

Going Green with Personalization

Each year, more businesses realize the power and profit potential of personalization. Jewelry stores, award & trophy shops and gift shops are increasingly investing in engraving equipment to satisfy the growing demand for personalization. With so many options out there, it can be difficult to distinguish the quality systems from the questionable investments.

Cost is generally the number one concern when in the market for a machine. Let's face it, money is tight all around these days and everyone is paying more attention to their spending. Functionality and versatility are also important, especially when hunting for the best combination of quality and cost. What can the machine do, how fast it can do it and how much money will it bring in? This equates to R.O.I. (Return On Investment).

Most store owners concentrate on these main issues and never stop to consider the physical impact the machine will have on the store and its employees. Unfortunately, health risks, safety hazard concerns and environmental impact tend to drop off the radar during the purchasing process. Unfortunately, many people are unaware of these dangers and risk potential hazardous exposures when they bring a new piece of equipment in to their store.

Although laser engraving is a flashy, tempting and relatively new technology in the world of personalization, the long term effects of housing such a potent power source in a confined space can potentially be toxic to staff and to customers. Also, the negative environmental effects of a laser burning various materials are considered, by some, to be irresponsible. The diamond etching process is clean and makes the engraving sparkle with a faceted groove while the laser creates a dull flat path that does not sparkle.

Much like big tobacco companies, laser engraver manufacturers are required to affix warning labels to their machines. Manufacturers and users are also required by law to comply with certain safety regulations because of the noxious fumes, toxic particles and lethal radiation emitted by laser engraving machines. The word "laser" is actually an acronym for **L**ight **A**mplification by **S**timulated **E**mission of **R**adiation. The potential risk of radiation is right there in the name.

Lasers work by a process of exciting molecules to a point when gas builds up the light energy. The beam burns the piece and vaporizes the surface material to make its mark. Because of the vaporization, powerful ventilation with blowers or a vacuum pump is critical to remove the noxious fumes and smoke, as well as for removal of the burned debris.

Engraving staff and store owners are often not aware that a good working exhaust system is an *essential add-on purchase* when buying a laser engraver, thus not considering it as part of the overall price. However, to ensure a safe working environment and to protect customers from dangers in the air, the vaporized materials *must* be filtered and safely removed from the building. Some materials, like acrylic and PVC, are extremely dangerous. For example, when burned, PVC emits extremely toxic and corrosive hydrogen chloride acid gas, dioxin, ethylene

dichloride, and vinyl chloride, which makes a very toxic carcinogenic combination. PVC can cause severe health problems including cancer, neurological damage, as well as reproductive and immune system damage.

Fire hazards are also a potential risk of laser engravers. High voltages of electricity are present in the electronics of the machine while the beam converts light energy into heat that can reach dangerous levels. In addition to the ventilation system, elaborate and sometimes cumbersome cooling systems are necessary. Because the laser is burning the material instead of etching it, a large amount of airflow is required to extinguish anything that might ignite, including residue and debris left over from previous engravings. Combustion of this type is likely to set the whole machine afire, and risks damage to the machine as well as the store that houses it.

While the fumes and fire risks are hazardous to individuals within close proximity of the laser engraver, the environment as a whole is negatively affected. Even though the dangerous material is extricated from the building, it becomes part of the atmosphere and decreases air quality as a whole. Store owners interested in "green" technologies and environmental responsibility should be aware of the negative impact laser engravers have on everyone.

Computerized diamond etching engraving systems provide better personalization quality while not negatively impacting the health of its users and the surrounding environment. With no need to confine dangerous fumes and particle debris, diamond systems have an open design that allows better maneuverability of engravables. Large and uniquely shaped items are as easily personalized as small and delicate jewelry pieces. Engraving staff members have better visibility and more control over their work. There is no danger of overheating and precautions regarding air quality are unnecessary.

There is, however, one major risk to note for glass engraving with a computerized diamond drag machine. Cutting fluid, or some type of lubrication, should be used at *all* times when etching any glass, crystal or ceramic surface. The spinning of the diamond tip causes the silica in the glass to become airborne. This flying powder is extremely dangerous if inhaled, causing silicosis. Cutting fluid prevents the powder from getting into the air and washes it through a filter, keeping the engraver safe from harm.

Overall, computerized diamond drag engravers provide a safer and more pleasurable environment. Beside standard safety glasses, no substantial safety accessories are needed to run them. They are safe to operate around people, even for extended periods of time, and don't negatively affect the environment

Safety measures should always be considered regardless of the equipment or technology being used. All engraving machines have the potential to enhance business since personalization is such a valuable commodity. However, when shopping for the perfect system for your shop, remember to stop and think about the risks associated with the equipment before you buy.