

VyTek Laser Cutter

Standard Operating Procedures and Policies
Department of Art, UD

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VyTek Laser Cutter Usage Policies

The VyTek laser cutter is a valuable department resource. The policies and procedures set forth in this document are intended to protect this resource as well as the users of it.

Authorized Users

The VyTek Laser Cutter may only be used by

- Individuals trained to use the Laser Cutter by the manufacturer (VyTek) or the departmental Supervisor of the VyTek Laser Cutter,
- The Department of Art's Facilities Coordinator and
- The Department of Art's Computing Support Specialist (Supervisor of the VyTek Laser Cutter).

Other individuals may be present during the use of the Laser Cutter for observation purposes only. The Authorized User takes responsibility for the actions of any other individuals present.

Authorized Use of the VyTek Laser Cutter

The VyTek Laser Cutter may only be used for University of Delaware academic (non-commercial) purposes only.

Startup and Shutdown Procedures

Startup Procedure

1. Turn on the exhaust fan. The switch is near the door to the room and is labeled.
NOTE: The fan must remain on until the laser cutter is shut down.
2. Plug in the air compressor.
3. Turn on the laser cutter power switch. The switch is located on the left side of the machine (facing the front) toward the lower back. It is next to the laser power switch and is labeled.
4. Wait for the laser cutter to boot up.

Shutdown Procedure

1. Turn off the laser power switch. The switch is located on the left side of the machine (facing the front) toward the lower back. It is next to the machine power switch and is labeled.
2. Turn off the machine power switch. The switch is located on the left side of the machine (facing the front) toward the lower back. It is next to the laser power switch and is labeled.
3. Unplug the air compressor.
4. Turn off the exhaust fan. The switch is near the door to the room and is labeled.
5. Turn off the room lights, make sure the room door handle is locked and close the door upon exiting the room.

Preparing to Run a Cutting Job

NOTE: Your material must fit inside the machine with all the doors closed. The table is 24" by 36". Oversized materials (larger than 24" by 36") require the front or side pass-through doors to be open during cutting. Operating the laser cutter with the front or side pass-through doors open may only be done if the operator has received training from the UD Laser Safety Officer in the safe use of Class 4 lasers. Laser safety glasses would also need to be worn to protect from possible permanent eye injury.

1. Loading Material Steps
 - a. If you just turned the laser cutter on, calibrate the absolute upper-left corner of the machine by pressing the "Datum" button on the control panel.
 - b. Lift the top cover of the machine to access the cutting table. Material that is too large to be inserted into the machine from the top may be inserted through the side pass-through doors.
NOTE: If the side pass-through doors are used to insert the material, they must be closed prior to starting the cutting procedure.
 - c. Place the material on the table and align the top left corner under the laser head by moving the material and/or the laser head using the X- and Y-axis buttons on the control panel.
 - d. Set the upper-left corner home using the "Home" button on the control panel.
 - e. Make sure that the material is squared with respect to the laser head gantry by moving the head either in the X or Y direction along the edge of the material and adjusting the material accordingly. Be careful to hold the upper-left corner of the material in place if you are adjusting the material's position to keep it at the home position.
2. Focusing the Laser
 - a. Place the lower (tabbed) end of the orange focusing guide onto the surface of the material.
 - b. User the Z-Up and Z-Down buttons on the control pad to move the table up or down to align the **focus** line on the orange focusing guide to the silver ring etched on the laser head.

At this point, you are now ready to run your cutting job.

Running a Cutting Job

Before You Run a Job

- **You must follow the procedure found in the** Preparing to Run a Cutting Job **section before running a cutting job.**
- **Record your cutting settings to enable consistent results in your work.**
- **Vector Cut refers to when you are cutting through the material.**
Raster/Engrave refers to when you cut into (not through) the material.

Steps to Run a Job

1. Check the settings on the machine
 - a. Press the **Menu** button.
 - b. Press **3** to check your vector settings.
 - c. Press **4** to check your raster settings.
2. Find the desired job.
 - a. Press **DNC** button to bring up the job list.
 - b. Find your job in the list, highlight it and press the **Enter** button.
 - c. Verify that the intended job is selected.
3. Start the job by pressing the **Start** button twice.
4. Monitor the cutting job closely in the cutting room.

IMPORTANT: Monitoring a Cutting Job

Improper monitoring of cutting jobs has resulted in significant fires, one of which destroyed the cutter and potentially placed building occupants at great risk. **Never leave a cutting job unattended!** This means that you must physically be present, at all times, in the cutting room.

You may delegate the monitoring of a cutting job to another person ONLY under the following circumstances--

- The Laser Cutter Supervisor has trained the person, called a Laser Cutter Observer, in the response to a fire situation. (The current Supervisor is Peter Schwenk.)
- The Laser Cutter Observer has signed documentation that they understand their duties and how to do them.
- It is the Authorized User's responsibility to ensure that the Laser Cutter Observer has the required training.



IMPORTANT: Fires During a Cutting Job

When monitoring the cutting job:

- If **small** flames are observed on the work piece, immediately terminate the job by pushing the Emergency Stop button, open the top cover, and blow out the flames.
- If **large** flames are observed (too large to blow out) do the following **only if it is safe to do so**:
 - Immediately terminate the job by pushing the Emergency Stop button,
 - Use the fire extinguisher to put out the fire and
 - Phone Public Safety at 831-2222.
- If the fire is **uncontrollable**:
 - Close the door to the room (if possible),
 - Immediately exit the building pulling the fire alarm on the way out and
 - Phone Public Safety at 831-2222 or 911.

VyTek Laser Cutter, Standard Operating Procedures and Policies User Agreement

By signing below, I (named below) have read, understood and agree to be bound by the policies and procedures set forth in this document (Vytek Laser Cutter, Standard Operating Procedures and Policies).

I certify that I have read the Machine Safety section of the VyTek Operations Manual.

I understand that the Computing Support Specialist (Supervisor of the VyTek Laser Cutter), Facilities Coordinator and EHS staff members will be making periodic and random inspections of laser cutter use.

I understand that failure to comply with these policies and procedures will result in the immediate termination of usage privileges of the Department of Art's VyTek Laser Cutter.

Print Name: _____

Signature: _____

Date: _____

To be completed by the Computing Support Specialist (Supervisor of the VyTek Laser Cutter):

I certify that the above individual has been satisfactorily trained in the safe use of the VyTek Laser Cutter and is now an Authorized User.

Print Name: _____

Signature: _____

Date: _____