



TIPS & TRICKS

Another helpful idea that will simplify and improve your laser projects

ILS Laser System Pre-installation

The following operational guidelines are vital to a safe and productive environment. It is your responsibility to provide a proper operating environment. This document will step you through site preparation as well as laser, computer, and software setup. Follow these instructions in the order shown:

- [Establishing a Proper Operating Environment](#)
- [Providing a Suitable Electrical Power Source](#)
- [Extracting Fumes and Particulates](#)
- [Software Installation and Operating System Requirements](#)



NOTE: Damage to the laser system due to an inadequate or improper operating environment is considered abuse and WILL NOT be covered under warranty. In no event will ULS be liable for any damages caused, in whole or in part, by customer, or for any economic loss, physical injury, lost revenue, lost profits, lost savings or other indirect, incidental, special, or consequential damages incurred by any person, even if ULS has been advised of the possibility of such damages or claims.

Establishing a Proper Operating Environment

Environment (user supplied)

- The laser system **MUST** be installed in an office-type or light duty manufacturing environment. Dusty or dirty air environments can damage the laser system. Keep the laser system isolated from any type of sandblasting, sanding, oils, or any other machinery that produces airborne particles. Also, do not operate or store this device near sources of water, saltwater, or oil vapor.

ILS Laser System Pre-installation (Cont'd.)

- Avoid small, enclosed, non-ventilated areas. Some materials, after laser engraving or cutting, continue emitting fumes for several minutes after processing. Having these materials present in a confined, unventilated room can contaminate the room.
- For best results, since the lasers are air-cooled, we recommend operating the laser system in the ambient temperature range of 73° F (22° C) to 77° F (25° C).
- Avoid storing the device outside the temperature range of 50° F (10° C) to 95° F (35° C) as excessively cold or hot temperatures can damage the laser cartridge or reduce its lifetime.
- Ambient humidity levels must be non-condensing.
- A suitable working surface for all material processing.

Providing a Suitable Electrical Power Source

Electrical (user supplied)

- For your system's electrical requirements, please refer to the "INPUT POWER" label near the ON/OFF switch and/or power inlet.
- **NEVER REMOVE THE GROUND LEAD TO THE ELECTRICAL CORD AND PLUG THE SYSTEM INTO A NON-GROUNDED OUTLET. This is very dangerous and can lead to a severe, if not fatal electrical shock. Always plug the system into a 3 prong grounded outlet. It may also cause the device to exhibit unpredictable behavior.**
- Noisy or unstable electricity as well as voltage spikes can cause interference and possible damage to the electronics of the laser system. If electrical power fluctuations, brown outs, or constant power outages are a problem in your area, an electrical line stabilizer, UPS (Uninterruptible Power Supply), or backup generator might be required. You may also need to connect the laser system to a dedicated electrical line if this is a problem in your building.
- The laser system is designed as a Class I, Group A, pluggable device. It is also designed for connection to IT power systems which provides the most flexibility to the user.



ILS Laser System Pre-installation (Cont'd.)**Extracting Fumes and Particulates*****Exhaust System (user supplied)***

- The exhaust system **MUST** be capable of supplying a minimum of 700 CFM (cubic feet per minute) of airflow while under a load of 6 inches of static pressure (1190m³/hr. at 1.5kPa). **DO NOT** install forward incline, backward incline, in-line, or ventilator fans because these types of air handlers are inadequate and inappropriate for this type of installation. A high-pressure blower **MUST** be used to meet minimum airflow requirements.
- For personal safety and noise control reasons, we recommend that the blower be mounted **OUTSIDE** the building.
- Rigid tubing should be used for 90% of the distance traveled between the blower and the laser system. The tubing should be smooth walled and have as few 90-degree bends as possible.
- Install a gate to control airflow and to close off the exhaust from the outside environment when the laser is not in use. Place this gate within 5 -10 feet of the laser system.
- Use a short piece of industrial grade, wire reinforced rubber tubing to connect the end of the gate to the laser system. This will provide mobility and will dampen blower vibrations.
- Have the blower electrically wired to a wall switch in the same room for easy ON/OFF control.

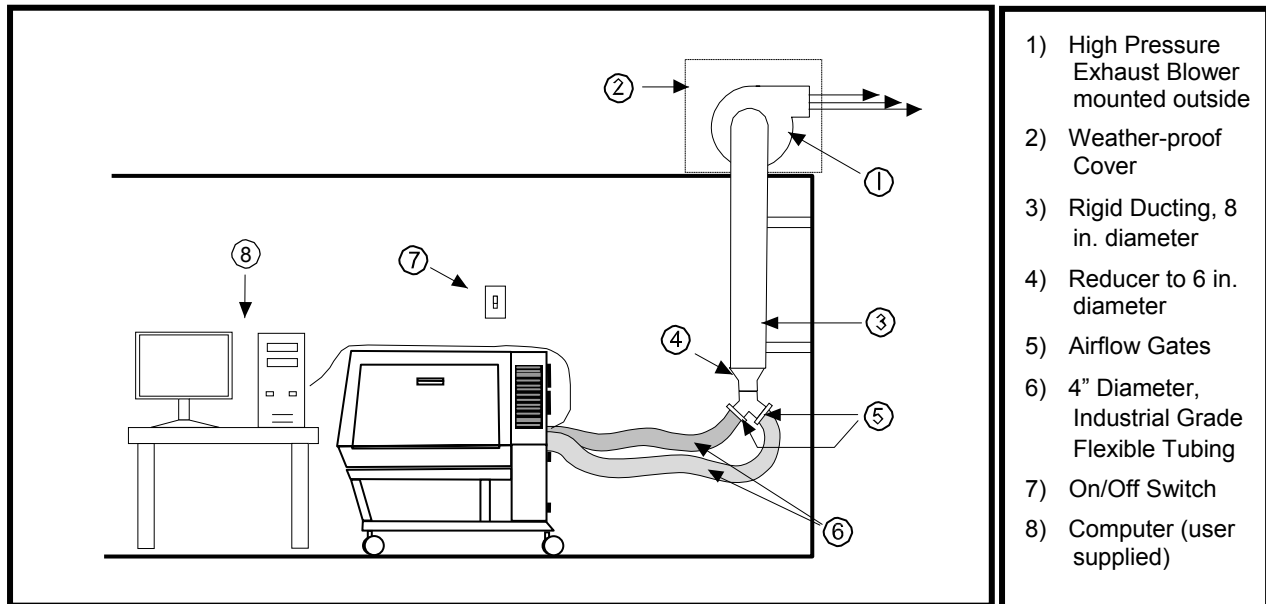


NOTE: Air or gas supply pressures higher than 50 PSI can rupture the internal hoses of the control box and can possibly damage the valves. Damages to the laser system from contaminated or improper air or gas supply is considered abuse and IS NOT covered under warranty.

NOTE: The following diagram shows a typical exhaust system layout. Use this as a guideline to proper exhaust system installation. Although this diagram just serves as an example, we recommend installation of the exhaust system by a licensed contractor to meet safety and local code requirements as well as being able to calculate the correct size blower required for your particular installation.

ILS Laser System Pre-installation (Cont'd.)

Length of exhaust pipe, exhaust pipe diameter, number of 90-degree angles, and other restrictions must be calculated when determining the correct exhaust blower unit. Installing an undersized or oversized blower is not only unsafe but can also lead to premature and excessive wear and tear to the laser system.

ILS9.150D and ILS12.150D***Recommended Exhaust System Purchases***

- Dayton Blower, model 7D769, from Grainger (www.grainger.com). Estimated cost: \$1,000.00. This blower requires 220 VAC, 3 phase electric supply.
- Rigid Ductwork, 8 inch diameter, unknown lengths, from Home Depot or other local hardware store.
- One Reducer, 8 inch to 6 inch diameter, from Home Depot or other local hardware store.
- Y Splitter, 6 inch to two 4 inch diameter, from Home Depot or other local hardware store, or from Penn State Industries (www.pennstateind.com). Penn # N-WYE644.
- Two Blast Gates, 4 inch, from Penn State Industries, Penn # N-DGA04.
- Two flexible 4 inch hoses, 8 feet long (may be cut to shorter length), from Penn State Industries, Penn # D08.
- Contact Engravers Solutions or Universal Laser Systems for more details.

ILS Laser System Pre-installation (Cont'd.)**Software Installation and Operating System Requirements**

Your computer is a critical component in the operation of the ILS. In fact, you cannot power on the laser if your computer is not connected, powered on, running Windows, and running the Universal Control Panel (UCP) software.

Only **ONE** ILS per computer is allowed. You will need to purchase a separate computer for each ILS you own. Also, the ILS is **NOT** designed to be a network printer. **YOU MUST** operate the ILS using the computer that is directly attached to it via the **PROVIDED**, 6 foot USB cable. **USB cables longer than 6 feet may cause the ILS to malfunction.**

A. Minimum PC Configuration (user supplied)

2.0 GHz processor (minimum)	Mouse and keyboard
Windows XP Home, Professional Edition, or Windows Vista**. Macintosh computers not compatible with Universal Lasers.	Available USB 2.0 High Speed compliant port
2 GB of RAM (minimum)	Computer speakers
100 GB hard drive (15 GB free space)	600 DPI scanner (optical)
17" VGA monitor or larger (minimum 1024 x 768 resolution)	Internet connection and email address (optional)
CD-ROM Drive/Burner	

**The ILS machine is compatible with a 32 bit Windows Vista version. See www.microsoft.com for the minimum computer requirements to run Windows Vista.

NOTE: Some computer motherboard manufacturers' USB ports DO NOT comply with USB 2.0 High Speed Standards. This may cause erratic behavior from the ILS such as freezing and lockups.

Other USB peripheral devices that demand a large amount of computer processing power may slow down the operation and productivity of the ILS. We recommend not using these devices while operating the ILS.

NOTE: Laptop computers are known for having low powered USB ports. If using a laptop, you will most likely need to use an external USB port hub that has its own AC power adapter and install it between the computer's USB port and the ILS's USB port.

ILS Laser System Pre-installation (Cont'd.)**B. Optimizing Windows XP Performance**

Windows XP, by default, displays many “visual effects” that slow down the computer by utilizing RAM and processor time. We recommend that you **TURN OFF** these effects by right-clicking on the My Computer icon on your desktop, then clicking Properties, and then clicking the Advanced tab. In the Performance section, click Settings, click Adjust For Best Performance, and then click Apply.

C. Computer Power Management

NOTE: Power management is a configuration setting in Windows XP that reduces the energy consumption of computers and monitors by shutting them down after a period of inactivity. However, since your computer is a critical component in the operation of the laser system, you **MUST NEVER allow your computer to go into the Standby or Hibernate mode.**