



Print Dry - Automatic Desiccator Cabinet

Is Trace Moisture a Concern for Your Process?

Serious manufacturing defects and failures shadow improper material storage and handling. Print failure rates increase when moisture causes pop corning, filament off gassing and oxidation. Yield rates decrease, and manufacturing costs increase.



Autonomous drying systems combine automatic calibration, tight RH control, and rapid recovery. The ultimate production goal is dependable yields. Desiccator cabinets deliver **outstanding drying for moisture sensitive components and filament materials**. Desiccator drying cabinets reach reliable, low humidity values of $\leq 0.10\%$ RH, and automatically regenerate as necessary.

Fablicator Print Dry Cabinet Spec. 33" X 15.75" X 29" 110VAC .9A

Fablicator by K&L Services Group Inc. Allentown PA 610-439-3230 or www.fablicator.com

How Does Moisture Affect 3D Printing Filaments?

Because some 3D printing filaments are hygroscopic, meaning that they absorb moisture from the air, prolonged exposure to even moderately humid room air causes moisture saturation. After 150 hours in standard conditions, PLA filament may swell up to 40 micrometers before reaching its saturation point. 3D printers rely on tight tolerances and extremely small layer heights. Before the print even gets underway, an increased filament diameter of even 20 – 40 microns, (roughly the width of a human hair) can derail a build before it ever begins.

Indications of Possible Moisture Content in Failed 3D Printing Builds

- Filament cracks or makes popping noise as the filament is pushed through the extruder
- Holes in the top of parts
- Extruder tip bubbles with a tiny burst of steam, stringy or drooly
- The filament will not adhere to the print bed
- Repeated builds seem inconsistent or fail no changes in variables
- Extruder motor stops but filament keeps coming out
- Extruder motor starts but filament extrusion is delayed
- Parts become soft, fragile, and break easily
- Extruder jams

[3D printing filament cabinets](#) are the better, if not best moisture control solution for filament storage. Active dry cabinets control humidity and temperature which prevents moisture absorptions, even while in use.

An automatic humidity control cabinet with a hygrometer provides a quick and simple way to store 3D printer filament without hassle or baking. Changes in humidity directly affect air temperature, therefore automatically controlled drying environments exceed nearly all other methods for drying and storing 3D printing filament. The rear feed ports ensure your filament stays completely dry, easily accessible, and readily identified. Simply set the desired humidity level between low, medium, and high, and plug it in.

Benefits of using a Filament Dry Cabinet

- **<10% ±5% RH:** Optimal for all filament materials
- **Convenient:** No consumable parts
- **Low Energy Consumption:** 12W Avg. / 100W Max.
- **4 Filament Feed Ports:** Prints while in dry storage
- **Keeps Filaments Dry, Without Heat:** Maintains tensile strength

Traditional Dry Method Disadvantages

- **Oven Baking:** High energy costs, decreases tensile strength, time consuming, melts filament if too hot
- **Desiccants:** No RH control, constant replacement, and maintenance
- **AC & Dehumidifier:** High energy cost, unable to reach below 40% RH, ineffective in low temperatures
- **Other Filament Dryers:** Constant heat baking with high energy consumption, unable to dry for extended periods, only able to dry a few spools at a time