Bozeman Makerspace

Omtech Laser Documentation

Starting up the Laser

Startup Checklist

☐ Chiller is in ON position
☐ Chiller hoses are properly connected
☐ Chiller fluid level is in the green
☐ Laser lid closed
☐ All exterior panels/openings closed unless in use
☐ Laser Power keyswitch set to OFF

Startup Procedure

1. Reset emergency stop by twisting the ring on the button
2. Press the power button
3. Ensure the following conditions are met:

    ☐ Chiller NORMAL light illuminated
    ☐ External blower fan active
    ☐ No leaks behind chiller
    ☐ No errors on home screen

Running a Laser Job

Job Checklist

☐ Startup Checklist completed
☐ Vent gate above chalkboard in main shop closed
☐ Approved material is placed on the work surface
☐ Laser is autofocused to material (See “**Autofocusing**”)

Job Procedure

1. Load file into Lightburn (See “Lightburn”)
2. Jog the laser into the upper left corner of the workpiece
3. Press the frame button in lightburn. Adjust material and job size and repeat as necessary
4. Turn the Laser Power key to ON
5. Ensure all doors are closed, one last time
6. Press Start. Pause/Stop immediately if there is a problem
7. Once the job is complete, turn the Laser Power Key to OFF

Autofocusing

1. Place material on the work surface
2. Jog the laser head over the material
3. Press the Z/U button
4. Use the arrows to scroll down to “autofocus”
5. Press the Enter button (different than the Z/U button)

* There is also an autofocus button in the Lightburn controls if you prefer that!

Lightburn

Coming soon to this manual, for now check out Youtube for helpful hints.

Turning off the laser

Shutdown Checklist

☐ Laser power key switch is set to OFF, key is removed

Shutdown Procedure

6. Use the power button to turn off the laser
7. Depress the emergency stop
8. Clean up debris outside of the laser and on the work surface

   NOTE: Do not clean below the work surface, as mirrors and sensitive equipment can be bumped. This will be done periodically instead.
9. Turn off the light 🙂

Approved Materials

Only approved materials may be used with the laser. If there is any doubt of the compatibility of your material, please ask an expert. **DO NOT TAKE THE RISK!**

Approved Plastics

Abbr	**Name**	**Notes**
ABS	Acrylonitrile Butadiene Styrene	
Nylon	Polyamide, PA, etc.	
PE	Polyethylene	
HDPE	High-Density Polyethylene	
BoPET Mylar Polyester	Biaxially-Oriented Polyethylene Terephthalate	
PETG	Polyethylene Terephthalate Glycol	
Kapton PI	Polyimide	
Acrylic Plexiglass Lucite PMMA	Polymethyl Methacrylate	**NO Polycarbonate**
Delrin POM Acetal	Polyoxymethylene (POM, Acetal, Delrin, etc.)	
PP	Polypropylene	
-	Styrene	

Other Approved Materials

Name	Notes
Cardboard, paper, paperboard	
Ceramics (dishes, tiles)	No mirrors
Glass	
Leather	
Rubber	
Stone (Marble, granite, etc.)	
Naturally derived textiles (Cotton, felt, suede, hemp)	No vinyls or plastic based textiles, be careful!
Hardwoods	
Cork	
MDF	
Plywood, balsa, basswood, etc.	

⚠️ Explicitly Banned Materials

If your material is not present on the approved materials, it's banned!

Name/Any product containing...	**Notes**
Chlorine, including Polyvinyl Butyral (PVB) and Polyvinyl Chloride (**PVC, Vinyl, Cintra, etc.)**	💀Toxic Fumes
Metals	⚡conductivity and reflectivity
Polycarbonate (**PC, Lexan, etc.**)	💀Toxic Fumes
Phenolic Resins, **including various forms of Epoxy**	💀Toxic Fumes
Fluorine, including Polytetrafluoroethylene (Teflon, PTFE, etc.)	💀Toxic Fumes
Artifical Leather containing Hexavalent Chromium Cr[VI]	💀Toxic Fumes
Astatine	💀Toxic Fumes
Beryllium Oxide	💀Toxic Fumes
Bromine	💀Toxic Fumes
Iodine	💀Toxic Fumes
Edible products (Food, etc.)	🤢Health hazard

Speeds and cut-power table

Don’t see your material on the list? Test it out and add it to the table 🙂

Material	Thickness	Engrave Speed	Engrave Power	Cut Speed	Cut Power	Notes
Generic Wood	1/16”	300 mm/s	10-18%			
	⅛”	300 mm/s	10-18%			
	¼”	300 mm/s	10-18%			
	½”	300 mm/s	10-18%			
MDF	¼”					
	½”					
Acrylic						

Material	Thickness	Engrave Speed	Engrave Power	Cut Speed	Cut Power	Notes

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Notes