

DCM BREEZE WINNOWER™ Cracker-Winnower User Manual

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NOTE: Due to continuous product improvement, design changes are made from time to time. Some changes and modifications may not be covered in this manual. If you are unsure about the safe operation of your DCM BREEZE WINNOWER™, please contact Diamond Custom Machines Corporation for assistance.



1. DCM BREEZE WINNOWER™ OVERVIEW

DCM BREEZE WINNOWER™ is a US-designed, next-generation cracker-winnower made expressly to crack and winnow raw and roasted cocoa beans. This sturdy and compact, all-in-one machine streamlines the process of cracking and winnowing beans of all sizes, saving makers sorting time and money. A vibrating high-efficiency motor allows for hands-free processing.

System Features

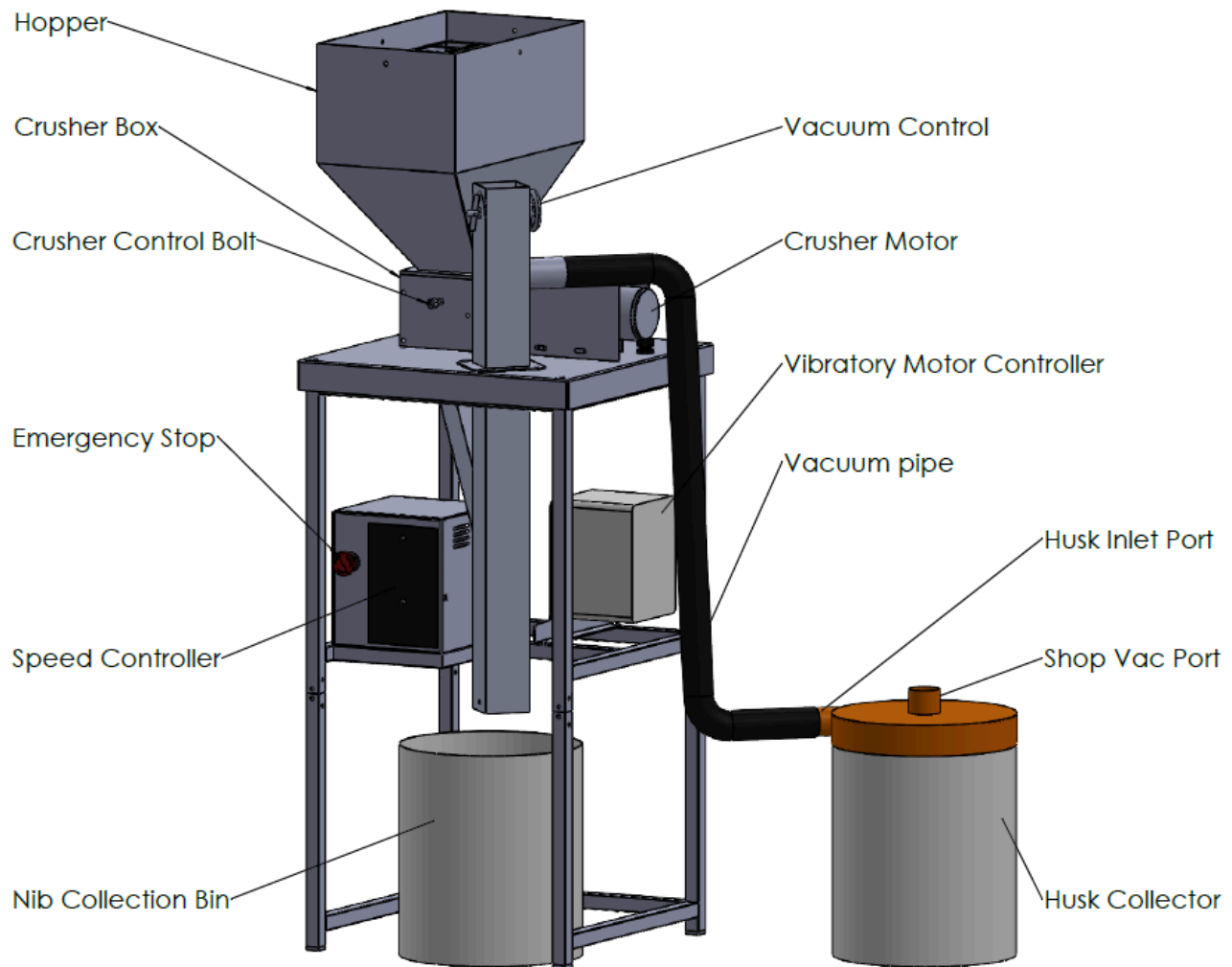
- Innovative cracker can be adjusted to accommodate any bean size without pre-sorting for size.
- Purpose-built variable speed, high torque motor
- Adjustable vacuum control for better husk separation
- Vibrating motor with adjustable timer for hands-free operation
- Sturdy, stainless steel frame for reliability and years of performance
- Easy to transport due to a manageable size and weight
- Designed and made in the USA
- Spare parts are stocked for short lead times
- 1 year Limited Manufacturer's Warranty

Technical Specifications and Dimensions

- Voltage: 110v or 220V
- Current: 1A or 0.5A
- Machine weight: 68 kgs approx
- Unit dimensions: 20x20x60" (assembled)
- Production Yield: Can process 30 to 40 kgs an hour
- Vacuum: Shop VAC needs to be provided by the customer. 5 H.P shop vac is recommended but smaller ones may also work



2. PARTS DIAGRAM



**Nib Collection Bin not provided with the unit*

3. SAFETY INSTRUCTIONS AND PRECAUTIONS

Generally accepted and recommended safety practices are applicable to appliances purchased from Diamond Custom Machines Corporation.

Users are required to read and understand operating instructions, labels and general safety and warnings prior to using the appliance. Save these instructions for future reference.

Failure to follow the instructions detailed in this manual may lead to a voided warranty, personal harm, damage to appliance, fire hazard, or other unsafe and potentially dangerous conditions.



A. General Safety

- a. Do not use the appliance for anything other than its intended use. Do not use outdoors; this product is intended for indoor use only. Do not place the appliance near a hot gas or electric furnace.
- b. Place the unit on a hard, flat, level, and stable surface.
- c. For your safety, use proper lifting procedures to avoid personal injury. During disassembly for transport or maintenance, exercise extra care especially when handling heavy components. Handle sharp edges carefully.
- d. Do not run the appliance longer than the time recommended in the instruction manual.
- e. Never leave the unit unattended while operating. Close supervision is always necessary when the appliance is used near children or persons not trained to use the machine.
- f. Loose clothing and long hair must be secured prior to operation.
- g. Do not use any accessory attachments that are not recommended by Diamond Custom Machines Corporation. This may cause personal injuries and/or damage to the unit.
- h. NEVER, under any circumstance, should operators reach into the machine with hands or tools, while in operation.

B. Electrical Safety

- a. Use this product with a non-GFCI rated voltage AC outlet only. Use a dedicated electrical outlet/circuit for the unit.
- b. To protect against electric shock, do not immerse the power cord, power plug or the machine in water or in any other liquid.
- c. Always switch off the unit and unplug the cord when the machine is not in use.
- d. Do not operate the appliance with a damaged cord or plug.
- e. If the appliance has malfunctioned or has been damaged in any way, contact our Technical Support Team for help.
- f. Disconnect the unit prior to cleaning or when not in use.
- g. Periodically check the power cord for any visible damages.
- h. Do not allow the power cord to touch hot surfaces.
- i. Do not allow the power cord to hang loose.
- j. Do not remove the unit's protective coverings

C. Precautions

- a. Always Plug the DCM BREEZE WINNOWER™ into an appropriate motor-rated outlet.
- b. Never handle the plug with wet hands.
- c. Ensure that the electrical outlet is properly grounded.

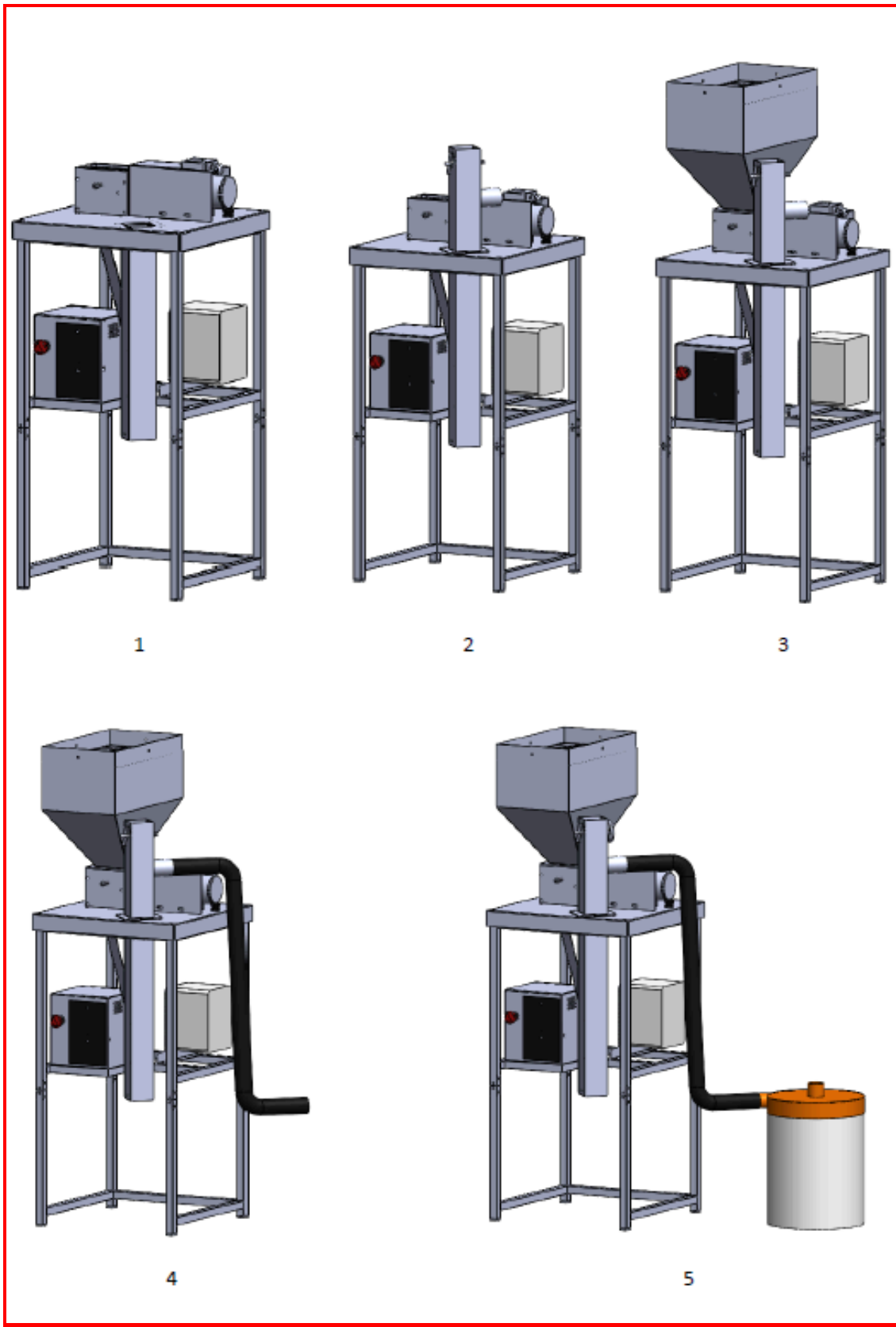


4. DCM BREEZE WINNOWER™ COMPONENT LIST





5. INSTALLATION AND ASSEMBLY DIAGRAM





A. Installation and Assembly

- a. Ensure that the DCM BREEZE WINNOWER™ has arrived safely without any damage during transit. Inspect the unit for any visual defects. If you see any defects, please contact us via phone or email.
- b. Select a work location that is well-ventilated and provides the DCM BREEZE WINNOWER™ with even flooring.
- c. Allow for adequate space on the sides of the DCM BREEZE WINNOWER™ to position the containers for nibs and husks.
- d. Install the Hopper by matching the sides.
- e. Install the vacuum pipe by securing the pipe.

6. START-UP AND FIRST USE CLEANING

- a. Wipe clean the outside of the machine using a soft, lint-free cloth.
- b. Vacuum any dust residue present inside the unit.

7. COCOA BEAN CRACKING AND WINNOWING SET UP AND OPERATION

1. Be sure that your cocoa beans are cold or room temperature for optimal performance. It is good practice to allow at least one day between roasting and Winnowing. Warm beans are soft, and do not offer efficient cracking for good nib-shell separation.
2. Check that the E Stop has been disengaged.
3. Adjust the cracker plate so that there is full contact with the rotating cutter. Then back out one full rotation and tighten the locking nut to lock the cracking nut in place. This is the starting set point for the cracking system.
4. After the unit is fully hooked up, turn on the speed controller. Press the Start Button and set the speed to approximately 30 Hz. Be sure the direction of rotation on the controller is set to FWD.
5. Turn on the vacuum.
6. Set the gap on the vacuum control to approximately 1/2" open and lock in place.
7. Take 25-50g of beans and drop them in the hopper. .
8. Look through your nib bin and see if there are any uncracked beans. If so, then stop the machine and then tighten the cracker plate by 1/8 to 1/4 turn. Then, repeat the process until you do not see any uncracked beans in the nib bin.
9. Open the husk bin and see if there are any nibs present. If nibs are present, adjust the vacuum control accordingly: if the vacuum pressure is high, nibs will be sucked into the husk bin. Vacuum pressure can be reduced by opening up the vacuum control valve.
10. If husks are present in the nib bin, the vacuum pressure needs to be increased by closing the vacuum control valve slightly.
11. Repeat steps 6 and 7 until you reach a point that there are no nibs in the husk bin and no husks in the nib bin. Once this is achieved, lock the nuts on the vacuum control valve tightly and the lock nuts in the cracker plate screws so the settings do not change during operation.



12. At this point, you can fill the hopper and start cracking and winnowing the beans.
13. The hopper can hold up to 20 kg of cocoa beans. Ensure that you have an adequately-sized nib bin to collect the clean cocoa nibs.



8. FUNCTIONS AND ERROR CODES

TABLE 7 – DIGITAL ERROR CODES

Display	Description	Display	Description
	Drive Stopped – Indicates that the drive is in the Stop Mode. Function No. 4.03 set to “0001”.		Parameter Changed – Momentarily flashes. Indicates that a parameter has been successfully changed.
	Function No. Example – A Function No. consists of a Group No. (digits on the left side of the decimal point) and a Group Code No. (digits on the right side of the decimal point).		Motor Current Display – When the display is set to show Motor Current, the format will be “XX.XA”. Function No. 4.04 set to “0001”.
	Motor Voltage Display – When the display is set to show Motor Voltage, the format will be “XXXu”. Function No. 4.05 set to “0001”.		Bus Voltage Display – When the display is set to show Bus Voltage, the format will be “XXXU”. Function No. 4.06 set to “0001”.
	Low Voltage Trip – Indicates that the AC line input voltage is below the Undervoltage Trip Point specified in Table 2, on page 9.		Low Voltage Recovery – Indicates that a Low Voltage Trip occurred and the AC line input voltage has returned to within the operating range specified in Table 2, on page 9.
	Overvoltage Trip – Indicates that the AC line input voltage is above the Overvoltage Trip Point specified in Table 2, on page 9.		Overvoltage Recovery – Indicates that an Overvoltage Trip occurred and the AC line input voltage has returned to within the operating range specified in Table 2, on page 9.
	Overload Trip (I²t Timeout) – Indicates that the motor has been overloaded for an extended period of time.		External Fault Trip – Indicates that an external fault has occurred at one of the MFITs of the IODA. Function Nos. 7.00 – 7.06 set to “0008”.
	Current Source Trip – Indicates that the current signal output (from the IODA) has been opened.		Short Circuit Fault – Indicates that the drive detected a short circuit at the motor (phase-to-phase).
	AC Line Phase Loss Detection – Indicates that the drive has detected a loss of one of the phases in the 3-phase AC line input applied to Models KBDA-29*, 45, 48.		Data Enter Error – Indicates that the drive is in the Program Mode and a non-valid parameter change has been attempted.
	Keypad Communication Error – Indicates that the keypad failed to initialize when the drive is powered up. This is an abnormal condition – contact our Sales Department.		Flash Memory Error – Indicates that a flash memory error on the drive has occurred. This is an abnormal condition – contact our Sales Department.
	IODA Error – Indicates that the drive has lost communication with the IODA.		



9. VIBRATORY MOTOR TIMER SETUP AND OPERATION

The DCM Breeze Winnower™ comes equipped with a vibratory motor designed to be used to clear out beans / nibs that have become stuck in the chute or in the hopper. It is not designed to be used in the regular cracking and winnowing process but as a backup in case the beans get stuck in the hopper. The vibratory motor is suspended on rubber mounts so the base is stable and will not move during operation. Only the top portion of Breeze will vibrate. The Factory setting for the Vibratory Motor is 10 seconds ON and 3 minutes OFF.

To modify these settings, please follow the instructions below.

CAUTION : Unplug the machine from the Outlet to cut power to the machine.

Tools Required: Large flat head screwdriver and small flat head screwdriver.

Step 1: Open the Control box by loosening the 4 white screws in each corner. Gently remove the top cover as wires are connected to it.

Step 2 : You will see 4 knobs with different timer functions for seconds, minutes and hours. These controls will enable you to choose how long the motor is on and how long it is off.

On-Timer Setting:

Shows the amount of time the vibratory motor is ON. The factory setting time is 10 seconds ON.



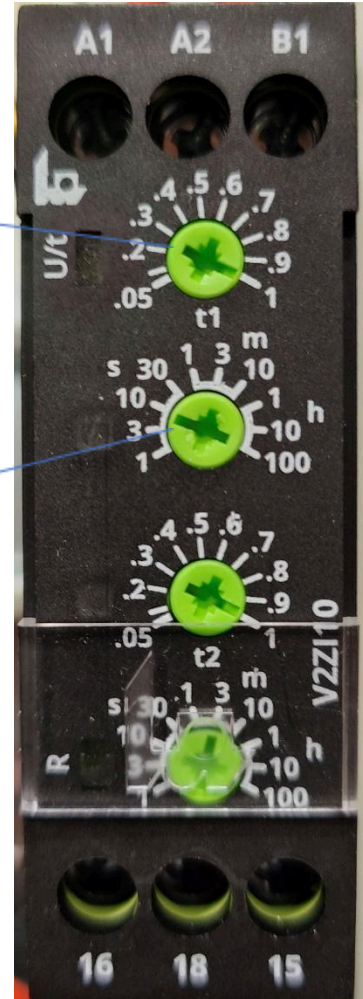
This knob is a multiplier knob, it multiplies the number on the second knob by the number set on the first knob.

For example, the first knob is set as 1 and second knob is set at 10. Which means the value the motor will be on is $1 * 10 = 10$ seconds.

This knob is used to set the time the vibrator needs to be on.

S – Second
m – Minute
h - Hour

It is set now at 10 Seconds.



Step 3 : Off Timer Setting:

Shows the amount of time the vibratory motor is OFF. The factory setup time is 3 minutes ON.



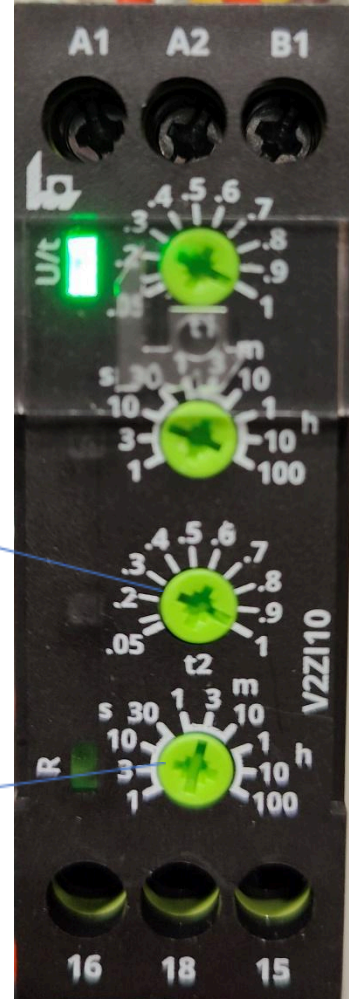
This knob is a multiplier knob, it multiplies the number on the second knob by the number set on the first knob.

For example, the first knob is set as 1 and second knob is set at 3 minutes. Which means the value the motor will be on is $1 * 3 = 3$ minutes.

This knob is used to set the time the vibrator needs to be on.

S – Second
m – Minute
h - Hour

It is set now at 3 minutes.



Step 4:

Close the box and test the vibratory motor to check if the timer function is working correctly.



10. TROUBLESHOOTING and FAQs

1. If the crusher plate is too close to the feeding wheel and the beans are too warm, cocoa butter will build up between the plate and the wheel, stopping the flow of nibs. To fix this, stop the machine and remove the power cord from the outlet. Then remove the hopper, clean the crusher plate and feeding wheel with a wire brush, and vacuum out any debris.
2. Do not run the machine with warm cocoa beans. Cold cocoa beans allow for high efficiency.
3. Keep the cracker plate set to the largest nib size. The larger the nib size, the greater the efficiency of the machine. This will also reduce the amount of dust produced, which will preserve cocoa butter in the nibs.
4. The Vibratory motor is on a timer and will turn on and off. This can be adjusted. For guidance, please check section 9. The vibratory motor is not set up from the factory to stay on all the time. If the motor turns off, that does not mean that the motor is faulty.

11. TECHNICAL SPECIFICATIONS

Model Name	DCM Breeze Cracker-Winnower™
Outer Body Assembly	Stainless Steel
Power Requirements	100-120 VAC or 208-230VAC, 1 phase 50/60 Hz, 5 amps
Overall Dimension:	Approx 20"x 20"x60"
Weight	Approx 150 lbs
Motor	1/4 HP, 3 phase motor
Cable Length	10 feet
Standard Capacity	20kg/44lbs



12. SERVICE, MAINTENANCE and REPAIRS

For optimal performance, we recommend the following servicing:

While Unit is in use: Empty the husk bin as it fills up to avoid overflowing.

Daily: Check the vacuum hose every time you use the machine to be sure the connection is strong. A weak connection can result in too much husk in your winnowed product.

Weekly: Clean the shop vac to remove any dust build up.

Monthly: Remove the hopper, vacuum out the crusher box, and vacuum up any debris. Check the cutting edges to be sure they are clean and sharp. Use a wire brush to remove any debris.

If direct support or replacement parts are needed, contact us via phone or email.

13. WARRANTY INFORMATION

1-year Limited Warranty

Diamond Custom Machines Corporation (DCM) warrants that for a period of one year from the date of purchase, this product will be free from defects in material and workmanship. DCM, at its option, will repair or replace this product or any component of the product found to be defective during the warranty period. Replacement will be made with a new or remanufactured product or component. If the product is no longer available, replacement may be made with a similar product of equal or greater value. This is your exclusive warranty. Do NOT attempt to repair or adjust any electrical or mechanical functions on this product. Doing so will void this warranty. This warranty is valid for the original purchaser from the date of initial purchase and is not transferable. Keep the original sales receipt. Proof of purchase is required to obtain warranty performance. DCM dealers, service centers, or retail stores selling DCM products do not have the right to alter, modify or in any way change the terms and conditions of this warranty.

This warranty does not cover normal wear of parts or damage resulting from any of the following: negligent use or misuse of the product, use on improper voltage or current, use contrary to the operating instructions, disassembly, repair or alteration by anyone other than DCM authorized service center. Furthermore, the warranty does not cover: Acts of God, such as fire, flood, hurricanes and tornadoes.



What are the limits of DCM's liability?

DCM shall not be liable for any incidental or consequential damages caused by the breach of any express, implied or statutory warranty or condition.

Except to the extent prohibited by any applicable law, any implied warranty or condition of merchantability or fitness for a particular purpose is limited in duration to the duration of the above warranty.

DCM disclaims all other warranties, conditions or representation, express, implied, statutory or otherwise. DCM shall not be liable for any damages of any kind resulting from the purchase, use or misuse of, or inability to use the product including incidental, special, consequential or similar damages or loss of profits, or for any breach of contract, fundamental or otherwise, or for any claim brought against purchaser by any other party.

Obtain Warranty Service

If you have any questions regarding this warranty or would like to obtain warranty service, please contact us at:

Diamond Custom Machines Corporation
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