



Laser Engraving Equipment Exhaust

By Mike Dean, vice-president of sales and marketing, Epilog Laser

So you've decided to invest in laser engraving equipment. Great! But one of the most important (and often overlooked) aspects of using this type of equipment is properly exhausting your system.

Proper exhaustion of your laser engraving equipment is paramount in running a safe work area. It's not only beneficial to your work environment, but proper exhaustion will also add to the life of your laser engraving system. While exhaust situations vary depending upon the manufacturer and size of your equipment, this article discusses the importance of proper exhaustion of your laser engraving equipment as well as cleaning your exhaust system.

Most business owners utilize a contractor to install their exhaust systems; however, the information to follow will prove to be helpful as you determine the exhaust system that best meets your needs.

We should begin with the exhaust blower as it is one of the most important parts of your exhaust system.

What is an exhaust blower and why is it so important?

The exhaust blower is really just a simple fan that removes dust, debris and odor from the engraving cavity and exhausts it to the outside of your building structure. People are always surprised at the amount of smoke that is created, especially when engraving wood, if they forget to turn their exhaust fan on! The exhaust blower should be operating whenever you use your machine.

Where do I place my exhaust blower?

To reduce noise levels, we recommend your exhaust blower be mounted outside your building for noise considerations. The blower should not be more than twenty feet (six meters) from the laser. This portion of the installation should be installed and tested before your laser system arrives. It's usually easy to do, but because you may need to cut a hole in your facility it can sometimes be the most time consuming part of installation. Starting on exhaust installation as soon as you order your laser means you can start working immediately upon delivery of your laser.

What type of ducting do I use?

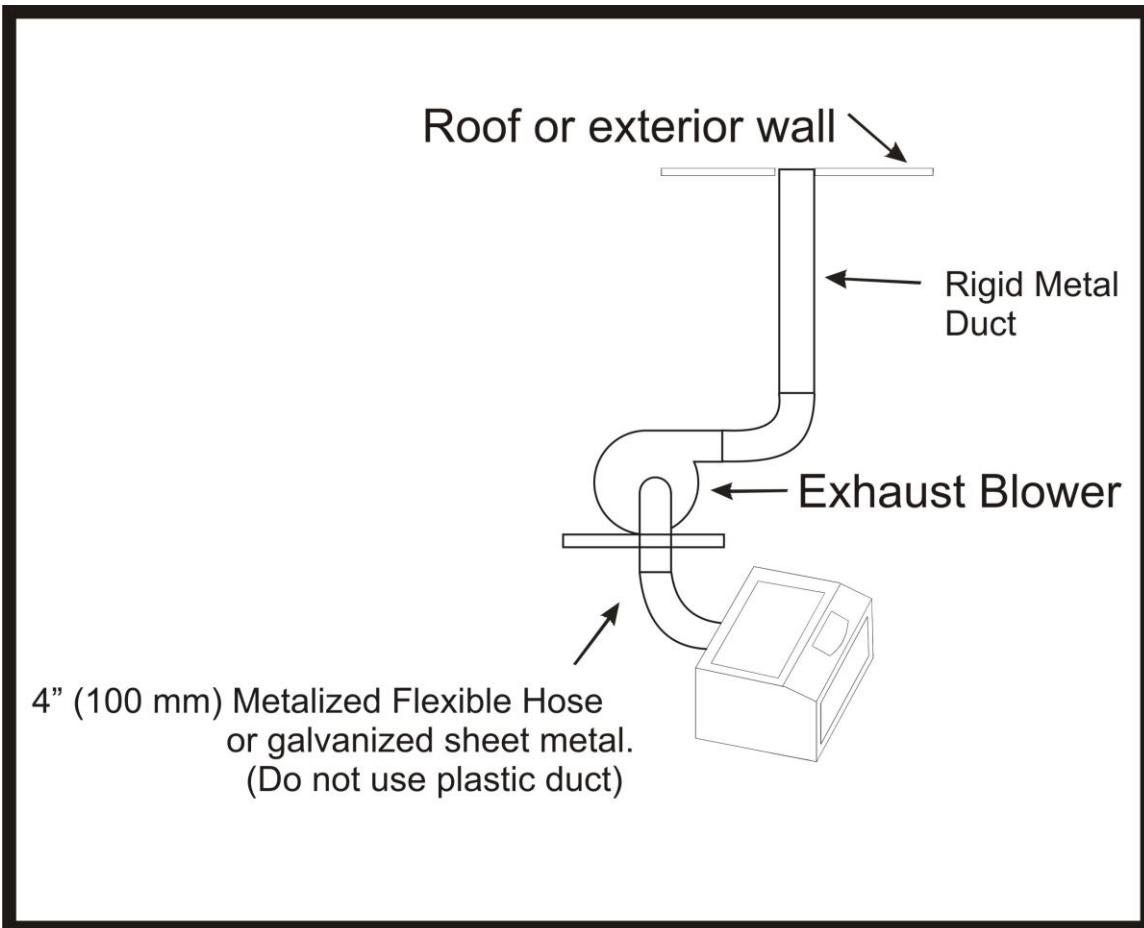
You should provide a metal duct (flexible aluminum or galvanized sheet metal) from the blower to the laser. It's important that either rigid or flexible metal ducting be used for all connections leading to and from the laser system and the exhaust fan. Vinyl, plastic, or any type of "soft" ducting is potentially flammable and should never be used.

Exhaust Ports

Your laser system will have an exhaust port that is usually located at the back of the machine. This port will be connected to the inlet side of your exhaust blower using flexible aluminum or galvanized sheet metal ducting. Then, connect the exhaust side of the exhaust fan to the metal duct leading outside.



Exhaust port hookup located at the back of the machine.



Example of typical exhaust setup.

How big of an exhaust fan do I need?

Exhaust fan size varies and is usually determined by the size of your system cabinet. Small systems require smaller exhausts than larger systems. Your manufacturer will recommend an exhaust that is rated by two variables – amount of air to move (CFM) and pressure of air (static pressure). The laser manufacturer will specify that the necessary exhaust fan needs to be something like a 400 CFM fan at 6 inches of pressure. This is enough information for any air handling contractor to install the appropriate exhaust fan. Most manufacturers will provide you with a specific type of fan or source where you can purchase a fan that is suitable for your system.

Can I use a self-contained filter in place of an exhaust fan?

Yes. There are a number of manufacturers of self-contained filter systems. These filter units are portable pieces of equipment that attach directly to the laser. Many users use these when they take their laser systems on the road, but they can also be used in work environments where a standard exhaust fan cannot be vented to the outside. The filters are three stage filters that include a pre-filter, a HEPA filter and a charcoal filter. The filters clean the air of large particles, small particles and the charcoal filters the smell and then releases the cleaned air back into the work environment.

Cleaning the Exhaust

Proper maintenance of your exhaust system is of critical importance. We recommend periodic cleaning of the exhaust blower and duct system to remove any debris or other material that may have accumulated.

If you detect odor while engraving, or if the smoke in the cabinet is visible in the area of the lens carriage, inspect the exhaust system. Be sure to check for loose or broken pipe/hose connections, or obstructions. You should also occasionally check your exhaust blower and the duct work that is connected to it.

There are a handful of options when it comes to properly ventilating your workspace when using laser engraving equipment. The most imperative, for both the health of your work environment and your laser system, is to have a structurally sound exhaust system.