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xtool-f1-ultra-review-by-infinityturbine

**Infinity Turbine
LLC**

**F1 Ultra Fiber Laser by XTool Review by
Infinity Turbine**



This webpage QR code

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F1 Ultra Fiber Laser by XTool Review by Infinity Turbine

PDF Version of the webpage (first pages)

XTool F1 Ultra Fiber Laser Review

This laser is a huge upgrade from the smaller XTool F1 (which I also own). The working area has been greatly increased and the new features of the fiber laser give it huge horizons for marking and engraving metal. I'm currently experimenting with using it for engraving thin profile supercritical CO2 waste heat to energy turbines (Infinity Turbine) for both the rotor and stator. Those have a profile of less than 1/4 inch and a diameter of 3 inches, so this is perfect.

You can see lots of great reviews on YouTube that highlight all of the amazing qualities, but none really cover the negative issues of fume and smoke control. That's because most of these groups received a free F1 Ultra to use or keep, in exchange for a review.

Most of my laser projects are for engraving and cutting thin 3 mm and 6 mm basswood and plywood, which unfortunately generates lots of smoke, and sometimes flames.

To prevent burns, I sometimes put wide masking tape on the front and back during cutting, which allows no-hassle peel and reveal clear wood (as opposed to sanding off burn marks from the laser). The tape also generates really awful smelling fumes and at times, flames.

I do not use the raised metal base, but prefer to back the material to be cut with wood or metal, laying flat (the raised metal base allows more air - and combustion vs. flat which does not allow additional air).

I did try the fume air filter with my original F1, and found it awful. XTool as good enough to refund my purchase, but it exposed the lack of testing, or understanding of how and why fumes and smoke are generated and how to properly vent and filter them.

Instead of purchasing the hugely expensive XTool air filters, you're better off to purchase the following from Amazon, which mitigates the entire fume and smoke problem.

Here is the problem:

1. The small exit vent fan on the back of the F1 and F1 Ultra is undersized, and really performs no function, if you have an external vent and airflow attached to the back. On the F1 it's a 6 cm (just over 2 inch) diameter exit duct, and the F1 Ultra is 7.5 cm (3 inches).
2. The vent fan on both machines actually prevents proper airflow, when an external device is attached (i.e. sucking air from the laser). The machine fan is weak, and will prevent airflow beyond its RPM, where it actually acts as a brake to proper flow.

To Correct the Problem:

There are three aspects of making proper venting for fumes and smoke.

1. Airflow: You need a minimum of (controllable) 300-600 cfm on the back of the laser (either model). I recommend an inline air vent fan (Vivosun R6, 390 CFM, 6 inch or greater - use an adapter to go from 4 inch vent duct which fits perfectly over the 3 inch laser exit. The Vivosun has selectable RPM control. For the F1, leave a tail of 12 inches of the 3 inch duct, then simply slip over the 4 inch flexible vent duct. I recommend you vent this outside. I doubt you'll find any charcoal filter which is able to extract 100 percent of the smoke and fumes (smell) from lasering wood. Budget cost around \$79.99 and up.
2. In-Line Filter: Use an inline charcoal filter with 4 or 6 inch diameter flange ports. I recommend a filter with replaceable media (charcoal) and a washable pre-filter. Put this after the vent fan exit and outside. Budget cost for the AC Infinity 4 inch with refill media is around \$79.99 and the 6 inch is \$119.00). These work great.
3. Charcoal Room Air Filter: This can be used as a stand-alone air filter next to your laser, for any fumes and smoke that escape. Works fantastic. I recommend the Melonfarm 2 in 1 Air Carbon Filter and built in 14 cm fan with selectable RPM control.
4. Air Blade: The holy grail of fume and smoke control would be to have an air wash system which blows the smoke and flames from the workpiece while lasering. I have the poor-mans version, which is slightly opening the green protective acrylic guard and putting a fan in front to blow any fumes into the exit fan. In a perfect world, somebody would design this feature which does two things: (a) guides smoke to back, and (b) extinguishes and flames when cutting wood or masking tape covered wood.

I would highly recommend the F1 Ultra, with those additions, which you can inexpensively provide on your own.

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