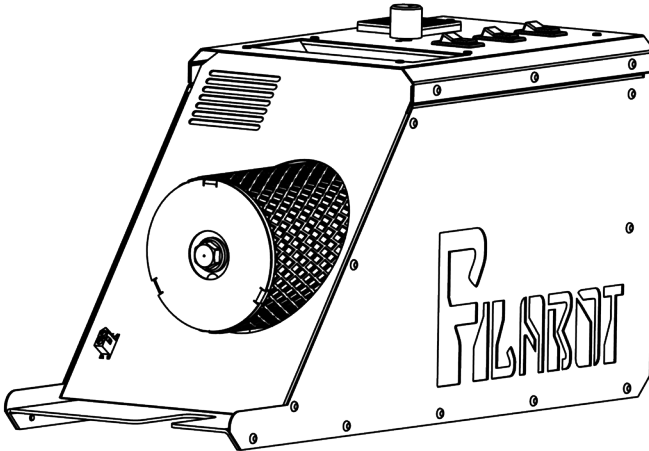


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Filabot Original and Filabot EX2

Operation Manual



This manual applies to the Filabot Original and Filabot EX2 by Triex® LLC.

Triex® LLC, Barre, VT 05641, USA

General Specifications and Application

The Filabot Original and Filabot EX2 are filament extruder systems, which produce plastic filament for 3D printers.

Filabot extruders produce plastic filament in 3 common diameters: 1.75mm, 2.85mm, and 3mm. Undrilled nozzles are available on filabot.com to produce filament of a custom size.

The Filabot Original and Filabot EX2 can produce filament from a wide variety of plastics that can be in pellet, re-ground plastic, and in fine powder form. Input material should be less than 3mm in diameter.

Inputs: The following plastics have been verified for extrusion on the Filabot Original or EX2. Other plastics may be extrudable, however they are untested. We are constantly testing new plastics, please contact us for the most up to date information on verified plastics.

- PLA (Polylactide)
- ABS (Acrylonitrile Butadiene Styrene)
- HIPS (High Impact Polystyrene)
- ULTEM
- PC (Polycarbonate)

Electrical requirements: 100VAC - 240VAC 50/60Hz

Power Consumption: The Filabot Original and Filabot EX2 will use about 400~600 watts, depending on heater temperature settings and motor speed.

Filament Diameter Output: 3mm, 2.85mm or 1.75mm diameter plastic filament, using provided interchangeable nozzles. The customer may also purchase pre-drilled nozzles or undrilled nozzles and modify them for a custom diameter.

Dimensions: 18 1/4in x 7in x 9 1/4in (46cm x 18cm x 24cm)

Weight: 20 pounds (13kg)

Safety

- Be sure to thoroughly read the Operator's Manual familiarize yourself with the machine before beginning to extrude.
- Do **NOT** extrude PVC plastics with this device.
- Do **NOT** under any circumstance put your hands, fingers, or any other objects down into the hopper while the unit is running. You may hurt yourself, or jam the feed screw - possibly damaging the system.
- Only use this device to extrude plastic filament. No other use has been tested or approved for safety or applicability by Filabot.
- Filabot extruder systems are designed for indoor use only. Do not use it outdoors or on wet or damp surfaces.
- Do not use the extruder if any parts are missing or damaged. If you notice any damage to the unit, unplug the device immediately and contact Filabot.
- Use the device only with the specified input power of your purchase (ex. 110V/220V Filabot Extruder). The electrical components inside are voltage specific, using the device with the wrong input power is likely to damage the electrical and/or electronic components of the device.
- Do not modify or alter this device without prior specific authorization from Triex LLC. Unauthorized modifications may impact the safety or normal operation characteristics of the device and void the warranty.
- Never extrude a plastic unless you are absolutely certain of its composition. Never mix plastic types.

Contact Filabot with any questions or concerns before installing, using, adjusting, or maintaining the device.

Setup

Position the Filabot on a suitable work surface. The work surface should be large enough to safely support the extruder at a comfortable height for the user. Additional space is ideal for convenient access to tools and supplies. The support must be located no further away from an electrical outlet than the length of the provided power cord.

Do not place any objects against the Filabot.

Operation

PLASTIC NOTE: When using commercial pellets, rely on the manufacturer's identification of the type of plastic. When using recycled plastic, check the markings on the item(s) to determine which type of plastic you are using. Do not mix types of plastic, as this may cause issues extruding or affect processing times, both in the extruder and in the printer.

The following is a table of general processing temperatures. Note that the processing temperature may not be the same as the melt temperature.

Plastic Type	Processing Temperature
PLA	175°C - 195°C
ABS	165°C - 185°C
HIPS	175°C - 195°C
Ultem	350°C - 400°C
PC	250°C - 320°C

NOTE: The temperature ranges in the chart are approximate. Plastics of the same type are available in different grades, each grade may perform differently.

Operation (continued)

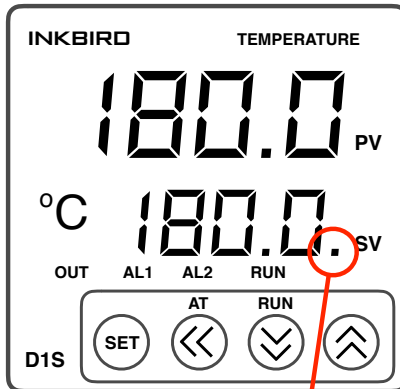
It may require trial and error to determine the right processing temperatures as the ambient temperature you are extruding in will affect the extrusion. It will help to maintain a log of actual temperature settings with different types of plastics along with other operational notes. This will assist in developing a procedure that works well in your application. Blank pages are provided at the end of this manual for this purpose.

Break-in Procedure: These steps need to be followed with a new Filabot extruder to ensure proper break-in. These steps are to clean out the extruder from the manufacturing process. This should be done in a well ventilated area. For general cleaning steps look at the Cleaning and Maintenance section of this manual.

Step 1: Install the supplied 2.85mm nozzle. Use a $\frac{5}{8}$ " socket or wrench to tighten the nozzle into the end of the extruder. This can be done with the extruder unheated.

Step 2: With all switches off, flip the 'MAIN POWER' and 'TEMPERATURE CONTROLLER' switches from 'OFF' to 'ON'.

Step 3: Press the 'UP' or 'DOWN' buttons. A dot will appear in the bottom temperature display.



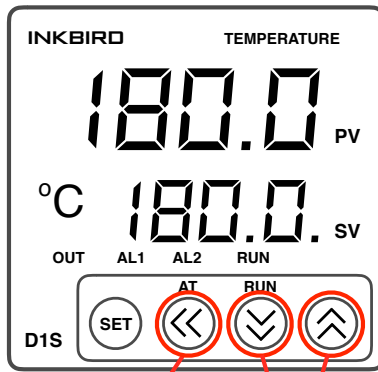
Blinking Dot

Operation (continued)

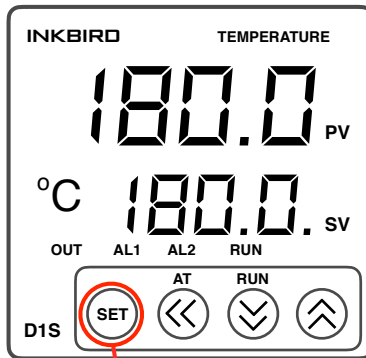
Step 4: Move the dot, using the Decimal Place Selector, to the digit that you would like to adjust.

Step 5: Adjust the temperature to 180°C (purge compound extrusion temp) using the up and down buttons.

Step 6: Once 180°C is set, press the 'SET' button 2x to lock it in.



Decimal Selector 'DOWN' and 'UP'
Temp Adjust



Press 'SET' 2x

Operation (continued)

Step 7: WAIT for the extruder to reach 180°C, typical warm up time is roughly 15 minutes.

Step 8: Once 180°C is reached, fill the hopper of the extruder approximately half way with the supplied pellets, then flip the 'EXTRUDE' switch from 'OFF' to 'ON'. This will activate the feed screw and begin conveying material forward. Light smoke may come out of the extruder at this point. This will only occur during the break in procedure.

Step 9: As filament begins to extrude, guide it to the ground so that it can coil up. This filament will likely have debris and contaminants in it from the manufacturing process. Do not use this filament in your 3D printer. Extrude all of the pellets that were placed in the hopper, if the filament coming out still appears to have contaminants after this step, extrude additional pellets to further clean the system.

Step 10: Discard the 'break in' filament that was just extruded.

Filament Production:

Step 1: Select the nozzle for the size filament you desire to make. ANYTIME after first use will require you to heat the system up before switching nozzles, doing otherwise could damage the machine or components inside. Once the extruder is heated up, and with the 'EXTRUDE' switch off, you can remove the nozzle with a 5/8 socket or wrench. Be mindful that you are working with hot materials, BE CAREFUL when removing the nozzles, and never touch with your hands. Once the nozzle is removed, replace it with your desired size.

Step 2: With the extruder at the correct temperature for the plastic that is being extruded, add pellets to the hopper and flip the 'EXTRUDE' switch from 'OFF' to 'ON'.

Note: If using the Filabot EX2, adjust your speed controller to a low setting. This will allow you to slowly ramp up the speed and make it easier for you to begin your extrusion.

Operation (continued)

Step 3: If using our Filabot Spooler system, refer to the Spooler operation manual on how to set it up. If you do not have a spooler, you can use the ground coil method. Place the extruder so that the front (where the filament comes out) is next to the edge of a table. The table should be between 24in to 40in tall.

Step 4: Once enough filament has extruded to the ground, guide it into its natural spiral. Once it has spiraled around twice it generally will take care of itself and continue to neatly coil. Be sure to extrude your coil onto a clean surface to avoid contaminants collecting on your filament.

Step 5: After the filament has coiled a few more times, carefully measure the filament diameter from the filament in the coil. If filament is too large, increase the temperature of the of the extruder by a few degrees. If the filament is too small, lower the temperature by a few degrees. Dial this in for your desired diameter.

Step 6: Once you have extruded enough of your filament you are now ready to either spool it or feed it directly into your printer.

Care and Maintenance

Filabot extruders require only minimal, occasional maintenance. This consists of cleaning the device as needed, vacuuming out the hopper, or purging out the plastic inside the extruder chamber.

Check for any signs of damage, wear, or deterioration while using and cleaning the device. If there are any signs of wear, overheating, or deterioration, contact Filabot for guidance on how to proceed.

Purging procedure when switching materials:

Step 1: Remove any remaining pellets from the hopper. With the extruder at the proper extrusion temperature for the plastic, begin extruding and run the unit until plastic is no longer coming out of the nozzle.

Step 2: Flip the 'EXTRUDE' switch to 'OFF', and remove the large nozzle from the end of the extruder and pour roughly 1/4 lb of purge pellets into the hopper. Flip the 'EXTRUDE' switch to 'ON' and begin extruding the purge compound with the nozzle removed. Depending on what you were extruding previously, you may need to use additional pellets to fully purge the material. Use additional purge pellets until the purge coming out is back to its normal white color.

Step 3: With the purge pellets fully extruded, add your base resin that you plan to extrude next into the hopper and continue to extrude with the nozzle still removed. Once your base resin appears pure and without any purge remnants in it, run the unit dry, shut down your extruder, and replace the large nozzle.

Step 4: You are now ready to begin extruding your new filament.

Troubleshooting

Use the below grid to resolve issues. Most often, the solution can be performed yourself and there is not a problem with the actual machine. Here are the most common issues and solutions to them:

Problem	Possible Issue	Solution
Extruding slow	-Low temperature -Bridge/block	Raise temperature
Not extruding	-Low temperature -Bridge/block	-Raise temperature -Raise temp. to 30°C-50°C over the extrusion temperature. Let it stand, begin trying to extrude again
Bubbles in filament	-Too high temp. -Damp plastic	-Lower temp. -Dry plastic
Filament diameter too small	Temperature too high	Lower temperature and recheck after two minutes
Filament diameter too big	Temperature too low	Raise temperature and recheck after two minutes.
Main power not turning on	-Blown input plug fuse -Power supply tripped	Replace fuse with the correct voltage fuse Unplug unit for 5 seconds to reset power supply

If problems persist, please call or email Filabot for further assistance.

Warranty Information

The Filabot Original and Filabot EX2 have a one year warranty. This includes replacement of any part that fails. Warranty is void if system is opened up or damage is direct. Only Triex LLC technicians are allowed to service the internal parts. More information about our warranty is available on www.filabot.com.

Parts, Supplies, and Accessories

Filabot provides replacement parts, supplies, and accessories. If you have any questions or need any special parts, please let us know. The following is a list of other items that we retail.

- Pellets
- Colorants
- Filabot Industrial Reclaimer
- Filabot Spooler
- Hopper Extension

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