

The Flux Winnower

Warranty Information Assembly Tuning Operations Manual Tips and Maintenance Troubleshooting

Limited Warranty

The Flux Winnower – Production Model

12 month limited warranty: Chocolate Alchemy warrants to the owner of this product that it is free from defects in material and workmanship for a period of 12 months from the date of purchase.

The manufacturer's obligation will be limited to repairing or replacing (at manufacturer's discretion) F.O.B. (address city state zip) any part(s) of the product which is/are defective. The Flux Winnower is non-returnable and non-refundable once purchased.

Such warranty will not apply to defects or damage resulting from tampering, modifying, cosmetic damage, acts of God, accidental breakage, abuse, negligence, neglect, and/or misuse.

The Flux Winnower is designed and manufactured to function properly. Chocolate Alchemy strongly recommends avoiding any modifications to the product. Modifications will void the 12-month limited warranty and trolls will be sent after you.

If you must return the product or parts of the product for reasons of malfunction within the 12-month warranty period, the following action and steps are required:

1. Contact Chocolate Alchemy to determine repair or part replacement needs and to obtain a return merchandise authorization (RMA). Then ship prepaid (USA residents only) to Chocolate Alchemy by the most convenient method with the RMA clearly noted on the outside of the box.
2. The winnower must be packaged securely to protect from damage or breakage in shipment. Chocolate Alchemy accepts no responsibility for damages occurring in the shipping process. We highly recommend insuring the shipment in case of damage.

Even if not required, the rights in this warranty are granted to you.

Chocolate Alchemy will not be held liable for any special, incidental, or consequential damage, resulting from possession, use or loss of this product either directly or indirectly.

Important Notice!!!! Please read first!

Now that your Flux Winnower has arrived, the first question you are probably asking yourself is “What the *#&\$ am I going to do with nearly a football field’s worth of bubble wrap?”

Here are a few suggestions from Chocolate Alchemy to get you started in the right direction.

10 things to do with bubble wrap:

1. Wrap your friends, children, or self in it and roll down a long hill.
2. Give it as a gift, along with the box. It will provide hours of entertainment.
3. Turn on your favorite music, kick off your shoes and have a bubble wrap popping dance party.
4. Invite over someone you are interested in for a very interesting date.
5. Deter ill-behaved cats from jumping up on your counters.
6. Sound-proof your walls for a great night’s sleep. If it’s not enough bubble wrap to do the job, you may need to order another winnower.
7. Put it on the floor around where you keep your chocolate. You’ll know right away if anyone’s sneaking it.
8. Host neighborhood bubble wrap wrestling matches.
9. Make great sound effects for amateur action films.
10. Use it to package your chocolates in.

Assembly

You will need a table for your Flux Winnower with a surface of at least 24" x 48", and a recommended height between 24" and 30" allowing a 5 gallon bucket to sit underneath the nib outflow tube as a catch bin (bucket not included). The table must be capable of supporting 200 lb.

In addition to the items listed below, a Champion Juicer, Optional Deluxe Cracker and Shop-Vac (6.5 hp with 2.0" hose) or equivalent vacuum, and a nib catchment bucket (a 5-gallon works well) are required to operate the Flux Winnower.

It is helpful to use a single power strip to plug in the Champion Juicer and Shop-Vac for running the Winnower.

The Flux Winnower will arrive in two boxes (four if you ordered the Champion Juicer and Shop-Vac.) The Winnower consists of six main components; the Vacuum Chamber, Husk Bin, Support Platform, Champion Juicer Adapter, Hopper and Hopper Stand, along with the Champion Juicer and the Shop-Vac. Please note the photos below are for the Beta Flux – the new Production model will look slightly different.



Figure 1: Vacuum Chamber

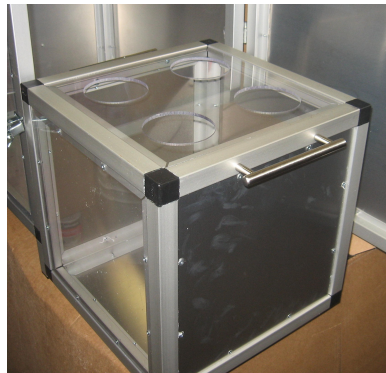


Figure 2: Husk Bin



Figure 3: Support Platform & Champion Juicer Adapter



Figure 4: Hopper and Hopper Stand

Do not move the Winnower once assembled! Disassemble pieces before moving!

Remove Winnower parts from their boxes and place the Vacuum chamber on the table. Place the Support Platform next to it on the left, positioned on the edge of the table so that the PVC tubing hangs over the side. Slide the side and front connecting brackets of the Vacuum Chamber and Support Platform together with the plates under the Support Platform. Secure the brackets with the enclosed $\frac{3}{4}$ " 10-32 bolts and 10-32 stop nuts.

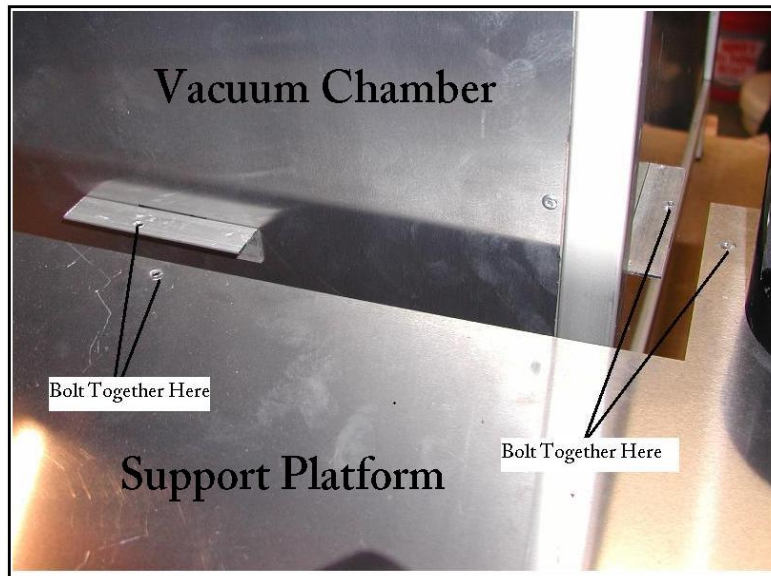


Figure 5: Winnower Attachment Brackets

Insert end “A” of the Husk Transfer Tube into the Husk Transfer Tube coupling on the Support Platform and end “B” into the Husk Waste Portal on top of the Vacuum Chamber. No hardware required.

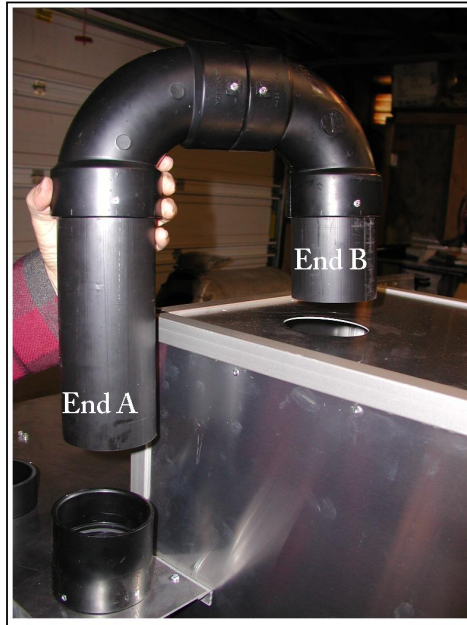


Figure 7: Husk Transfer Tube

Place the Champion Juicer on the Support Platform with the Champion Juicer Adaptor lined up over the Cracker Coupling. Set the Hopper Stand over the top with the Hopper Funnel lined up over the intake funnel on top of the Champion Juicer.



Figure 8: Champion Juicer and Adaptor

Insert the Slide Plate in place at the bottom of the Hopper Funnel. (Note: orientation of the Slide Plate is up to preference of the owner and does not impact the Winnower's function.)

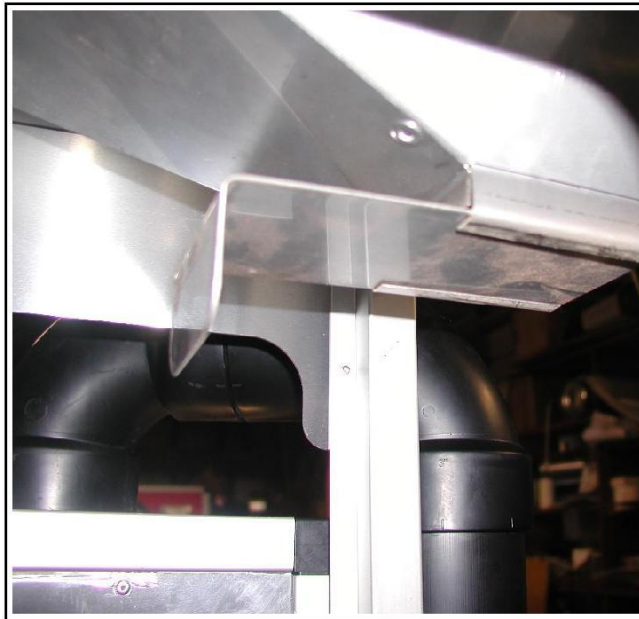


Figure 9: Hopper Slide Plate

Insert the Husk Bin, Plexiglas facing out, into the Vacuum Chamber with the back end against the back wall. Line up the Husk Transfer Tube over the Husk Waste Portal in the back.



Figure 10: Husk Bin

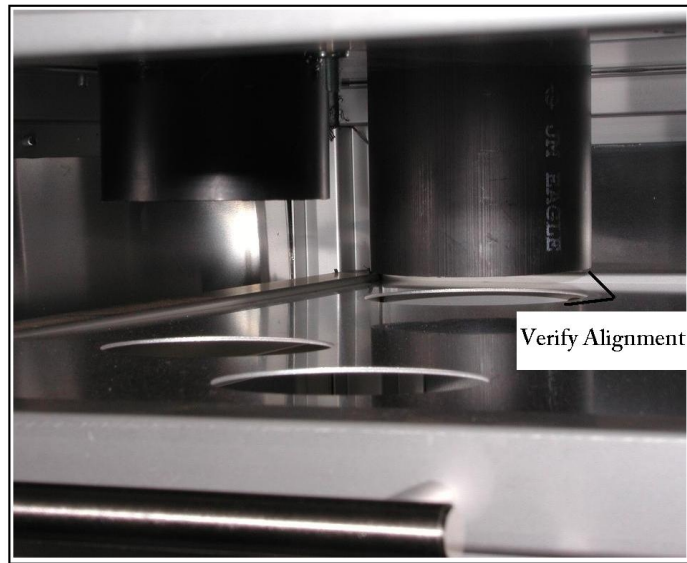


Figure 11: Husk Transfer Tube and Portal Inside Vacuum Chamber

Insert the end of the Shop-Vac hose in the Vacuum Attachment Coupling on the front door of the Vacuum Chamber.



Figure 12: Vacuum Attachment Coupling

Insert the two Deflection Screens into place in the Flux Separation Chamber.

Congratulations – Your Flux winnower is now assembled and ready to be tuned.



Tuning the Flux Winnower

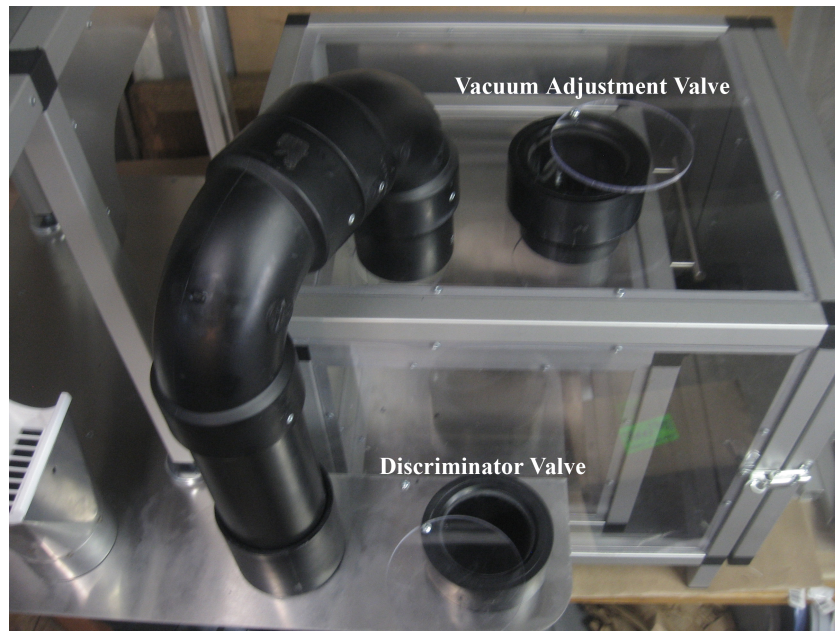
The Flux Winnower is designed to crack and winnow roasted cocoa beans. It has two adjustment valves to allow you to ‘tune’ it to your particular cocoa bean and vacuum. All cocoa beans are not alike. You know this as they all have different flavors. Likewise, they require slightly different settings on the Flux and these settings MAY CHANGE over time.* Also, the Flux, regardless of its magical name, is not magic. The quality of the nibs you get out is only going to be as good as the quality of beans you put in. This means if you have flat, under-fermented and/or mucilage covered beans then you will most likely get flats and other pieces of ‘non-nib’ in with your nibs. This is a consequence of what you put in, not a matter of the Flux not functioning properly.**

First off, no winnower is perfect. A small amount of nib in your husk (as powder) and/or a small amount of husk in your nibs can be expected. Industry standard is less than 1.5% husk in nib (that would be nearly 2.5 oz of husk in 10 lb) If you were to weigh it out and look at it, it looks like a LOT of husk, so when you see a little, don’t panic. On average,

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with well prepared, properly roasted beans, you can expect less than 0.5% husk in your nibs and virtually no nib in your waste husk bin.

Tuning the Flux occurs in two steps: setting the Vacuum Adjustment Valve and then setting the Discriminator Valve. Think of them as coarse and fine adjustments respectively. Please do not change both valves at one time as you can then not tell which valve affected your results.



Test with fully cooled roasted beans.

Open the Discriminator Valve 1/2 way (the valve on the Support Platform)
Open the Vacuum Adjustment Valve 1/2 open (the valve on the Vacuum Chamber).

Setting the Vacuum Adjustment Valve

Process 10 oz of roasted beans (see operations manual for step by step instructions) and calculate your recovery: $\text{Weight of nibs} / \text{Weight of beans (10 oz)}$.

- 0.80 or 80% is great. If the nibs look good and there is virtually no nib in the husk, you are done. Go forth and winnow.
- 82% is either perfect or you have husk in the nibs. If it is the later, increase the vacuum a little (close the valve) and test again with another 10 oz.
- Less than 80% - generally there is nib in the husk waste. Decrease the vacuum a little.

Continue adjusting the Vacuum Adjustment Valve and testing until you hit a maximum recovery of nibs with minimal husk content. At this point there will still be some nibs in your husk waste or husk in your nibs.

Note: ‘Flats’ do not count as husk if you see them in your nibs. You can’t ‘adjust’ these out – they have to be screened out.

Continue with setting the Discriminator Valve.

Setting the Discriminator Valve

At this point, you have adjusted your Vacuum Adjustment Valve to the point where there is either husk in your nibs or nibs in your husk. Adjust the Discriminator Valve depending which is the case.

Husk in your nibs – Close the Discriminator Valve 1/4-1/2”

Nibs in your husk – Open the Discriminator Valve 1/4-1/2”

Process another 10 oz of roasted beans and calculate your recovery: Weight of nibs / Weight of beans (10 oz).

Compare this recovery to your last recovery.

If there was husk previously in your nibs, you want your recovery to go down as that shows more husk is being removed. If there is still too much husk in your nibs, close the Discriminator Valve another 1/4 - 1/2 ” and test again with another 10 oz of roasted beans.

If there was nib previously in your husk, you want your recovery to go up, giving you more nibs. If there is still too much nib in your husk, open Discriminator Valve another 1/4”-1/2” and test again with another 10 oz of roasted beans.

Through all of this, keep in mind to LOOK at the nibs and husk and if they look good, you are done.

Troubleshooting tuning:

If you are at 80% recovery or above, stop adjusting and proceed to winnowing.

If you are way above 80 % recovery and a lot of husk is in the nibs, adjust your Vacuum Adjustment Valve closed (although this should not be the case as you should have closed it enough to have no husk in your nibs).

If you are way below 80% recovery, examine your husk waste. If there is nib present, there are three possible reasons:

- 1) You cracked while the beans were warm and they powdered too much – re-test and calibrate with cold roasted beans.
- 2) You need to open the Discriminator Valve more.
- 3) If the Discriminator Valve is already fully open, you need to close it to 1/3 open, open your Vacuum Adjustment Valve a little, and test again.

And of course, at any point you are happy with the distribution, stop. I like to process 10 oz each time because the math is easy, the amount is representative, and you can see very quickly whether the tuning change you made had a positive or negative effect.

After a while, you should be able to ‘eyeball’ your tuning without all of the math, but it’s rather helpful at the beginning while you are learning.

* Over time, the dust filter on your vacuum will accumulate dust and the vacuum pressure will drop. As this happens you will start to get husk in your nibs. The solution is to simply close the Vacuum Adjustment Valve a little to increase the vacuum pressure until you clean the dust filter out. Don’t touch the Discriminator Valve!

** If you find you are using a bean with a lot of flats, (and there are some great tasting beans out there with flats so I do understand) you can screen your final nibs to remove these as they are generally much larger than the nibs. A ¼” hardware screen tacked onto a frame works very well for this.

Operations Manual



1 - Vacuum Chamber

2 - Support Platform

3 - Hopper Stand

4 - Hopper

5 - Husk Bin

A - Discriminator Valve

B - Vacuum Adjustment Valve

C - Hopper Slide Plate

D - Husk Transfer Tube

E - Attachment points

F - Champion Juicer Adapter

G - Flux Separation Chamber

H - Deflection Screens (2)

Set up

In addition to the items shown and listed above, a Champion Juicer and Shop-vac (6.5 hp with 2.0" hose) or equivalent vacuum, and a nib catchment bucket (a 5-gallon works well) are required to operate the Flux Winnower.

The Champion Juicer fits under the Hopper, with the Champion Juicer Adapter fitted onto the Champion Juicer (note – there should be no screen in the Champion Juicer) and over the 3" round pipe on the Support Platform. Make sure there is no stress placed on the Champion Juicer's motor shaft, as this will cause damage and wear it out. Wear on the motor can be monitored by listening for unusual noise and increased volume during operation.

Connect the 2.0" Vacuum hose into the Vacuum Attachment Coupling on the front of the Vacuum Chamber door to the far right.

Plug in the Champion Juicer and vacuum. It is often helpful to place both onto a power strip with overload protection and power switch so you can turn operate the Flux with one power button.

Operation

Verify the Hopper outlet is positioned over the Champion Juicer. Adjust the height of the Hopper Bin low enough so beans do not overflow the Champion Juicer flange but not so low as to put any stress on the Champion Juicer motor shaft.



Tune your Flux for your cocoa beans if you have not yet done so, or proceed to tuning.

Load the Hopper with up to 50 lb of roasted cocoa beans.
Place your nib-catchment bucket in position under the nib outlet.

Note: a 5-gallon bucket will only contain about 20 lb of nibs – only half of what a full Hopper will produce.

Verify there is sufficient room in your Husk Bin to accommodate all of the husk produced. You will produce approximately 10 lb of husk from 50 lb of beans. The Husk Bin will hold about 50 lb of husk.

Turn on your vacuum and Champion Juicer in that order or at the same time via your power strip.

At this point, your Flux should be cracking and winnowing 1-1.5 lb of cocoa beans per minute.

When all the cocoa beans have been cracked and winnowed, turn off the Champion Juicer and vacuum.

Clean as needed. Please note that the label on the Vacuum Chamber is not water or cleaner safe. Dry wipe only please.

Tips and Maintenance

Due to the intermittent use of the winnower there is no Daily or weekly maintenance that can be suggested. Generally speaking, if it is working, you don't need to do anything. Or 'if it's not broken, don't fix it'.

But you can check certain things over.

Every Use

- Verify the two adjustment valves are set properly.
- Verify the vacuum is attached properly, and the door is sealed.
- Verify the hopper is aligned with the Champion or the slide plate is in before loading the hopper.
- Verify the husk bin is not too full.
- Verify the Deflection screens are clear of debris

And other items you should keep in mind.

- The husk bin can hold 50 lb of husk. If you can not lift that much, empty it more often.
- Clean the filter on your Shop Vac after every 50 lb of beans or more if you find your vacuum pressure has dropped significantly.
- Clean the Deflection screens after every 50 lb of beans and clean the nib/husk entrance chute as needed.
- Check the teeth on your Champion's cutter wheel and replace as needed. Dull teeth will significantly slow down the rate at which the cocoa beans are cracked and subsequently winnowed.
- If you find more husk in your nibs than you like, you can re-winnow them with virtually no loss in nib. Just fill the hopper with the once winnowed nibs and operate as usual. The rate of this is much faster than whole beans and can often exceed 5 lb/min.

Troubleshooting

Eventually, you may find the winnower is not performing as it did or as well as you wish.

“I’ve closed the vacuum control valve all the way and still have too much husk in my nib.”

- Clean the filter on the vacuum. It can cake with cocoa dust to the point the vacuum is no longer working well.
- Check connections and seal on your vacuum and door.

“There are a lot of flat pieces of husk and bean in my winnowed nibs.”

- GIGO or Garbage in Garbage out. Meaning if your beans have a flat in them, these winnow like nibs and will not be removed by the winnower. You can sieve them through a ¼” piece of hardware cloth. Most nibs will drop through leaving flats that generally don’t crack into small pieces.

“My Champion has stopped feeding the cocoa beans at 1 lb/min”

- Check the teeth on your cutter wheel. It is most likely dull and will need to be replaced. This could be as often as every couple of hundred pounds of cocoa beans or as infrequently as every ton, but it will be need to be replaced on occasion and is dependent on the hardness of your individual cocoa beans.

“I am getting a lot of fine cocoa nib powder in my husk bin”

- It sounds like you are cracking cocoa beans that have not been fully cooled after roasting. Even beans cool to the touch can be warm inside still. Try roasting one day and winnowing on another day as it can take 3-6 hours to fully cool.

“I have another problem and my winnower isn’t working right”

- Please e-mail me directly at alchemist@chocolatealchemy.com.