

1 Operating the Machine

1. Switch on the machine
2. Push the knob to turn on the machine
3. Pressing the knob will turn on all the switches and machine gets started
4. Turn on the chiller and set the temperature of machine between $20^{\circ}C$ to $25^{\circ}C$
5. Turn on the exhaust fan and air compressor from behind the machine
6. Insert Pen-drive for uploading your design
7. When machine turns on, the following screen will be visible
8. **Uploading the file:** Press the double arrow to view menu
9. Press 'Menu'
10. Press 'UDisk Files'
11. Press 'Work Files'
12. Select your file which is saved in pen-drive (here SPACER.UD5)
13. Press 'Copy to System'
14. Press 'Back'
15. Main screen will be visible with the new file which is uploaded for laser cutting
16. **Setting the origin:** Press 'Origin', this will set the origin for machine so that cutting of object is proper and we don't fall short of material.
17. Press 'Box' for encircling the required area. After pressing machine will rotate and cover the area which is required on that material, if machine go out of the material then we have to reset the material and do the process of setting origin again.
18. **Setting distance between nozzle tip and material:** This will set the distance between nozzle tip of machine and material. Take another material of thickness 6mm and keep it between nozzle tip and desired material. Now set the tip so that it lies just above that another material. Press More
19. Press 'Move'
20. Press these arrow buttons to move the bottom base up and down so that another material lies properly under nasal tip, it should be easily able to move but nasal tip should not be far away from that.
21. Press 'up arrow' to reduce the space and 'down arrow' if you want to increase the space.
22. Nozzle tip and material final setting
23. **Setting parameters:** If we want to change some parameters like speed and power or want to set these parameters of cutting and engraving then that can be done on machine too. Press 'Params'
24. Speed and power1 is visible on screen. You can change and set any one of them. Press any one and it will navigate to next screen.
25. Layer1 with green color is for engraving and Layer2 with black color is for cutting. Selecting Layer1 will allow us to change speed and power for engraving.

26. Selecting Layer2 will allow us to change speed and power for cutting.
27. Press on any one of the parameters and set the value from keypad.
28. Press 'Start', this will start the process of cutting and engraving.
29. While cutting or engraving, please close lid of the machine.
30. When cutting and engraving is over, carefully open the lid and first move the required material on its own place before picking it out. As if the cutting is not done properly then we have to set the origin again and repeat the process of cutting.
31. Good practice is to do cutting first then engraving. Because if cutting is not done properly then we have to take a pause and restart cutting process.
32. Each material has some specific chemical for its cleaning when process is completed. Like acrylic should be cleaned by alcohol and cleaning it with acetone can make it look matt instead of glossy.

2 Some Do's and Don't

1. This machine uses class IV CO₂ Laser, which is harmful in direct contact with the body or from mirror reflection to body. Therefore, it is advised to close the lid when the machine is in action.
2. Kindly check the chiller temperature regularly. The chiller temperature should not exceed 35°C and the minimum temperature to be maintained is 25 °C.
3. Do not run the machine unattended. Your processing material can catch fire.
4. In case of emergency press the stop button.
5. Turn off the machine before taking the engraved or cut material.
6. Don't run the machine without exhaust. Provide adequate exhaust duct to remove fume from the area where machine is kept.
7. Machine has optical parts, which may tend to go bad due to dust, fumes and moisture. So, it is advised to keep the machine in dust free and less humid environment.
8. Since the machine is running at high voltage, it is mandatory to have proper earthing for the machine. Voltage between neutral and earth should be less than 2V. Make sure that you insulate yourself while using the machine.
9. Separate UPS should be provided to machine so that immediate shutdown of the machine can be avoided.
10. Don't look at the laser for a long duration, as it can damage your eyesight.
11. Don't run this machine without air in nozzle, as it might spoil the lens.