
Filabot Wee Assembly Instructions

The Filabot Wee is a filament maker for fusion deposition modeling(FDM for short) 3D printers. The Filabot Wee has been designed to use as few parts as possible while still reaching the goal of making quality filament, quickly. The Filabot Wee makes filament for printers that use 1.75mm and 3mm filament.

These documents will serve as an assembly guide so that the Filabot Wee kits can be easily put together. If you have any questions please contact us at Filabot.com using the contact form.

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Specifications:

Max Temp: 350C
Extrude Rate: 8ipm to 20ipm plastic and diameter dependent
Feed Screw Speed: 35RPM
Input Power: 120VAC
Power Draw: ~300Watts
Extruder Footprint: 17in by 7in by 8in

Materials Needed:

Filabot Wee Kit

Tools Needed:

- ⤴ Philips Screw Driver
- ⤴ Flat Head Screw Driver
- ⤴ Two 7/16 Wrenches
- ⤴ Clamp
- ⤴ Wire Cutter
- ⤴ Wire Stripper
- ⤴ Pliers
- ⤴ Needle Nose Pliers
- ⤴ Metric Allen Wrenches

- ⤴ Small hammer
- ⤴ Wire feed or stick welder if assembling an un-welded kit

Step 1: Check Parts

Check the Bill of Material to make sure all the necessary parts are provided. If parts are missing, please contact us and we will ship you what you need.

Step 2: Motor Coupler

First we are going to attach the motor coupler to the gear motor. Using the M6-1mm metric cap head screws. Tighten down the screws with a metric allen wrench.

Step 3: Motor Mount

Next attach the 6U shaped motor mount using washers and the 1/4-20 x .5in bolts. Only loosely screw in these bolts, we will tighten them in a later step.

Step 4: Feed Screw and Thrust Bearing

Grab the extruder, feed screw, thrust bearing, and shaft collar. Slide the feed screw in from the front of the chamber until the back end reaches the other side of the extruder. Insert the shaft collar into the thrust bearing as show in the picture. Now hold the shaft collar and thrust bearing inline with the feed screw shaft and push the feed screw, from the front of the chamber until it stops. The feed screw end should stick out past the thrust bearing about $\frac{3}{4}$ of an inch. Tighten down the cap head screw with a metric allen wrench.

Step 5: Mounting Motor

Now it is time to mount the motor to the extruder. Slide on the motor coupler making sure that one of the screws lines up with the flat on the feed screw. Tighten down with the metric allen wrench. Then use 4 1/4-20 x .5in hex bolts, 4 washers, and 4 nuts to attach the motor mount to the extruder. Before the bolts are tight pull back on the whole motor to remove slop in the thrust bearing, then tighten the bolts with two 7/16 wrenches, one on each side. Once all four of the bolts are in tighten the four bolts that hold on the motor. *Tip: The motor mount may be slightly spaced form the extruder, to be able to attach the bolts use vice grips to squeeze them together.*

Step 6: Heater Holder

Next grab the two set screws, heater, and heater holder. Before inserting the heater into the heater holder put a small bead of thermal paste around the heater, this will help with heat transfer. With the thermal paste on, slide the heater into the small hole on the heater holder and use the set screw to hold it in place. Be sure not to tighten down to much, just enough to hold the heater in place. Again add more thermal paste to the inside of the large hole on the heater holder. Then slide the heater holder onto the chamber with the heater wires sticking out the back. Insert a set screw into the side hole, and tighten down.

Step 7: Temperature Probe and Insulation

Screw in the temperature probe into the top hole with some more thermal paste to insure a steady reading. Tighten down the probe using a 7/16 wrench. Next put the insulation on with the cut side up as shown in the picture. Use the zip ties to hold the insulation in place. Cut off the ends of the zip ties and screw in the large nozzle. Place extruder assembly aside.

Step 8: Base

Now we can start assembling the base of the enclosure. First you will want to line up the base as show in the picture, with the holes that are closer together to the left and the farther spaced ones to the right. Using the component spacing dimensions screw down the relay and power supply with the short wood screws.

Step 9: Extruder to Base

Lay the base on the side to attach the extruder that was assembled in the first few steps. To attach to base use the 1/4-20 x 1in bolts, washers, and lock nuts.

Step 10: Enclosure Side

Using the long wood screws with the base and extruder still laying down on its side attach the side wall of the enclosure. Leave the base 1/2in up from the bottom of the side wall, so that the side wall acts as feet.

Step 11:

Flip right side up and put on the top control panel, again using the long wood screws. Next place the right wall with the power inlet cutout and zip tie hole in between the base and the top control panel. Hammer in the finish nails to hold the right wall in place.

Step 12: Wire system

Use the Filabot Wee Wiring Schematics to wire up the system. When connecting wires to the temperature controller we found it easier to do with it removed from the top control panel. Run the wires through the white holder and the hole where the temperature controller goes. Once all the wires are hooked up in the temperature controller you will be able to guide the controller back through the hole. When mounting the terminal strip use two zip ties and pass them through the pre-cut holes on the right wall.

Step 13: Back Wall

Screw in the back wall using three long screws on the side, and two long screws on the top where the top control panel and back wall meet.

Step 14: Make Filament!

Once every part has been assembled it is time to make filament. To learn how to use the temperature controller use the provided manual. Only extrude when the desired temperature is reached. The Filabot Wee has been tested with ABS and PLA. Both 1.75mm and 3mm diameter filament can be made on this system. There are 4 provided nozzles, two test nozzles that are drilled at 1.75mm and 3mm exactly (Chrome Color), and two nozzles that are drilled smaller to compensate for the plastic swelling (Brass Color). **NEVER EXTRUDE PVC or Vinyl.**