HIWASSEE PRODUCTS

CONTINUOUS FLOW BIO-EXTRACTOR

OPERATING INSTRUCTIONS & USER MANUAL

225 Hiwassee Community Dr. Madisonville, TN 37354 • www.hiwasseeproducts.com

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Front view

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Input Material

Compost Material

Figure 1: Input material must be screened to a quarter inch particle size. DO NOT put large rocks, sticks, or similar material that will damage the extraction sieve through the extraction chamber.

Biologically Complete[1] Compost is recommended.

Figure 1

Water Supply

- Ensure you have a good source of clean water free from Chlorine, Chloramine and below 75 ppm Calcium. If you need more information on what a good water source is or different filtration and storage options for your existing water supply give us a call at Hiwassee Products.
- The water supply to the extractor must be a minimum of 12 GPM.
- The booster pump will not maintain pressure with an inadequate water supply.
- If using a pressurized water supply, the Grundfos pump can be adjusted to achieve recommended pressure.

1 Biologically Complete is a term meaning compost has sufficient diversity of beneficial microorganisms

Metering

This should be adjusted based on the compost texture. The finer the compost the narrower the gap should be.

1. **Figure 2:** Loosen the bolts that center the hopper on the extractor (A) using a 7/16 wrench.
2. **Figure 2:** Once both bolts are loosened remove the bolts clamping the metering plate on the auger housing (B).
3. **Figure 3:** Adjust the height of the metering plate by placing the bolts in the hole that produces the gap you want (for Hiwassee products compost we recommend a gap between 0.5 – 0.625 inches).
4. Replace the clamping bolts (B). Then center the hopper over the metering plate and tighten the hopper stabilizing bolts (A).
5. Auger speed should be set fast enough to remove all the material from the metering system to ensure no overflow in the back of the auger.

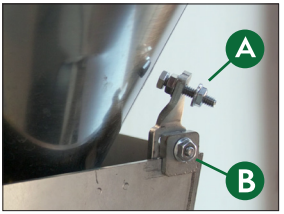

Figure 2

Figure 3

Scan for metering demo video

Priming

Before loading the hopper, the Bio-Extractor booster pump must be primed (see Grundfos pump manual for priming requirements)[2]:

- **Figure 4:** Attach water source to input camlock and turn on. A solenoid valve built-in to the input line will control flow and open when RUN/CLEAN button is activated. If water line is not pressurized, remove the priming bung[3] and fill pump.
- **Figure 5:** Push the RUN/CLEAN button and monitor the pressure gauge until 40 PSI is reached.
- Press STOP button to turn off extractor.

Figure 4

Figure 5

2 Grundfos pump manual included with product literature
3 Reference Grundfos manual

Loading

Before loading the hopper, check that the agitator switch is in the OFF position.

To load the hopper (Figure 6):

1. Measure compost
   - A 5-gallon bucket is recommended for measuring and loading.
   - The recommended ratio is 5:1 gallon:-pounds (i.e. If you need 100 gallons of extract you would measure out 20 pounds of compost).
2. Pour the compost into the hopper.

Figure 6

Note: Do not over-fill the hopper. Fill only up to the line on the label.

Calibration:

Calibrate the auger speed to match the bulk density of your compost:

1. Weigh out 10 lbs of compost into the hopper.
2. Set the agitator motor speed (C) at 2.5 and auger motor speed (D) at 5.
3. Press RUN/CLEAN and time how long it takes for 10 lbs of material to run out of the hopper.
4. Then using your pressure, figure out the extractor flow rate (10.8 gpm at 40 psi) multiply that by the time it took 10 lbs to run through to get total gallons of extract produced and then divide that by the 10 lbs of compost you used to get your dilution.

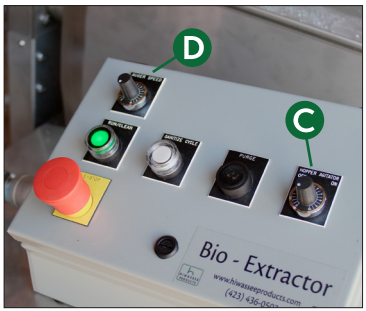

Figure 7

Scan for calibration demo video

5. Repeat steps 1-4 for each speed setting to get your curve and then set it at the speed to produce the dilution of extract you want.

We recommend weighing the next few buckets of material just to double check that you are getting the dilution you want based on volume of extract produced divided by compost consumed as the fuller the hopper gets it sometimes fluctuates the metering capabilities based on moisture content and density.

Extraction

Before extraction, check that the drainage valves for the catch basin and auger are shut.

To Extract:

Figure 8:

- Press the RUN/CLEAN button (E) and check that agitator and auger speed settings are set correctly.
- Monitor the water pressure, a minimum of 40 psi should be maintained during extraction (see troubleshooting section if you experience an unexpected loss in pressure).
- Monitor the catch basin. The catch basin will act as a sediment trap for abrasive sands that would damage pumps used during application. If you are running a large batch, periodically check the buildup of sediment in the catch basin – remove sediment build up as needed.

Figure 8

Note: The transfer pump will automatically turn off/on as it fills with extract.

Cleaning

To prevent a build-up of Biofilm[4], it is important to clean the Bio-Extractor after use.

To clean:

- Turn extractor off.
- **Figure 9:** Release the E-STOP (F) and press the PURGE button (G) to empty the transfer pump.
- **Figure 10:** Remove the clear plastic lid covering the auger sleeve.
- **Figure 11:** Place a 5-gallon bucket under the catch basin drain and open the valve to drain basin. Sediment build-up can be rinsed out the drain valve.
- **Figure 12:** Place a bucket under the auger drain located on the bottom of the auger housing under the hopper. Open the valve to drain the auger housing.
- When catch basin is empty and clean, close drain valve and replace the lid.
- Press the RUN/CLEAN (E) button to thoroughly rinse the extractor until clean water is flowing from the output discharge line. During this rinse cycle, the catch basin drain and auger sieve drain valves can be opened to allow sediment to be rinsed out. Place 5-gallon buckets under each valve.
- Rinse Bio-Extractor thoroughly. Components are water-resistant[5] and can handle a water rinse. DO NOT direct high pressure spray nozzles on electrical components, motors (see footnote for component rating).
- Press PURGE (G) button to empty the transfer pump.

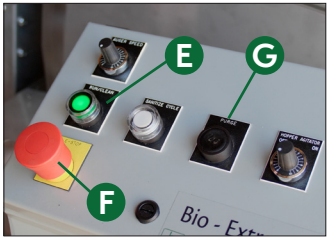

Figure 9

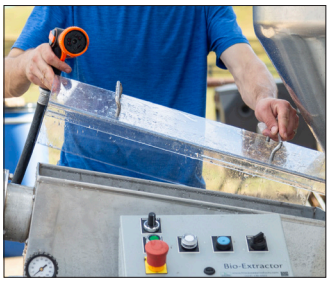
Figure 10


Figure 11


Figure 12

4 Biofilm is a microscopic layer of biology which sticks to surfaces. If left uncleaned, this layer will go anerobic.
5 Motors are rated: IP44, Pumps are rated: IP67. Electrical Enclosures are rated: NEMA 4

Sanitize

The built-in sanitation function is a closed cycle process.The sanitize cycle should be run every 50 hours or annually, whichever comes first. Run the sanitize cycle if the extractor will not be used for 60 days or prior to winter storage. RV & Marine Anti-freeze is acceptable for winterization.[6]

To Sanitize:

- Turn extractor OFF.
- Detach the ¾" camlock from the front of the auger.
- **Figure 5:** Using the supplied sanitize hose, connect the discharge outlet to the ¾" camlock at the front of the auger to create a closed loop.
- Fill the catch basin with 5 gallons of water and hit the sanitize cycle button to start the timed cycle.

Figure 5

- Add 5 more gallons of water into the catch basin while the cycle is running.
- Using the proper PPE required on the product label add 14 ounces of Sani-Date 5.0 to achieve a 0.25% hydrogen peroxide dilution.
- The sanitize cycle will automatically run for 10 minutes and shut off when complete.
- Drain the catch basin and auger housing.
- Press PURGE to pump remaining water into the catch basin.
- Rinse the Bio-Extractor with water for at least 5 minutes to ensure no Sanitizer is left in the machine (you can use any water supply, so you don't reduce your filtered water).
- Drain and store the Bio-Extractor for future use.

6 If storing in a freezing environment, drain all liquid from pumps and water lines. R&V and Marine Anti-freeze is acceptable. Call Customer Support with any questions regarding Sanitation or Winterization.

Storage

It is recommended that the Bio-Extractor is stored in a location that will not freeze. If there is any chance of freezing it is essential to ensure that all water has been drained from the booster pump and purged from the transfer pump. Improper storage could permanently damage the pumps. Damage occurring from improper storage is not covered by the warranty.

Service Requirements

T-filter

Periodically clean the T-filter by unscrewing and emptying the contents. The T-filter is located on the front of the extractor below the inlet.

Grease zerks

Every 20 hours or yearly, grease the rotary union located on the front of the auger.

Troubleshooting

Low water pressure

If water pressure loss is seen, check and clean the T-filter, see service requirements.

High water pressure

To compensate for high pressure water supply, booster pumps can be adjusted to decrease incoming pressure.

Auger binding

Loosen three bolts on the front of the auger and reposition auger.

Leaking fittings

Ensure the fittings are tight. Reseal with thread sealant if necessary (DO NOT overtighten plastic fittings).

If fittings still leak, call customer support.

Electrical

Call Customer Support.

Any other problems

Call Customer Support.

Customer Support:

Phone: (423) 436-0502

Email: info@hiwasseeproducts.com

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