



Archers Precision Inc

Laser Safety Program



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General

- Only trained personnel are authorized to operate the laser.
- Beam Passage ducts must remain closed during operation
- Eliminate all reflective materials from the beam path. When processing materials with high reflective rates such as Aluminum and Copper, employ engineering control measures (restrictive access and partitions). The operator and any persons entering the controlled laser area must wear protective laser glasses.
- Beam Shutter must be closed during inspections
- Do not remove interlocked protective housings which prevent access to high voltage components or radiation levels which are higher than those exuded from the aperture.
- Proper removal of workpiece chips. Periodically clean and remove accumulated debris from below the work table to negate a chip fire.

Class 4 Mitsubishi Laser Controlled area Requirements:

- Restricted access to the area.
- Free of reflective materials near the beam path.
- The (NHZ) Nominal Hazard Zone must be defined and taped off.
- The emergency exit is located though the Punch Press area.
- Any visitors must be issued laser eye protection and escorted by knowledgeable personnel.
- Clear warning signs must be posted outside of the restricted area.

Turn on Procedures

- Precisely follow all pertinent safety and start up procedures as listed in the Mitsubishi Laser Processing System Manuel.

Eye and Skin Protection

- Laser protective eye wear must be worn within the Nominal Hazard Zone (NHZ)
- Eye wear is to be of correct optical density and offer protection at the wavelengths of the laser. Safety glasses will be procured from the laser manufacturer: Mitsubishi, Illinois office: 1-708-860-4210
- The Protective shield must be deployed during laser processing. This prevents the operator from being exposed to reflected beams.
- Exposure to direct or reflective ultraviolet lasers can result in short term and long term skin hazards. Cover your skin areas when working near lasers with long sleeves shirts, work coats, cotton gloves, ect. as necessary.
- Certain medications can increase your photochemical sensitivity such as antibiotics or antifungals. Mention that you work with lasers to your Doctor/Pharmacist upon receiving new medications.

Alignment

More accidents occur during alignment than any other laser manipulation

- Exclude unnecessary personnel from the laser controlled area during alignment.
- Use the lowest possible power levels for alignment.
- Partition off an alignment zone
- Post signs outside of the controlled area that an “alignment is in process”
- Wear the appropriate skin and eye protection.

Airborne Contaminates

- Lasing certain materials can cause a plume containing heavy metals or plastic particulates to be released into the air. Use the ventilation system to remove these contaminants from the ambient air.
- The ventilation system must be maintained with scheduled periodic maintenance and testing to insure proper function.

Gas Safety

- Compressed gas cylinders require proper storage and handling procedures to be strictly followed.

Electrical

- Do not circumvent laser housing interlocks.
- Do not wear jewelry or metallic objects when working near a high voltage source.
- Do not touch the machine if an internal fluid leak occurs.
- Practice lock-out/Tag-out procedures when necessary.

Chemical Safety

- Follow precautions listed on the Material Safety Data Sheet MSDS for any chemicals used.

Service and Maintenance

- Set up a temporary controlled zone. Restrict access with partitions.
- Post warning signs outside of controlled zone.
- Wear appropriate skin and eye protection
- Remove only the minimum amount of protective housings to do the work. Replace promptly upon completion.
- Use lowest possible power.
- Reactivate safety features upon completion of servicing.

Emergencies Procedures

In the event of an accident or unusual incident involving a laser:

- 1) **TURN OFF LASER**
- 2) If there is a serious injury or a fire call **911** and request assistance.
- 3) Notify the supervisor.
5. If injured go to the hospital and indicate that you work with lasers.
6. Preserve the scene for accident investigation.
- 7) Notify the Laser Safety Officer