



What is happening and why do you need a flow control valve?

The act of applying a laser to a material is in order to obliterate some amount of the material. This is how we engrave or cut. Many materials act differently when laser engraved or cut. The obliterated material turns into dust, smoke, fumes, or vapor. The laser machine uses air to prevent fumes from entering the nozzle. Any debris (smoke or vapor) can stick onto the lens and then be burned by the laser beam. The burned debris will concentrate the heat and cause damage to the lens. This is why it is so important to clean the mirrors and lenses of the laser machine.



The exhaust fan is used to clear smoke from the inside of the cabinet. The air pump and nozzle is used to push air away from the lens. Only a tiny amount of air flow is needed to prevent the smoke or vapor from entering the nozzle.

The air flow from the nozzle is also used for other reasons. The air can act as a way to push onto the material to be laser engraved or cut. Engraving on some materials requires the absolute minimal air from the nozzle. The air from the nozzle can cause the vapor to be blown back onto the material and stain the material. (Example: The sap from wood will vaporize and then condense in the air. The condensed sap will stain the wood if blown back onto the wood. A low air flow or mask is needed to prevent the staining.) Some materials produce a vapor that will condense and become troublesome to clean and allow the product to be easier to sell. (Example: Engraving acrylic produces a vapor that condenses. If the condensed acrylic is blown back onto the surface of the product, it sticks to the surface. This can be annoying to clean. A low air flow or mask is needed to prevent vapor from sticking.)



Engraving onto materials that produce dust is good to use higher amounts of air from the nozzle. Example: Engraving to granite or glass.

Some applications of cutting are improved by using much air from the nozzle and focused air flow from the vacuum table. When cutting wood or acrylic, it is necessary to remove the debris from the kerf (slot caused by the laser cut). Material that is allowed to stay in the kerf becomes an obstruction and does not allow the laser beam to cut to the deeper part of the material. By using the air flow from the nozzle and air draft of the vacuum table, the debris is taken away from the kerf and the laser can cut deeper in much less time. The improved efficiency of the laser cut produces a better quality cut also. Improvements are seen as the acrylic has a polished edge and the wood is not charred or excessively burned.

Please take the time to understand the product improvements by simply using better control of the air around your laser's cut.

Installing flow control valve.

A flow control valve has been sent to you for applying to your laser machine. This flow-control device is designed to fit onto a hose with diameter of 8 millimeters. Please look at the provided picture. Use a knife or scissors to cut the hose about 4 inches away from the machine. Pay attention to the direction symbol to ensure proper use of the flow-control. Push the hose (tubing) into the end of the flow-control device. Turn the knob as if to turn on water flow of a faucet.

