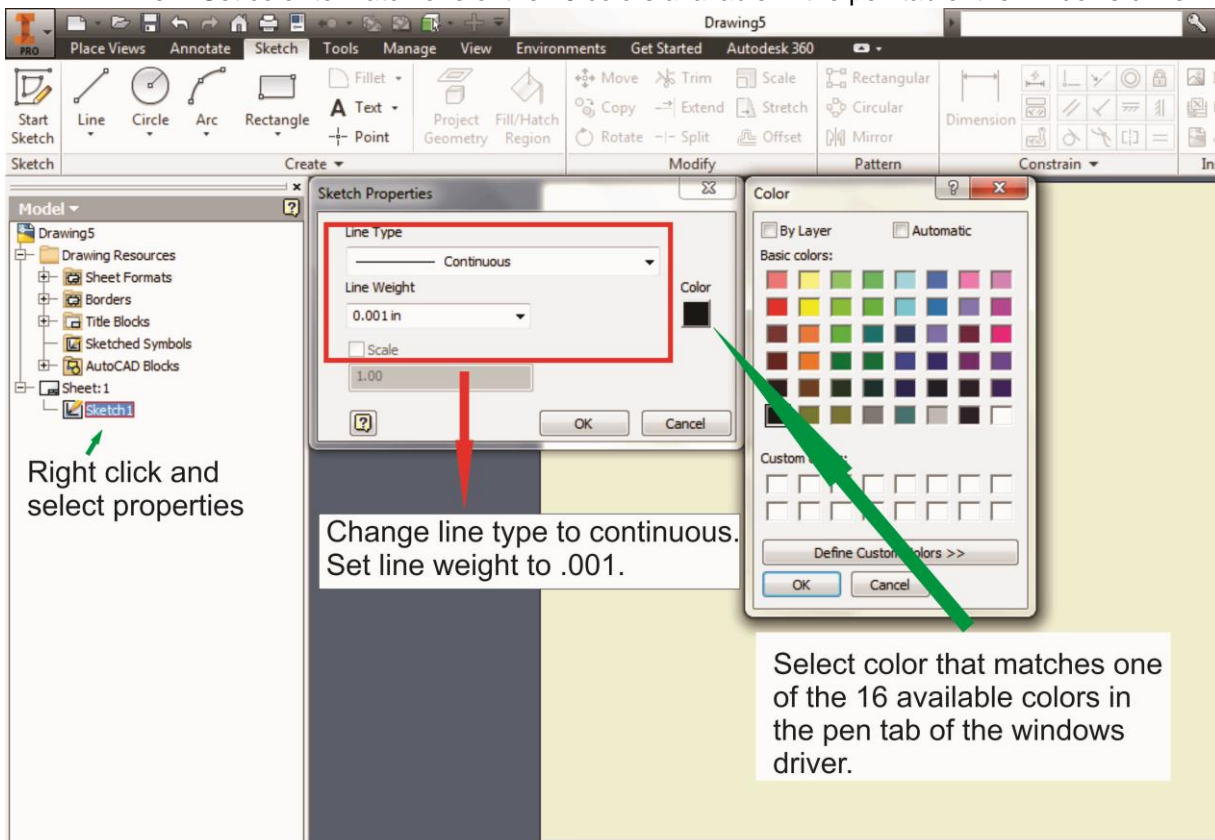
> ℹ️ **NOTE**
> All objects created in one particular sketch will have the same properties meaning all will engrave or all will cut. If you would like to engrave and cut in the same job you will need at least two sketches, one with all the engravings and another with all the cuts, to do so properly.

4.2.6 Using eCut Plug-in with GCC Laser Machine

eCut is an inexpensive and powerful plugin work under CorelDRAW or Illustrator software with GCC laser systems. It increases the functions Corel Draw or Illustrators doesn't have or simplifies the operations workflow. eCut details and operation videos can be found on http://eng.e-cut.ru/

eCut unique feature list:
- Nesting
- Puzzles
- Material usage calculation
- AutoText to import files including image, text, QR code, and barcode etc. to the linked variable columns.
- Slice/ Tile function
- CAD editing function
- Sign box and packaging box aided design
- 2D barcode
- QR code

Chapter V - Operating the LaserPro X252RX & X380RX

Once you have installed the LaserPro USB Driver (USB connectivity only), LaserPro Print Driver, and have connected the LaserPro X252RX & X380RX to your computer, you will need to familiarize yourself with the LaserPro X252RX & X380RX'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).

LCD Display Screen's Contrast Adjustment Wheel

* The contrast adjustment dial is locating underneath the control panel

5.1.2 Laser Key Switch

Turn the key-switch to the "ON" position BEFORE powering on the machine. If the key-switch is turned to the "OFF" position, the laser will be disabled meaning that the laser will not fire although the XY motion system will still move.

5.1.3 Graphic Control Panel Overview (Description)
The Control Panel
The control panel on the LaserPro X252RX & X380RX 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

LCD Display Screen

Function Buttons

Directional and Selection Buttons
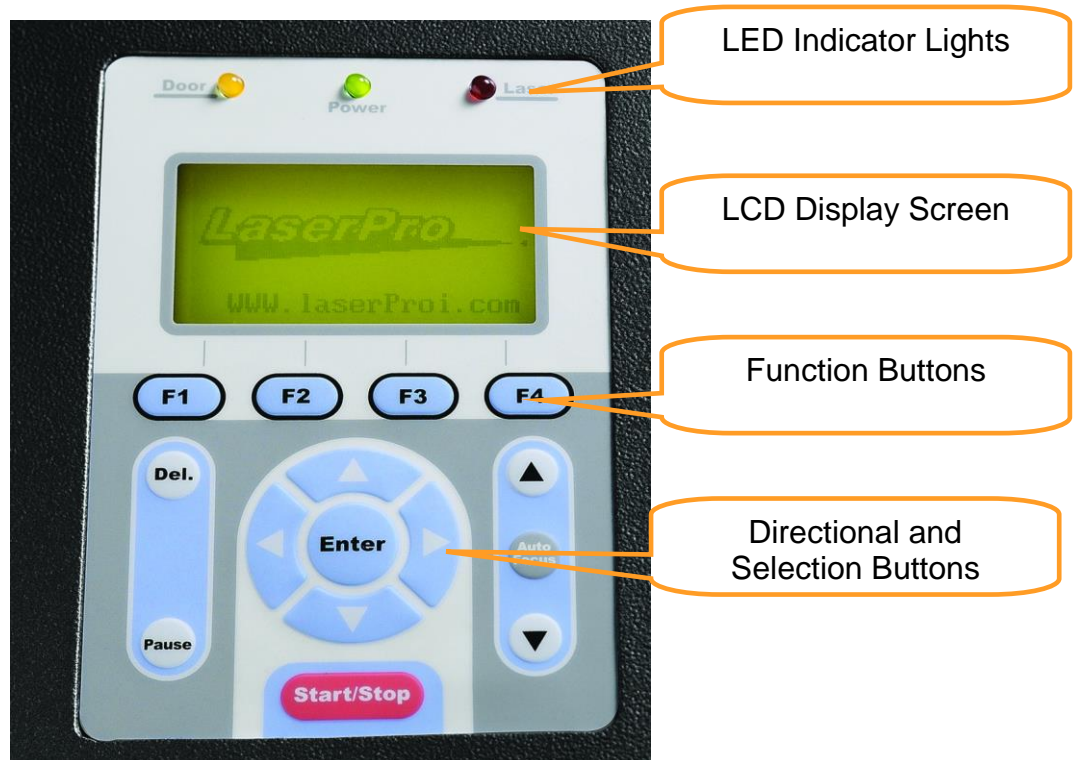
LED INDICATOR LIGHTS

Three indicator lights on the LaserPro X252RX & X380RX'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 X252RX & X380RX 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 ($\triangle$ / $\triangledown$ / $\triangleleft$ /$\triangleright$) - 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 $\triangle$ / $\triangledown$ directional buttons cycle through the various selections, while the $\triangleleft$ / $\triangleright$ 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.

5.1.4 Graphic Control Panel Navigation Chart

```
                    ┌──────────────────────┐
                    │   Main Work Page      │
                    └──────────────────────┘
                    ┌──────────────────────┐
                    │   Functions Page      │
                    └──────────────────────┘
        ┌───────────────────┬──────────────────────┐
┌───────────────┐  ┌──────────────────┐  ┌──────────────────────┐
│ File Management│  │ Machine Setting  │  │ Machine Information  │
└───────────────┘  └──────────────────┘  └──────────────────────┘
                            │
                            ├──  Select Lens
                            ├──  Tune Auto-focus
                            ├──  Table Down
                            ├──  Red Beam
                            ├──  Vector Mode
                            ├──  Save Position
                            ├──  Carriage Free
                            ├──  Command Mode
                            ├──  File Save Mode
                            ├──  SmartGUARD
                            ├──  AAS Calibration
                            ├──  LAN Setup Wizard
                            ├──  Scaling
                            ├──  Other
                            └──  Reset
```
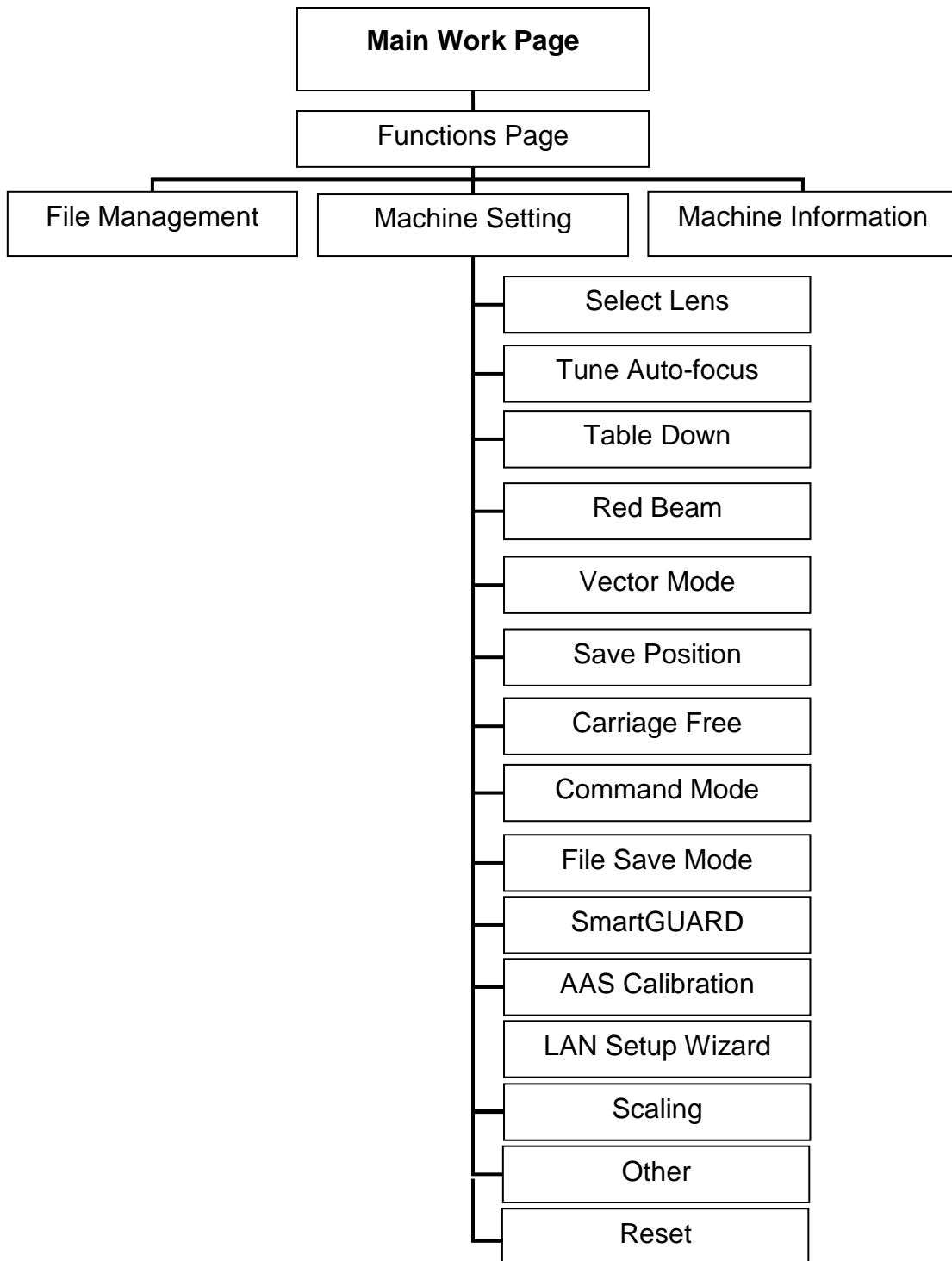
5.1.5 Graphic Control Panel Function Pages

When the LaserPro X252RX & X380RX 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 X252RX & X380RX 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    │
└──────────────────────┘
```
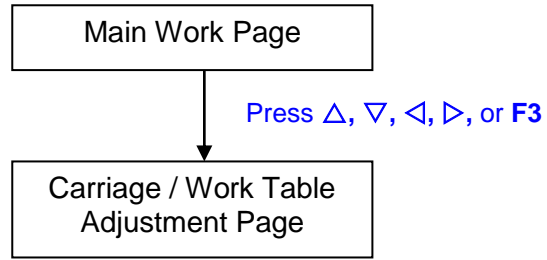
The Carriage / Work Table Adjustment Page allow you to manually increase and decrease the height of the work table (Z-axis). In addition, you can manually adjust the Y-axis and X-axis of the laser carriage.

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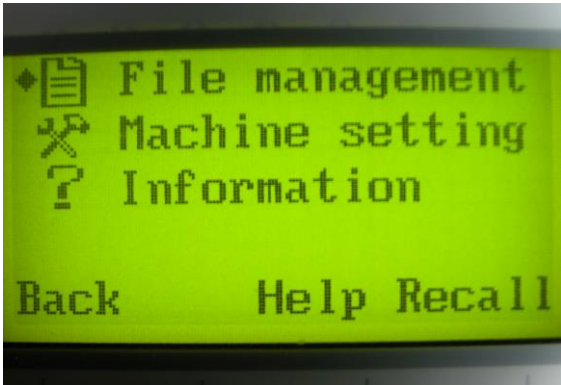
Functions Page
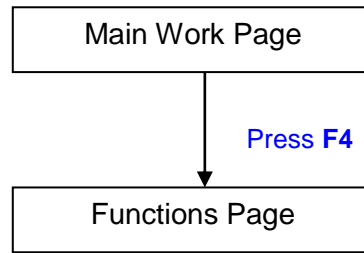
The Functions Page allows you to edit file management and machine settings. From this page, you will be able to access the File Management, Machine Setting, and Machine Information pages.

- **File Management Page** – this page allows you to manage the files that you have loaded onto the LaserPro X252RX & X380RX.

- **Machine Setting Page** – this page allows you to access and modify a variety of your machine settings, including: Select Lens, Tune Auto Focus, Set Table Down, Set Red Beam, Carriage Free, Set Command Mode, Save Position, File Save Mode, Set Vector 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

Main Work Page

Press **F4**
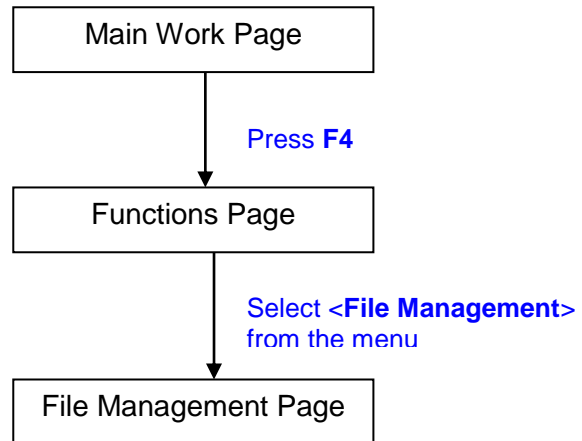
Functions Page

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 X252RX & X380RX. 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.

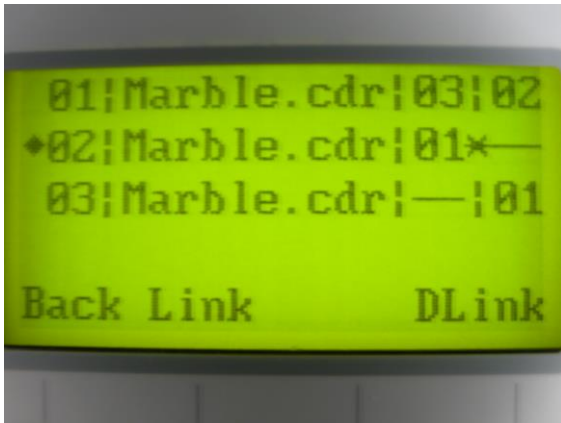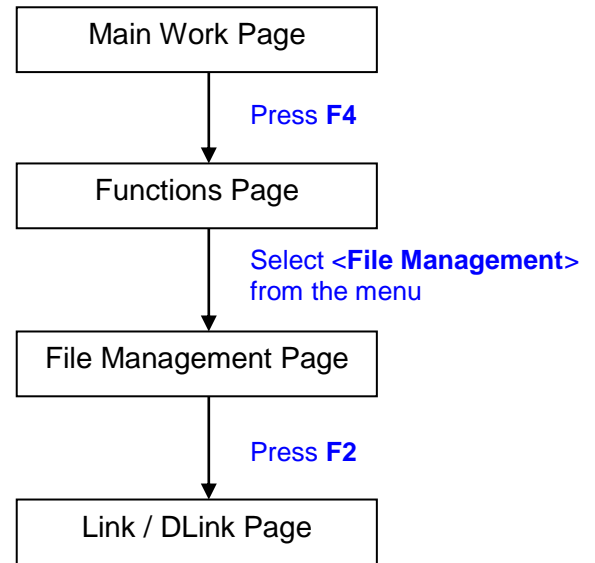| File Management Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F2 (Link)	Go to the Link/DLink Page
F3 (D-All)	Delete all loaded jobs
F4 (Del)	Delete the selected job
△ / ▽ Directional	Scroll through your loaded jobs
Enter	Go to the File Information Page for the selected job
Start / 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)

232001240G(11)

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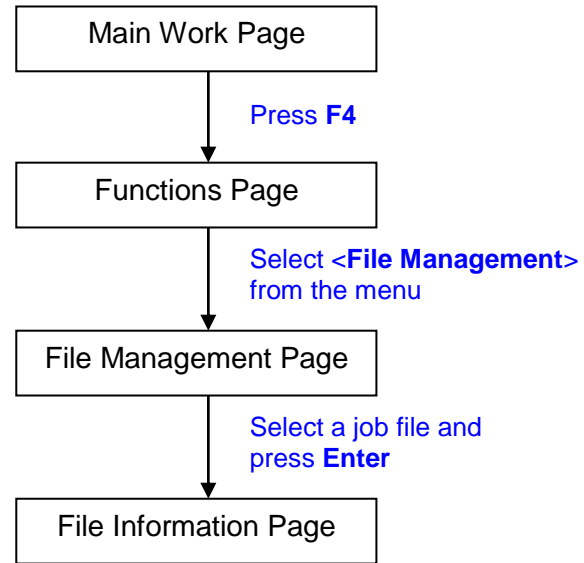
The File Information Page allows you to view the speed, power, DPI, and PPI settings of the selected job. In addition, you will be able to go to the File Management Edit Page from this menu to change raster / vector speed and power settings for the selected job.

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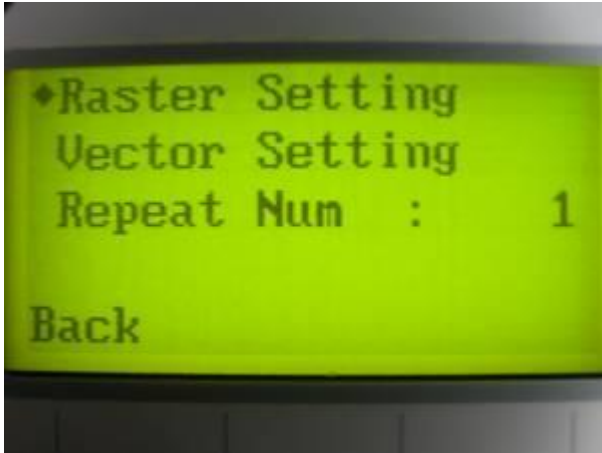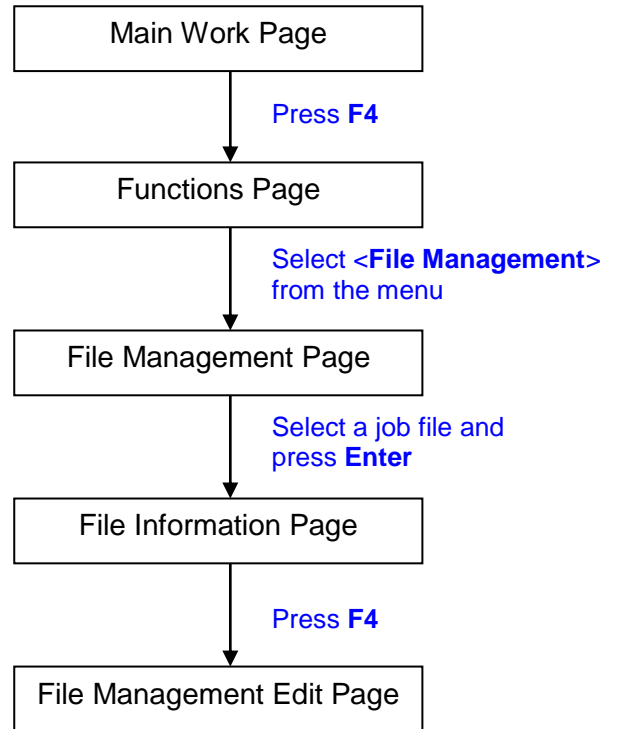
The File Management Edit Page allows choosing to modify your raster or vector settings for the selected job, as well as setting the number of times to repeatedly process the selected job (Repeat Num).

| 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
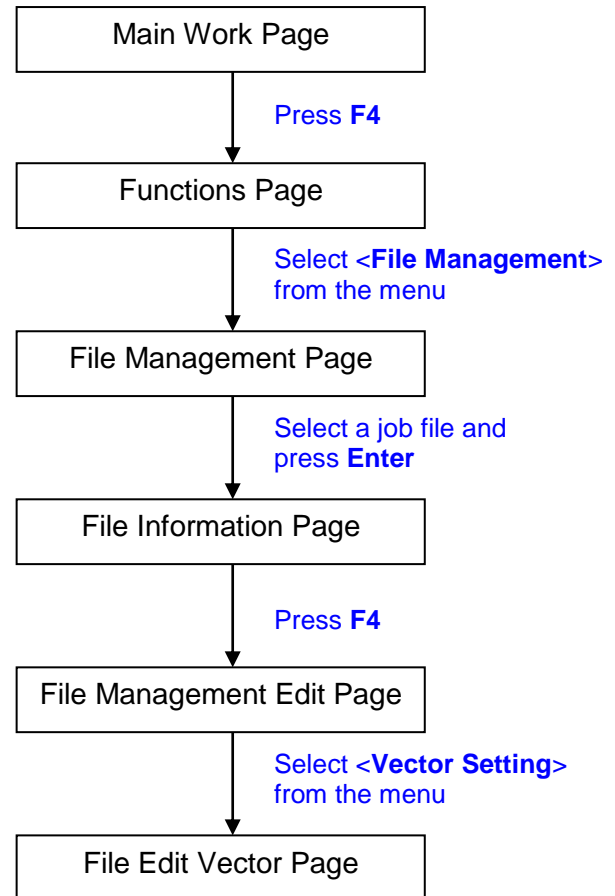
The File Edit Vector Page allows you to edit the vector pen, vector power, vector speed, and vector PPI, and power ramp settings for the selected job. These settings correspond to the same settings found on the LaserPro X252RX & X380RX print driver. This page allows you to easily adjust these values to make immediate adjustments while processing your loaded jobs, even when you have disconnected your computer from the LaserPro X252RX & X380RX.

- 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

Main Work Page

Functions Page
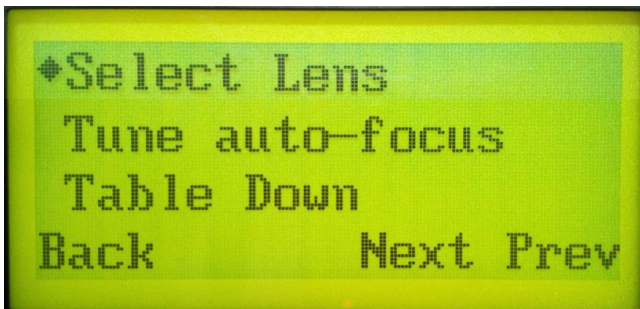
Machine Setting Page
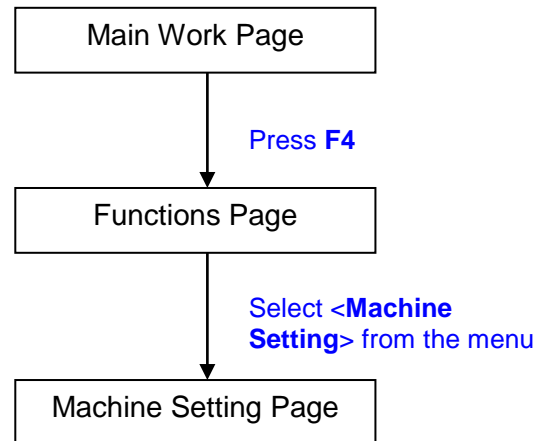
The Machine Setting Page allows you to access and modify a variety of your machine settings, including: Set Lens, Tune Auto Focus, Set Table Down, Set Red Beam, Carriage Free, Set Command Mode, Save Position, Set File Save Mode, Set Vector Mode, Other, Reset, and more.

| 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)

Select Lens Page

☼ **Navigating to this page:**

```
┌─────────────────────────┐
│     Main Work Page      │
└─────────────────────────┘
            │
            │   Press F4
            ▼
┌─────────────────────────┐
│     Functions Page      │
└─────────────────────────┘
            │
            │   Select <Machine Setting>
            │   from the menu
            ▼
┌─────────────────────────┐
│  Machine Setting Page   │
└─────────────────────────┘
            │
            │   Select <Select Lens>
            │   from the menu
            ▼
┌─────────────────────────┐
│    Select Lens Page     │
└─────────────────────────┘
```
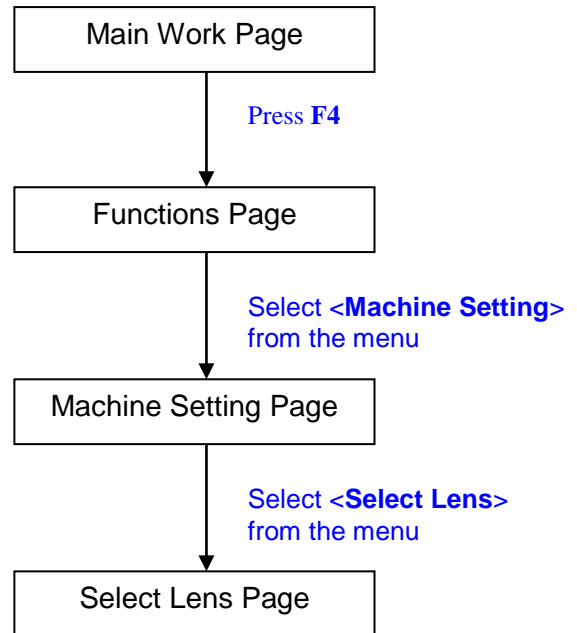
The Select Lens Page allows you to modify the lens setting after you have changed to a different focal lens. Remember to save your settings after you have made the proper changes. Now by pressing the Auto Focus button, the LaserPro X252RX & X380RX will auto focus properly using the new lens setting. The LaserPro X252RX & X380RX's default setting is <2.0">
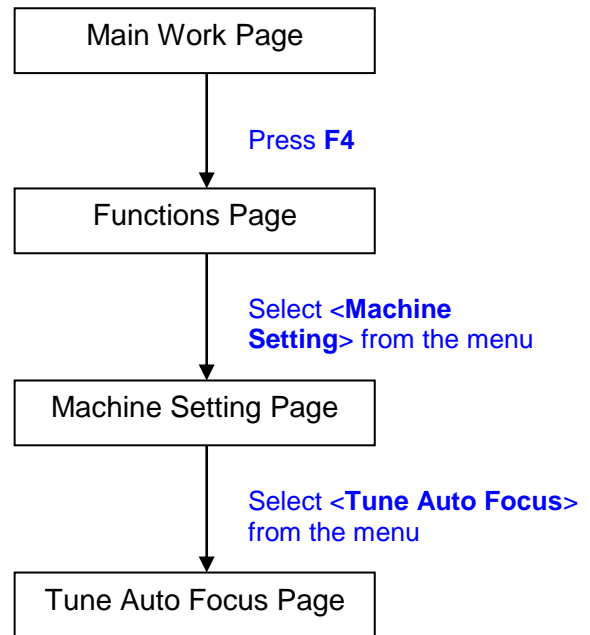
- ▪ Lens: 1.5"/ 2.0" / 3.0"

Select 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

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.

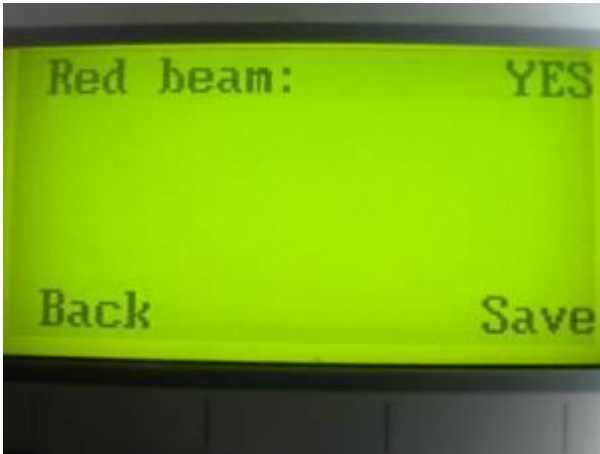| Tune Auto Focus Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F4 (Save)	Save your current settings
△ / ▽ Directional	Manually adjust the height of the work table (Z-axis)
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus Buttons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

Set Table Down Page
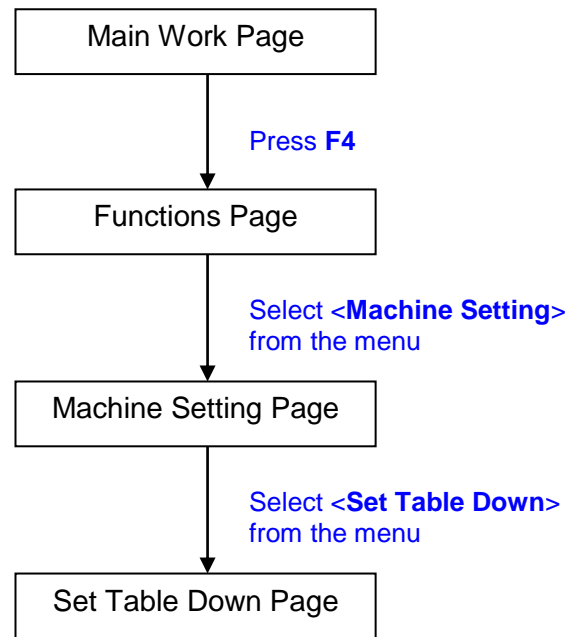
The Set Table Down Page allows you to select whether or not the LaserPro X252RX & X380RX displays a warning prompt at startup. If the Table Down selection is set to <YES>, the LaserPro X252RX & X380RX will display a "Table will move down and remove objects on table" warning prompt on startup. Pressing 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 X252RX & X380RX will not display this warning prompt at system startup.
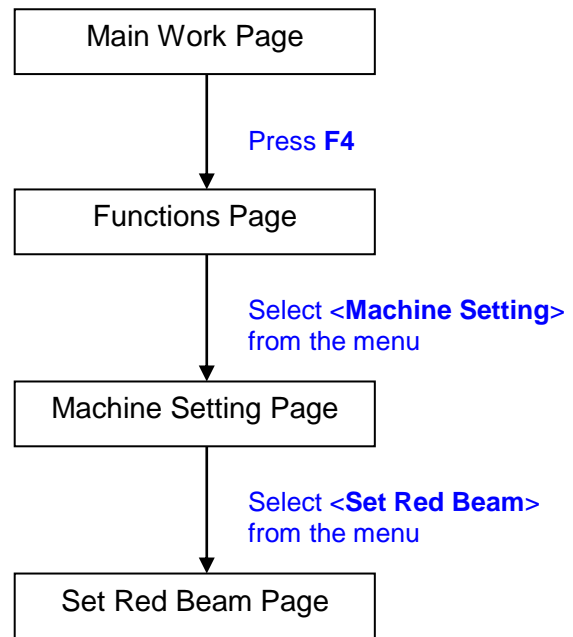
- Table Down: YES / NO
- Distance: 0 - 165 mm

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

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.
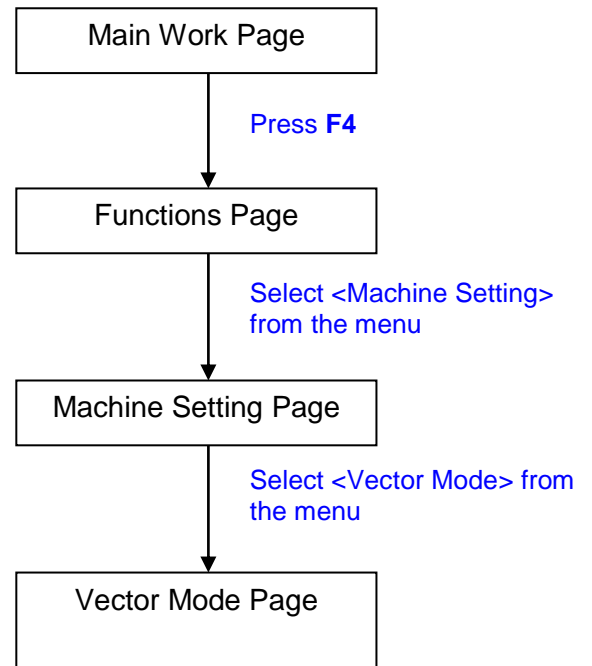
- Red Beam YES / NO

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)

Set Vector Mode Page

☼ **Navigating to this page:**

```
┌─────────────────────────┐
│     Main Work Page      │
└─────────────────────────┘
            │
         Press F4
            ↓
┌─────────────────────────┐
│     Functions Page      │
└─────────────────────────┘
            │
     Select <Machine Setting>
     from the menu
            ↓
┌─────────────────────────┐
│  Machine Setting Page   │
└─────────────────────────┘
            │
     Select <Vector Mode> from
     the menu
            ↓
┌─────────────────────────┐
│    Vector Mode Page     │
│                         │
└─────────────────────────┘
```

The Set Vector Mode Page allows you to adjust and balance vector mode's quality and speed settings based on your specific job. Speedy Vector Mode offers the highest output speed, sacrificing quality. Whereas Quality Vector Mode offers the highest quality, sacrificing output speed. Keep in mind that speed and quality are usually at a tradeoff. The system's default is Fine Vector mode, sacrificing some speed for higher quality.

- Modes: Quality, Production, Speedy
 (Slower speeds / higher quality -------------------- Faster speeds / lower quality)

The machine will automatically reboot once click <SAVE> button to apply the new settings.

| Set Vector Mode Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F4 (Save)	Save your current settings
◁ / ▷ Directional	Cycle Set Vector Mode between QUALITY VECTOR/ PRODUCTION VECTOR/ SPEEDY VECTOR
Start / Stop	Back to Main Work Page
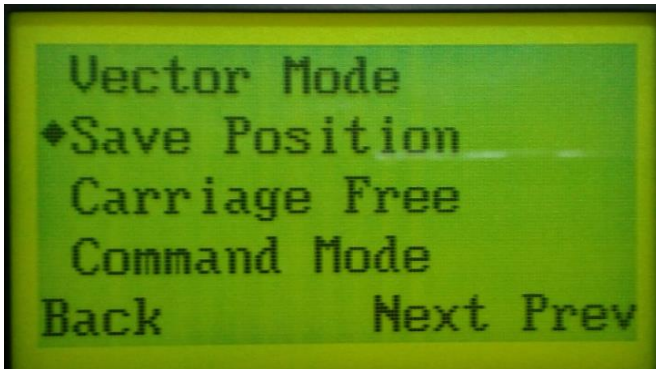
Save Position Page
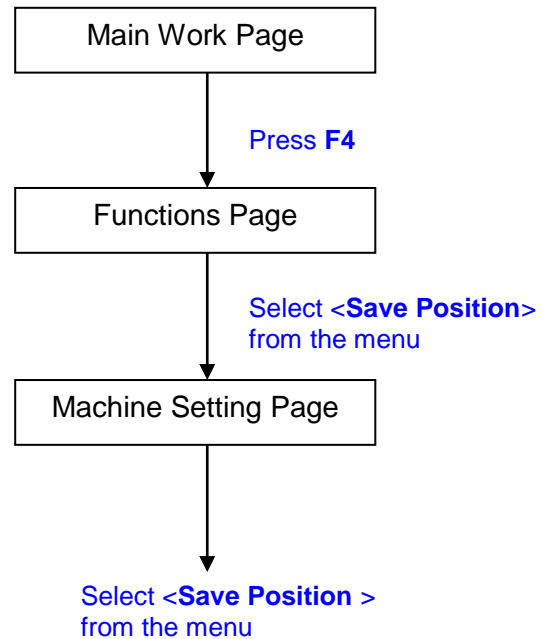
The Save Position Function allows you to save the current X-axis and Y-axis positions of the laser carriage and sets this position to be the origin for subsequent jobs.

TIP
This is an excellent function to use when you are processing identical items or engraving relatively smaller objects positioned away from the default start position (top left) of the work table.
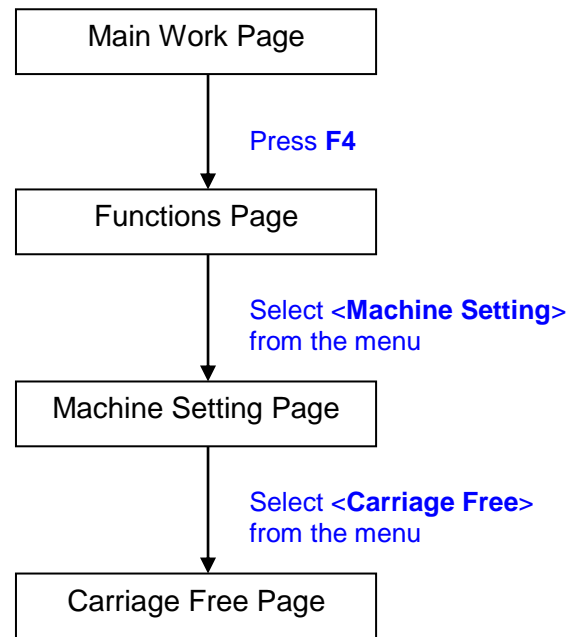
Recall Position
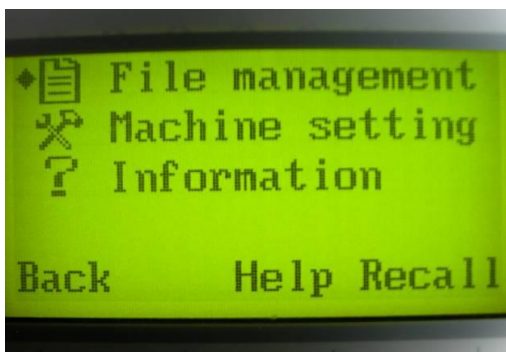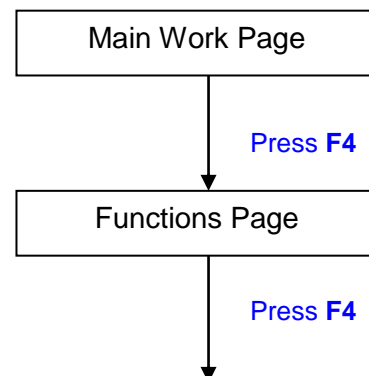
To recall the saved position, simply go to Functions page and press F4 again to recall the saved position. The lens carriage will be moved to the saved position and start subsequent jobs from this origin.

Carriage Free Page

The Carriage Free 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.
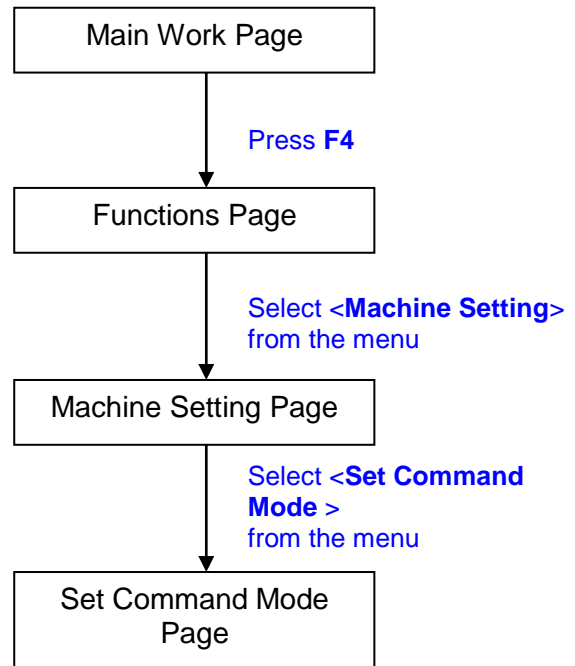
- ▪ Carriage Free YES / NO

Carriage Free 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)

File Save Page
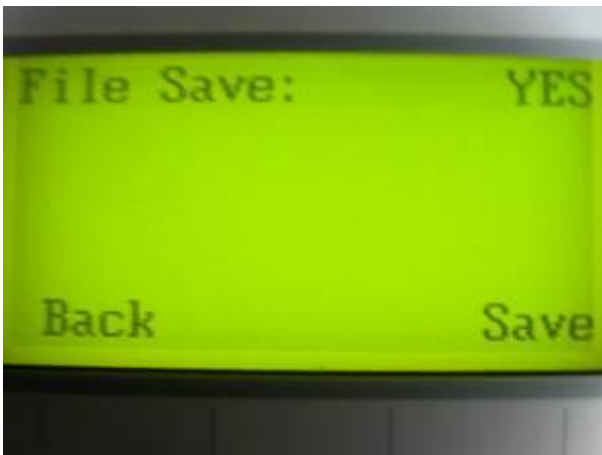
```
File Save:        YES



Back              Save
```
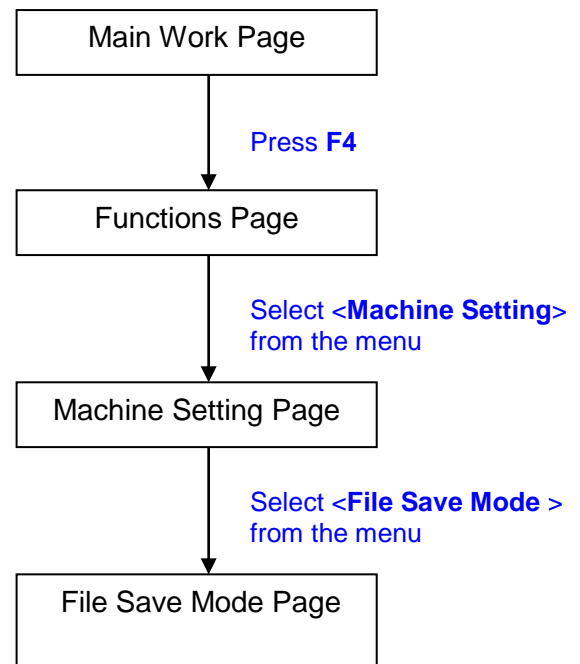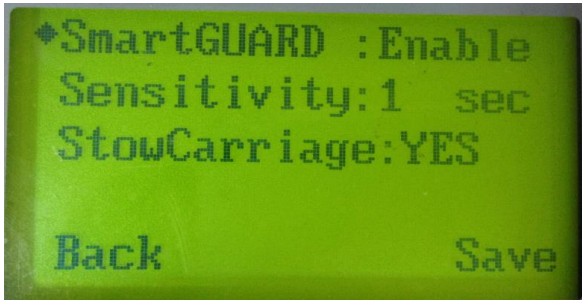
The Set File Save Mode Page allows you to decide if the laser system will automatically deletes each job file after processing. Setting File Save to <NO> will automatically and immediately delete each job file from the laser system after the laser processing. Setting File Save to <YES> will retain all job files on the laser system, even after each job has been processed.
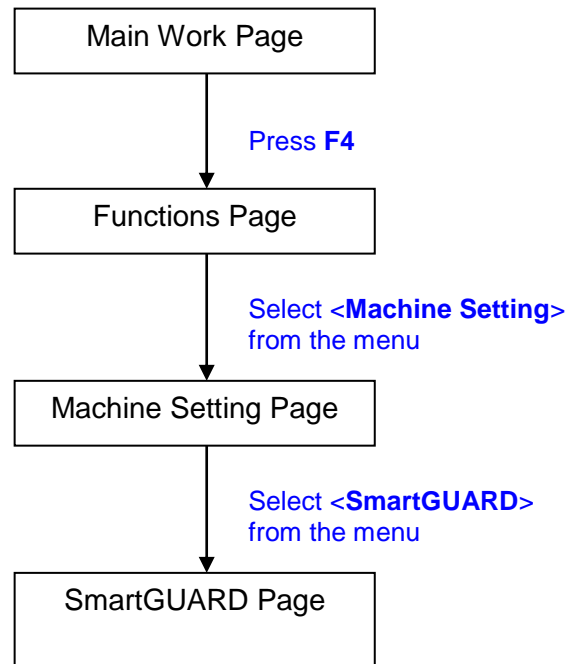
- File Save: YES / NO

File Save 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)

SmartGUARD Page

```
◆SmartGUARD :Enable
 Sensitivity:1   sec
 StowCarriage:YES

 Back            Save
```

Main Work Page

Press **F4**

Functions Page

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

Machine Setting Page

Select <**SmartGUARD**> from the menu

SmartGUARD Page

After optional SmartGUARD hardware installation, please enter the function menu on the control panel to enable the SmartGUARD fire alarm. **Note SmartGUARD fire alarm system is not a fire extinguisher, but a fire detecting and alarm system.**

SmartGUARD Enable/ Disable:

Press directional key (Left or Right) to enable the SmartGUARD device or disable it.

Sensitivity：

Press directional key (left or right) to set the sensitivity of SmartGUARD. There are five sensitivity settings (1, 3, 5, 7, 9 seconds) that can be selected. Sensitivity defines the delay time from when a fire is detected until the fire alarm alerts user, and automatically stop laser firing. For example, if the sensor delay switch is set to the 3-second position, the SmartGUARD will start an alarm and automatically stop laser firing after detecting a fire for 3 seconds.

Stow Carriage：

This function will decide if the lens carriage stay in the last position (set to <NO>) or move to the opposite direction (up or down) when fire alarm is initiated. The default is <YES>, the lens carriage will move to opposite direction when a fire detected.

| SmartGUARD Setting Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F4 (Save)	Save your current settings
◁ / ▷ Directional	Cycle SmartGUARD between Disable/ Enable
△ / ▽ Directional	Scroll through the menu selections
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus	Manually adjust the height of the work table (Z-axis)
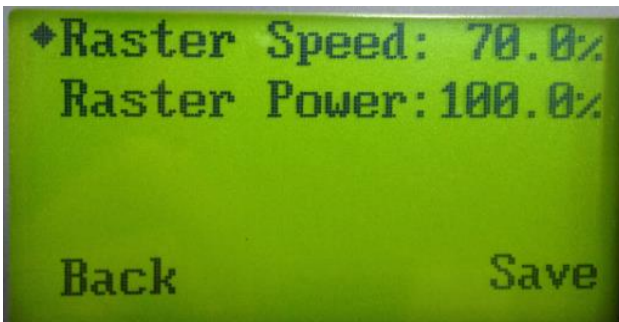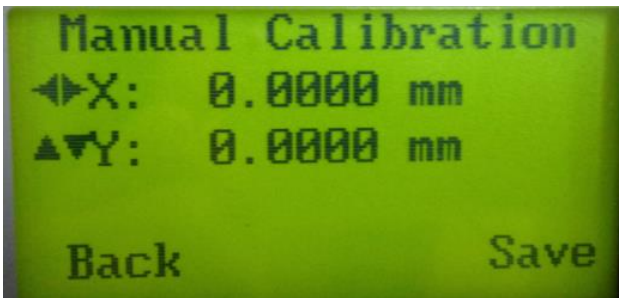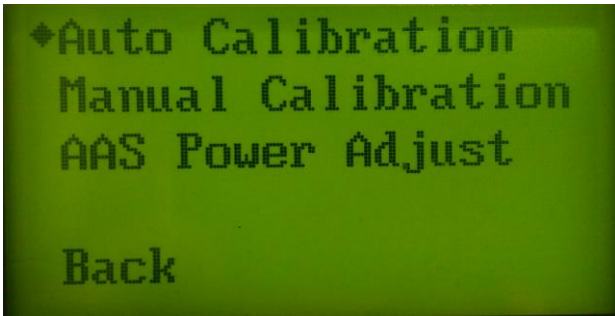
AAS Page
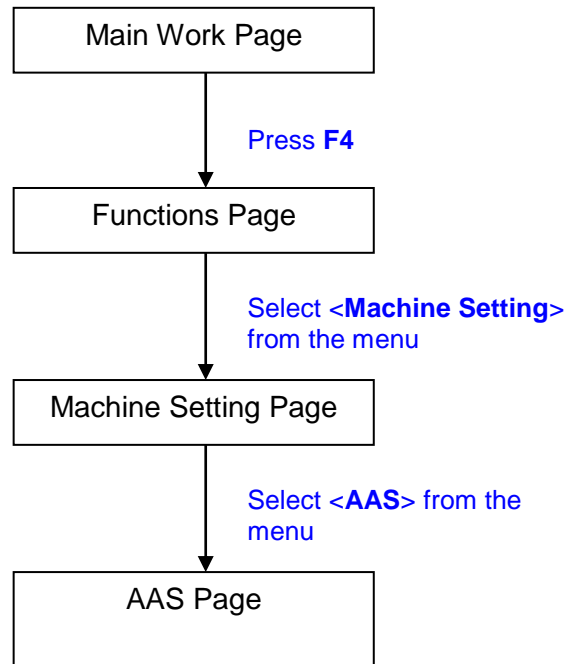
After optional AAS (Accu-Align System) contour cutting hardware installation, please enter the function menu of control panel to perform AAS Calibration before using AAS to do contour cutting job. The AAS Calibration function will fine tune the offset value between AAS and the lens carriage with auto and manual modes options. The <manual calibration> is designed for application requested for more precise offset value. <Threshold> adjustment will help to increase the recognition rate when AAS reading marks is failed. For black marks printed on white substrate, the higher the threshold value, the higher recognition rate the AAS can read the marks; while print white marks on dark substrate, smaller threshold value is suggested. The AAS Power Adjustment allows changing laser output parameters when doing AAS calibration. Follow the user manual comes along with the AAS hardware for detailed operation.

- Threshold: 1-99 (Default 50)
- Raster Speed: 0-100%
- Raster Power: 0-100%

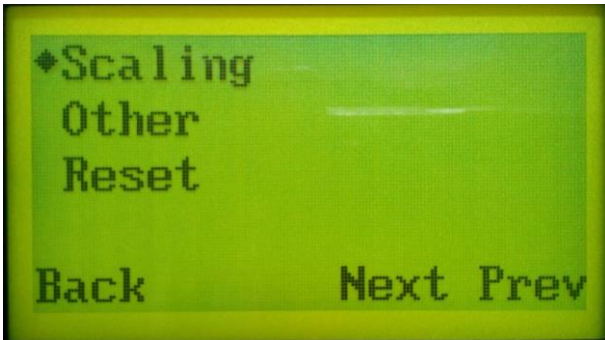| AAS Calibration Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F4 (Save)	Save your current settings
◁ / ▷ Directional	Adjust value of that selection
△ / ▽ Directional	Scroll through the menu selections
Start / Stop	Back to Main Work Page
Auto Focus	Initiate the auto focus function
▲ / ▼ Manual Focus	Manually adjust the height of the work table (Z-axis)
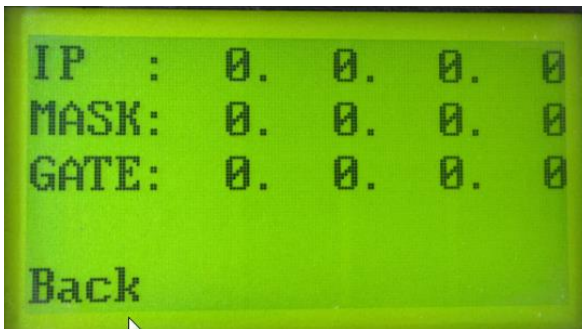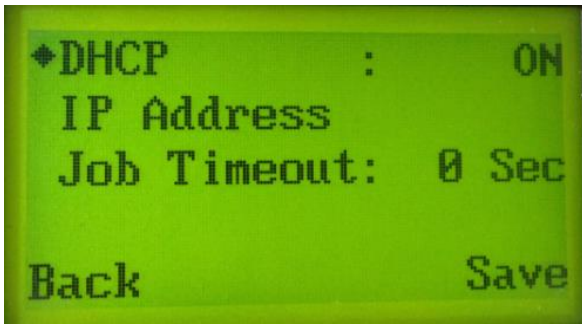
LAN Setup Wizard Page
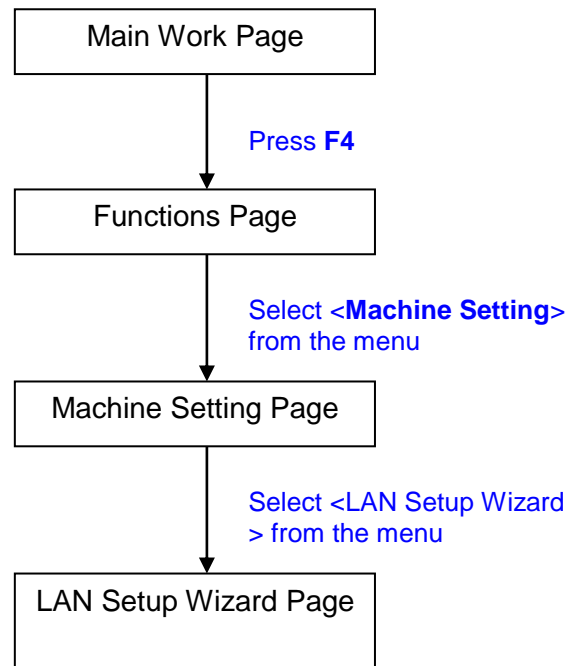
The LAN Setup Wizard Page allows you to connect the laser machine with ethernet to transmit files from computer to laser machine for processing jobs. When selecting the DHCP to <ON>, the network is set tup to dynamic IP address, the IP address will automatically retrieve from network; while DHCP <OFF> is to apply static IP address, and you need to further enter the IP address, MASK, and GATE information. Using Left or Right directional keys under dynamic IP setting page to scroll between different columns to enter the address, and use Up or Down keys to change the numbers.

- • DHCP: NO/ OFF

Please refer to Chapter 4.1.3 for ethernet connectivity setup in Windows driver.

| LAN Setup Wizard Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F4 (Save)	Save your current settings
◁ / ▷ Directional	Cycle DHCP between NO/ OFF, or move between tabs on IP address settings
△ / ▽ Directional	Scroll between menu options, or change the numbers of IP address settings.
Start / Stop	Back to Main Work Page

Scaling Page
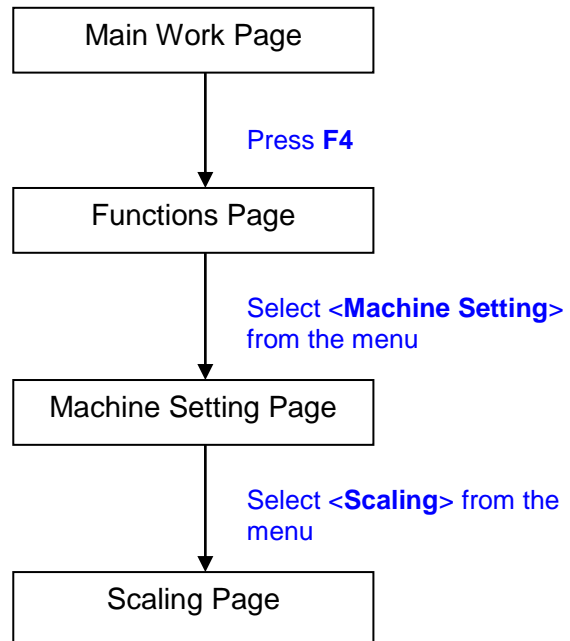
The Scaling Page allows you to fine tune the laser machine output scale to precisely fit the original graphic file design scale when precision output is requried to your application.

Reboot the machine once scaling value is changed.

Scaling Page	
Relevant Buttons	**Function**
F1 (Back)	Back to previous page
F4 (Save)	Save your current settings
◁ / ▷ Directional	Adjust the X axis scaling numbers
△ / ▽ Directional	Adjust the Y axis scaling numbers
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)
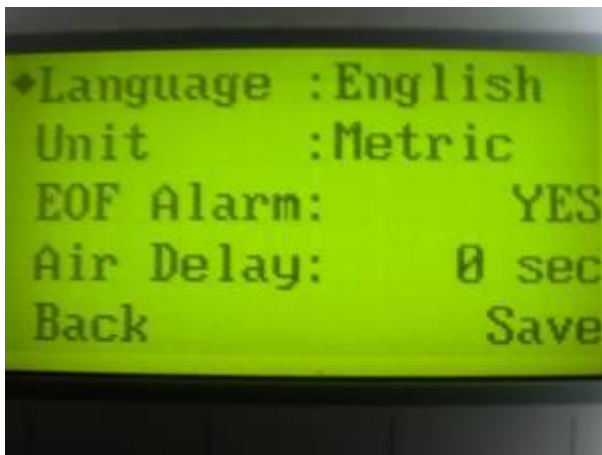
Other Page
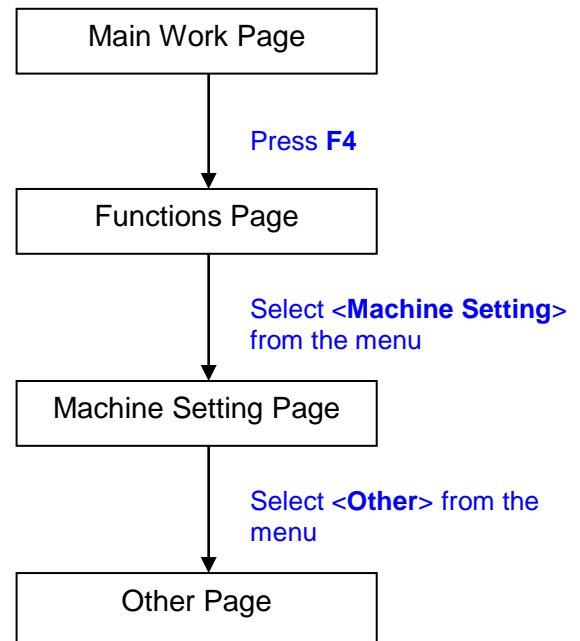
The Other Page allows you to change various settings relating to the control panel. The Language setting will allow changing available languages displayed by the control panel. The Unit setting will allow you to chance whether the units displayed by the control panel is in the metric or imperial system. 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	Manually adjust the height of the work table (Z-axis)

Reset Page
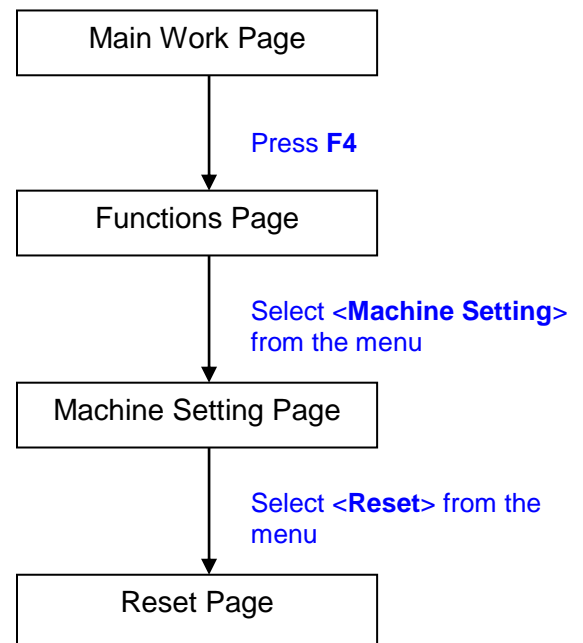
The Reset Page will restore machine settings back to factory default. Press ENTER to confirm the change, and restart the machine.

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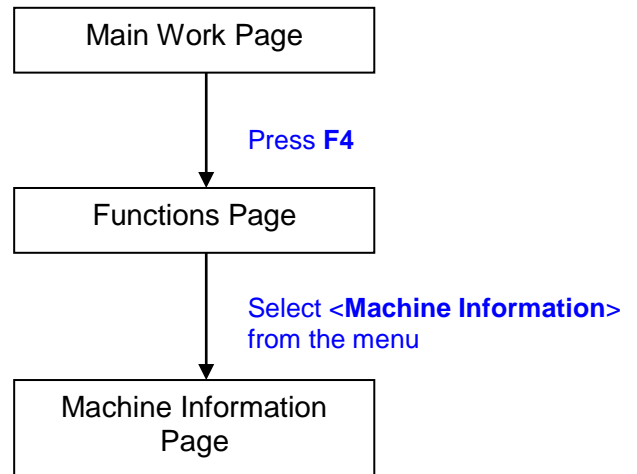
The Machine Information Page allows you to view information regarding the system such as the GCC logo, machine name, firmware version, and other information.

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 X252RX & X380RX Print Driver

With the LaserPro X252RX & X380RX 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 X252RX & X380RX's worktable area.

> ⓘ **NOTE**
> Please make sure X252RX & X380RX is set to the default printer before proceeding to the page and layout setup.

Ensure that the LaserPro X252RX & X380RX has been selected as the DEFAULT PRINTER. You can do so by going into your Windows Control Panel → Printers and Faxes.

If LaserPro X252RX & X380RX 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 X252RX & X380RX as the Printer.

1) From the primary menu, click FILE → PRINT SETUP.
2) From the navigation bar Name, click X252RXRX & X380RXRX → OK
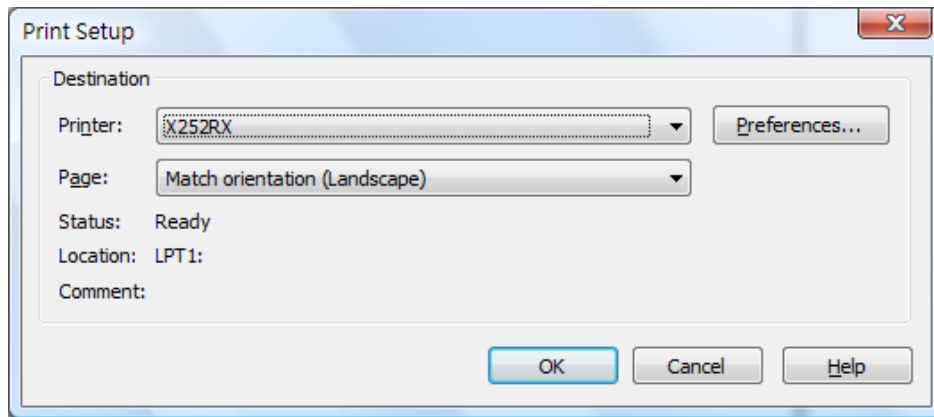
5.2.1 Page Setup and Orientation

The first thing you must do before working with the LaserPro X252RX & X380RX 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 X252RX & X380RX'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 635 mm (25 inches) and vertical height to 458 mm (18 inches) for X252RX model, and 960mm (38 inches) x 610mm (24 inches) for X380RX model.

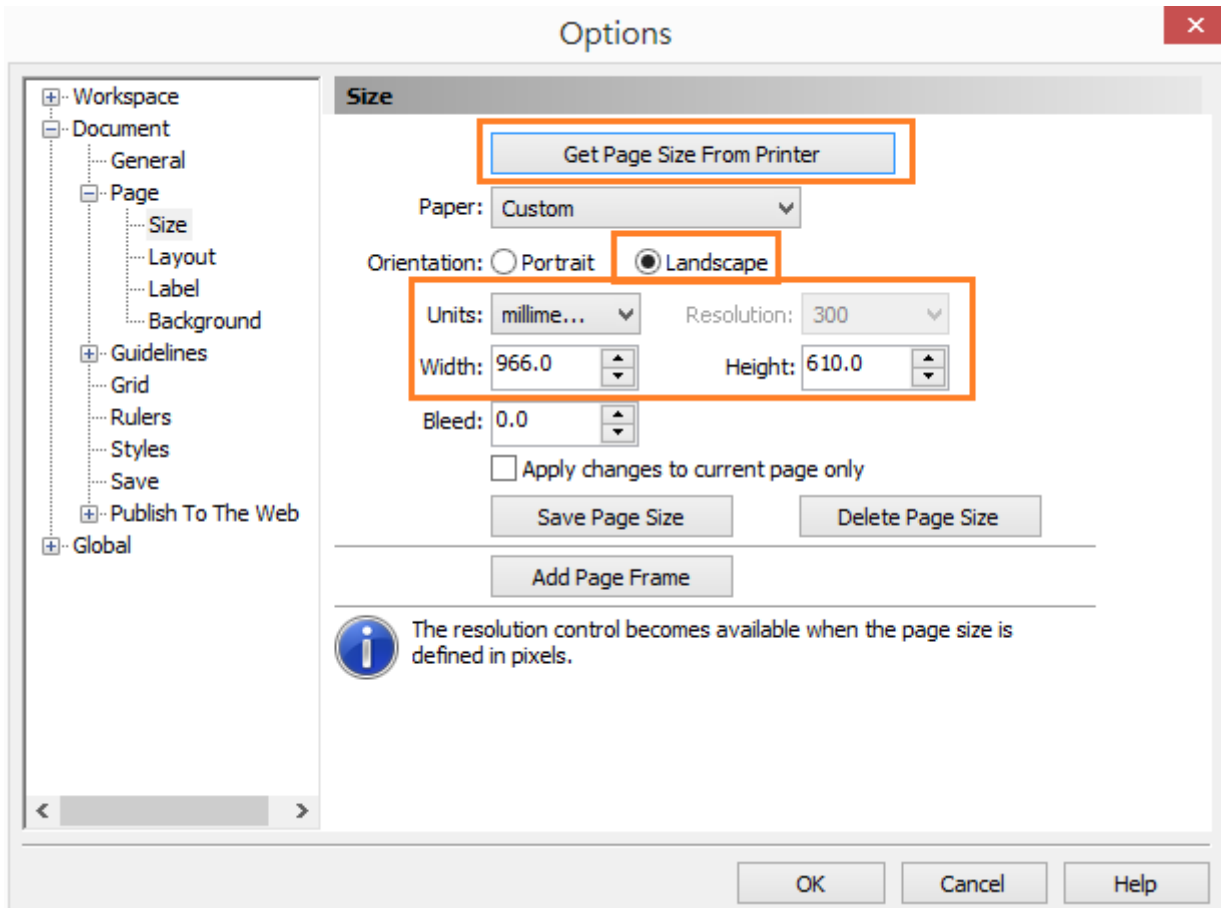### Corel Draw Example (Page Setup and Orientation)

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 X252RX & X380RX's work table dimensions of 635 mm (25 inches) and 458 mm (18 inches).

✓ X252RX: 635x458 mm (25"x18")
✓ X380RX: 966x610 mm (38"x24")

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 X252RX & X380RX's work table. (X252RX & X380RX must be 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 X252RX & X380RX Print Driver. If you do not properly
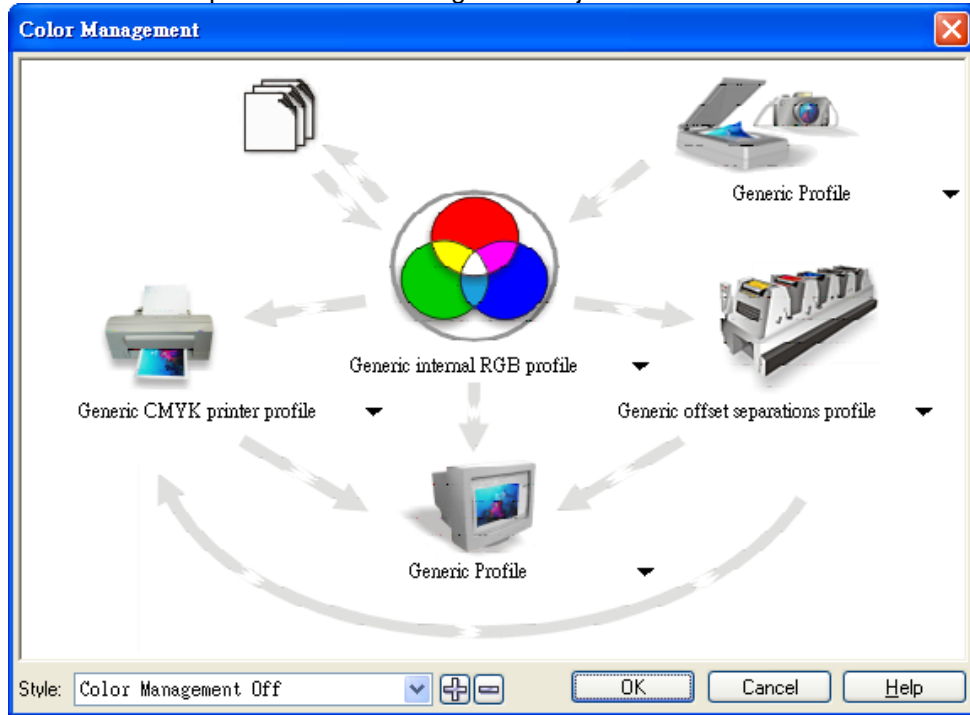
From your graphic software's Color Management page:
- Disable Color Management or set Color Management to Off.

## 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 X252RX & X380RX 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 X252RX & X380RX Print Driver. The LaserPro X252RX & X380RX 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 X252RX & X380RX print driver by going to FILE → PRINT → PROPERTIES.
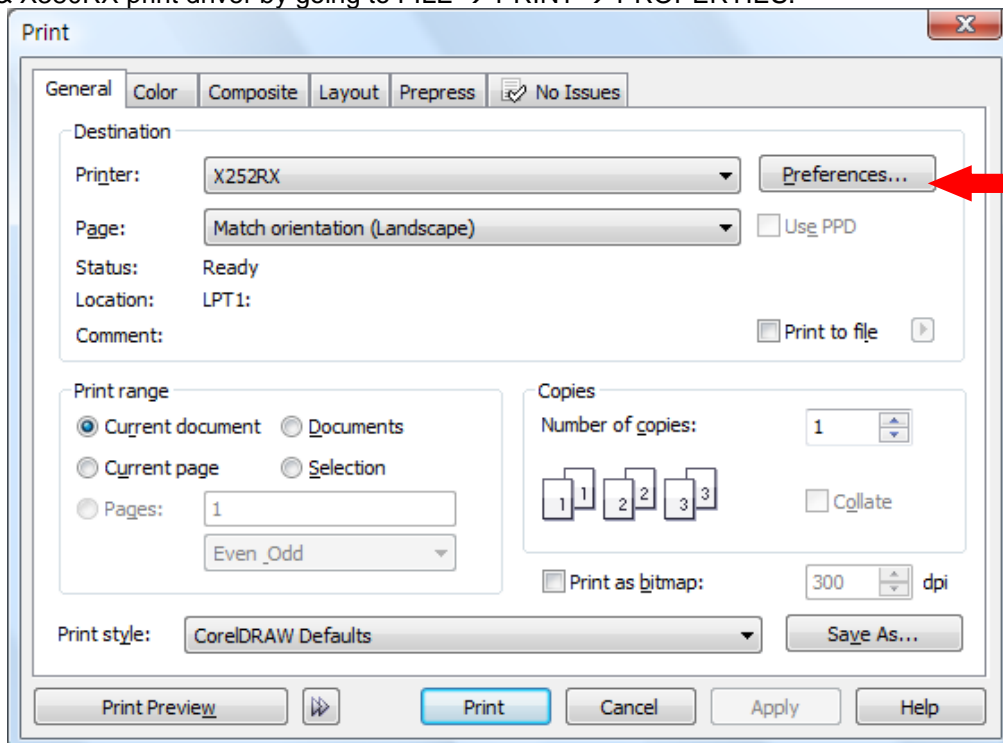
The LaserPro X252RX & X380RX Print Driver consists of seven primary sections (pages) in which you will be able to choose various cutting options and settings:

- 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 X252RX & X380RX 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 X252RX & X380RX Print Driver >> Option Page
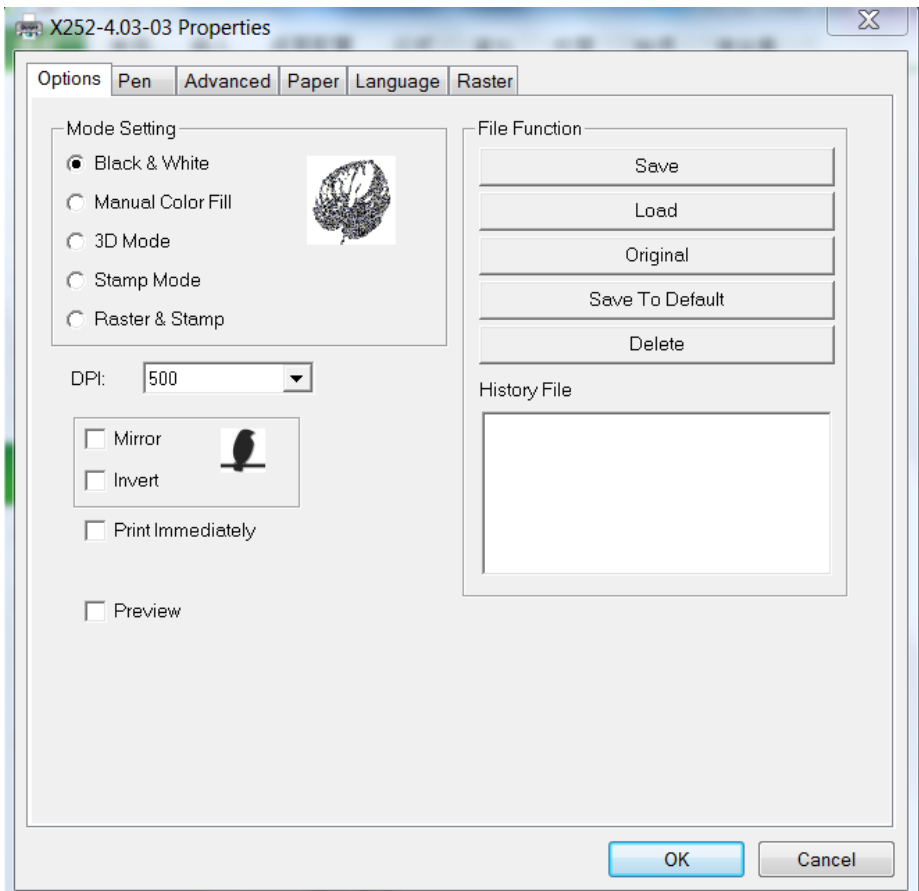
Mode Setting (OPTIONS PAGE) [DEFAULT SETTING: Black & White]

You can select from four primary mode settings, depending on your application or results you would like to achieve.

Black & White:

Select this mode when using clipart images or drawings with several colors, shades of gray, or many outlines. This mode outputs in a method similar to that of a black and white laser printer.

The GCC LaserPro print driver will interpret colored and shaded areas as 256-level shades of gray by producing a halftone effect while engraving. Instead of engraving only solid lines, gray or halftone areas will be a collection of dots with varying density.

The entire selected image will be engraved using a single set of power and speed settings (the black pen from the PEN menu. Please refer to the next section of the details regarding the PEN functions). The resolution and depth of these halftone areas can be adjusted with the DPI setting found on the Options page. Please note that selecting the Black & White mode will add a new Raster page to the menu. The Black & White mode dithering settings can be changed from the Raster page. (Please refer to the Raster section below for details). Experiment with different dithering settings to attain the desired results.

TIP

The Black & White mode interprets the processed image by the varying colors and shades. For the best results, we suggest you convert the image to a grayscale image with your graphics software prior to engraving in the Black & White mode.

NOTE

Selecting the Black & White mode will enable the Raster page on the LaserPro X252RX/ X380RX Print Driver, allowing you to adjust advanced stamp-related settings.

Manual Color Fill:

Specify laser type to different color pens. The GCC LaserPro print driver allows a maximum of 16 pen parameters to be set. It will help user to set different parameters easily in one file.

Pen No.	Color	Speed	Power	PPI	Raster	Vector	Air	AF	Defocus	Bridge	Repeat
1		50.0	50	400	YES	YES	NO	NO	0.0	5	1
2		50.0	50	400	YES	YES	NO	NO	0.0	0	1
3		50.0	50	400	YES	YES	NO	NO	0.0	0	1
4		50.0	50	400	YES	YES	NO	NO	0.0	0	1
5		50.0	50	400	YES	YES	NO	NO	0.0	0	1
6		50.0	50	400	YES	YES	NO	NO	0.0	0	1
7		50.0	50	400	YES	YES	NO	NO	0.0	0	1
8		50.0	50	400	YES	YES	NO	NO	0.0	0	1
1*		50.0	50	400	YES	YES	NO	NO	0.0	1	1
10		50.0	50	400	YES	YES	NO	NO	0.0	0	1
11		50.0	50	400	YES	YES	NO	NO	0.0	0	1
12		50.0	50	400	YES	YES	NO	NO	0.0	0	1

Speed: 50.0
Power: 50
PPI: 400
Defocus: 0.0 mm
Bridge: 0 mm

☑ Raster
☑ Vector
☐ Air
☐ Auto Focus
☐ Defocus
☐ Bridge Cutting
Repeat: 1

3D Mode:

3D Mode allows the naked eyes to visualize the curvatures of the 3D effect by applying 200 grayscale power level technology to create different depth of engraving.
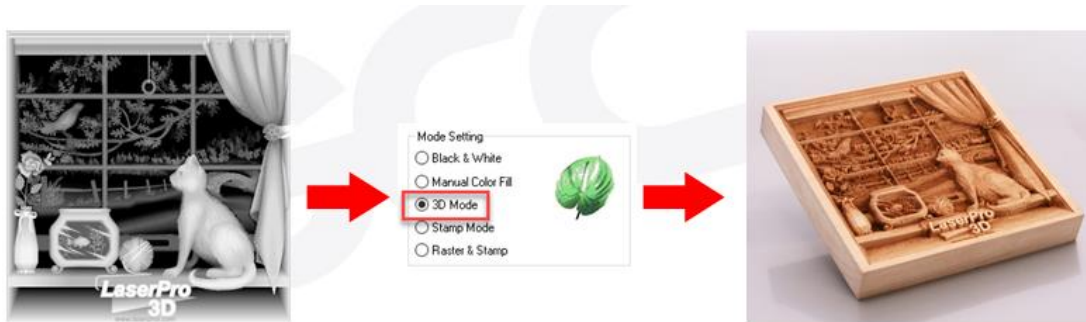
Stamp Mode:

The stamp mode is one of the more dynamic functions of the LaserPro laser engravers by applying 200 power leve to create different steps.

> ### NOTE
> Selecting the Stamp mode will enable the Stamp page on the X252RX/ X380RX Series Print Driver, allowing you to adjust advanced stamp-related settings.

Raster & Stamp Mode:

Select this mode when you would like to engrave image on stamps. The Raster & Stamp mode combines the 200 level gray scale image processing technology and stamp steps production requirement to create slopes.

DPI (Options Page) [DEFAULT SETTING: 500]

DPI (dots-per-inch) represents the number of times the laser will fire over a one-inch path. This setting determines the image resolution and quality when performing raster engraving functions. Higher DPI settings result in cleaner and deeper engravings, but require more time to complete. Lower DPI settings result in coarser and shallower engravings, but require less time to complete. The LaserPro X252RX/ X380RX Series offers 8 DPI options: 125, 250, 300, 380, 500, 600, 760, and 1000 experiment with different settings to get your desired effect.

Below is a chart for your convenience detailing the Set DPI (your input setting) vs. Actual DPI (your output results).

DPI Setting	125	250	500	1000
Actual DPI	127	254	508	1016

Mirror (Options Page) [DEFAULT SETTING: Unselected]

Checking this box will automatically engrave your image with a mirrored effect. This setting will flip the image along the Y-axis from left to right and vice-versa.

> **TIP**
>
> When engraving a stamp, via the stamp mode, the stamp image needs to be engraved in reverse (mirrored) for the final stamp to be correctly laid out.

Invert (Options Page) [DEFAULT SETTING: Unselected]

Checking this box automatically inverts / reverses the color of your image (the white areas become black and vice versa). The Invert option is not available if disabled while Manual Color File mode is selected.

> **TIP**
>
> Invert mode is useful when creating a stamp in Stamp Mode, as inverting your normal image will set the negative space to be engraved out, with the remaining positive space (your stamp design) protruding out.
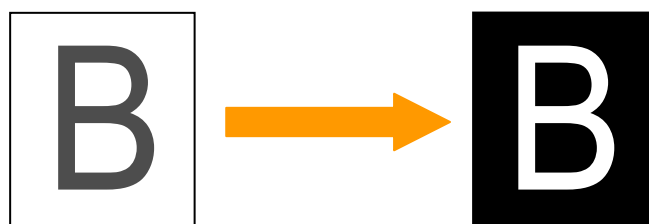

Print Immediately (Options Page) [DEFAULT SETTING: Unselected]

Checking this will instruct the LaserPro X252RX/ X380RX Series to immediately begin the laser engraving 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 X252RX/ X380RX Series system and will need to be initialized from the LaserPro X252RX/ X380RX Series control panel.

Preview (Options Page) [DEFAULT SETTING: Unselected]

Users can use the Preview function to check a simulated output of the job. An estimated working time will also be shown. Please make sure to set the file printing option to "print to file" in order to activate the Preview function.
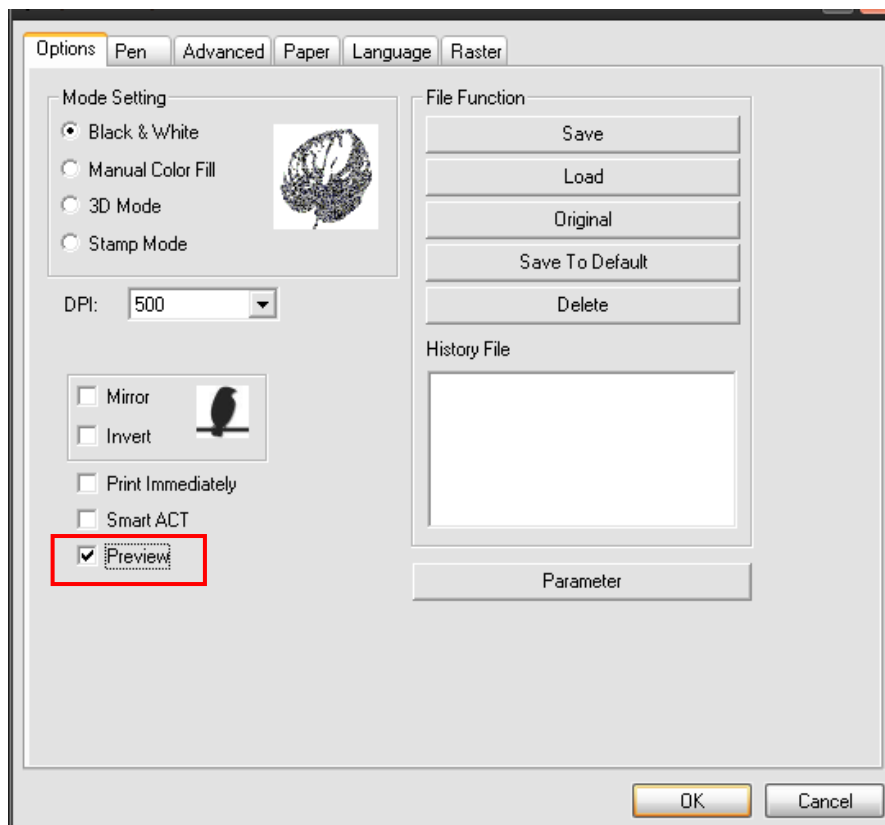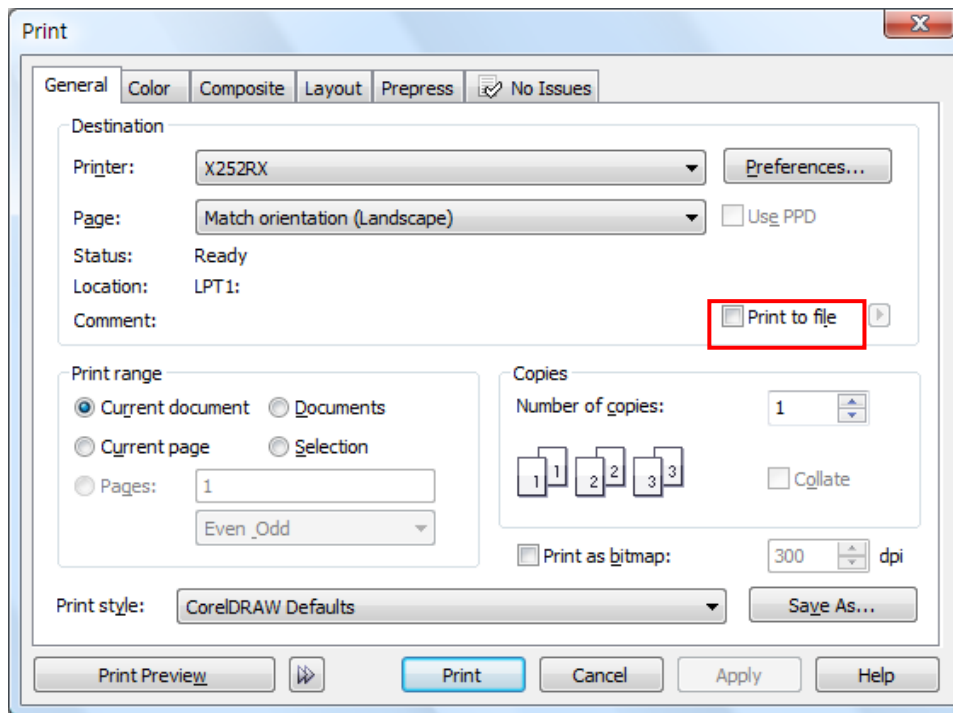
User will be prompted to enter a filename
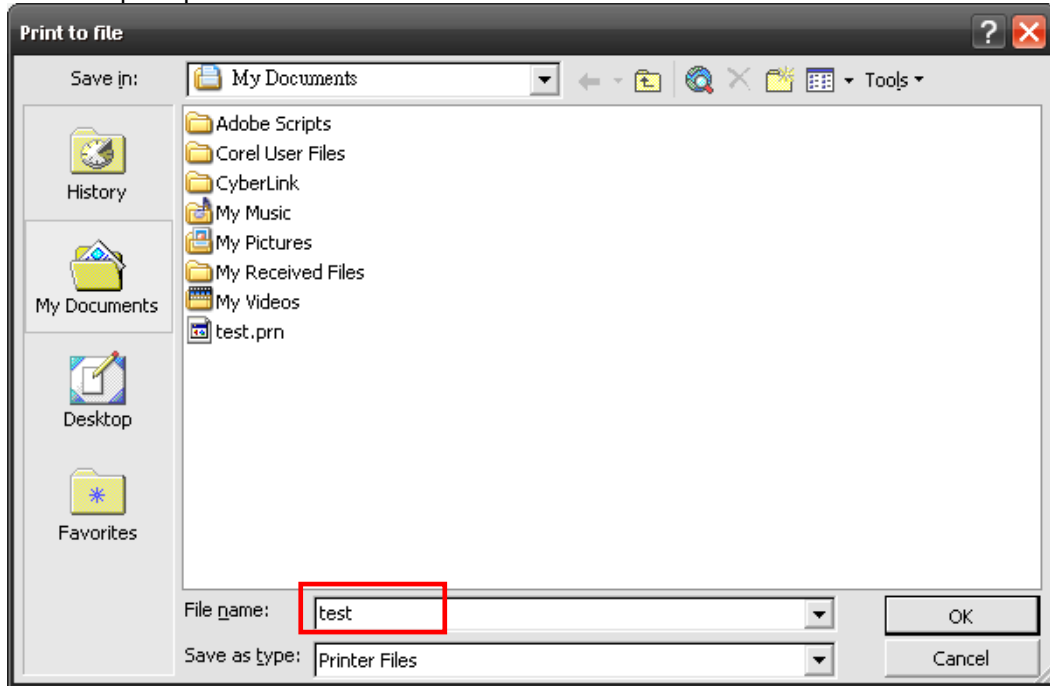
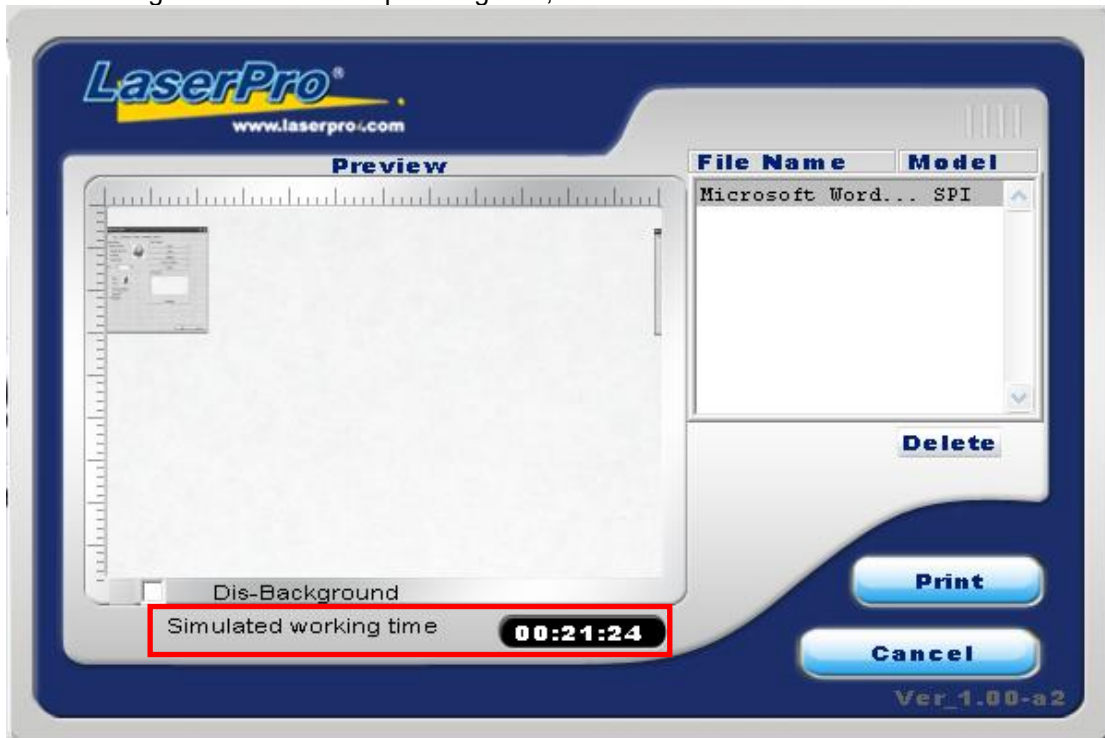After entering the filename and pressing "ok", the Preview screen will be shown.

The output file can be previewed and a simulated working time of the job is also displayed.

File Function (Options Page):

The file function section allows you to manage various laser parameters. This section is useful when performing duplicate 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.

- 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 .Spi extension)
- LOAD: This function allows you to load those 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 .Spi file from your hard drive, if you wish to completely remove the file from your hard disk, then 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.
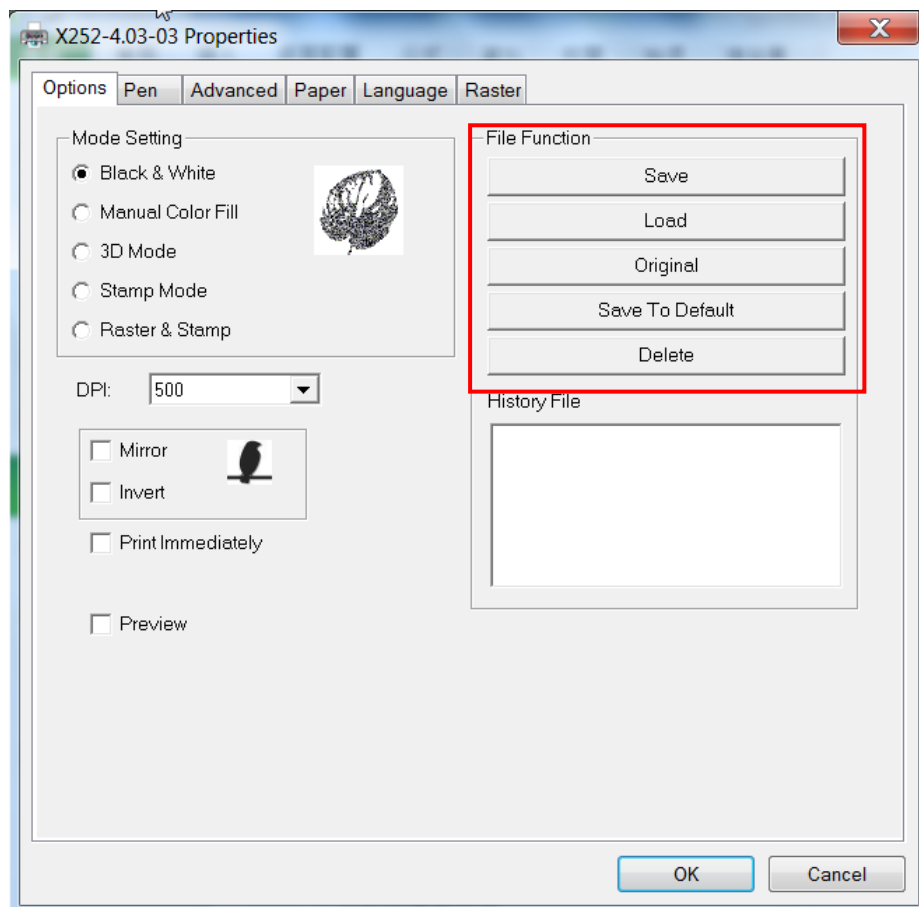
5.2.3.2 X252RX & X380RX Print Driver >> Pen Page

The LaserPro X252RX & X380RX 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 X252RX & X380RX print driver.
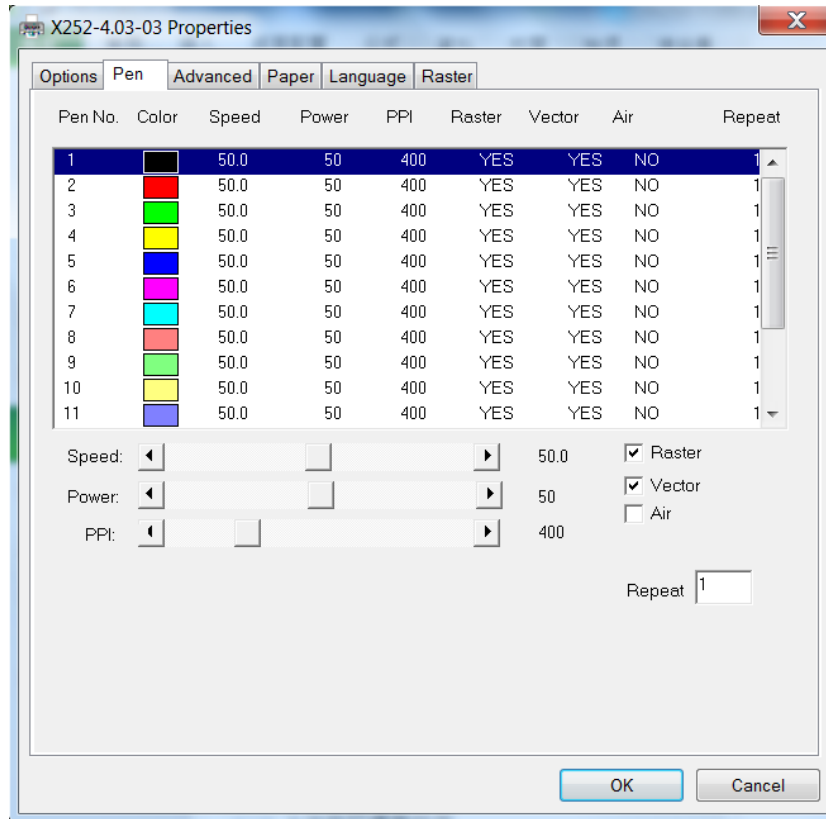
If you would like to specify your own colors to designate to a particular laser setting, then all you have to do is to double-click on that particular pen color from the pen menu and a color manager window will open where you can select "define custom colors" to define your own color (shown in the picture 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.
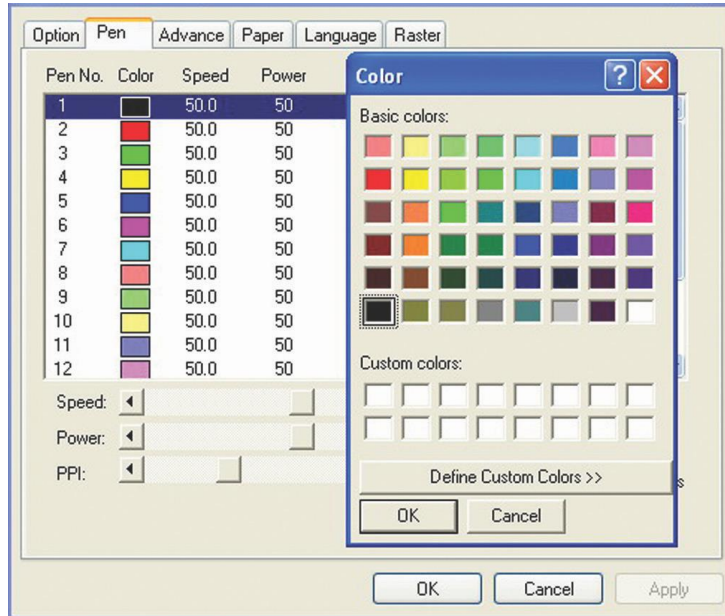
Speed (Pen Page) [DEFAULT SETTING: 50]

The speed slider controls the laser's speed during operation (engraving speed) with settings ranging from 0.1 – 100%. Keep in mind, the speed setting refers to the lens carriage moves at when cutting or engraving straight lines. The machine will automatically slow down when processing curves.

TIP

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

Power (Pen Page) [DEFAULT SETTING: 50]

The power slider controls the laser's power during operation (engraving power) with a range setting from 0 – 100%. The percentage setting represents the power for each laser pulse fired.

PPI (Pen Page) [DEFAULT SETTING: 400]

PPI (pulses-per-inch) represents the number of times the laser pulses (fires) per linear inch, exclusive for vector cutting. Higher PPI settings will generate deeper, overlapping laser pulses, resulting in cleaner cuts. Lower PPI settings (lower than 150) will result in the individual laser

pulses being spread apart, resulting in a perforated effect (similar to the perforation in the paper between mailing stamps).

If you drag the PPI slider to the furthest right (maximum), the value will change to X. This completely disables the PPI control and continuously fires the laser non-stop, without pulsing.

Think of setting PPI to X as being equivalent to turning a water faucet on with the water continuously flowing out. This also disables the power ramp functionality, which automatically controls the PPI depending on the speed of the lens carriage (such as vector cutting around the corner of a square).

> **TIP**
> Cutting / engraving depth and quality are determined by a combination of power and speed. Slower speeds at higher power will produce deeper cuts and engravings, whereas higher speeds at lower power will produce shallower cuts and engravings

Raster / Vector (Pen Page) [DEFAULT SETTING: Selected]

Checking the Raster checkbox will process only the raster functions for the areas of your design that correspond to that particular "pen" color.

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 the Raster and Vector will force the driver to process / ignore the color fills / thin lines.

	Vector Checked	Vector Unchecked
Raster Checked	Processes both Vector and Raster functions for that particular color	Processes only the Raster functions for that particular color (Vector functions ignored)
Raster Unchecked	Processes only the Vector functions for that particular color (Raster functions ignored)	Does not process Vector or Raster functions for that particular color

Air (Pen Page) [DEFAULT SETTING: Unselected]

This checkbox controls the SmartAIR air-assist function (if you have the optional air compressor installed). By selecting a pen color and checking this box will enable the SmartAIR air-assist function for that particular pen color. As an example, if you are performing a combination of both surface raster engraving job and deep vector cutting on a material such as acrylic, you may want to enable the SmartAIR air-assist for the vector cutting sections to get the cleanest cuts. To do this, you would simply need to select the pen color that you have assigned to the sections to be cut and select the Air checkbox for those particular pen colors.

> **NOTE**
> In order to use the Air Delay function under the firmware or the Air by Pen function in the driver, make sure that the optional air compressor is connected to the power outlet located in the lower machine cabinet.

<X252 Air Compressor Connection Power Outlet>
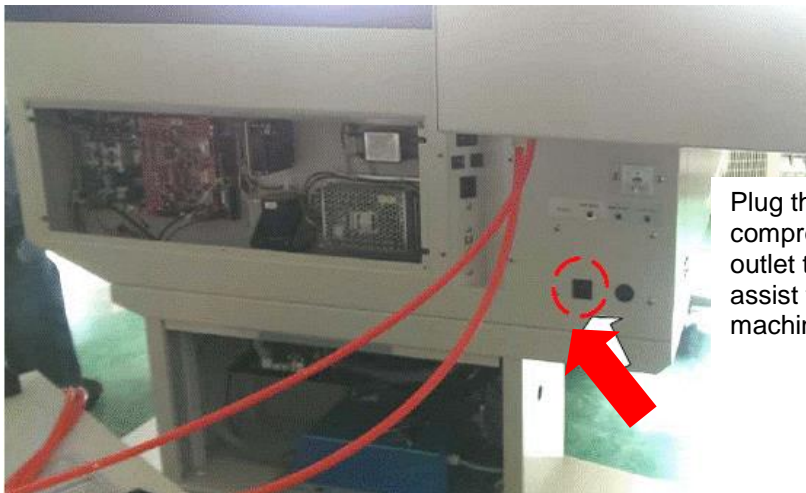
Plug the external **220V** air compressor to this power outlet to control the air assist function by laser machine driver and firmware
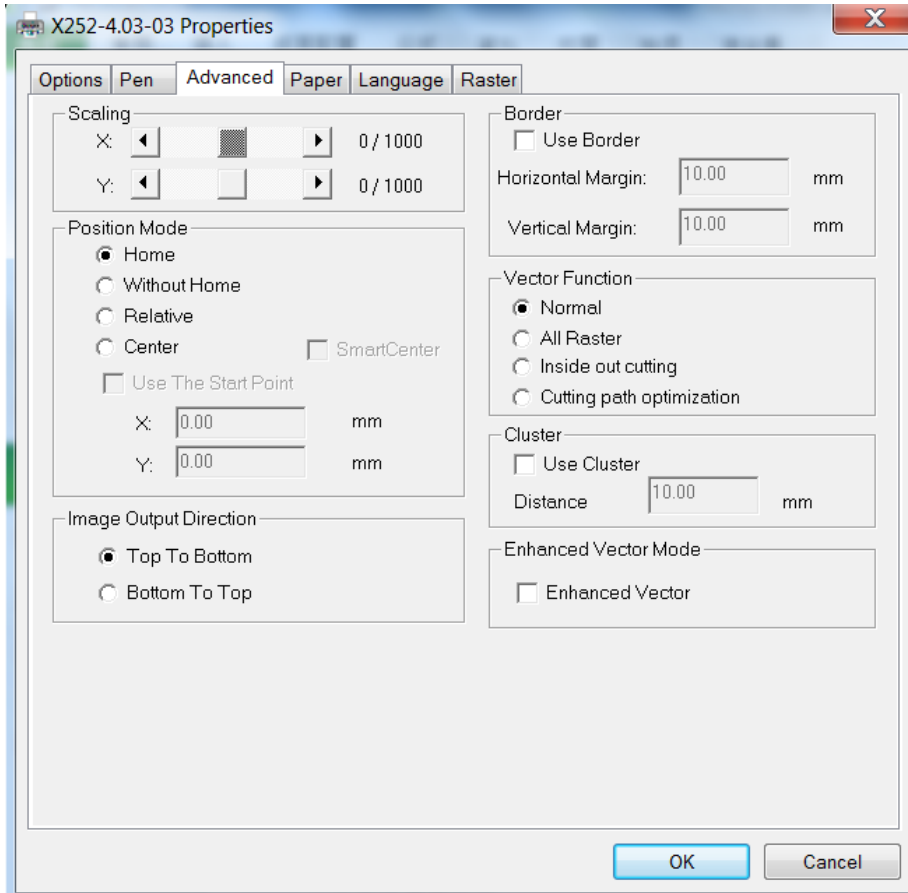
<X380 Air Compressor Connection Power Outlet>

Plug the external **220V** air compressor to this power outlet to control the air assist function by laser machine driver and firmware

5.2.3.3 X252RX & X380RX Print Driver >> Advance Page
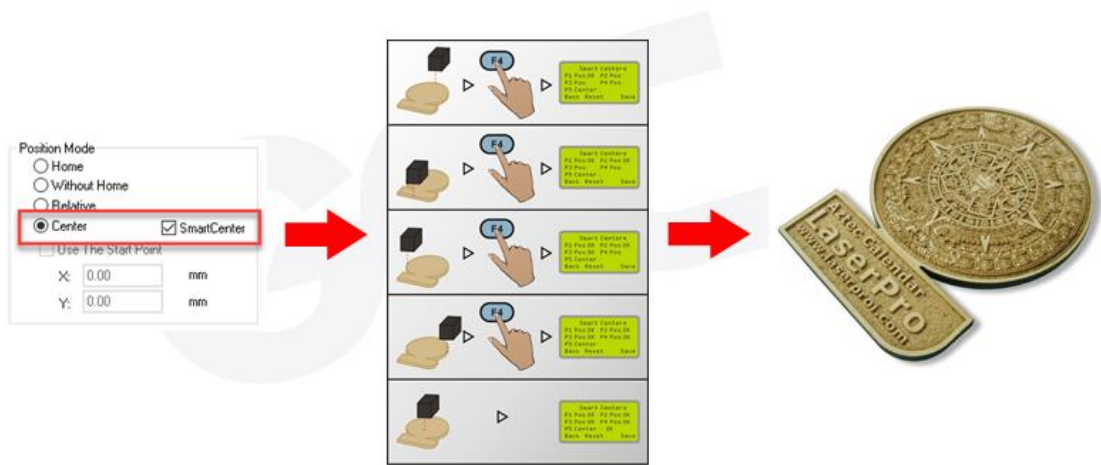

Scaling (Advanced Page) [DEFAULT SETTING: 0]

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 is 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 299 mm or 301 mm 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 (Advanced 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 the 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 Spirit Series will vector cut a circle around the initial position of the laser head.

- SmartCENTER: The SmartCENTER function is a quick and easy way to precisely locate the center point between two points or four points.

Image Output Direction (Advanced Page) [DEFAULT SETTING: Top to Bottom]

These selections allow you to control the direction in which the system processes an engraved image.

- Top To Bottom: Selecting this will force the system to process the current task by moving the lens carriage from the top to the bottom of the image (rear end to front end of the work table).
- Bottom To Top: Selecting this will force the system to process the current task by moving the lens carriage from the bottom to the top of the image (front end to rear end of the work table)

Normally, the LaserPro Spirit Series engraves from left to right, top to bottom. Selecting Bottom Up will alter the engraving sequence and the engraving will start from the bottom and work its way to the rear of the working table.

Border (Advanced Page) [DEFAULT SETTING: Unselected]

In cases where you are working with a negative image (negative outline areas of your image are engraved, rather than the positive areas), you may wish to include a border around your image.

To properly add a border, you will first need to Invert your design from the Options Page, then check Use Border and specify a value for the thickness of the border you would like to add to your design.

This mode is useful for engraving rubber stamps, as it allows you to create the outline around your stamp image.

Vector Function (Advanced 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.

- All Raster Output: This selection will instruct the print driver to process your entire image as a raster engraving. Any vector lines within the image will be treated as raster data and outputted as a raster engraving, similar to a dot-matrix printer.

Vector Processing   Raster Processing

- Vector Sorting: When performing a vector cutting job in which your image has one vector cut area enclosed 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 engraver 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.

- o Inside out Cutting: This setting will always automatically direct the laser to cut from the inner most vector shape and move outwards.
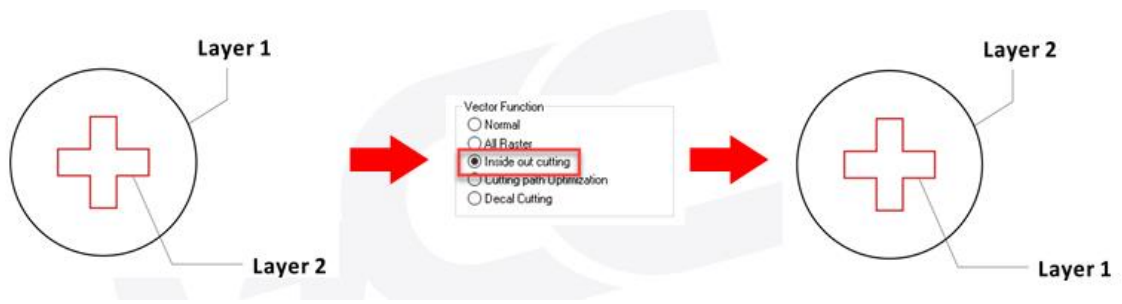
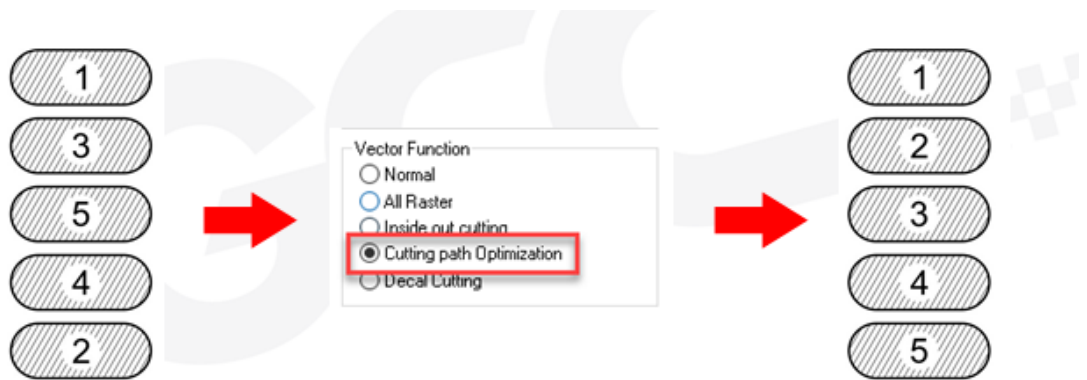- Optimization Sorting: This is a setting that will minimize your process time. When selected, the print driver will analyze your image and automatically determine the most efficient processing path to process your image.

- Decal Cutting: this function is developing to reduce material weeding job after laser cutting for multiple layers adhesive materials, such as lettering vinyl, heat transfer film, and twill film. This function allows allocating different parameters for corresponding decal layer numbers to do die cut (cut through media) for the unwanted parts, and kiss-cut (half cut) for the kept material parts, after the laser cutting, users can just peel off the materials to get rid of waste parts.

Visit GCC LaserPro Youtube channel for decal cutting introduction video at
https://www.youtube.com/watch?v=YgGTMHqtWqE&feature=youtu.be

Decal layer No. 2:
Die cutting pen (Cut
through)

Decal layer No.1: Kiss-
cutting pen (half cut)
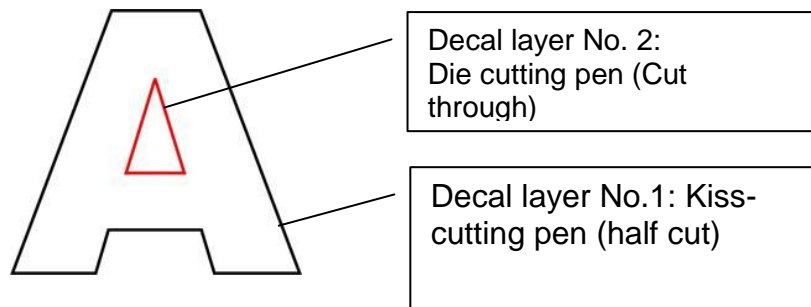
Cluster (Advanced Page) [DEFAULT SETTING: Unselected]

This setting allows you to change how the Spirit interprets and processes individual / independent areas of an image in order to minimize job-processing times. The Cluster function is only applicable when multiple areas of an image are broken down and isolated from each other (areas not touching each other, blank space in-between). Another condition that must be met for the Cluster function is that these individual areas of your design must have some X-axis overlap, meaning that they should be to some extent side-by-side with empty spaces between them. The distance value can be set by the user and represents the limit or cutoff point in which side-by-side objects will be processed in Cluster mode or not. If the distance between side-by-side objects is greater than the set distance value, then the individual areas will be processed in Cluster mode. Conversely, if the distance between side-by-side objects is lesser than the set distance value, then the individual areas will be processed normally (not via Cluster mode).

An example of an image that would benefit from the Cluster function would be: 2 squares to be engraved, side-by-side on the X-axis with a 20 cm gap in between them. In this scenario, you would want to enable the Cluster setting and set the distance to a value less than 20. By doing so, the laser will completely process one square and "leap-frog" to the second square, rather than processing both squares simultaneously. The resulting processing time is minimized by eliminating the unnecessary travel distance the laser head needs to make across the X-axis in between squares, if they were to be processed simultaneously.

NOTE
If you wish to use the Border and Cluster function simultaneously, then the Border Thickness value must be less than the Distance value specified in the Cluster setting.

Enhanced Vector Mode (Advanced Page) [DEFAULT SETTING: Unselected]

This setting allows you to improve the cutting quality at the expense of speed. Your engraving speed will be dropped by 50%, to maximize the cutting power. We recommend that you enable this function when cutting thicker materials.

5.2.3.4 X252RX & X380RX Print Driver >> Paper Page
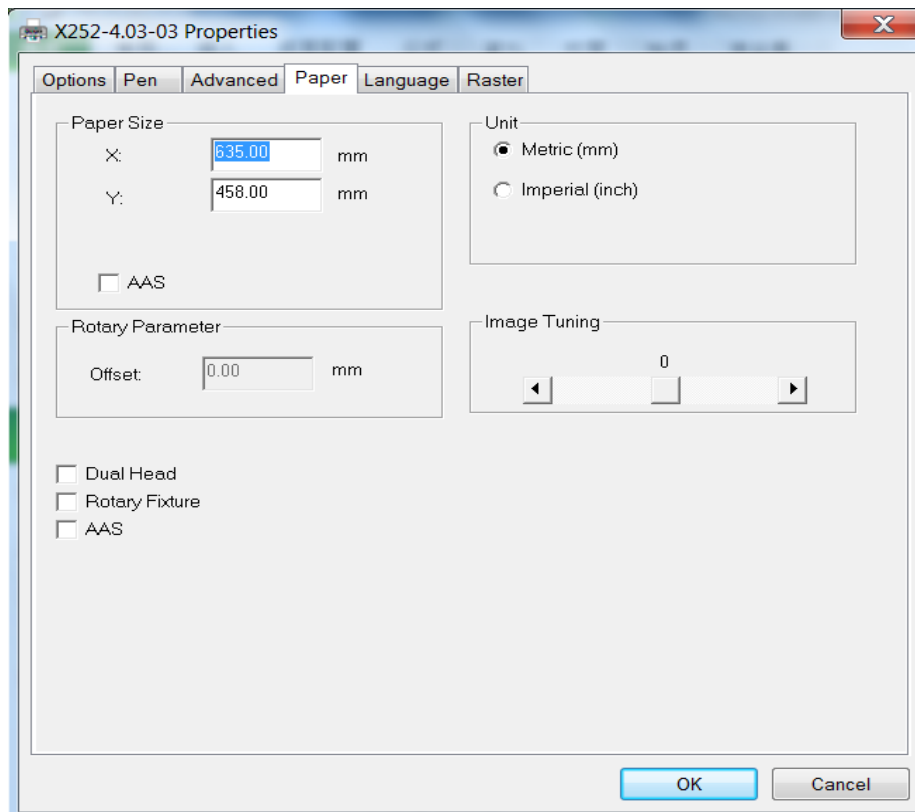
Paper Size (Paper Page)

The paper size represents your total work area. Ensure that the paper size is never set greater than the X252RX and X380RX's worktable area of 25" x 18" (635mm x 458mm) and 38"x24" (966x610mm) respectively. 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 X252RX & X380RX print driver. You can choose between metric or imperial standards.

Image Tuning (Paper Page) [DEFAULT SETTING: 0]

In the event that you are processing extremely fine and detailed designs requiring near-microscopic edge-to-edge precision, you will need to adjust the image tuning setting. To adjust this setting, we recommend that you engrave a small black square design as a sample and use a magnifying glass to view the engraved results.

When you look at your engraved test square under a magnifying glass, you may notice the edges of your square may be slightly offset, with every consecutive engraved even or odd line protruding past the square's ideal edge. This occurrence may occur on the left or right side of the square and can be compensated for by the image tuning setting. In the diagram below, the arrows refer to the direction the laser head is moving to generate that engraved line. If the first and every other line protrude to the left of the square's ideal edge, you will want to set the image tuning to a negative value. If the first and every other consecutive line protrude to the right of the square's ideal edge, you will want to set the image tuning to a positive value. The further the protruding lines are from the square's ideal edge, the larger you will need to set the Image Tuning value to compensate.

Square's Left Edge	Square's Right Edge
Set Image Tuning to NEGATIVE	Set Image Tuning to POSITIVE
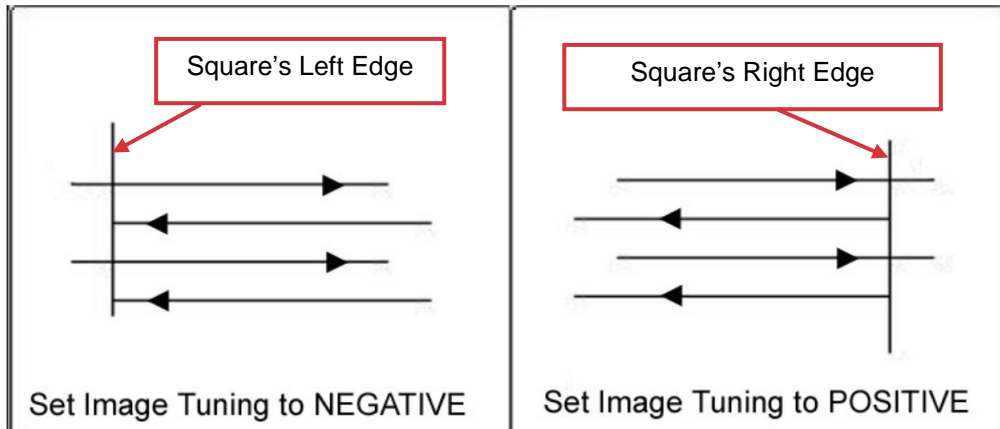
The following is an example that has the proper image tuning, and demonstrates this significance when engraving fine, small, intricate text. The following two pictures show engraved text magnified with no image tuning (left picture) and image tuning enabled (right picture).

Rotary Fixture (Paper Page) [DEFAULT SETTING: Unselected]

> **ℹ NOTE**
> This option is only to be used with the Rotary Attachment optional accessory properly set up. For instructions on how to set up the Rotary Attachment, please refer to Chapter VII of this manual.

You will need to select this option when processing a job with the optional rotary attachment system to engrave on round or cylindrical objects. When you have your material and rotary attachment properly set up:

1) Check the Rotary Fixture function and notice the change in the Paper Size fields under Paper Size, the X value represents the length of your work piece. Enter the length of your work piece in this field.

2) Under Paper Size, the Diameter value represents the diameter of your working piece (at the position you wish to engrave). Enter the diameter of your work piece in this field. Again, remember the proper diameter value would be the diameter location, at the point of engraving on your work piece.

3) Under Rotary Parameter, the Offset value represents distance from the open end of your work piece to the base of the padded rubber wheel. This value will be displayed on the LCD panel. Enter the proper offset value in this field.

# 5.2.3.5 X252RX & X380RX Print Driver >> Language Page

This page allows you specify the language displayed by the X252RX & X380RX Print Driver. Current language options allow for: English, Spanish, French, And Chinese (Simplified, Traditional), Japanese, and German. Remember to select "Save to Default" on Options Page to save the specified language.
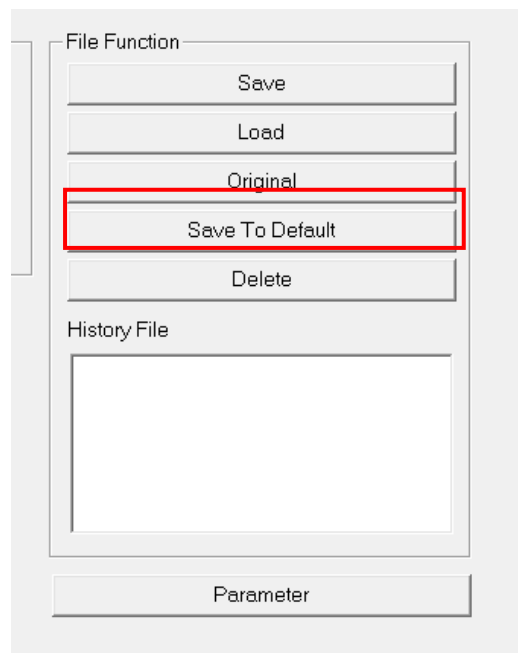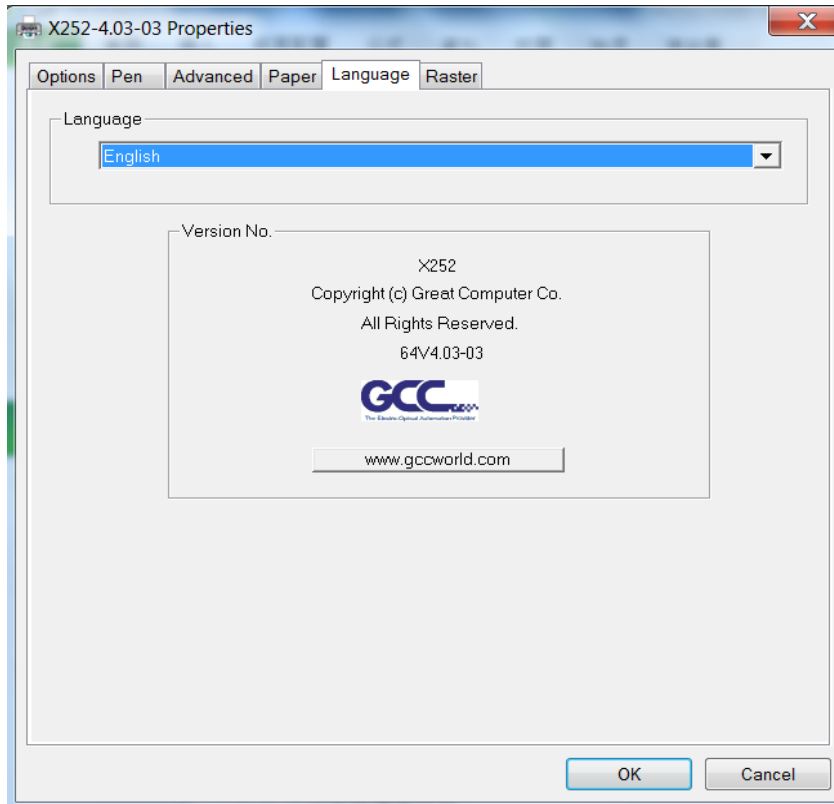
5.2.3.6 X252RX & X380RX Print Driver >> Raster Page
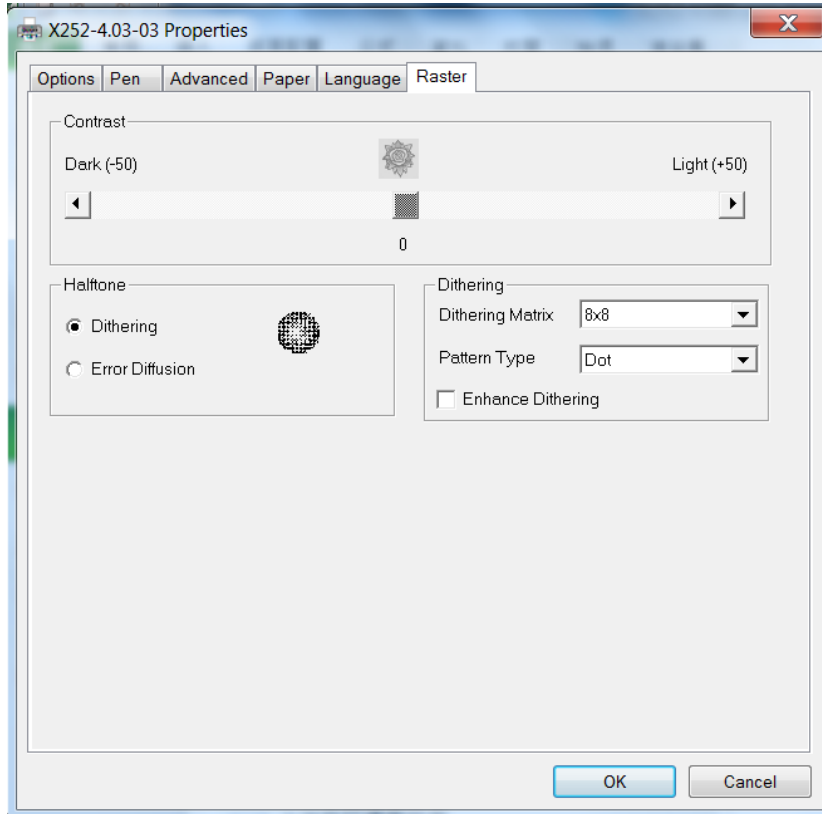
Contrast (Raster Page) [DEFAULT SETTING: 0]

This provides a quick and easy way to immediately adjust the contrast of an engraved image. Moving the slider to the Dark setting will increase the contrast levels of the engraved output, whereas moving the slider to the Light setting will decrease the contrast levels of the engraved output.

TIP

There are other ways to adjust an engraved image's contrast such as: adjust the power/ speed settings or simply adjust the contrast of the image in software with the graphic software application.

Halftone (Raster Page) [DEFAULT SETTING: Dithering]

This option controls the way a raster-engraved image is processed. The "digital image to engraved output" process can be processed via two methods: Dithering or Error Diffusion. Each offer additional output options yielding different output effects, style, and quality.

- **Dithering:**

  Interprets and outputs the raster engraving via the dithering method. This mode will allow you to select the Pattern Type and Dithering Matrix, and Enhanced Dithering.

  o **Pattern Type: Dot, Bayer, Corner, 45 Degree [DEFAULT SETTING: Dot]**

    Each pattern type uses a different shape and arrangement of dots to compose the shading effect of a raster image. The following diagram is an example of the raster effects when using the different pattern types.
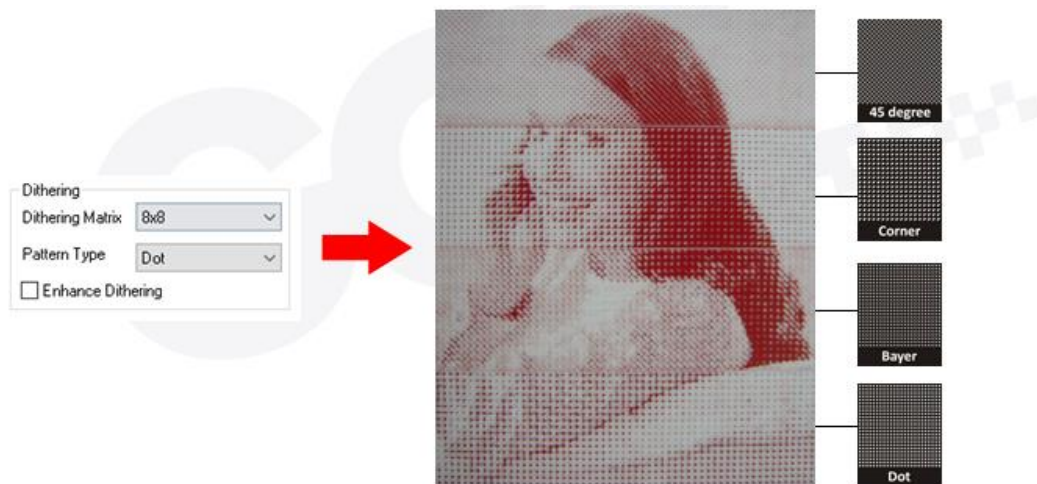
o **Dithering Matrix** [DEFAULT SETTING: 8x8]

This controls the resolution (dot size) and the number of dots the image is broken down into for the dithering process. As an example, selecting 2 x 2 will shade with a 5-grade halftone, where as an 8 x 8 Dithering Matrix will dither with a 65-grade halftone.
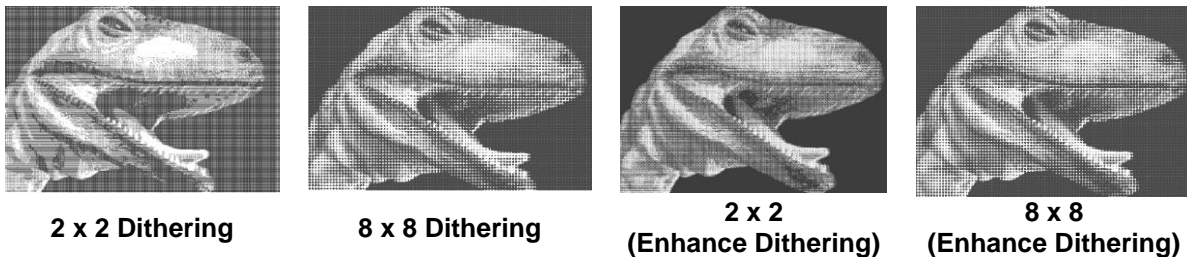
The following diagram is an example of the raster effects when using the different dithering matrices.

| **2 x 2 Dithering** | **8 x 8 Dithering** | **2 x 2 (Enhance Dithering)** | **8 x 8 (Enhance Dithering)** |

o **Enhance Dithering [DEFAULT SETTING: Unselected]**
Selecting this will produce a finer dithering output.

• **Error Diffusion (Raster Page)**
Interprets and outputs the raster engraving via the error diffusion method. This mode will allow you to select from three diffusion types: Floyd, Stucki, and Jarvis.

o **Diffusion Type: Floyd, Stucki, Jarvis [DEFAULT SETTING: Floyd]**

Each diffusion type presents the shade of image as different spread halftones instead of dots to compose a raster image.

The following diagram is an example of the raster effects when using the different diffusion types.
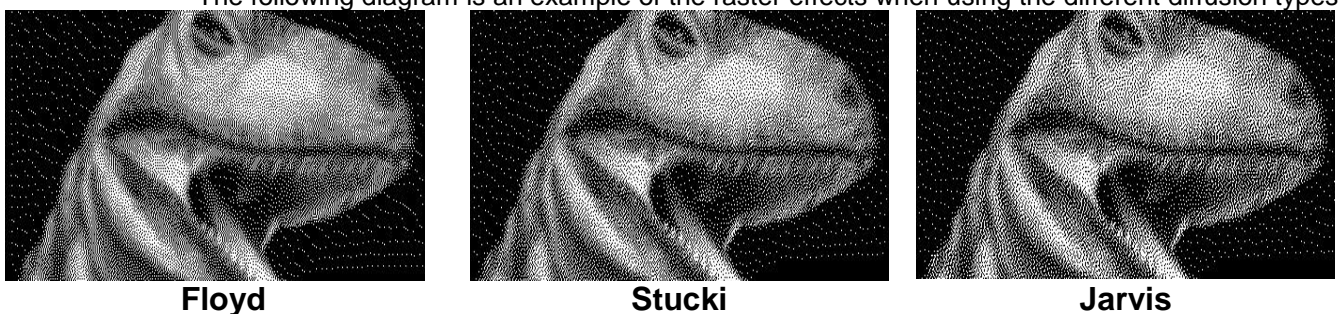
| **Floyd** | **Stucki** | **Jarvis** |

5.2.3.7 X252RX & X380RX Print Driver >> Stamp Page

Producing stamps require different operational steps than your standard engraving or cutting jobs. The Stamp page offers dynamic options allowing you to customize your stamp production process.

Pitch (Stamp Page)

Your stamp will be a reversed image composed of engraved depressions and ridges. Think of these ridges as the "contact sections" of the stamp. If the ridges of these contact sections are too thin, they may break. The Pitch setting allows you to increase the width of the ridge base, hence creating more stable "contact sections" and longer lasting stamp. The pitch value setting allows you to adjust the base width of the ridge. Broad pitch gives the maximum amount of support for each ridge. Experiment with different pitch value settings in order to produce the stamp that is best suited for your application.

Adjustment Bar/ Power Level (Stamp Page)

Another important aspect of creating a stamp is setting the slope level of the shoulder. The shoulder is the section from the "contact section" of the stamp to its base. This function allows you to adjust the slope for the shoulder sections of your stamp. By sliding the sliders or directly input of power levels, you will be able to change the slope of the shoulder.

Printing Preferences

Options | Pen | Advanced | Paper | Language | Stamp

Pitch [0.30] mm

Shoulder Level

Adjusting bar

Bridge: contact area of the stamp

Slope of ridge (shoulder level)

Base of ridge (pitch)

OK   Cancel
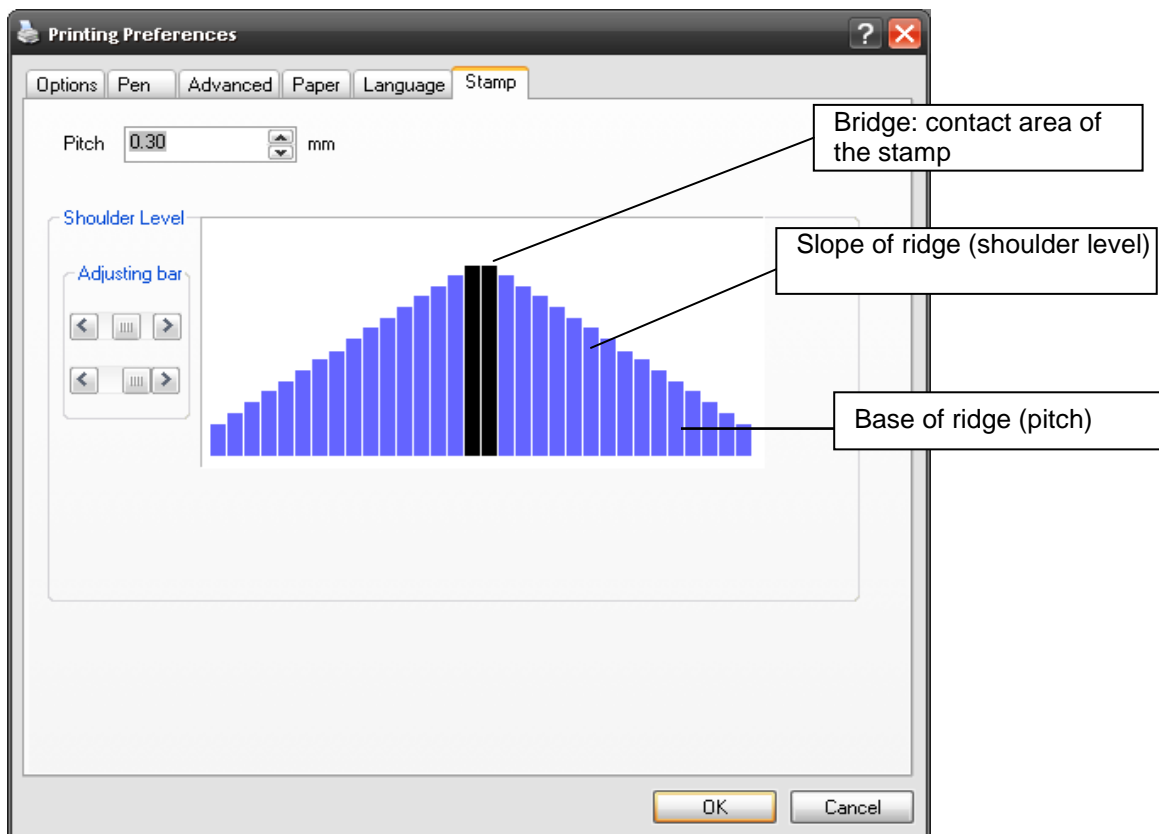
ℹ️ **NOTE**

The visual representations of the Pitch and Shoulder Levels in the Spirit Series driver are an exaggerated representation to allow for easy visual guidance and precise input. Remember we are working with distances less than 1 mm here.

Chapter VI - Cutting Techniques

6.1 Raster Engraving

A laser engraver can process text, scanned image, digital picture, or design by "laser firing" grids / dots of individual pixels into a raster image. Think of this as simply "printing" your job onto any particular material. An example of a raster engraved piece would be a photo engraving on tile, as shown in the picture below.

6.2 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.
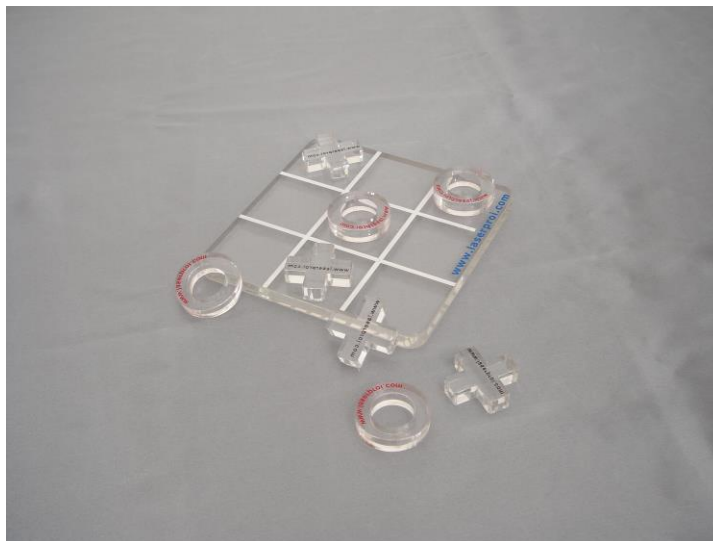
The LaserPro X252RX & X380RX Print Driver determines vector cut based on the outline width of that particular area or section of the design. In order to prep a particular section for vector cutting, you will need to set that object's fill color to white and set its outline thickness between 0.001" (0.025mm) 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 X252RX & X380RX) and watch as your string of characters is vector cut.

6.3 Vector and Raster

In some cases, you will want to process both raster engraving and vector cutting tasks within a single project. For example, if you wanted to engrave a design onto a particular material and then cut a particular shape around that engraving. The picture below is an example of engraving on a piece of leather which has then been cut out: The picture below is an example of an engraving on a piece of cork, which has then been cut out with a square shape:

In these situations when there are raster engraving and vector cutting operations on a single project, the LaserPro driver will interpret between raster sections and vector sections by the types of lines and line widths of your design. Areas of your design with line widths set between 0.001" (0.025 mm), 0.004" (0.1 mm) will be designated for vector cutting, and the other areas will be designated for raster engraving.

6.4 3D Tips

3D Mode is one of the functions of LaserPro laser engraver. Instead of traditional two dimensional graphic processing, 3D Mode allows the naked eyes to visualize the curvatures of the 3D effect by applying 200 power levels technology to create different depth of engraving. Although it is easy to produce 3D samples with LaserPro Engraver, production of the 3D graphic can be a hassle for our users.

Principle for 3D production by laser

3D processing uses degrees of the gray level to adjust the output energy of the laser. Take the figures below as an example. When the color of a certain block is set as 100% black, the laser output energy for processing will be at 100%. The processing depth will be fairly deep. When the gray level is set as 50% black, the laser output energy will be adjusted to a smaller value accordingly so that the processing depth is not as deep.

By specifying the degrees of the gray level in this way, various energy output is achieved and the 3D effects are produced.
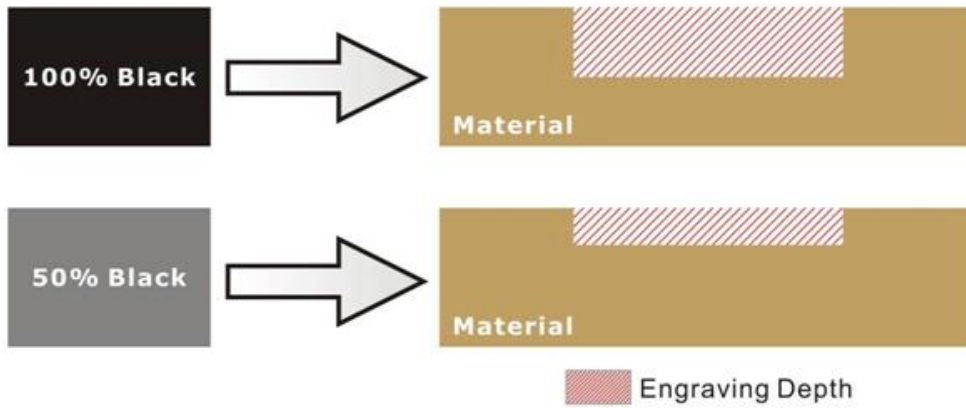
By specifying different levels of black in design software, the corresponding laser power energy will generate different depths of engraving result.

Introduction to software for 3D graphic production

Many ways to produce 3D graphics are available. If you are familiar with or frequently use one of the 3D software in the market like Laser Type, EngraveLab, 3D Studio etc., you may use it for the production of 3D graphics. After completion, save the 3D images as one of the formats that is compatible with the Laser Engraver (such as JPG or BMP) and let the machine begin the engraving. If you are not familiar with any 3D software, some editing software specific for laser in the market also have 3D mode functionality, which could be a handy tool for you to produce 3D objects. Of course, you may also use Photoshop or CorelDRAW, which you might be using on daily basis, for the production of 3D objects. Ways to produce 3D graphics with these software are not the same. In the following section, we will give you simple illustrations with respect to how these software work.

Laser Professional AP

Currently, quite few laser professional application softwares like Laser Type, 3D studio, EngraveLab are available in the market. You can not only create all kinds of vector images with these AP but also convert these vector images into 3D module, which is a great way to produce 3D graphics.

As illustrated in the figure below, all you need to do is to choose the direction of the vector and then set the length and shape of the convex or concave surface. The software will automatically generate the 3D graphic for you.
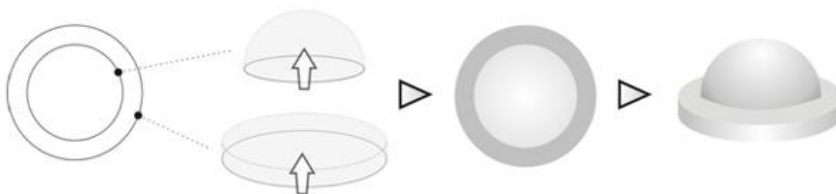

Concept illustration of 3D graphic production with Laser Professional AP

After the graphic is completed, you can output the 3D graphic directly to the laser machine through GCC LaserPro driver, which is very handy. Or you can also export the 3D graphics as JPG or BMP format and edit with frequently used CorelDRAW or Illustrator software, then output the graphic to GCC laser system.

Photoshop & CorelDRAW

The way to produce 3D graphics with Photoshop and CorelDRAW is very similar. Fill in the desired gray level colors to each of the drawn figures, and proceed with further arrangement and combination. Then you may output the 3D graphic to the laser for the production of the 3D object. Take the figure below as an example. After producing two graphs in gray level, proceed with the arrangement and combination. Then you may let the laser proceed with 3D mode.
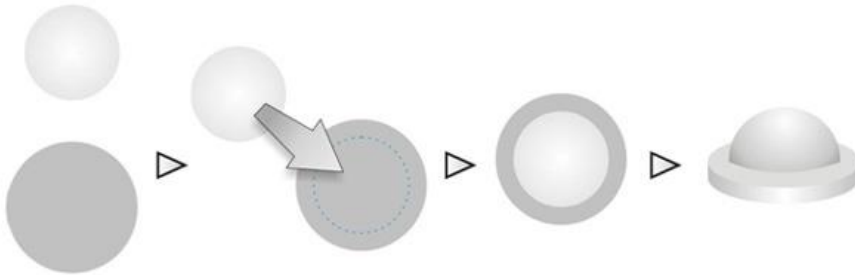
Both Photoshop and CorelDRAW may produce 3D graphics in the manner of combination.

A way to produce 3D graphics

For the production of 3D graphics, in addition to the requirement of having great familiarity with the software, a significant amount of time is required to design and arrange the layout. Thus, we use a relatively simple graphic for illustration so that you would understand how to produce 3D graphics better.

Take the graphic above as a production example. CorelDRAW is used for the production of the 3D graphic.

Step 1. Produce the gray level background

1
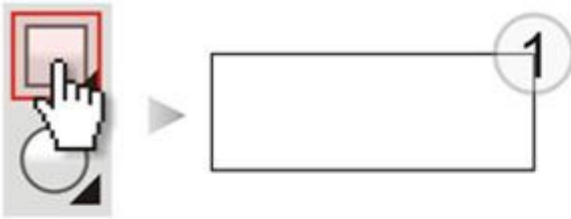
▲Draw a rectangular box with the drawing tool

2

Uniform Fill...
Fountain Fill...
Pattern Fill...

▲Select Fountain Fill to fill in the gray level

3

Type: Linear
Linear
Cente
Radial
Conical
Horiz Square
Vertical: 0 %
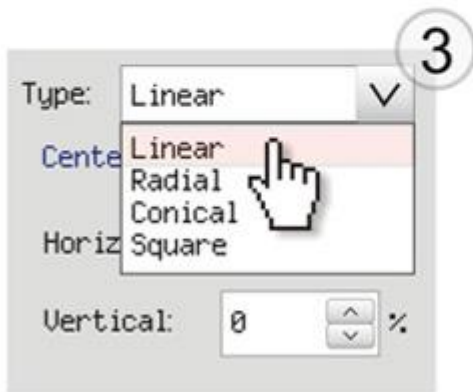
▲Select Linear as the type of the gray level

4

Options
Angle: 90
Steps: 256
Edge pad: 0 %
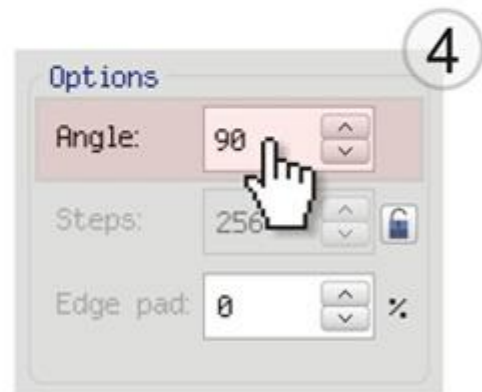
▲Set the gray level angle as 90 degrees

5

Color Blend
Two color   Custom
m:
To:
Mid-point: 50
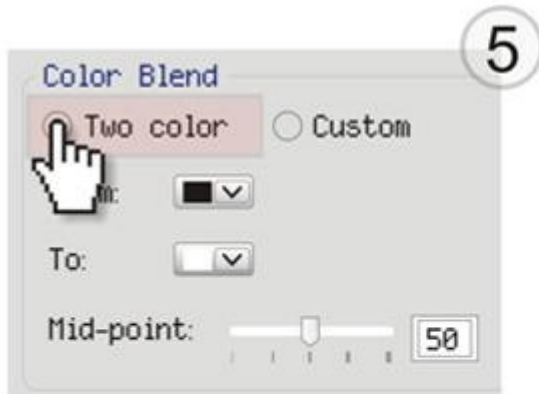
▲Select Two color as the type of the gray level

6

Color Blend
Two color   Custom
From:
To:
Mid-poin   50
Other...
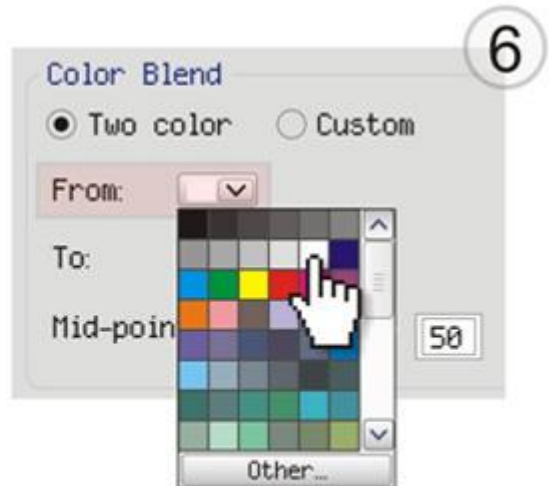
▲Set the From color as 0% Black

Color Blend

◉ Two color ○ Custom

From:

To:

Other...

Mid-point 50

▲Set the To color as 100% Black

Color Blend

◉ Two color ○ Custom

From:

To:
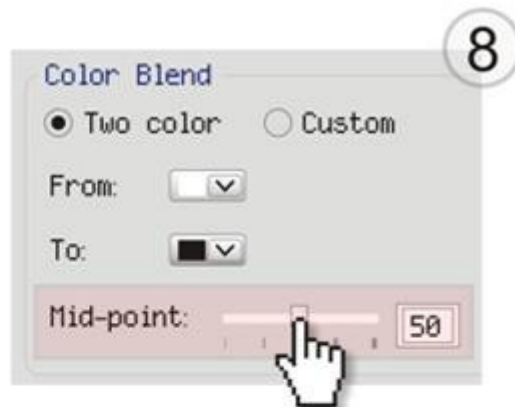
Mid-point: 50

▲Set the Mid-point as 30

OK Cancel Help

▲Click OK to complete the editing

▲A gray level graphic is finished

LaserPro requests your attention

If you need to produce circular 3D graphics, you only need to select Radial as the gray level type in the pull-down menu of Type. Then, a circular 3D graphic may be produced.

Type: Radial

Cente Linear
Radial
Conical
Horiz Square

Vertical: 0 %
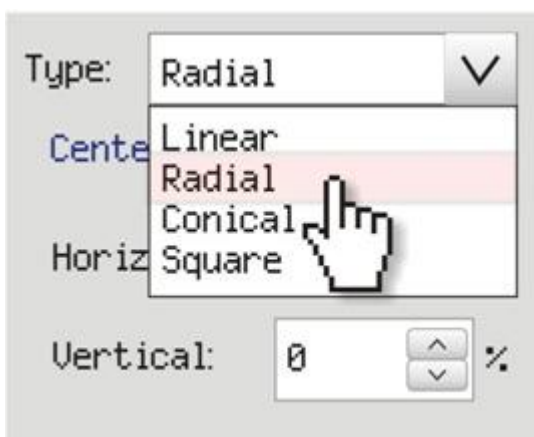
Step 2. Produce three-dimensional characters

① ▲Edit the word with the Text toolbox

② ▲Use the Color toolbox on the right to fill the white color into the characters

③ ▲Select the desired font and size

④ ▲**Bold** and *italic* style may also be used
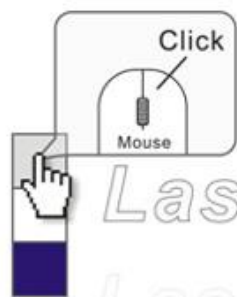
⑤ ▲On the palette, set the exterior frame as 10% gray level (Right click the mouse to set the color of the line for the exterior frame quickly)
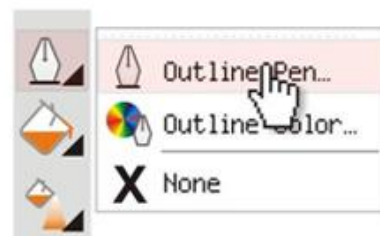
⑥ ▲Click on the Outline Pen tool

⑦ ▲Set the width of the line for the exterior frame
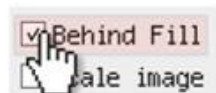
⑧ ▲Check the Behind Fill option

▲Click OK to complete the text editing

▲Three-dimensional characters are completed

Step 3. Edit the characters for the website

▲Edit the word with the Text toolbox

▲Select the desired font and size

Step 4. Combine the 3D images

After finishing the production for each of the objects, you may proceed with the combination of the objects. The combined graphic may be output with the laser engraver.

Output the 3D graphic

After selecting the graphic to be output, set the Mode as 3D Mode in the driver. After setting the engraving parameters, output the 3D graphic.

Tips for engraving 3D graphics

LaserPro Application Lab provides a few reminders that may require your attention during the 3D engraving in order to improve the result of the engraving.

Turn on the Air Assist function

When the engraving is done along with Air Assist, the depth of the engraving would be deeper. Set Air assist inside the driver by checking the box.

Polish

Dust will accumulate during the engraving when acrylic is engraved. The acrylic may be polished with Polish after the engraving. After the processing, don't remove the engraved object. Use the Control Panel to lower the platform (for about 7~8 mm) and then engrave once again to achieve the better finish.
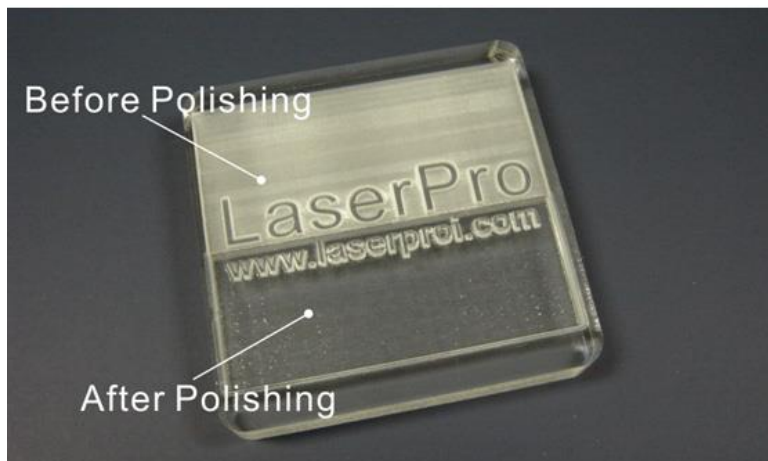
After engraving the wooden objects, please use a toothbrush with some clean water to remove the dust on top of the object.

▲ Before cleaning   ▲ After cleaning

6.5 Modify Image Settings of A Picture for Better Engraving Quality

1. Connect your digital camera to the computer by USB cable.
2. Download the picture from the digital camera to the computer
3. Select the picture that you want to engrave.
4. Import the image from the folder where the picture is located by selecting File/Import
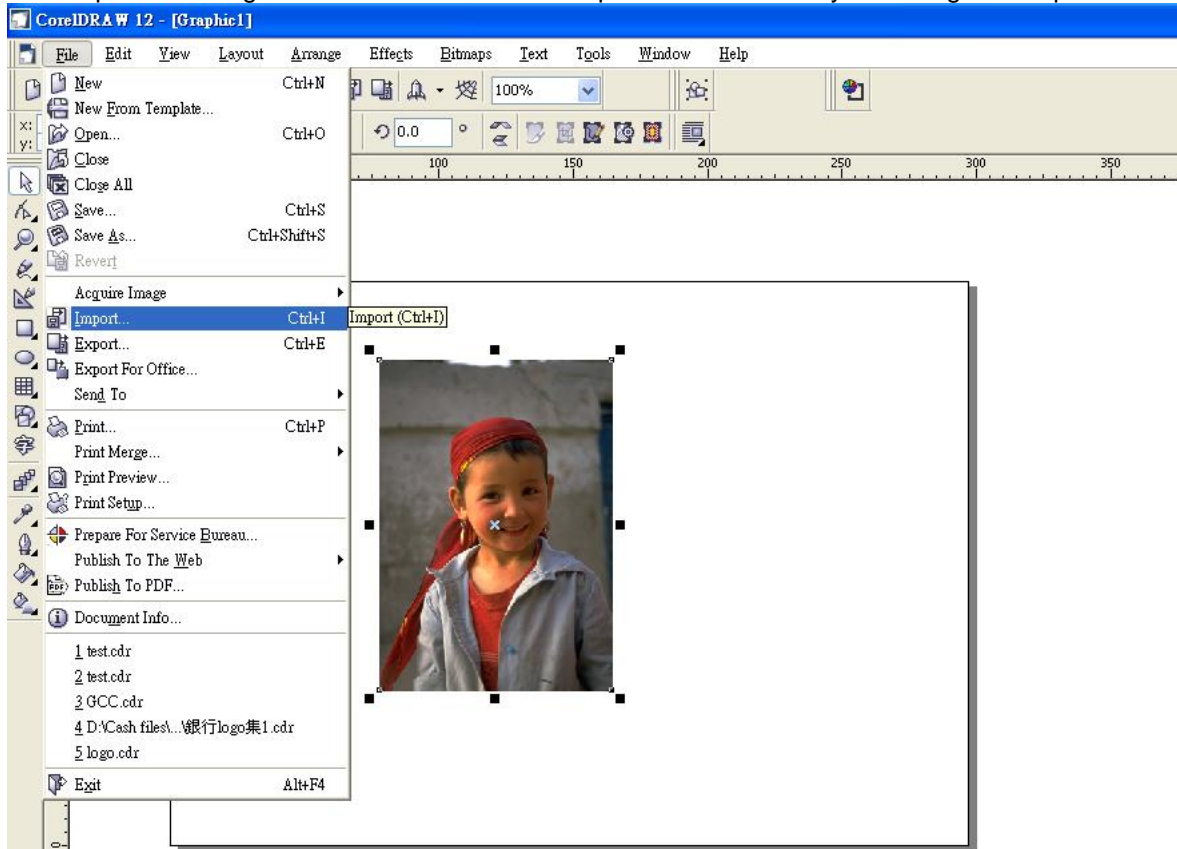
5. Convert the image to Bitmap by selecting the image and click on Bitmaps/Convert to Bitmap
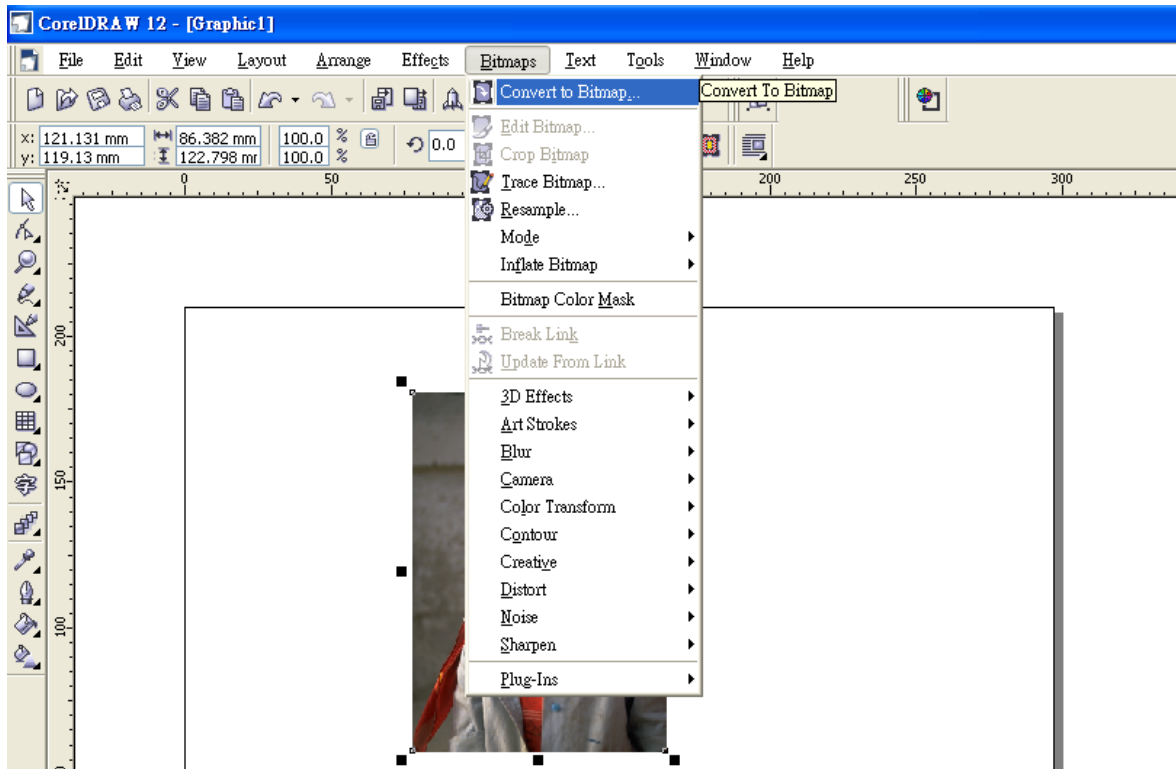
6. Change the Bitmap settings by setting "Color" to Grayscale (8-bit) and "Resolution" to 300 dpi and click OK.
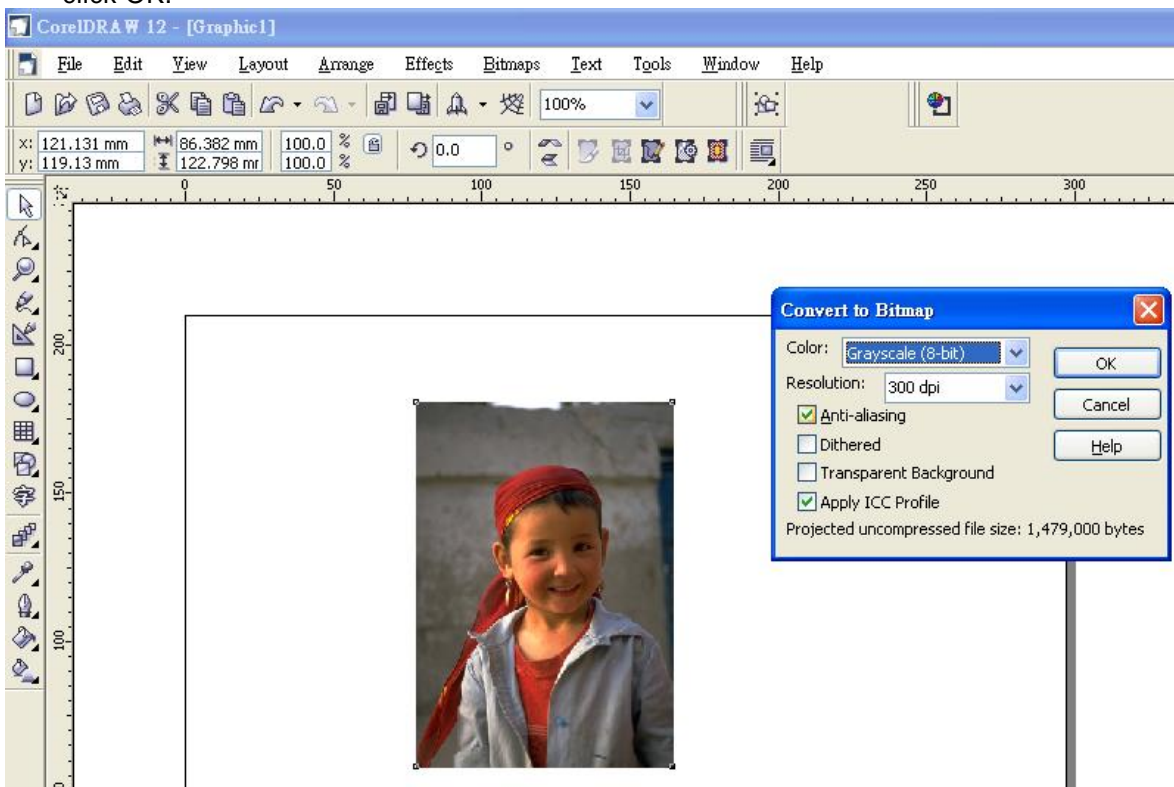
7. Finally, Invert the image by selecting Effects/Transform/Invert
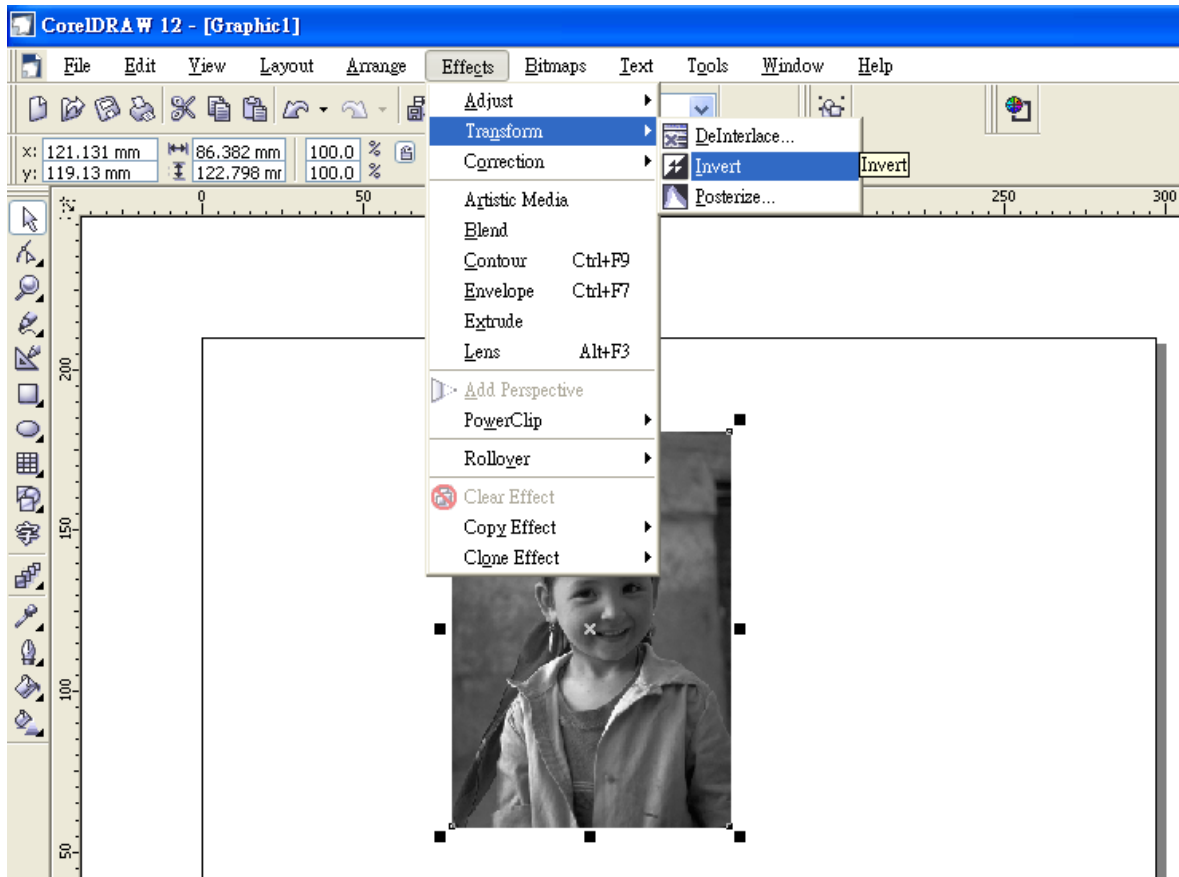
8. Now you are ready to output the modified image by clicking File/Print
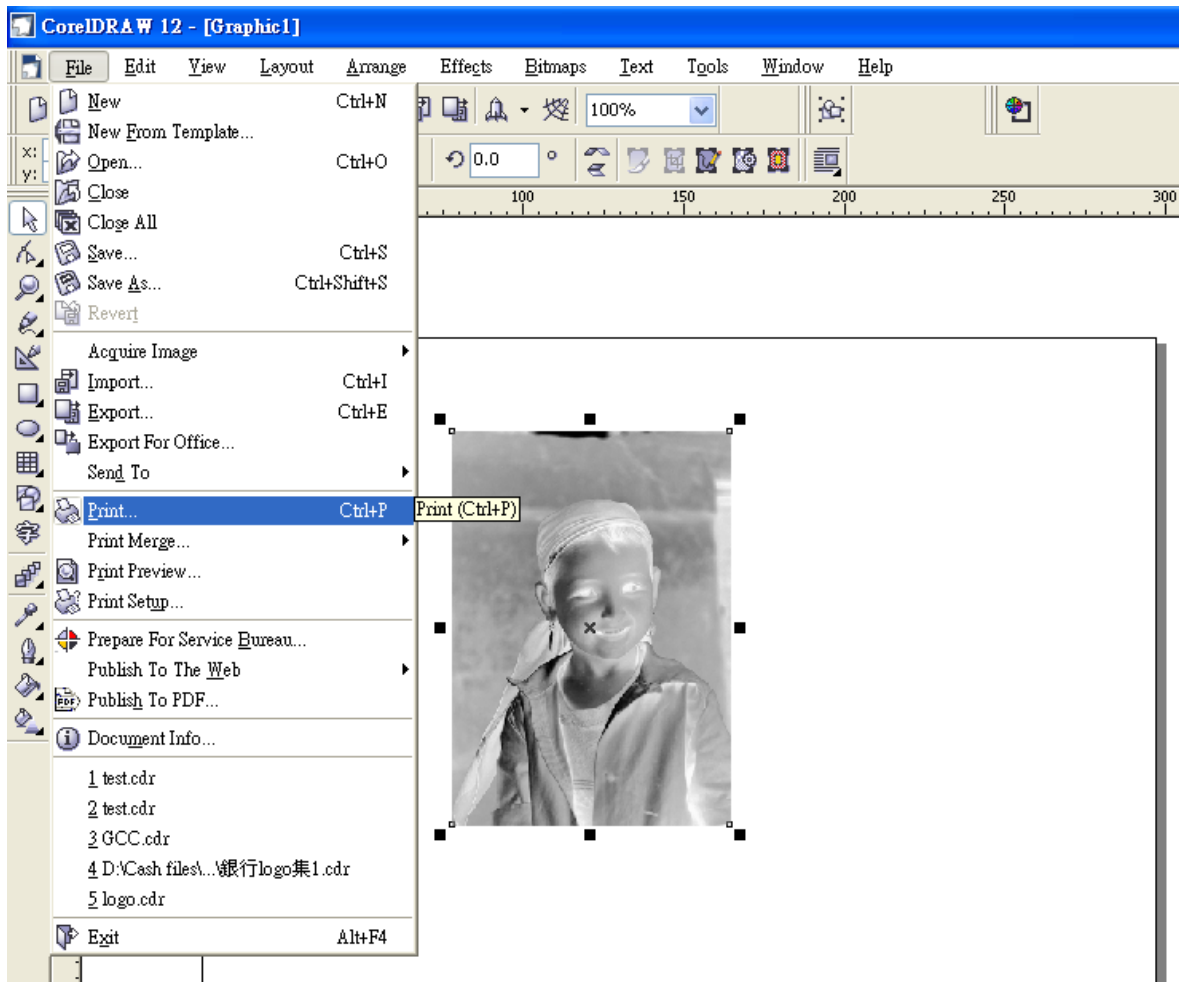
> **ℹ️ NOTE**
>
> This instruction is a simple example for general use. There are many tips and tricks to achieve a good engraving quality. It takes a lot of practice and experience to achieve a good engraving quality. Different picture may need different modifications and different material may need different parameters.

Chapter VII - Optional Items

When purchasing the LaserPro X252RX & X380RX 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 X252RX & X380RX, would you like to purchase any optional item, please contact your local authorized GCC distributor.

7.1 Fume 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 Fume Extraction system. The Fume 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 Fume 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 Fume 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 Fume Extraction System is powered by a maintenance-free, continuous-running turbine. In order to ensure personnel safety and legal compliance, the LaserPro Fume Extraction System is CE-compliant for Europe.To purchase a LaserPro Fume 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 X252RX & X380RX, so it can be routinely switched on prior to laser engraving. The maximal distance you should mount the exhaust system away from the X252RX & X380RX 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 4" or 8" diameter to the ventilation opening located on the rear side or bottom side of the X252RX & X380RX. (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.

4" Exhaust Port

8" Down Vacuum Exhaust Port (X380 model)
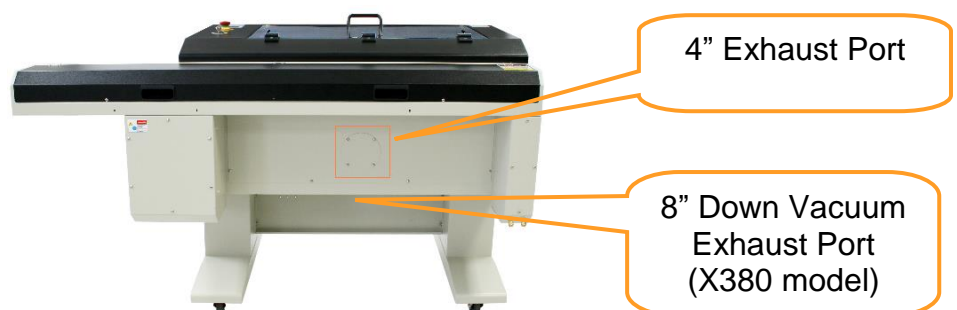
7.2 Air Compressor Option (220V Only)

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.

¼" Air Inlet Tubing

Power Cord B

Power Cord A

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).

2b

2a

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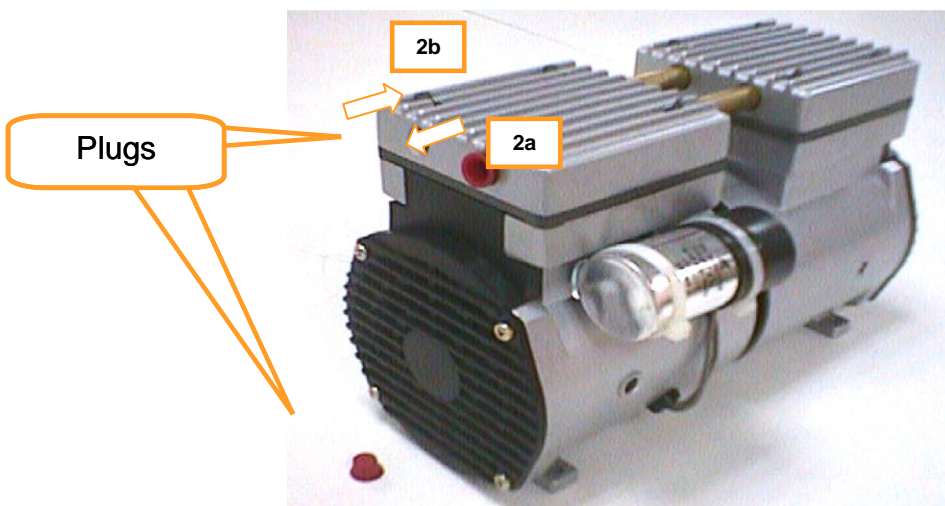
3) Connect a ¼" tubing to the air tube fastener valve on the air compressor.

> ℹ **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 X252RX & X380RX. 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.

Air Flow Regulator:

Turn Clockwise to increase airflow

Turn Counter-Clockwise to decrease airflow

Air Tube Fastener

Air Tube Connector
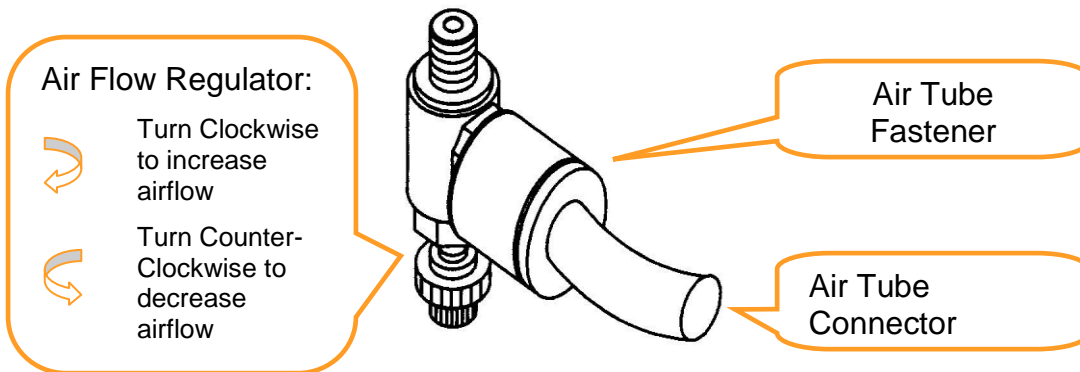
6) Plug the air compressor to the power outlet on laser machine to control the air assist function through laser driver and firmware.

<X252 Air Compressor Connection Power Outlet>

Plug the external **220V** air compressor to this power outlet to control the air assist function by laser machine driver and firmware

232001240G(11)

<X380 Air Compressor Connection Power Outlet>
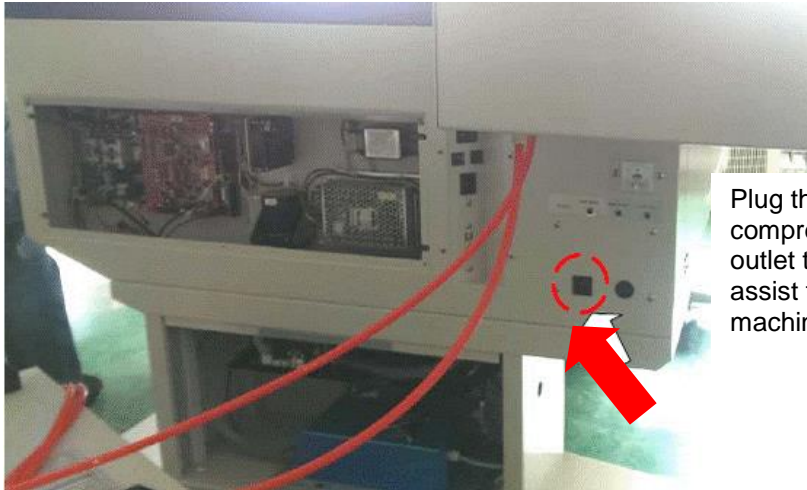
Plug the external **220V** air compressor to this power outlet to control the air assist function by laser machine driver and firmware

7) 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.
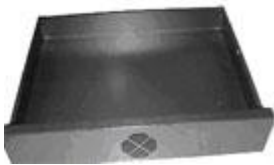
OPERATION:
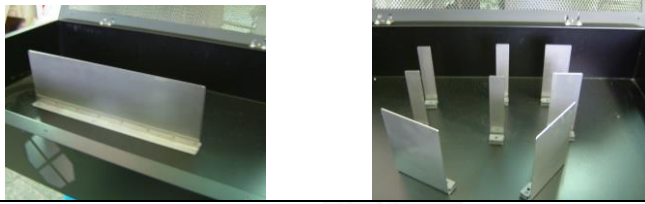
1) Switch on the air compressor unit and make sure that the airflow regulator on the air assist valve is opened (turn clockwise to increase the airflow, counter-clockwise to decrease the airflow). The air nozzle under the laser head should emit a steady flow of air.

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 X252RX & X380RX print driver and hardware control panel. Please refer to the LaserPro X252RX & X380RX PEN page on print driver section 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/ Aluminum Grid Cutting 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/ Aluminum Grid Cutting Table	Material Support Stands
Thin, Flexible Materials	Required	Required	Not Required
Thick, Firm Materials	Required	Not Required	Required

Action	Suggestion setups
Engraving	NO SmartBOX
Light cutting	Honeycomb table/ Aluminum Grid Cutting Table
Thick cutting	Cutting box + Support
Thin textile/fabric module	SmartBOX

> ℹ️ **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 X252RX & X380RX's worktable to the lowest possible position through the X252RX & X380RX control panel.
2) Insert the cutting box and attached honeycomb table through the open front pass-through door onto the worktable, with the Fume Extraction opening facing towards the back end of the X252RX & X380RX. 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 Fume Extraction system option installed, then you will need to attach the Fume Extraction system's pipe connector to the SmartBOX's Fume Extraction opening from the X252RX & X380RX's rear side. (For detailed instructions to setup the Fume Extraction system, please see the FUME 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 X252RX & X380RX, 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 X252RX & X380RX's worktable to lowest possible position through the X252RX & X380RX control panel.
4) Insert the cutting box through the open front pass-through door onto the worktable, with the Fume Extraction opening facing towards the back end of the LaserPro X252RX & X380RX. 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 X252RX & X380RX to properly account for the extra height the cutting table adds to the cutting table.
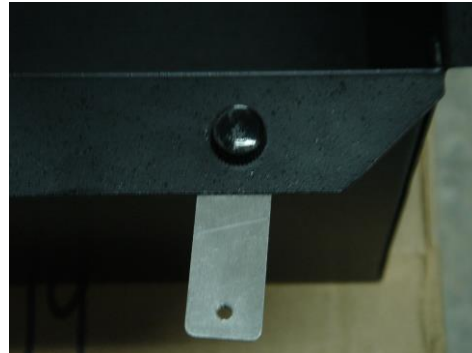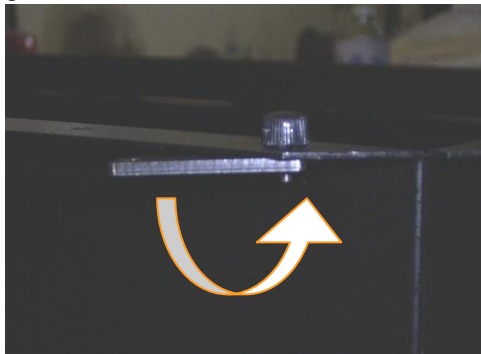
> ⚠ **CAUTION**
> Damage may occur to the system if you try to raise the work table without proper setting of the metal guard.

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.

> ℹ **NOTE**
> The LaserPro X252RX & X380RX 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 X252RX & X380RX print driver and hardware control panel. Please refer to the LaserPro X252RX & X380RX print driver and graphic control panel sections of this manual for details on how to enable and configure air-assist functionalities.

7.4 Rotary Attachment Option

The rotary attachment option provides the X252RX/ X380RX with the ability to engrave on cylindrical or spherical objects. In addition to the standard X, Y, Z axis, the rotary attachment allows for a fourth axis which rotates your object 360° to allow for engraving on cups, wine glasses, and even balls.
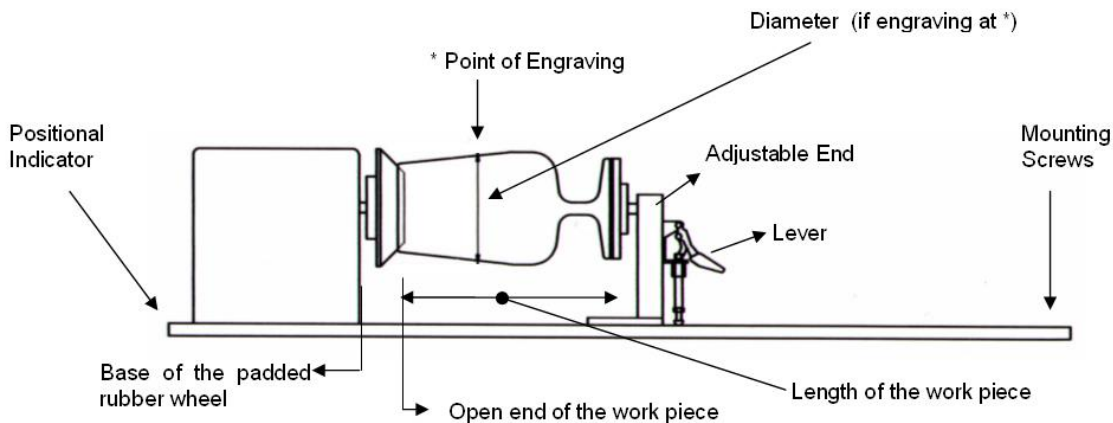
Medium Rotary Attachment for X252RX:

Work Piece Limitations	
Maximum Length	450 mm (17.71 inches)
Maximum Loading Weight	4 kg (8.8 lbs.)
Minimum Inner Diameter (Large conical fixture)	50 mm (1.96 inches)
Maximum Inner Diameter (Large conical fixture)	76 mm (2.99 inches)
Minimum Inner Diameter (Small conical fixture)	12 mm (0.47 inches)
Maximum Inner Diameter (Small conical fixture)	46 mm (1.8 inches)
Maximum Outer Diameter	176 mm (6.9 inches)

Large Rotary Attachment for X380RX:

Work Piece Limitations	
Maximum Length	650 mm (25.59 inches)
Maximum Loading Weight	4 kg (8.8 lbs.)
Minimum Inner Diameter (Large conical fixture)	50 mm (1.96 inches)
Maximum Inner Diameter (Large conical fixture)	76 mm (2.99 inches)
Minimum Inner Diameter (Small conical fixture)	12 mm (0.47 inches)
Maximum Inner Diameter (Small conical fixture)	46 mm (1.8 inches)
Maximum Outer Diameter	176 mm (6.9 inches)

Exchange the Conical Fixtures:

A. Remove the 2 screws shown in the picture below.

Remove these screws
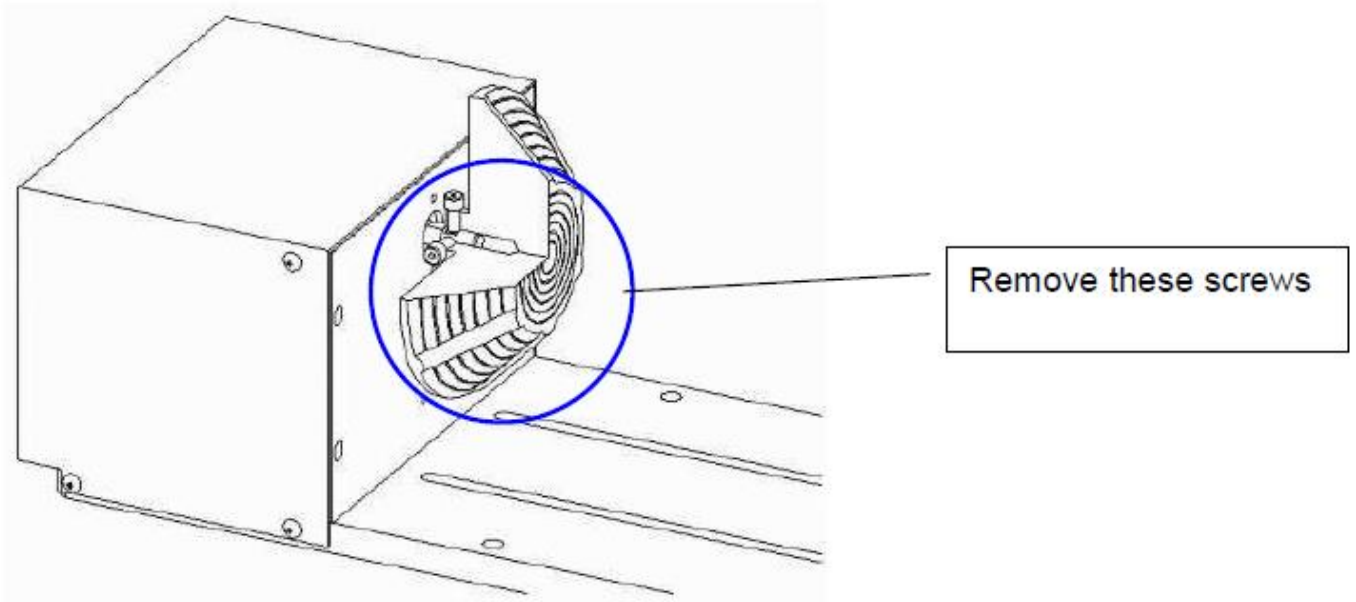
B. Detach the circular cylindrical cone by moving it in the direction of the arrow as shown below.
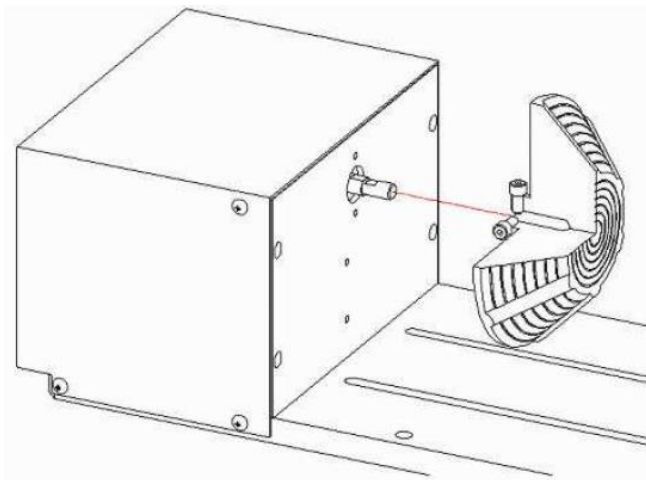
C. Assemble the smaller conical fixture onto the rotary attachment as shown below.
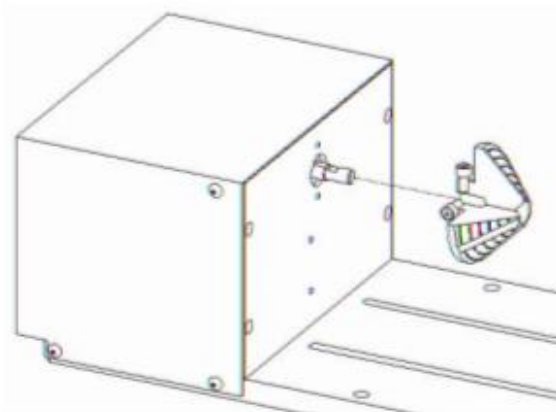
D. Use the flat surface as shown in picture below as a reference point and tighten the first screw against it. After doing so, tighten the second screw and the rotary attachment is ready for use.

| Flat surface |

| 1. Tighten this against the flat surface |

| 2. Tighten the second screw |
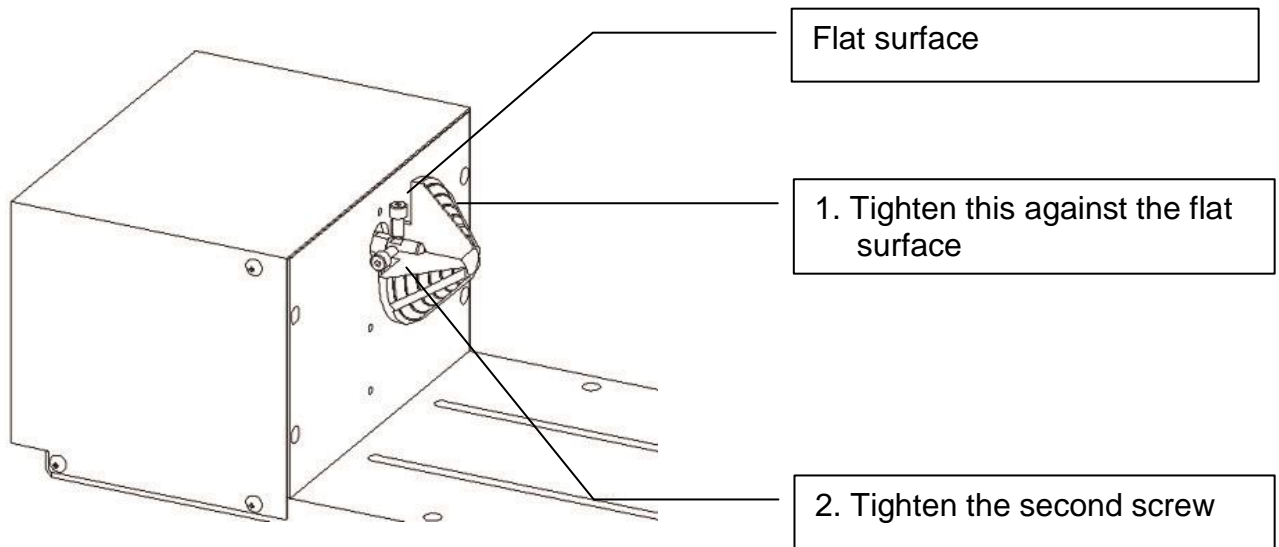
INSTALLATION:

1) Turn off the power of the engraver before installing the Rotary attachment.

2) Set the rotary attachment onto the engraving table so that the bottom mounting screws correspond to the positional holes on the engraving table. In addition, the top end of the rotary attachment must be leveled against the engraving table with the rotary's positional indicator (center point of the top of the rotary attachment) aligned to the center position on the engraver's vertical axis.

3) With the rotary attachment properly positioned, tighten the mounting screws to secure the rotary attachment.

4) Open the front panel of the X252RX/ X380RX and connect the rotary attachment cable to the rotary attachment port located inside the X252RX/ X380RX's front panel (shown in the picture below).

| Rotary Attachment Port |
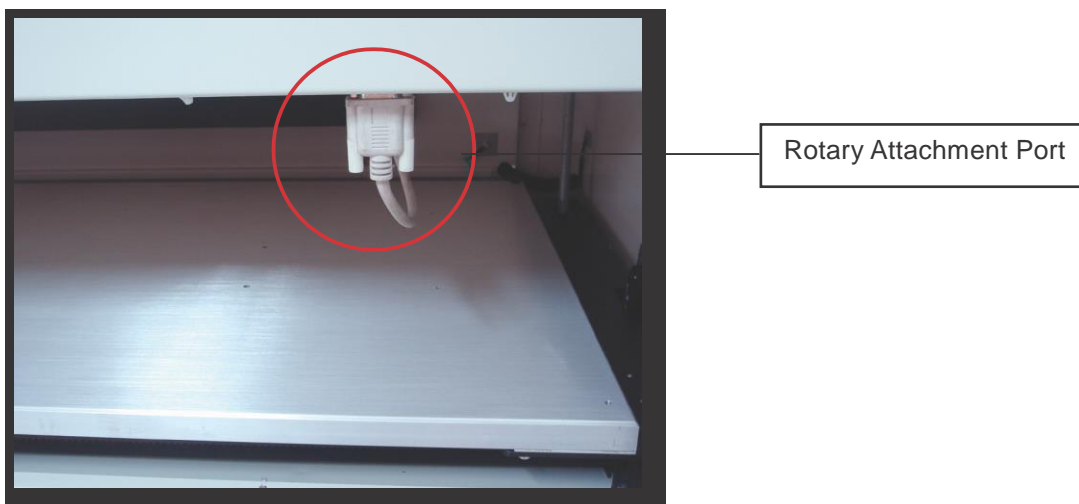
5) Close the front panel.

6) The rotary attachment is now properly installed. Power on the X252RX/ X380RX and the rotary attachment will be automatically detected and the engraving table will automatically move to its lowest position.

7) Despite the dummy-proof installation design, please ensure that the device is installed correctly before turning on the machine

OPERATION:

1) Use a ruler to measure the diameter (at the point on the work piece you will be engraving) and length of the work piece you will be engraving. Make a record of this.

2) Load the work piece onto the rotary attachment by first listing the lever on the rotary attachment, unlocking the adjustable end of the rotary attachment. Slide the adjustable end to accommodate the length of the work piece. Load the working piece by centering the open end of the work piece against the rubber wheel and slide the adjustable end to fit the bottom of work piece firmly. Now simply lower the lever to secure the work piece with the rotary attachment.

⚠ CAUTION

If your work piece is small, please apply 4" focal lens for operation to prevent the lens carriage from colliding with the rotary attachment.

---

3) Prepare the graphic you would like to engrave with the rotary attachment and go to the Paper Page of the print driver.

NOTE
Please refer to section 5.2 of the reference manual for complete instructions on how to use the X252RX/ X380RX's Print Properties.

4) From the Paper Page, the first thing you must do is to check the Rotary Fixture. The Paper Size options and Rotary Parameter will change to allow for proper input based on your rotary attachment.

5) Under Paper Size, the X value represents the length of your working piece. Enter the length of your work piece in this field.

6) Under Paper Size, the Diameter value represents the diameter of your working piece (at the position you wish to engrave). Enter the diameter of your work piece in this field. Again remember the proper diameter value would be the diameter location on your work piece you will be engraving.

7) Under Rotary Parameter, the Offset value represents distance from the open end of your work piece to the base of the padded rubber wheel. This value will be displayed on the X252RX/ X380RX's LCD panel. Enter the proper offset value in this field.

8) Your X252RX/ X380RX print driver settings are now properly set. Manually position the laser carriage to the proper X / Y location on the object you will be engraving and position the auto focus pin over the area to be engraved on your work piece. Hit the Auto Focus button and the X252RX/ X380RX will now properly focus at the location to be engraved.

9) Go back to the X252RX/ X380RX Print Driver to print your design and let the engraving begin.

10) Despite the dummy-proof installation design, please ensure that the device is installed correctly before turning on the machine

Chapter VIII Basic Maintenance

Keeping your LaserPro X252RX & X380RX 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 X252RX & X380RX'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 X252RX & X380RX before cleaning.
> - Damage may occur to the system if you do not turn off and unplug the X252RX & X380RX before cleaning.
> - Always turn off and unplug the X252RX & X380RX 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	1pc supplied; suggest search locally*
Lint Free Lens Tissue	Supplied
#2 Phillips Screwdriver	
Allen Wrench .050"	

*The recommended lens cleaner is Eclipse Cleaning System Solution from Photographic Solutions or HPLC grade Methanol. Search "Eclipse Cleaning System Solution" on Amazon or eBay to get the solution locally.

http://www.amazon.com/Photographic-Solutions-ECDCS-Cleaning-Solution/dp/B0000AUR1I

Eclipse Cleaning System Solution

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
8.2.2.1 Cleaning the Worktable and Motion System

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

1) Turn the power off and unplug the X252RX & X380RX 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 X252RX & X380RX.

⚠️ *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.

💡 *TIP*
Please clean the AutoFocus pin each time after completing the engraved job to make sure the AutoFocus pin is free to move.

8.2.2.2 Lubrication of the X / Y Rails

In order to keep the motion system running smoothly, the X / Y rails of the motion system will need lubrication on a weekly basis. Use a small amount of light grade machine grease to a paper or cotton towel and apply to the rails.

> **ⓘ NOTE**
>
> • Always clean and lubricate the rails after working with materials that produce lots of debris (such as wood).
>
> • Too much oil applied to the X / Y rails will accelerate the build up of debris.

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**!

The following section will detail how to access and remove each of the four mirrors found on the LaserPro X252RX & X380RX for cleaning.

Mirror 1
This mirror is located inside the laser cabinet of the LaserPro X252RX & X380RX.

1) Use a #2 Phillips Screwdriver to open the rear laser cabinet of the LaserPro X252RX & X380RX.
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.

Thumbscrew

Thumbscrew
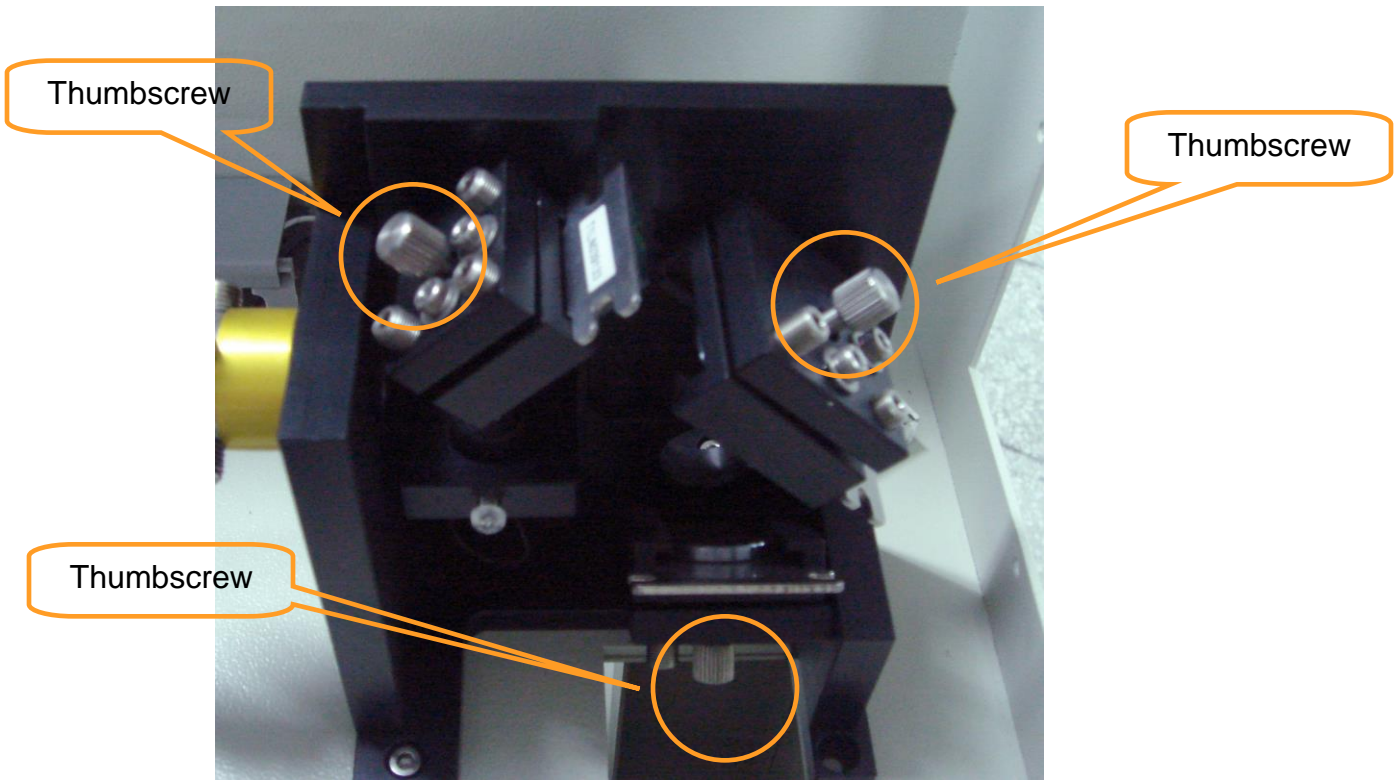
Thumbscrew

Mirror 2, 3, 4

These mirrors are located in the worktable area of the LaserPro X252RX & X380RX.

Mirror 2
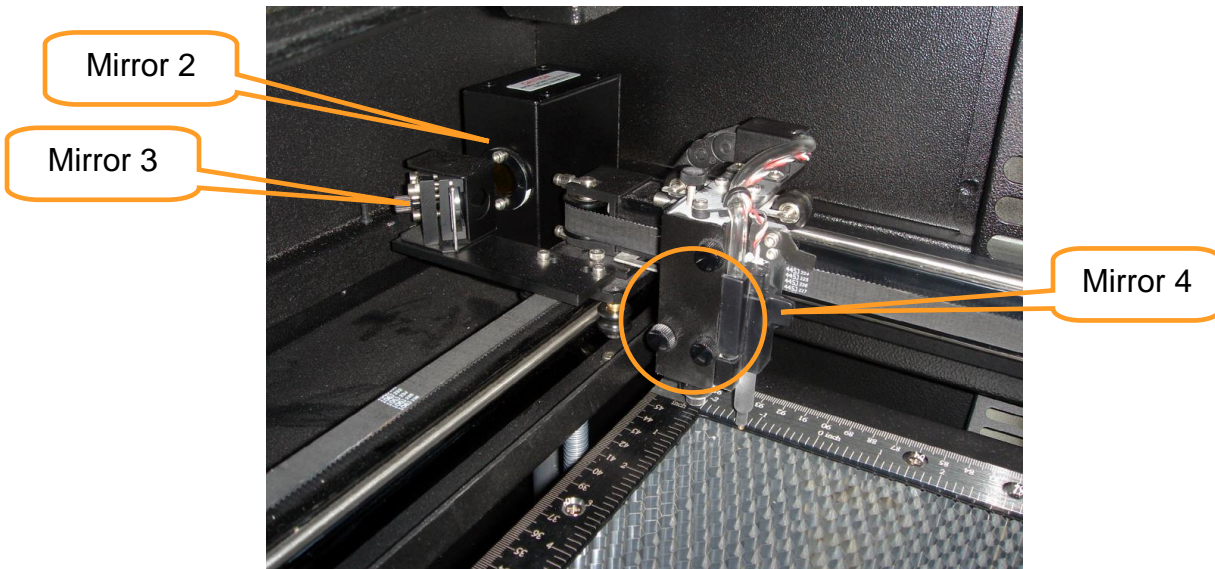
Mirror 3

Mirror 4

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.
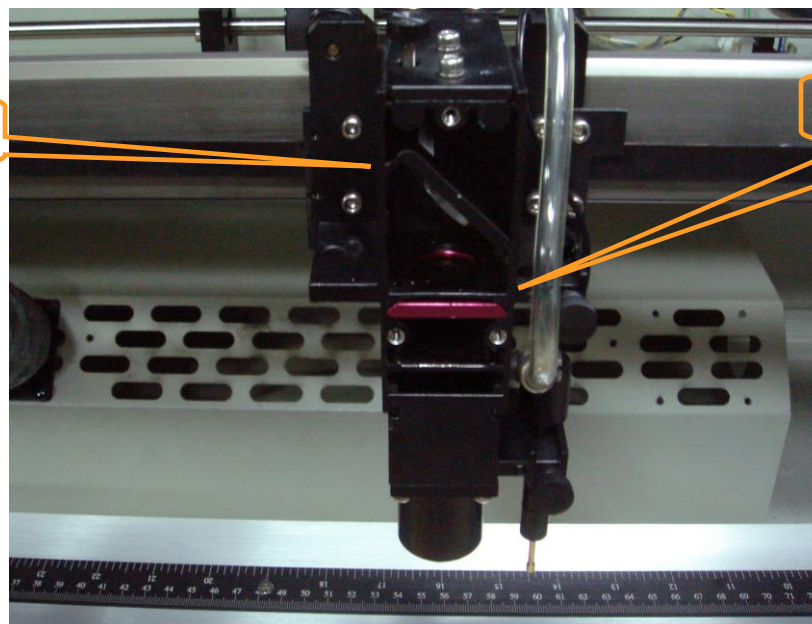5) Tighten the top thumbscrew.
6) Reinstall the laser carriage panel and tighten the three thumbscrews.

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 X252RX & X380RX 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).
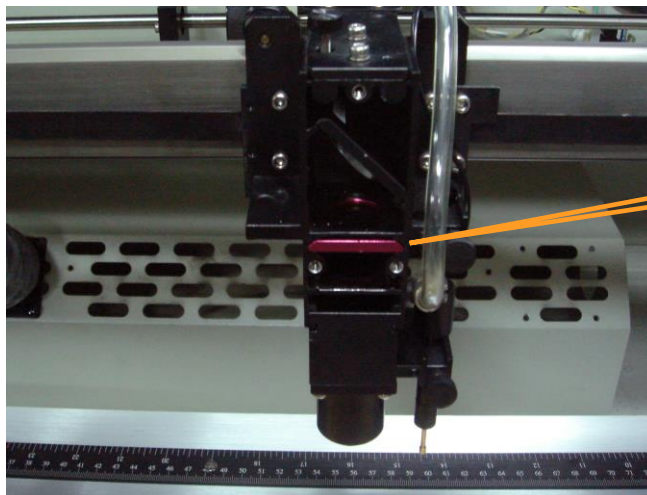
Focus lens

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.

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.

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 X252RX & X380RX Specification Sheet

Models		X252RX	
Wattage		80W	100W
Laser source		Sealed CO_2 Laser	
Cooling		Water Cool	
Working Area		25 x 18 in. (635 x 458 mm)	
Max. Part Size (WxLxH)	All doors closed	27 x 19 x 6.5 in. (685 x 482 x 165 mm)	
	All doors open	27 x ∞ x 6.5 in. (685x ∞ x 165 mm)	
Table size		31.1 x 20.9 in. (790 x 530 mm)	
Dimensions		72.9 x 44.3 x 50.0 in. (1850 x 1125 x 1270mm)	
Drive		Closed-loop DC servo control	
Maximum Motor Speed*		40 IPS	
Speed Control		Adjustable from 0.1~100% (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		10 Base-T Ethernet, Full-speed USB 2.0	
Safety		Class I Laser Product Compliant with EN60825 Class II Laser Product Compliant with CDRH 2006/42/EC Machinery Directive Compliance	
Facility Requirement			
Operating Voltage		200-240VAC, 50/60Hz auto switching, Max.8A	
Water Chiller		Water Chiller is required	
Fume Extraction System		External exhaust system is required, one 4" connection on the back of the machine	

Models		X380RXRX	
Wattage		80W	100W
Laser source		Sealed CO_2 Laser	
Cooling		Water Cool	
Working Area		38 x 24 in. (960 x 610 mm)	
Max. Part Size (WxLxH)	All doors closed	41 x 25 x 6.5 in. (1041 x 635 x 165 mm)	
	All doors open	41 x ∞ x 6.5 in. (1041 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 0.1~100% (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		10 Base-T Ethernet, Full-speed USB 2.0	
Safety		Class I Laser Product Compliant with EN60825 Class II Laser Product Compliant with CDRH 2006/42/EC Machinery Directive Compliance	
Facility Requirement			
Operating Voltage		200-240VAC, 50/60Hz auto switching, Max.8A	
Water Chiller		Water Chiller is required	
Fume Extraction System		External exhaust system is required, one 4" connection on the back of the machine, extra one 8" port on the bottom rear of the machine	

• Caution—Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

•Specifications are subject to change without prior notice.
•Speed is not equal to throughput. See dealer or visit www.GCCworld.com for more details.