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Additional Components Needed to Setup ULS Laser System Available from 3rd Parties

Computer and Software (Required)

- **Dedicated Computer**--We recommend at least 2 GB of RAM--\$300-\$700 (HLT recommends Asus or Dell Brands using Windows 7 or 10 operating systems—preferably a 64-bit operating system).

- **Graphics Software**—Such as CorelDraw Full Graphics Suite, Adobe Illustrator, etc. FYI: We use CorelDraw so it's easier to support customers that use the same. However, the laser system can use a variety of graphics software programs. We recommend CorelDraw Full Graphics Suite X6, X8, 2017, 2018, or 2019--\$200-\$500 depending on version. Make sure your CorelDraw version has VBA installed so you can use additional macro programs as desired: https://www.amazon.com/CorelDRAW-Graphics-Editing-Software-Exclusive/dp/B06XT2VP43/ref=sr_1_5?ie=UTF8&qid=1519936343&sr=8-5&keywords=coreldraw+graphics+suite+2017

Dust Collection/Motor Blowers (need flexible rubber hose, blast gate, and hard plumbing to the blower positioned outside along with an easy on/off switch near the laser system)-(Required)

Commercial/Industrial Usage (applicable for all VLS, PLS, and ILS systems):

- **Blower Unit (Recommended)**—Penn State Industries offers a 2HP Motor Blower offering 1,350CFM at 9.5 inches static pressure and a sound rating of 72dBA. The Motor Blowers are far more reliable than the smaller 1HP or 13 gal. Portable Dust Collectors from Harbor Freight. You'll need the flexible hose, blast gate, and connectors as well. Note the options below:

Recommended Blower/Exhaust System Components Available through Penn State Industries <http://www.pennstateind.com>

Note: Make sure to order the hose kit with flexible hose, blast gate, and connections as well.

2HP - Single Phase Motor Blower: 1350CFM; Item #: DC250SEMB.....	\$ 395.00
Clear Flexible Dust Collection Hose - 8 Ft of 4 in. I D Hose (various lengths available); Item #: D08C	\$ 9.95
ABS Plastic 4 in. Blast Gate; Item #: DB4.....	\$ 4.95
4 in. Standard Hose Clamps: 5 Pack.....	\$ 4.45

Blower and Component Total (S/H not included).....\$ 414.35

Note: This blower requires 220V power

Blower Unit (Recommended for Multiple Industrial Laser Systems)—Granger offers a 3 HP High Pressure Blower With Motor, 12-1/2" wheel Diameter offering 817CFM at 6 inches static pressure with an inlet of 10 inches and a sound rating of 90dBA within 5 feet. This style blower is preferred for multiple laser installations, the unit is \$939.33, Item #: 7AT99: <https://www.grainger.com/product/DAYTON-3-HP-High-Pressure-Blower-7AT99?searchBar=true&searchQuery=7AT99>

Note: This blower requires 208-230/460V and 3 Phase Power.

Smaller Systems (VLS, PLS4.75, and PLS6.75, OR if using multiple blowers for dual cartridge systems like PLS6.150D & ILS):

- Harbor Freight 13 gal. Dust Collector unit \$145: <http://www.harborfreight.com/13-gallon-industrial-portable-dust-collector-31810.html>

Harbor Freight Accessories: 4" x 10ft. Transparent Dust Collector Hose \$19.99; 4in. Dust Collector Air Flow Control (blast gate) \$3.99; and Hose Clamps \$6.00; if 2 exhaust ports on the laser system, you would need 2 flexible hoses and a Y fitting.

Surge Protector (Required)

- **High End Surge Protector with Equipment Insurance** \$45 - \$50 available at local electronics store or Best Buy.

The Following Only Applies if the Laser System is Configured with Air Assist with Optics Protection

Air Compressors (only applies for Cutting Applications using Air Assist)

Commercial/Industrial Usage:

- **Craftsman Air Compressor** (make sure you get a water-less, oil-less unit \$350 (we've found the Craftsman brand holds up pretty well and is budget friendly: <http://www.craftsman.com/craftsman-33-gallon-vertical-air-compressor/p-00916572000P?prdNo=10&blockNo=10&blockType=G10>

Education/Light Usage--Max Usage about 4 hours/day (small enough to fit under the laser system if needed)

- **California Air Tools 2010A Ultra Quiet and Oil-Free 1.0 HP 2.0 –Gallon Air Compressor--\$165:** <https://www.amazon.com/California-Air-Tools-2010A-2-0-Gallon/dp/B00TDNKBMC>

OR

Another option is the **Rol-Air JC10** unit which is very quiet in comparison to standard air compressors and can easily fit under the laser Platform or table. This unit is not intended for all day use; this unit works for air applications up to 2-3 hours per day. This would be a good starter unit for \$240-\$320: <https://www.amazon.com/Rolair-JC10-Compressor-Protection-Operation/dp/B0058NRVMO>

Air Filtration (needed for Air Compressors)

- **Multi-Stage Air Filtration System (available through HLT)--\$425.00.** You can configure a multiple stage air filtration for your air compressor to serve as an air dryer and filter. Our filters are specifically designed for laser users which include a particulate filter and coalescing filter (for light oil and water). Our systems also include a regulator and connection hose to your laser.
- **Additional Coalescing Filter (if oil-type air compressor is selected)-available through HLT-\$250.** Note: If an oil-type air compressor is selected or currently used for other equipment, an additional coalescing filter is necessary.

Your estimated total for the additional components, not counting the computer would be around \$700-\$2,000 depending on laser system configuration and existing facility setup.

Please Note: HLT wants to make sure your laser workstation will be appropriate for your laser and workflow, so please confirm blower, air compressor, graphics program, etc. selections prior to purchasing from 3rd parties or prior to facilities HVAC contracting.

Please Reference the Laser Workstation Setup Diagrams on the following pages for your laser system's model (such as the VLS3.60, VLS4.60, PLS4.75, VLS6.60, PLS6.75, PLS6.150D, PLS6MW, ILS9, or ILS12 for ULS Laser Systems).

Please contact us for any technical or setup questions:

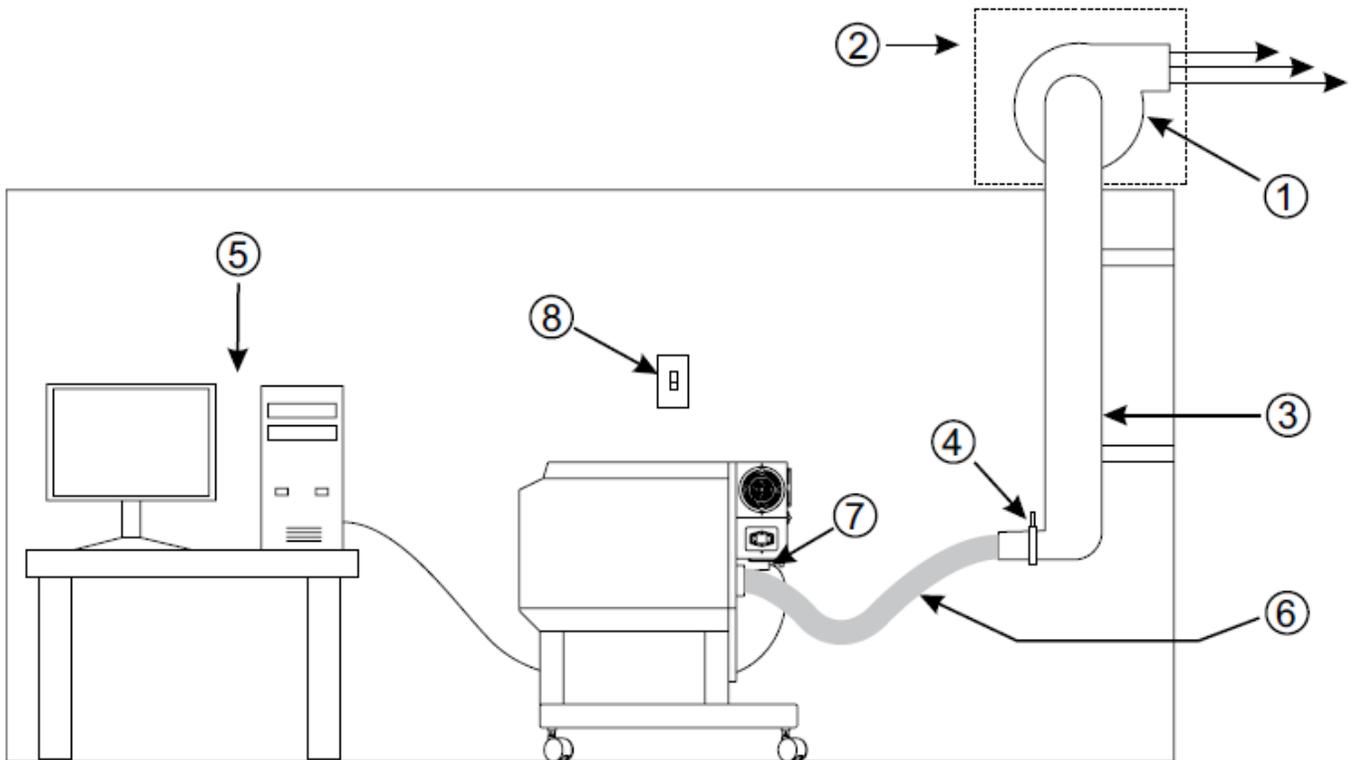
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Workstation Setup Diagram for ULS Laser Systems

VLS3.60, VLS4.60, and PLS4.75 Systems (with single 4" Exhaust Port)



1. Exhaust blower mounted outside* (User Supplied)
2. Weatherproof shield (User Supplied)
3. Rigid ducting matching the diameter of the blower inlet (User Supplied)
4. Shut-off or air-flow gate (User Supplied)
5. Computer (User Supplied)
6. Flexible, wire-reinforced, industrial grade rubber hose (User Supplied)
7. Connection to laser system
8. Exhaust On/Off switch (User Supplied)

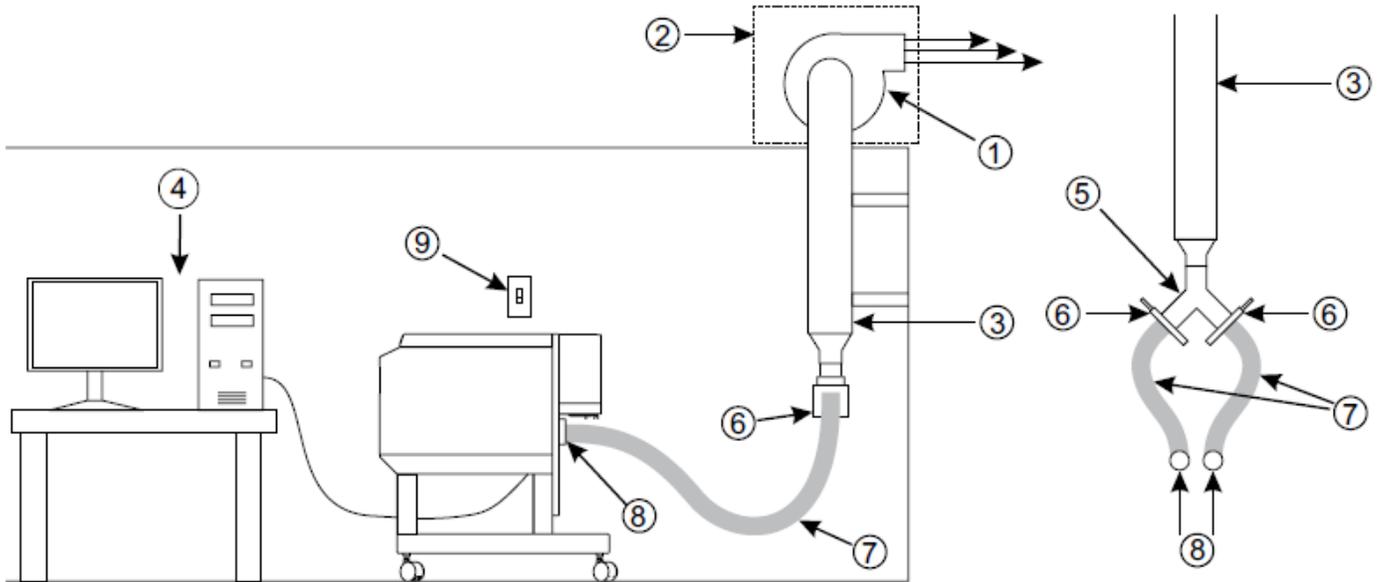
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VLS6.60, PLS6.75, PLS6.150D, and PLS6MW Systems (with Dual 4" Exhaust Ports)



1. Exhaust blower mounted outside* (User Supplied)
2. Weatherproof shield (User Supplied)
3. Rigid ducting matching the diameter of the blower inlet (User Supplied)
4. Computer (User Supplied)
5. Y-Pipe VLS6 only (User Supplied)
6. Shut-off or air-flow gate 4inch (User Supplied)
7. Flexible, wire-reinforced, industrial grade rubber hose (User Supplied)
8. Hose connection to laser system
9. Exhaust On/Off switch (User Supplied)

*Exhaust blower illustration may differ by region.

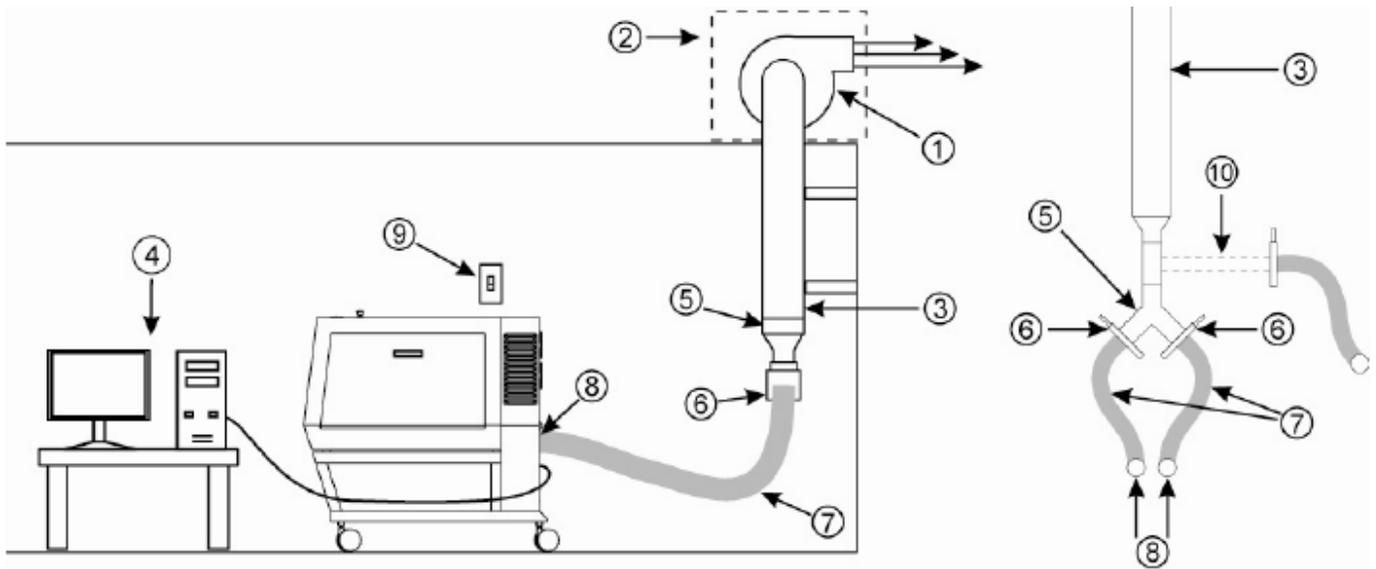
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ILS9 and ILS12 Systems (with Dual 4" Exhaust Ports & Traveling Exhaust)



1. Exhaust blower mounted outside (User Supplied)
2. Weatherproof shield (User Supplied)
3. Rigid ducting matching the diameter of the blower inlet (User Supplied)
4. Computer (User Supplied)
5. Y-pipe (User Supplied)
6. Shut-off or air-flow gate (User Supplied)
7. Flexible, wire-reinforced, industrial grade rubber hose (User Supplied)
8. Connection to laser system
9. Exhaust On/Off switch (User Supplied)
10. Optional Connection for Traveling Exhaust (User Supplied)

Important Note: A third exhaust gate will be necessary for the travelling exhaust if you plan to use it.

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