

Laser System Pre-installation

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](#)
- [Extracting Fumes and Particulates](#)
- [Selecting an Air Assist Compressor Unit](#)
- [Providing a Suitable Electrical Power Source](#)
- [Software Installation and Operating System Requirements](#)



NOTE: It is essential to follow the step-by-step installation procedure as described in this document. Improper installation of the laser system may cause undesired results in the engraving process or may even damage your laser system.

Establishing a Proper Operating Environment

Environment (user supplied)

- The device **MUST** be installed in an office-type or light duty manufacturing environment. Airborne pollutants can damage the device. Keep the device isolated from any sandblasting, sanding or machine equipment, or any other machinery that produces airborne particles. Also, do not operate or store this device near sources of water, saltwater, or oil vapor.
- For best results, we recommend operating this air-cooled device 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.

Laser System Pre-installation (Cont'd)

Extracting Fumes and Particulates

Exhaust System (user supplied)

Fumes, smoke, and particulates are a byproduct of the cutting and marking of materials in a laser system and **MUST** be extracted (vacuumed) from the unit. You may choose to either filter them or exhaust them to the outside environment.

Filtration System: If you have chosen to purchase the optional Computer Controlled Air Cleaner (CCAC) accessory, exhausting to the outside environment is not required. **This method can only be used with the VersaLaser VLS2.30 and VLS3.50 Desktop models.**

External Exhaust (most common): We recommend that you contact a local contractor to design and install an exhaust system that not only meets the minimum requirements of this device, but also complies with local environmental laws.

- ➔ **For specifications and more information on exhaust systems, see the "Exhaust Blower Selection Chart" in Appendix A of this document. 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.
- ➔ Have the blower electrically wired to a wall switch in the same room for easy ON/OFF control.
- ➔ 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. **See chart on the next page for tubing size and number of ports.**

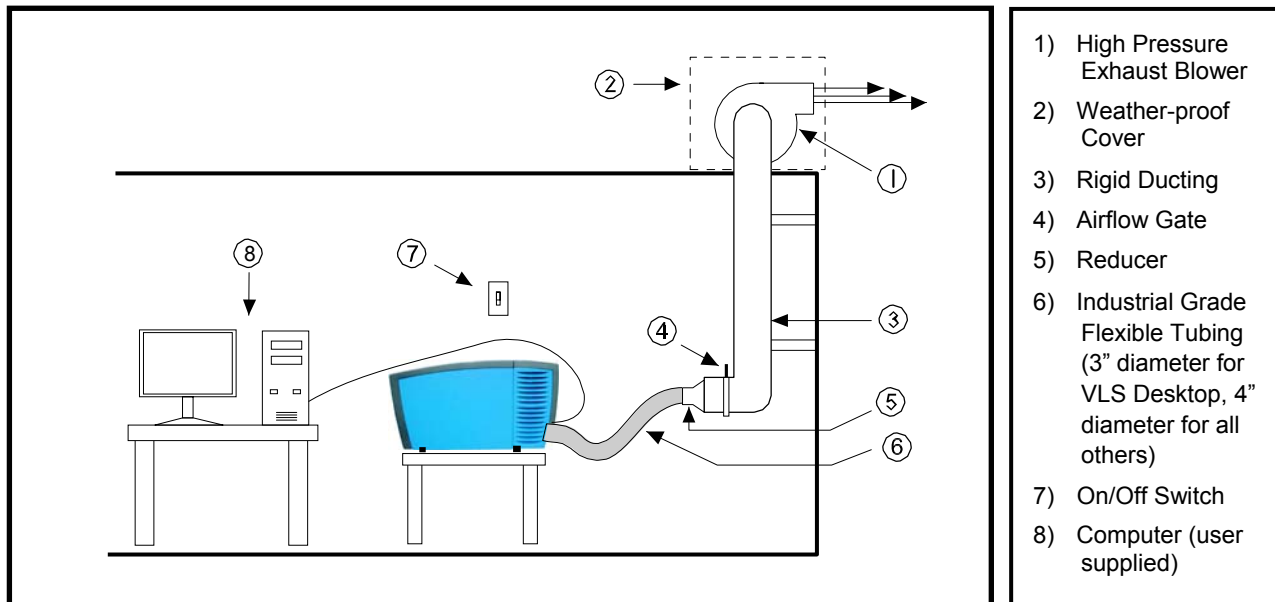
Laser System Pre-installation (Cont'd)

Exhaust System Port Requirements						
	VLS Desktop 2.30, 3.50	VLS Platform 3.60, 4.60	VLS Platform 6.60	New PLS 3.60, 4.60	New PLS 6.60, 6.120	ILS 9.150D, 12.150D
No. of Ports/Size	1 - 3"	1 - 4"	2 - 4"	1 - 4"	2 - 4"	2 - 4"

Graphic 1 below shows a typical single port exhaust system layout. Graphic 2 shows a typical dual port layout. Use them as guidelines to proper exhaust system installation.

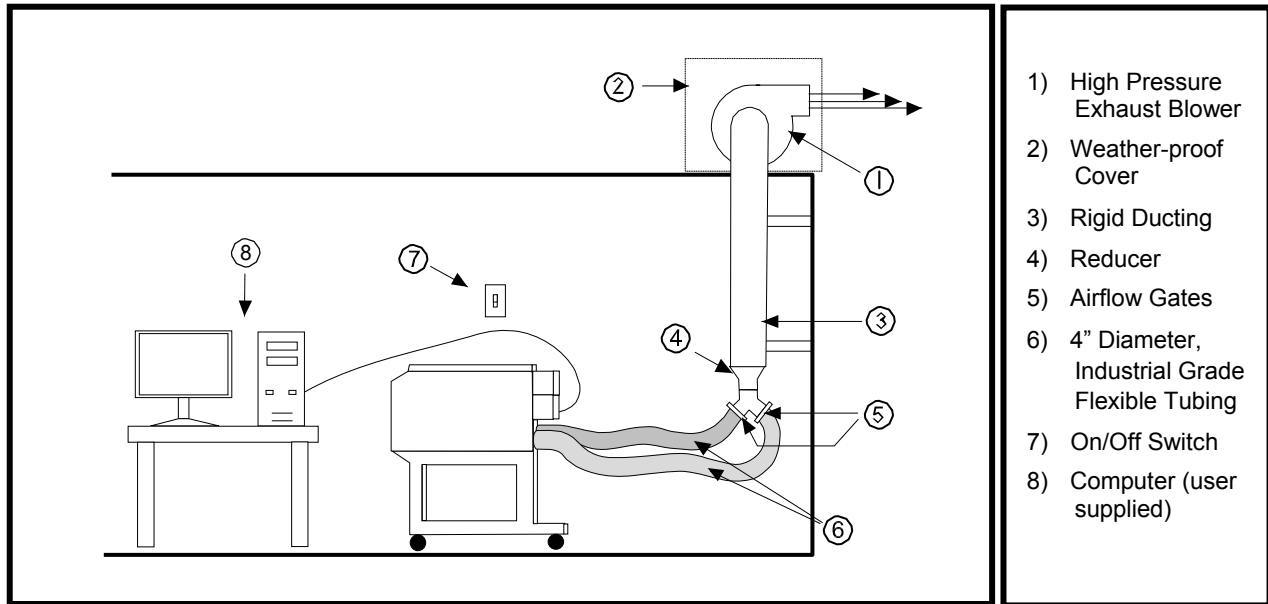


NOTE: These diagrams just serve as examples. We recommend installation of the exhaust system by a local, licensed contractor to meet safety and local code requirements as well as being able to calculate the correct size blower required for your particular installation. Length and diameter of exhaust pipe, 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 and premature failure of the blower.



Graphic 1: Single Port Exhaust

Laser System Pre-installation (Cont'd)



- 1) High Pressure Exhaust Blower
- 2) Weather-proof Cover
- 3) Rigid Ducting
- 4) Reducer
- 5) Airflow Gates
- 6) 4" Diameter, Industrial Grade Flexible Tubing
- 7) On/Off Switch
- 8) Computer (user supplied)

Graphic 2: Dual Port Exhaust

Selecting an Air Assist Compressor Unit

Requirements

The Air Assist option requires compressed air supplied from the Air Assist Compressor Unit (optional) or from a user-supplied compressed air source.

If you choose to provide your own source, it must be capable of supplying 50 PSI (pounds per square inch) at a constant rate of 2.5 CFM (cubic feet per minute).



NOTE: The air supply MUST be oil-free, moisture-free, and particulate filtered. A contaminated air supply will cause severe damage to the laser system.



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.

Laser System Pre-installation (Cont'd)

NOTE: A desiccant filter must be attached to the compressor used for air assist. This filter must be **NO FURTHER THAN 5 feet** from the inlet on the laser system. The filter assures that the air being supplied to the laser is water-free.

Providing a Suitable Electrical Power Source

The device is designed as a Class I, Group A, pluggable device. It is also designed for connection to IT power systems. Domestic 120VAC or 220VAC - Standard 3-prong US power cord is supplied. Fused for 10 amps. Check with Engravers Solutions or Universal Laser Systems to determine if your system requires 110VAC or 220VAC.

**WARNING**

NOTE: Voltage less than 110VAC or above 230VAC should not be used because it may cause serious damage to the laser system. Damages from an inadequate or inappropriate power source are not covered under warranty.

- Purchase a good surge protector available at office supply, computer, or hardware stores.
- Noisy or unstable electricity as well as voltage spikes can cause interference and possible damage to the electronics of the laser system. Connect the laser system to a dedicated electrical line if this is a problem in your building.
- 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. If installing any of these devices, make sure that they meet the electrical requirements of the laser system.
- If there is any type of electrical problem present, please contact a locally licensed electrical contractor to correct the problem.



NOTE: If an incorrect electrical supply, voltage spike, or surges damage the laser system, the damages **WILL NOT** be covered under warranty. It is your responsibility to provide a suitable electrical supply.

Laser System Pre-installation (Cont'd)



WARNING

NOTE: 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.

Software Installation and Operating System Requirements

Your computer is a critical component in the operation of the laser system. 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** laser machine per computer is allowed. You will need to purchase a separate computer for each laser system you own. Also, the laser system is **NOT** designed to be a network printer. **YOU MUST** operate the machine using the computer that is directly attached to it via the **PROVIDED**, 3 foot USB cable. **USB cables longer than 3 feet may cause the laser system to malfunction.**

A. PC Requirements (user supplied)

2.0 GHz processor	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	Computer speakers
40 GB hard drive (15 GB free space)	600 DPI scanner (optical)
VGA monitor (minimum 1024 x 768 resolution)	Internet connection and email address (optional)
CD-ROM Drive/Burner	



NOTE: Some computer motherboard manufacturers' USB ports **DO NOT** comply with USB 2.0 High Speed Standards. This may cause erratic behavior from the machine 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 laser system. We recommend not using these devices while operating the machine.

Laser System Pre-installation (Cont'd)



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 laser's USB port.

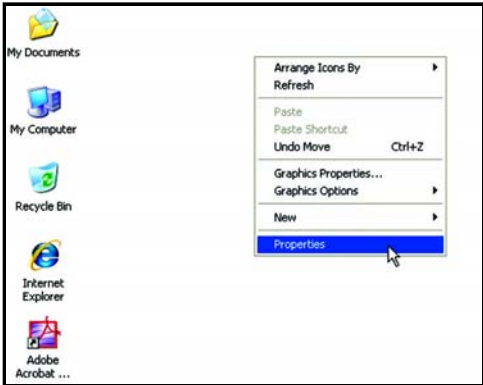
B. Optimizing Windows XP Performance

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.

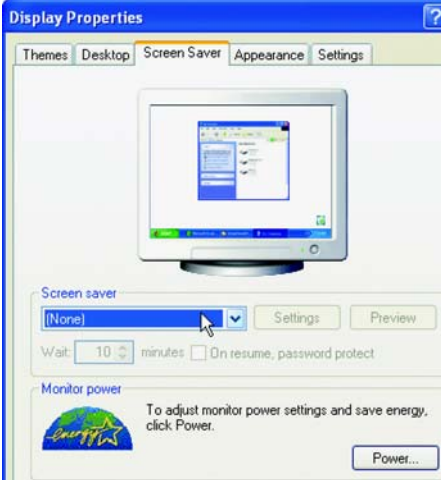
C. Computer Power Management



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.



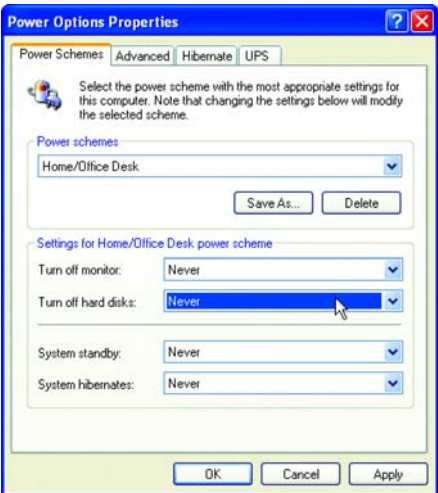
1. To properly configure Power Management in your Windows XP computer, right-click on your desktop.
2. From the list of options, select “Properties.” The “Display Properties” box will open.

Laser System Pre-installation (Cont'd)


3. In "Display Properties." Select the Screen Saver tab. Set the Screen Saver to "(None)."

4. Then in the "Monitor Power" box, click the button "Power..."

5. Select the tab "Power Schemes."



6. For the Power Scheme in use, select "Never" for all the setting options:

- Turn Off Monitor
- Turn Off hard Disks
- System Standby
- System Hibernate

7. Click "Apply," then "OK" on both open windows.

If you have further questions on how to configure or upgrade Windows XP, please contact Microsoft Corporation at www.microsoft.com.



NOTE: Your chosen graphical software AND laser system software MUST be installed and operational before operating the machine.

Laser System Pre-installation (Cont'd)**D. Recommended Software Programs**

All software necessary to control the laser system is included. However, the software necessary to create the artwork is **NOT** included. ULS recommends the following software for use with the laser system:

➤ Vector Graphics Programs

CorelDraw X3** or X4

➤ Bitmap/Scanning Software

Adobe Photoshop (recommended) or Corel PHOTO-PAINT

➤ Raster to Vector Conversion Software

CorelTRACE

➤ CAD Software

AutoCAD or AutoCAD LT for Windows

➤ Fonts

Use TrueType fonts **ONLY**. Do not use PostScript or bitmapped fonts.

Once you have installed your preferred software according to the manufacturer's instructions, you will need to configure your graphics software according to our instructions.

**** Most users purchase the CorelDRAW X3 Graphics Suite or CorelDRAW X4 Graphics Suite package which contains all the software necessary to operate the laser system to its fullest capability. Earlier versions of CorelDRAW have experienced problems with the XP operating system, which in turn causes problems with the operation of the laser. As a result, ULS recommends CorelDRAW X3 over earlier versions. Whether you decide to use CorelDRAW X3 or a different graphics software package, it is critical that you fully understand how to use the software in order to successfully operate the laser system. While ULS has made reasonable efforts to make the unit as compatible as possible with graphics and CAD software written for the Windows XP operating systems, ULS cannot guarantee complete compatibility with any software not manufactured by ULS.**

Laser System Pre-installation (Cont'd.)

Appendix A: Exhaust Blower Selection

Exhaust Blower Selection Chart			
Total Exhaust Duct Length	PLS3.60	PLS4.60	PLS6.60
	VLS2.30-Desktop VLS3.50-Desktop	VLS3.60-Platform VLS4.60-Platform	PLS6.120D VLS6.60-Platform
0 - 10 Feet	B	B	C
10 - 20 Feet	C	C	C
20 - 40 Feet	C	C	D
40 - 80 Feet	D	D	E

Grainger Models

www.grainger.com
1-888-361-8649

Direct drive units suitable for outdoor installations

Part #	Motor Power	Selection #	Notes	CFM @ SP	Approx. Price
7D747	½ hp 110/220	A	drip proof cover	160 @ 3"	\$258
7D748	½ hp 110/220	A	totally enclosed	160 @ 3"	\$286
7D749	½ hp 110/220	B	drip proof cover	270 @ 4"	\$270
7D750	½ hp 110/220	B	totally enclosed	270 @ 4"	\$299
7C447	1 hp 110/220	C	drip proof cover	500 @ 5"	\$344

Older part numbers listed on Grainger website

Belt drive units suitable for outdoor installations

7C182	½ hp 110/220	B	drip proof cover	390 @ 5"	\$509
7C183	¾ HP 110/220	C	drip proof cover	505 @ 5"	\$534
7C184	¾ HP 110/220	D	drip proof cover	610 @ 5"	\$534
7C185	1 hp 110/220	D, E	drip proof cover	685 @ 5"	\$601

Newer part numbers

Belt drive units suitable for outdoor installation – need to specify 5 inches static pressure for proper gearing selection

7D755	¾ HP 110/220	C	drip proof cover	400 @ 5"	\$566
7D756	1 hp 110/220	D	drip proof cover	480 @ 5"	\$601
7D757	1.5 hp 220 3 phase	E	drip proof cover	620 @ 5"	\$661

Penn State Industries

www.dustcollecting.com
1-800-377-7297

Direct drive units suitable for indoor installation or custom cover needed if used outside

Part #	Motor Power	Selection #	Notes	CFM @ SP	Approx. Price
DC660P	1 hp 110/220	D	no cover	650 @ 5"	\$140
DC2000	2 hp 220 1 phase	E	no cover	900 @ 5"	\$280
DC250SEMB	2 hp 110/220	E	no cover	1350 @ 9.5"	\$299

Grizzly Industrial, Inc.

www.grizzly.com
1-800-523-4777

Part #	Motor Power	Selection #	Notes	CFM @ SP	Approx. Price
G1163*	1 hp 110/220	A, B	no cover	450 @ 0"	\$158
G1028*	1 hp 110/220	B, C	no cover	1150 @ 0"	\$269
G1029*	2 hp 220 1 phase	D, E	no cover	1550 @ 0"	\$280

*Note – Manufacturer does not supply air flow data above 0 inches static pressure (no load)

Harbour Freight

www.harbourfreight.com
1-805-388-3000

Direct drive units suitable for indoor installation or custom cover needed if used outside

Part #	Motor Power	Selection #	Notes	CFM @ SP	Approx. Price
31810*	1 hp 110/220	A, B	no cover	660 @ 0"	\$150

* Note – Manufacturer does not supply air flow data above 0 inches static pressure (no load)

Laser System Pre-installation (Cont'd.)**Appendix B: Optional Accessories**

Updated 9/8/08

Air Compressors – Diaphragm Type**Harbor Freight:**www.harbourfreight.com 1-805-388-3000

Part Number: 34843-3VGA	30 PSI Oil Free (RECOMMENDED)	\$69.99
Part Number: 93657-VGA	40 PSI Oil Free	\$79.99

Grainger:www.grainger.com 1-888-361-8649

Part Number: 1VAN5	90 PSI Oil Free (RECOMMENDED)	\$183.25
Part Number: 1AKB9	125 PSI Oil Free	\$131.95

Desiccant Air Dryers**Harbor Freight:**www.harbourfreight.com 1-805-388-3000

Part Number: 94733-VGA	90 PSI MAX - All in one disposable Dryer Unit	\$5.99
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Grainger:www.grainger.com 1-888-361-8649

Part Number: 6B287	150 PSI MAX - Dryer System that uses disposable filters (RECOMMENDED)	\$55.90
Part Number: 6B233	5 Micron Filter For use with Dryer System 6B287 (RECOMMENDED)	\$9.66

Fittings and Blast Gates**McMaster Carr:**www.mcmaster.com 1-562-692-5911

Part Number: 1766K68	"T" fitting 6" x 6"	Approx. \$10
Part Number: 2013K58	Reducer 6" to 4"	Approx. \$7
Part Number: 1788K14	Blast Gate 6"	Approx. \$20
Part Number: 1788L12	Blast Gate 4"	Approx. \$20

Flexible Exhaust Tubing – Wire Reinforced Black PVC**Penn State Industries:**www.pennstateind.com 1-800-377-7297

Part Number: D08	4" dia. x 8 feet (black)	Approx. \$15
Part Number: D50	4" dia. X 50 feet	Approx. \$55