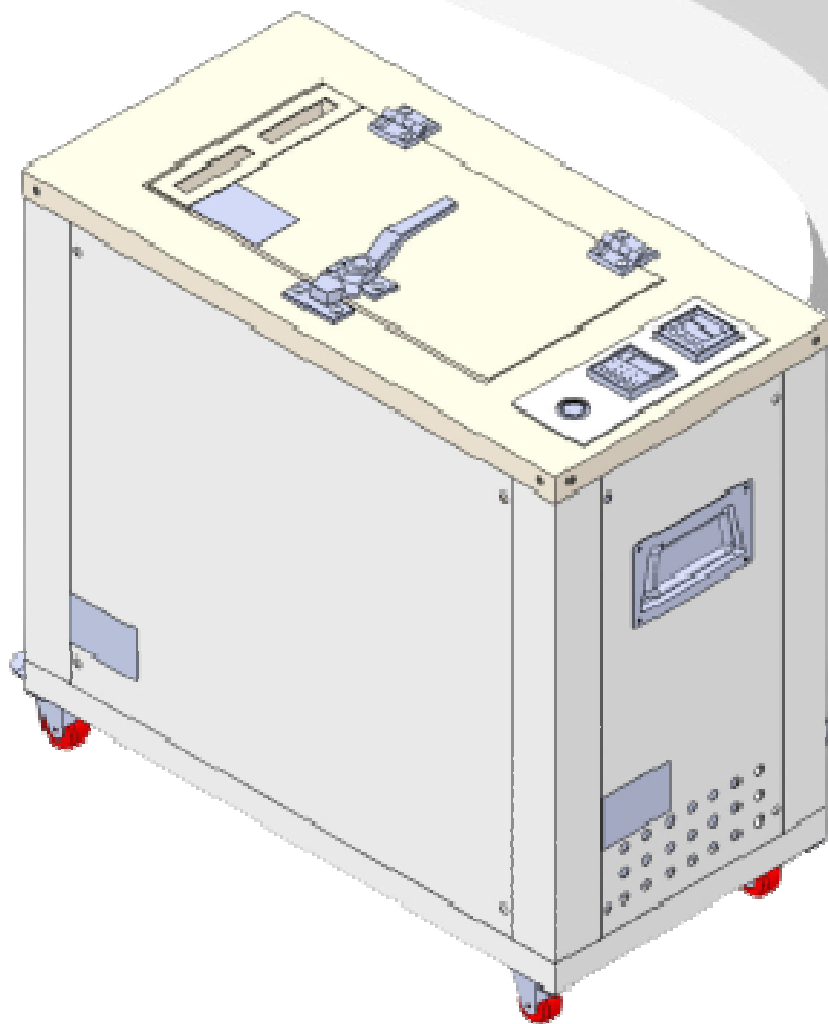




USER MANUAL
FOR
24HRS RAPID COMPOSTING MACHINE
BCM-5 Mk II

Patent Pending Number PI2018700916



PREPARED BY: JOSEPH WONG
REVISION: 02
DATED: 1 MAY 2021

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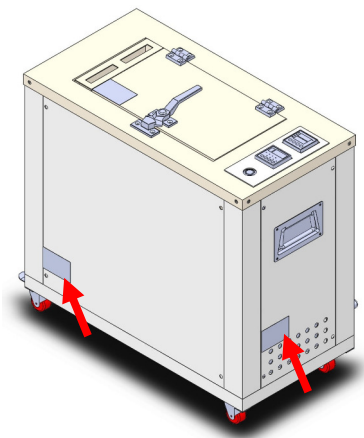
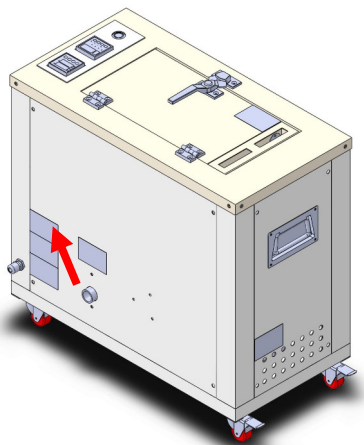
The purpose of this manual is to illustrate the technical details of the machine, the know-how of operating, the maintenance procedure, trouble shooting and repair and the set up procedure.

This manual will serve as guidance to the whole operation of the machine but in the case of serious breakdown, it is advisable to contact the company's technical staff for assistance.

For the parameter setting of the machine for various materials input, the technical data provided by this manual will only serve as guidance. To gain maximum result from the machine, trial and test run should be done in order to get the correct parameter.

2.0 GENERAL SAFETY PRECAUTION

2.1 High Voltage/ Hot Surface / Refer Manual



Location **(RED ARROW)**

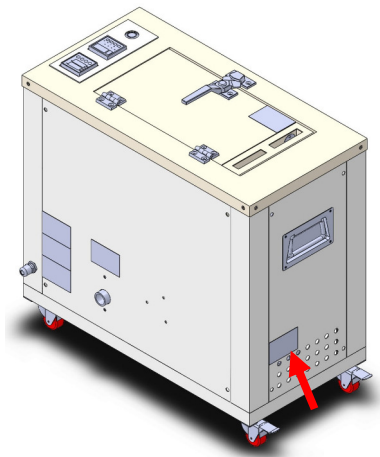
Caution mark (1) located at bottom left of back cover.

Caution mark (2) located at bottom left of side cover.

Caution mark (3) located at bottom left of front cover.

Caution

Please lock out and tag out the machine before the cover is open as the internal may have high temperature surface and high voltage connection. Any mishap happen may cause serious injuries or death.

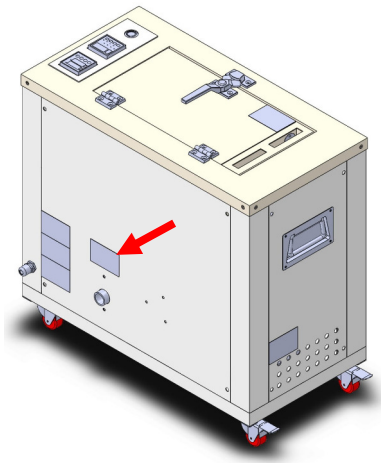


Location (RED ARROW)

Caution mark located at bottom left corner of the side door.

Caution

Please do not put your hand near to moving parts as this may cause serious injuries. Please ensure that the machine is lock out and tag out if any maintenance job is needed on the area.

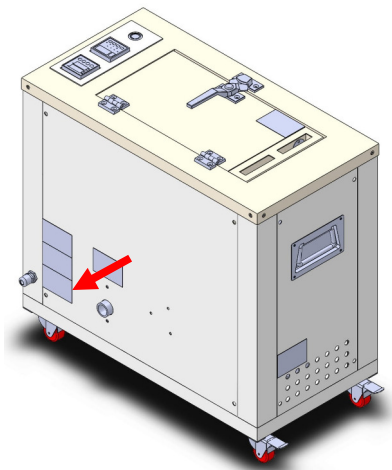
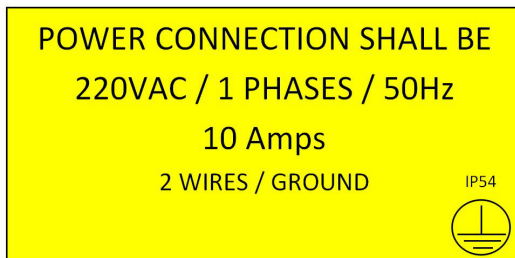


Location (RED ARROW)

Caution mark located at bottom left side of the back panel.

Caution

Please ensure that the exhaust of the machine is connected to the sewage line or monsoon drain. Hot exhaust release from the pipe may cause serious injuries.



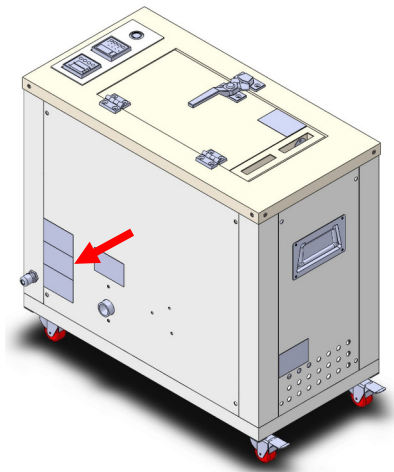
Location **(RED ARROW)**

Caution mark located at bottom left side of the back panel, beside the power cable.

Caution

Please ensure that the machine is connected to a power source that met the specification stated on the tag. Incorrect power rating may cause the machine to be malfunction, causing damages to the electrical components and possibly causing fire.

2.5 Machine Tag

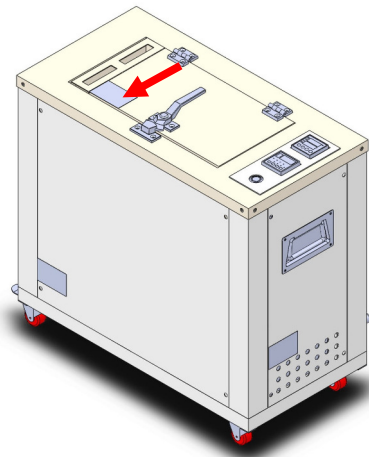


Location (RED ARROW)

Machine Tag located at bottom left side of the back panel, beside the power cable.

Caution

Please ensure that the machine tag is intact at the allocated area for identification and warranty purposes.



Location (RED ARROW)

Hot Surface located at top left corner of the top door.

Caution

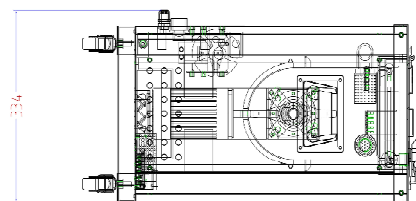
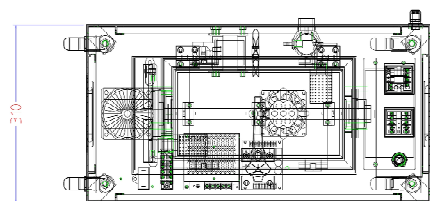
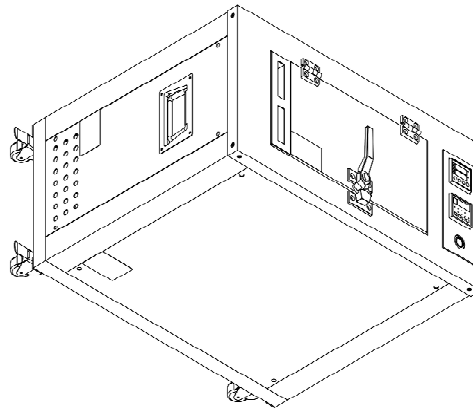
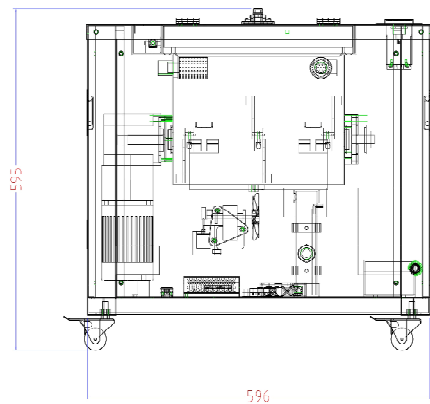
Do not put your hand close to this area as the temperature is around 50°C - 70°C and it may cause serious burn.

3.0 PRODUCT DESCRIPTION

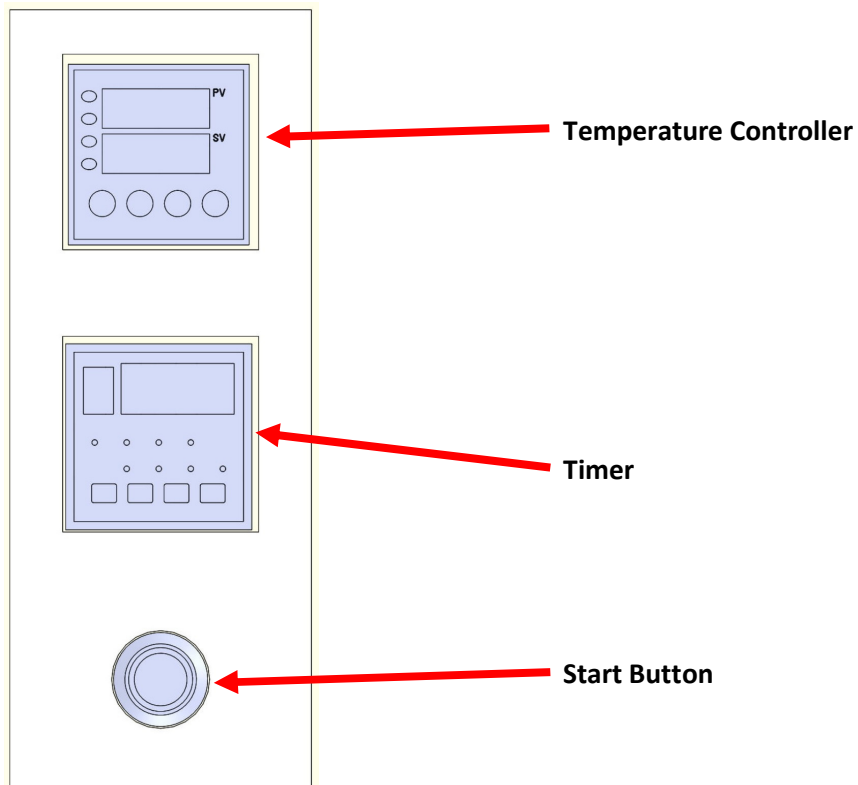
3.1	Machine Description		24 Hours Rapid Composting Machine
3.2	Model		BCM-5
3.3	Capacity		10 Lites
3.4	Maximum Load		5 Kgs
3.5	Dimension	(W)	31 cm
		(L)	59.5 cm
		(H)	59.5 cm
3.6	Weight		60 Kgs approx.
3.7	Power Rating	(V)	220 v / 50 Hz
		Phase	1
		(A)	10 Amps
		Wire	2 + Ground
3.8	Water Proof Standard		IP 54
3.9	Quality Standard		Machinery Device Directive - 2006/42/CE

4.0 PRODUCT LAYOUT

4.1 Machine Layout

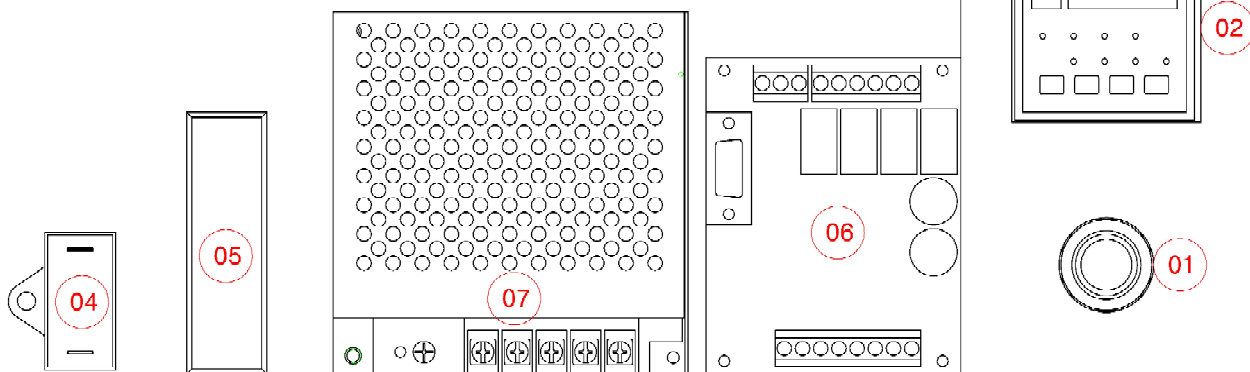


4.2 Control Panel Layout



4.3 Electrical Panel Layout

PART LIST			
01	BUTTON, 22MM, GREEN	1	PC
02	TIMER, XGHPG-140-B	1	PC
03	TC, REX-C100	1	PC
04	CAPACITOR	1	PC
05	TERMINAL BLOCK, 6 WAYS	1	PC
06	PLC BOARD 10MR	1	PC
07	POWER SUPPLY, 15W-24V	1	PC
08	MOTOR, 60W	1	PC
09	HEATER, 1KW	1	PC
10	AIR PUMP	1	PC
11	OZONE GENERATOR	1	PC
12	COOLING FAN	1	PC

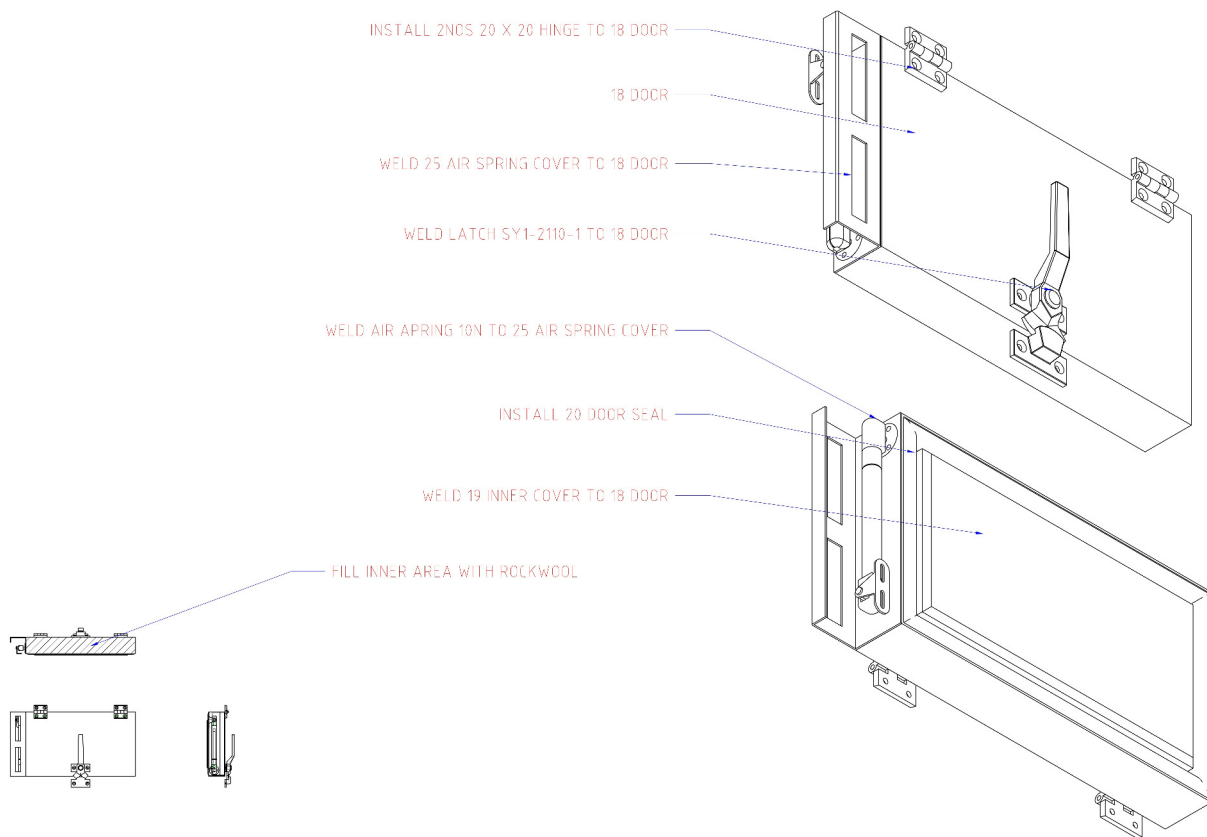


5.0 PART LIST				
	Part Number	Description	Qty	
5.1	212476-00-01-01	Tank	1	PC
5.2	212476-00-01-02	Seal Holder	1	PC
5.3	212476-00-01-03	Heater	1	PC
5.4	212476-00-01-04	Mounting	4	PCS
5.5	212476-00-01-05	Shaft	1	PC
5.6	212476-00-01-06	Seal Holder	2	PCS
5.7	212476-00-01-07	Motor Mount	1	PC
5.8	212476-00-01-08	Clamp	3	PCS
5.9	212476-00-02-09	Clamp	3	PCS
5.10	212476-00-02-10	Stand	4	PCS
5.11	212476-00-02-11	Mixer	2	PCS
5.12	212476-00-02-12	Seal Holder Clamp	1	PC
5.13	212476-00-02-13	Side Stand	3	PCS
5.14	212476-00-02-14	Side Cover	2	PCS
5.15	212476-00-02-15	Rear Cover	1	PC
5.16	212476-00-02-16	Front Cover	1	PC
5.17	212476-00-02-17	Footing	4	PCS
5.18	212476-00-02-18	Door	1	PC
5.19	212476-00-03-19	Inner Door	1	PC
5.20	212476-00-03-20	Door Seal	1	PC
5.21	212476-00-03-21	Base	1	PC
5.22	212476-00-03-22	Side Stand	1	PC
5.23	212476-00-03-23	Exhaust	1	PC
5.24	212476-00-03-24	Panel	1	PC
5.25	212476-00-03-25	Air Spring Cover	1	PC
5.26	22mm	Push Button	1	PC
5.27	XGHPG-140-B	Timer	1	PC

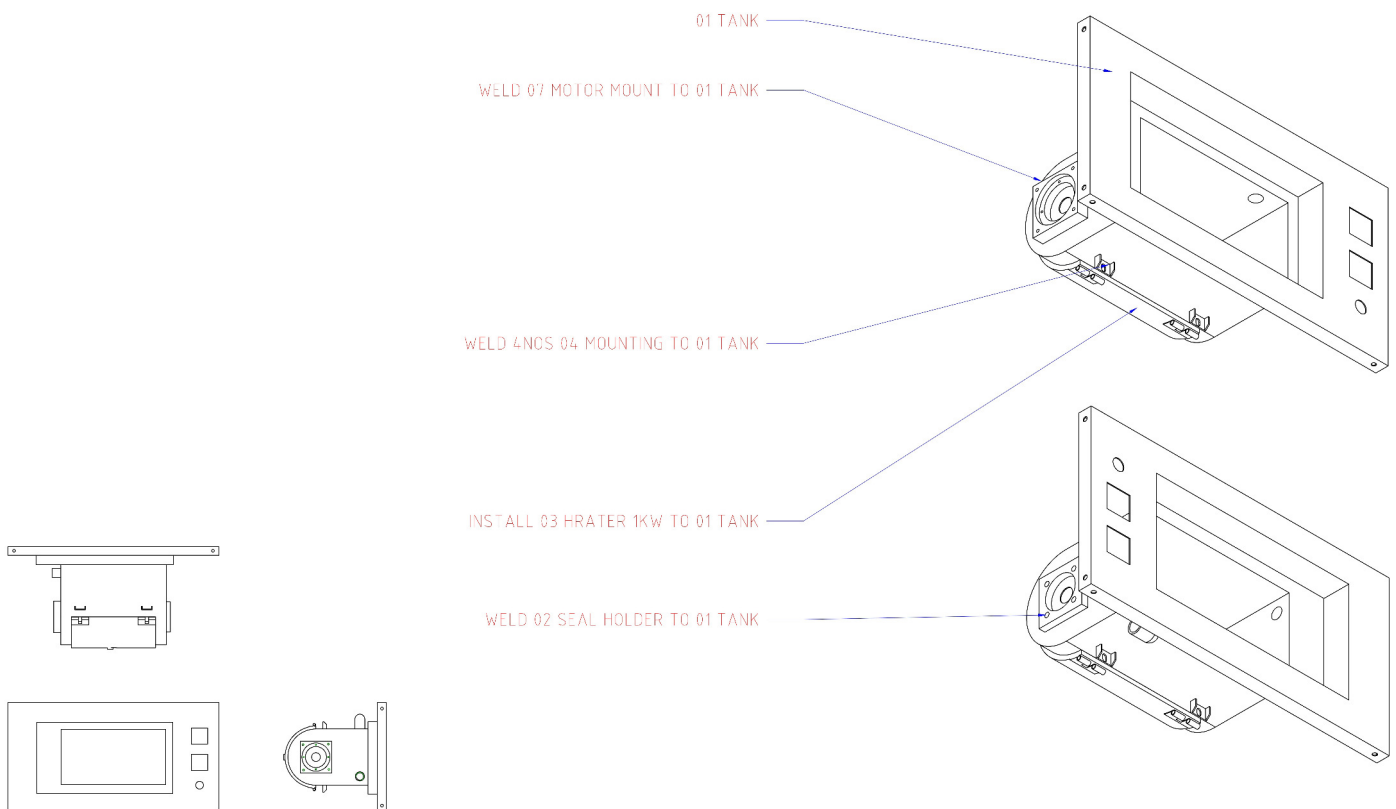
	Part Number	Description	Qty
5.28	REX-C100	Temperature Controller	1 PC
5.29	10MR	PLC Board	1 PC
5.30	6 Way	Terminal Block	1 PC
5.31	25W-24V	Power Supply	1 PC
5.32	400mF	Motor Capacitor	1 PC
5.33	60w	Induction Motor	1 PC
5.34	15w	Air Pump	1 PC
5.35	500 ml/h	Ozone Generator	1 PC
5.36	80 x 80 x 38	Cooling Fan	2 PCS
5.37	180 Kgs	Toggle Clamp	1 PC
5.38	15 X 30 x 7	Viton Ring	2 PCS
5.39	UCF203	Flange Bearing	2 PCS
5.40	8 Kgs	Gas Spring	1 PC
5.41	RS40	Roller Chain	4 FT
5.42	1.5"	Castor Wheel	2 PCS
5.43	RS60	Door Seal	8 FT
5.44	50 x 50	Stainless Steel Hinge	2 PCS

6.0 PART LOCATION

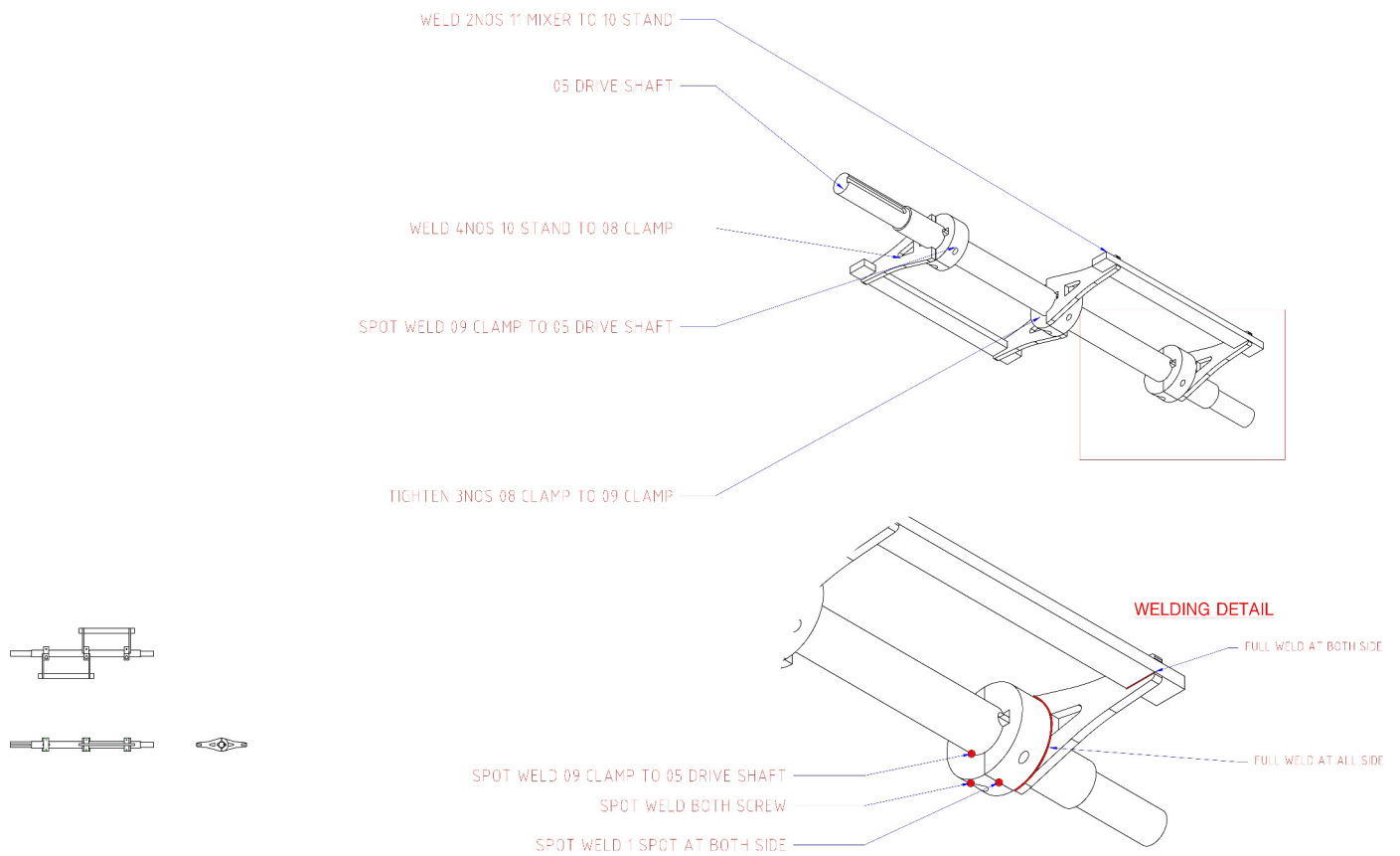
6.1 Door Assembly



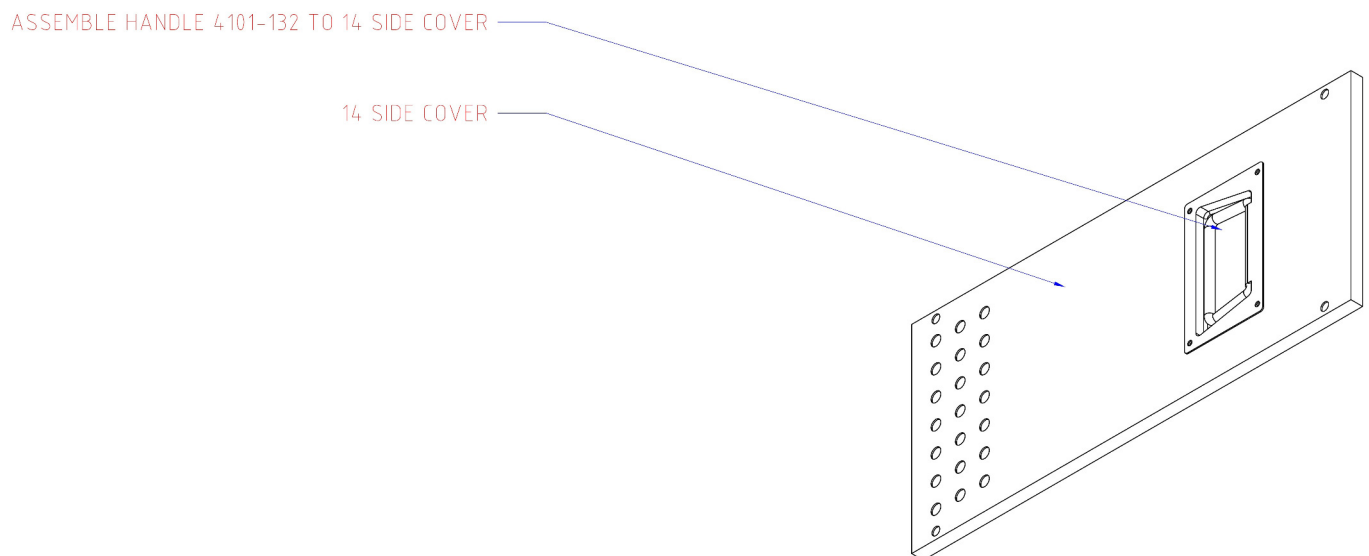
6.2 Tank Assembly



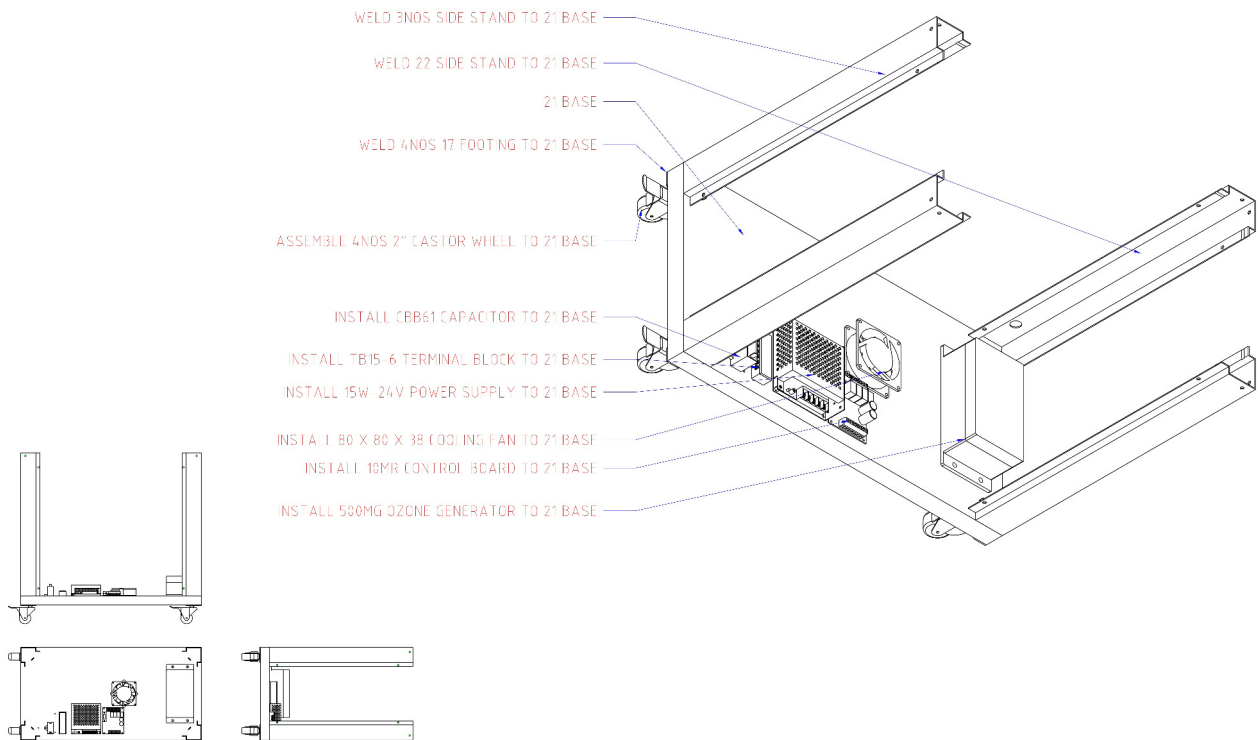
6.3 Mixer Assembly



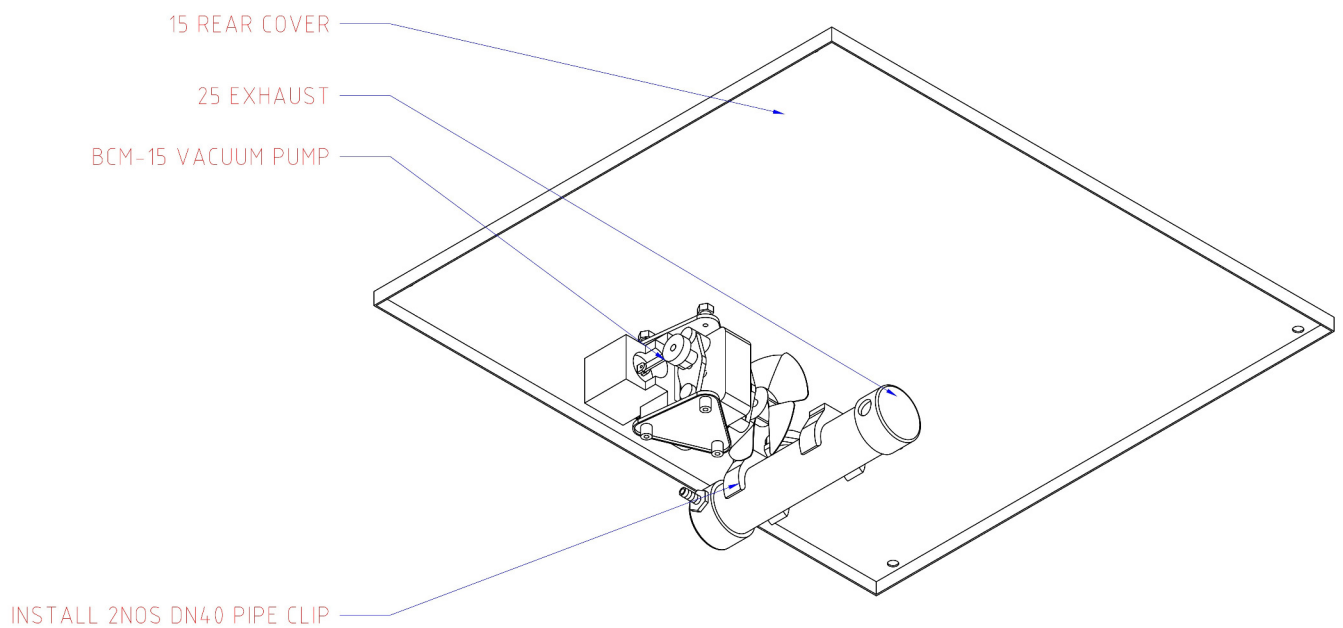
6.4 Tank And Motor Assembly



6.5 Base Assembly



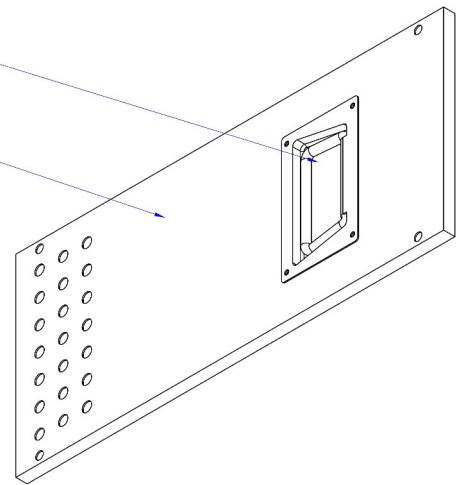
6.6 Rear Cover Assembly



6.7 Side Cover Assembly

ASSEMBLE HANDLE 4101-132 TO 14 SIDE COVER

14 SIDE COVER



6.8 Sub Assembly

ASSEMBLE 04 ASSEMBLY TO 05 ASSEMBLY

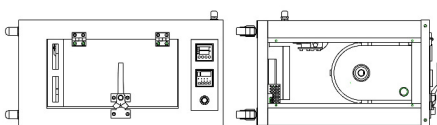
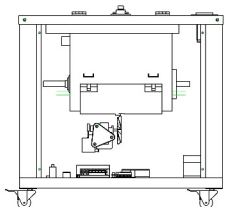
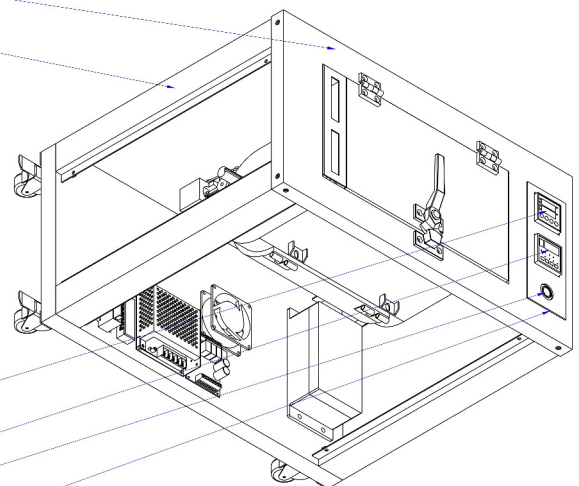
05 ASSEMBLY

INSTALL TEMPERATURE CONTROLLER

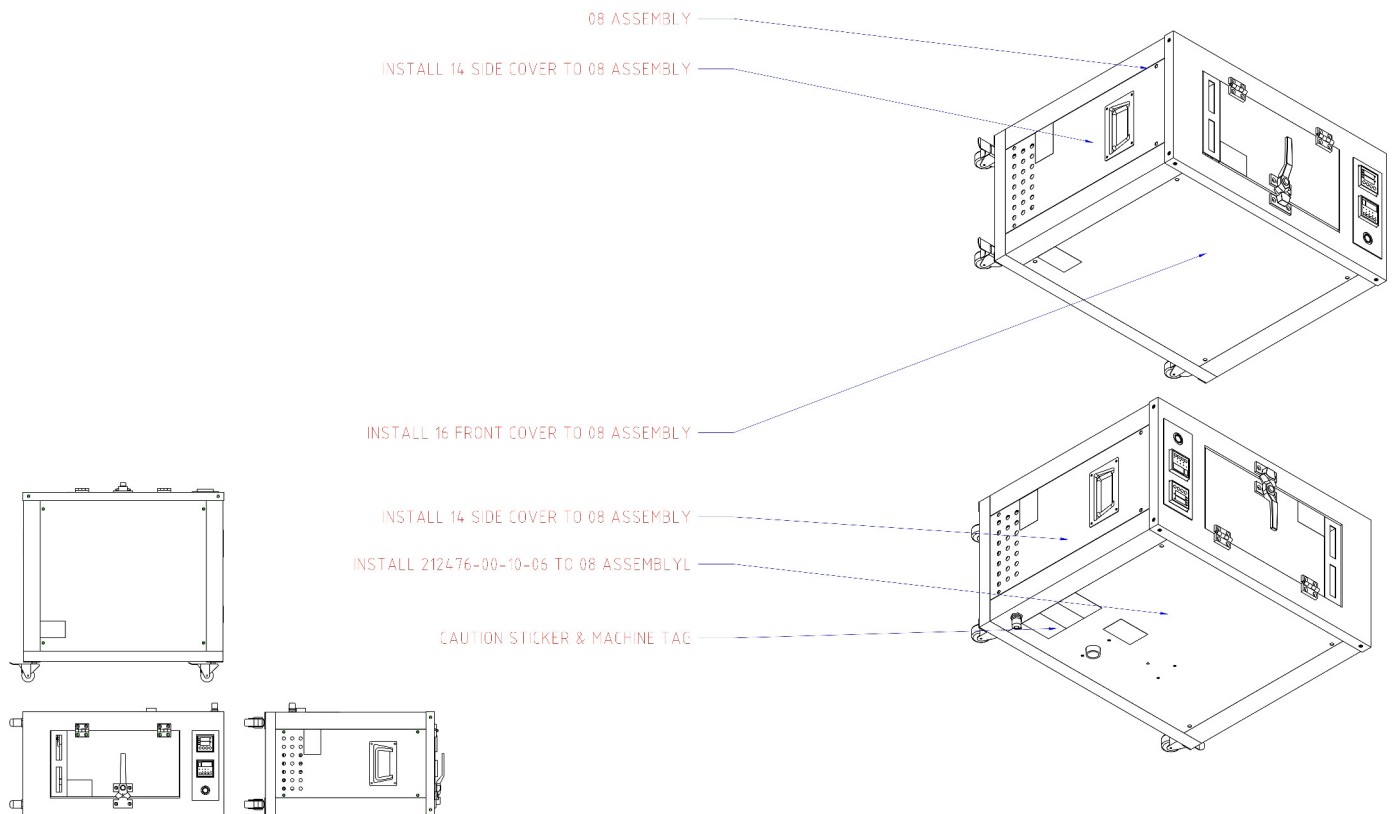
INSTALL TIMER

INSTALL BUTTON SWITCH

INSTALL 24 PANEL



6.9 Final Assembly



7.0 INSTALLATION & ADJUSTMENT

7.1 Machine will be packed in carton box.



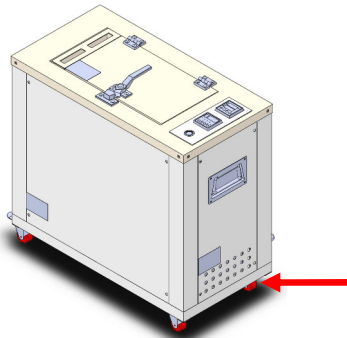
7.2 Unpack the carton box. (Please ensure that no damages were done to the machine)

7.3 Packing List

- Composting Machine x 1 Unit
- High Temperature Microbe x 1 Pack

7.4 Move machine to the allocated area.

7.5 Secure machine by locking 4 numbers of brake on castor wheels located at the bottom of the machine.



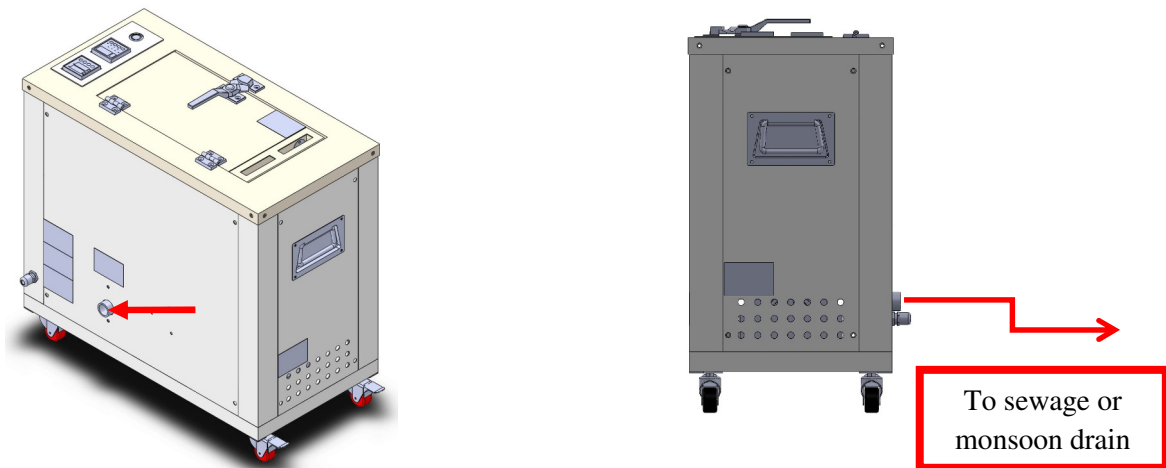
7.6 Plug up the machine to the power source.

- 220 V
- 10 Amps
- 1 Phase
- 2 Wire
- Ground wire

7.7 Before the machine is power on, check the following item.

- Open the control box door and check for loose components and loose connection. This is to ensure that the electrical components work perfectly, ensure not short circuit and current leakage. It is important that no serious injuries or death cause by the electrical leakages.
- Open the Top Hatch to ensure that the Mixer is intact and no loose moving parts.
- Open the rear cover, check the motor, pump and heater connection. Ensure that there are no loose connections.
- Open the Drive Chamber by removing four screws at the side cover. After obtain access to the drive chamber, check for loose moving parts. Ensure all moving parts are tightened.
- Installing Exhaust pipe.

7.8 Installing Exhaust pipe.



Please join the exhaust pipe (**red arrow**) to the sewage pipe or to the monsoon drain. The extension should not higher than the machine's exhaust pipe height.

7.9 Power on the machine.

7.10 Factory Default Setting

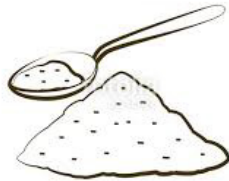
- Heater Temperature (Temperature Controller REX-C100, 95°C)
- Machine Run Time (Timer XGHPG-140-B is 10Hrs on Timer 1, 12Hrs on Timer 2 and 2Hrs on Timer 3)

8.0 STANDARD OPERATION PROCEDURE

8.1 Input Materials Preparation



Kitchen Waste



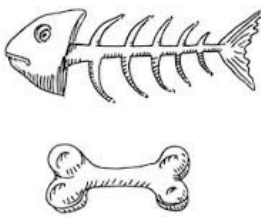
Starches



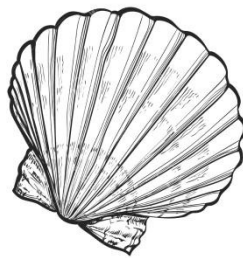
Coffee Ground



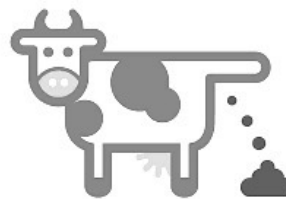
Meat



Fish & Bone



Shell



Animal Manure



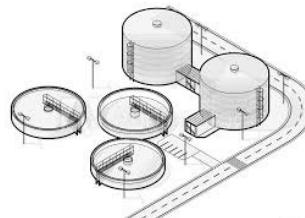
Wood Chip & Sawdust



Dry Leaves & Branches



Grass Clipping & Straw



Waste Water Sludge



Bio Degradable Packaging

8.1.1 This machine is able to process all organic materials.

- Wet waste from kitchen and wet market.
- Garden waste.
- Manure.
- Industries Organic Waste.
- Waste Water Sludge
- Sludge from grease trap
- Waste/ Scrap paper and carton
- Fat, oil and fat (FOG). *Longer process time needed*
- Bio-degradable packaging materials. *Longer process time needed*

- 8.1.2 The machine will not be able to process inorganic product such as:**
- Metal
 - Plastic
 - Glass
 - Fabric
 - Syntactic Rubber
 - Fossil Oil Products
- 8.1.3 All materials to be processed by the machine will need to be prepared:**
- All materials need to be shredded into particle with a size of 3-5mm in diameter.
 - Shredded materials need to wash with water to clear out excessive oil.
 - Materials shall be dripped dry.
- 8.1.4 All materials to be processed by the machine should have a moisture level of 50%-80%.**
- 8.1.5 Water may be added to increase the moisture level if need.**
- 8.1.6 Saw dust or dry compost produced can be used to lower the moisture level of materials if it is too high.**
- 8.1.7 All materials loaded for composting must grind to smaller size (3mm in diameter) to give maximum result.**
- 8.1.8 All materials must be rinsed off excessive FOG & salt and drip dry before is loaded into the machine.**

8.2 CAUTION

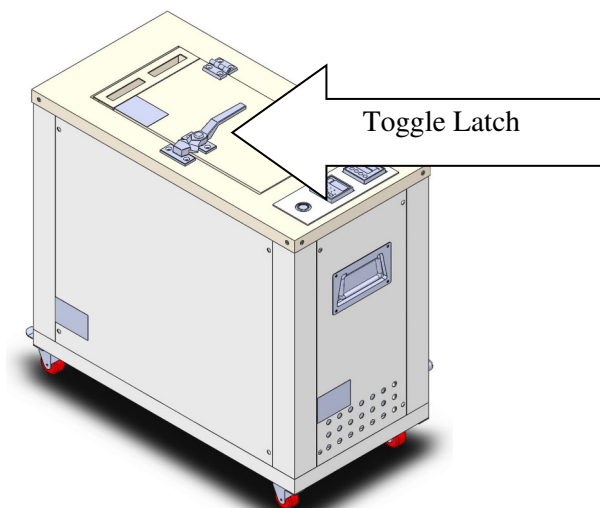
Please do not run **COPRA** in this machine as copra may cause spontaneous combustion during our process.



Copra (or khobara) is the dried meat or kernel of the **coconut**, which is the fruit of the **coconut palm** (*Cocos nucifera*). **Coconut oil** is extracted from copra, making it an important agricultural commodity for many coconut-producing countries. It also yields de-fatted coconut cake after oil extraction, which is mainly used as **feed** for livestock.

8.3 Machine Operation

8.3.1 Release toggle latch at the front of the machine.



8.3.1 Open the top hatch gently.

8.3.2 Pour in the prepared mixture into the machine (refer Para 7.1).

8.3.3 The mixture loaded into the machine shall at the level just cover the mixer. Excessive loading may broke the mixer.

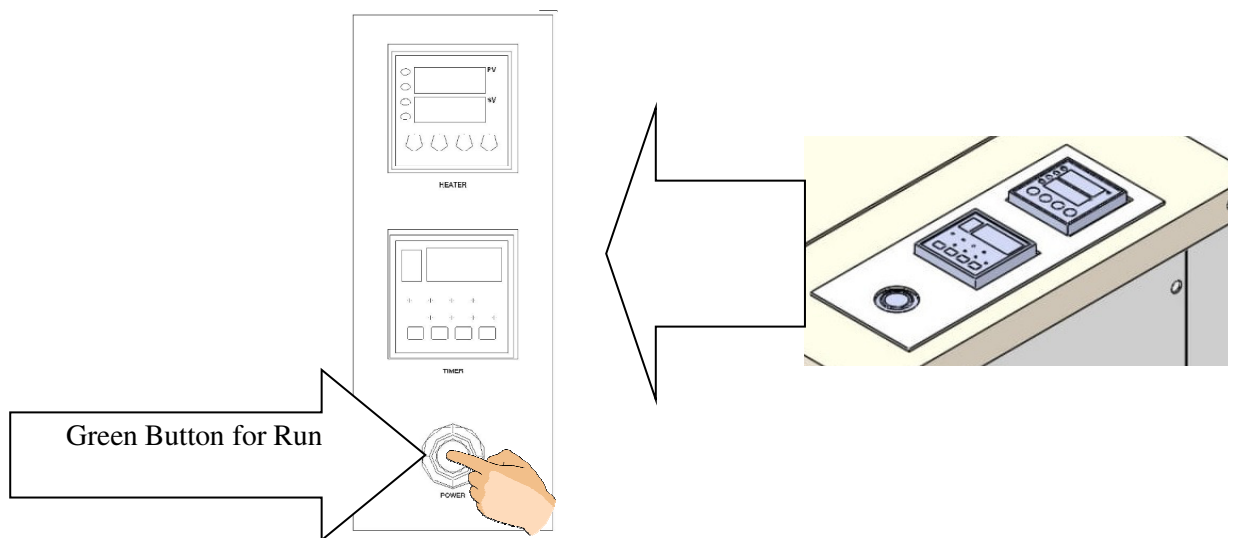
8.3.4 * First/Initial Run*, Add in 250 gram of GEC's Composting Powder into the chamber.

8.3.5 Closed the top hatch.

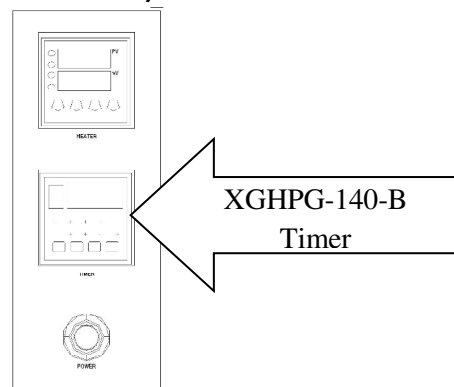
8.3.6 Plug on the machine.

8.3.7 Allow the machine to boot up for 30 seconds.

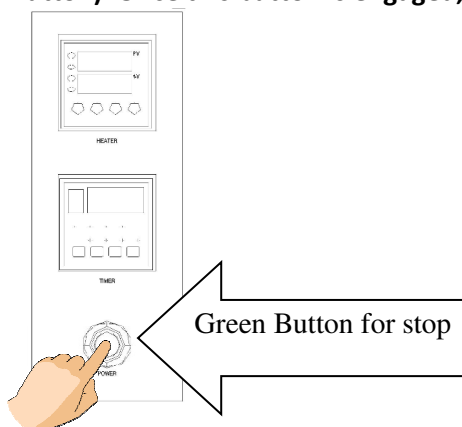
8.3.8 Press the run button. (Green Push Button)



8.3.9 The machine will automatically shut down after the machine completed the cycle time set in the XGHPG-140-B Timer. (Refer Para 4.10)



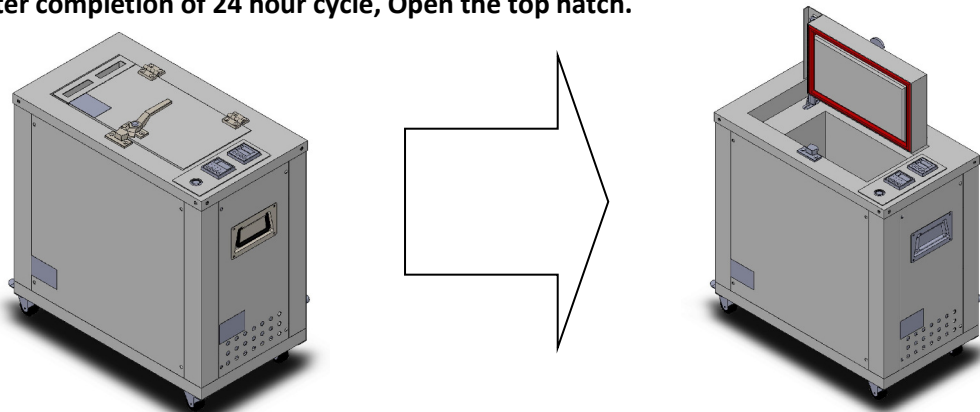
8.3.10 During the operation of the machine, you may stop the machine by press the run button the second time. (Green Push Button). Once this button is engaged, the machine will be reset.



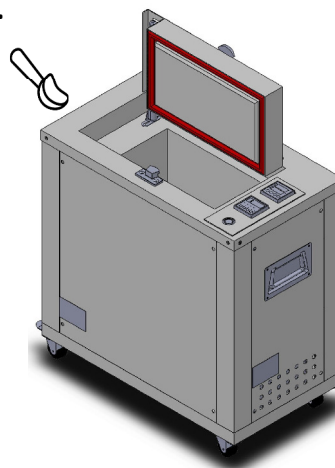
- 8.3.11 After completion of full operation cycle, you may discharge the machine by scooping out the compost with a scoop.
- 8.3.12 The end product from the process is an immature compost and it shall be kept in a dry storage area for a natural cooling down period of 48Hrs to 72Hrs.
- 8.3.13 After the cooling down period, check the temperature and Ph Level of the compost.
- 8.3.14 The temperature of the compost should not exceed 55°C. If it exceeds the required temperature, the compost shall be kept further to cool down the temperature.
- 8.3.15 Recondition the compost with lime stone powder or Bio-char powder to achieve the desire Ph Level.
- 8.3.16 Left 10% of the compost produced in the chamber to prepare for the next production run.
- 8.3.17 The High Temperature Microbes shall need to be replenished every 12 months.

8.4 Compost Discharge Process

- 8.4.1 After completion of 24 hour cycle, Open the top hatch.



- 8.4.2 Use a scoop to discharge the compost.

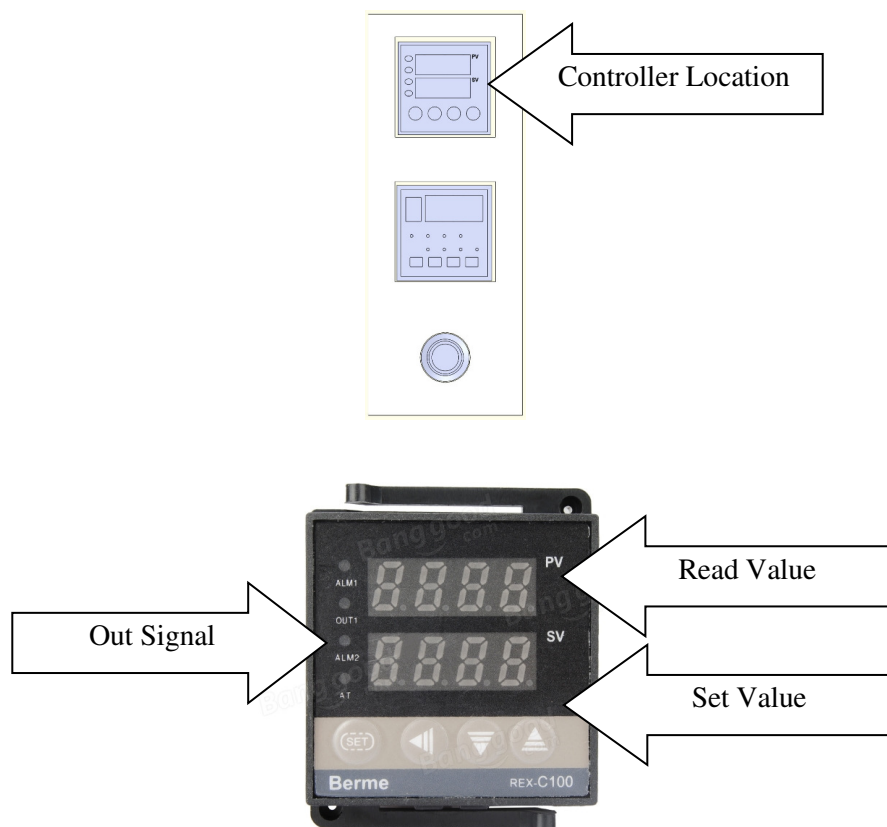


8.5 Default Process

- | | | |
|-------|------------------------|----------------|
| 8.5.1 | Heating Process | First 12 Hours |
| 8.5.2 | Dehydration Process | Last 2 Hours |
| 8.5.3 | Total Machine Run Time | 24 Hours |

8.6 Parameter Setting

8.6.1 REX-C100 Temperature Controller (Heating Temperature)

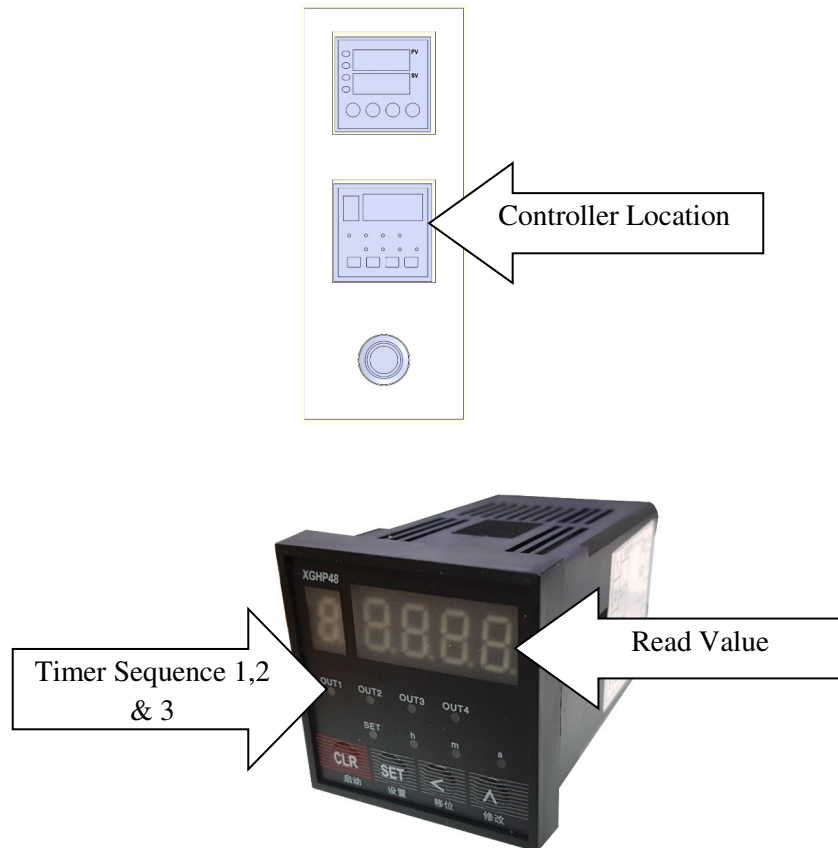


Press the left arrow key to start setting
SV value will be blinking.
Use the left, up and down button to do setting.

After setting completed.
Press the set button for confirmation.

- Factory Default Setting is 95°C.
- Signal Out indicator in green show the controller is instructing the heater to run.
- For advance setting, please refer to the attached operation manual for the controller.

8.6.2 XGHPG-140-B Timer (Heater timing & Machine Run Time)



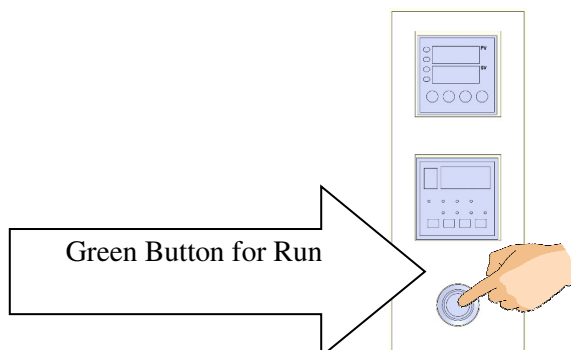
Press the set key to start setting
Timer Sequence 1 will appear
Timer value will be blinking
Use the left & up button to do setting.

After completed setting for each sequence, press set button to confirm.
Timer Sequence will go to the next sequence.
Complete all 3 Timer sequence.

- Factory Default Setting is 12Hrs for T1, 10Hr for T2 and 2Hrs for T3.
- For advance setting, please refer to the attached operation manual for the controller.

8.7 2 Hours Run

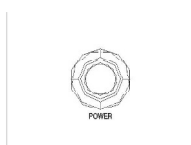
- 8.7.1 In order to load the machine for multiple times before the full production run of 24 Hours, the machine is programmed to be able to run short sequence of 2 hours to sterilize the waste to cut down the odor problem and reduce bio hazard.
- 8.7.2 Press the run button (Green Push Button) for 10 seconds until the green light is blinking.



- 8.7.3 The machine will stop automatically after 2 hours.
- 8.7.4 After the sequence completion, open the top door to load new waste. Run the short sequence run (para 7.7.2).
- 8.7.5 After fully loaded the machine, you may run the full 24 hours run (para 7.3.9) to complete the fermentation process.

8.8 LED Indication

8.8.1

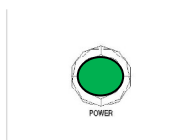


Run LED - Off

Machine Condition

Machine Power On
Machine on standby

8.8.2



Run LED - On

Machine Condition

Machine Power On
Machine Running

8.8.3



Run LED - Blinking

Machine Condition

Machine Power On
Machine Running on 2 hrs process

9.0 MAINTENANCE AND SCHEDULE

No	Maintenance Description	Maintenance Job	Schedule
1	Mixer	Check for broken mixer	After every run
2	Air Filter (Inside Mixer Chamber)	Clean with water and dry before fit back into position (Para 10.2.10, Page 32)	Weekly
3	Power Roller Chain	Check for tensioning	Monthly
4	Mechanical Parts	Ensure all fasteners are properly tighten	Monthly
5	Electrical Connection	Ensure all connections are properly tighten	Monthly
6	Gear Box	Greasing	Monthly
7	Power Roller Chain	Greasing/ Oiling	Monthly
8	Flange Bearing UCFL202	Greasing	Monthly
9	Viton Seal	Check for leakage	Monthly
10	Chamber Wall	Check for leakage	Monthly
11	Air Filter (Inside Mixer Chamber)	Replace new filter	Yearly
12	Viton Seal	Replace new seal	Yearly

10.0 OPERATION AREA, STORAGE AND TRANSPORT

- 10.1 The machine shall operate under shed with ambient temperature not less than 20°C.
- 10.2 For storage purposes, the machine shall need to be kept under shed with temperature between -10°C to 75°C and moisture level control between 35%-65%.
- 10.3 To relocate the machine, the castor wheel mounted below the machine will help the machine to move freely provided it is fully purged and cleaned. The loaded weight may break the castor and damaged the structure of the machine during relocation.
- 10.4 In the case of transporting the machine, the machine shall crate and secure before it is transported.

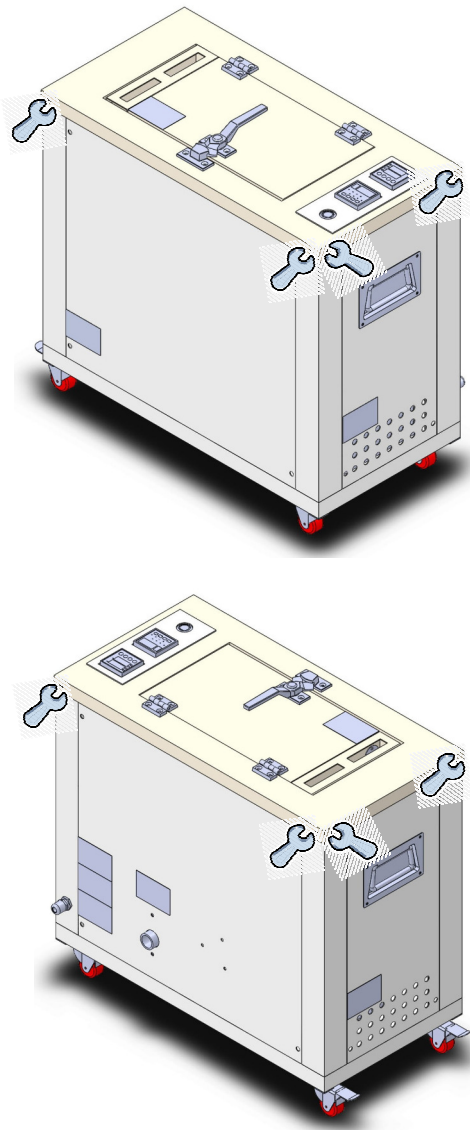
11.0 MACHINE FAULT AND REPAIRING

11.1 Trouble Shooting

No	Problem	Potential Cause
1	Motor stop to run	A) The motor's electrical connection is loose B) The motor is burned C) The PLC Controller is not functioning
2	The Vacuum Pump stop to run	A) The pump's electrical connection loosed B) The pump burned C) The PLC Controller is not functioning
3	Machine cannot heat up	A) The heater burned B) The thermocouple burned C) The temperature controller burned D) The setting of the temperature controller is incorrect E) The setting of XGHPG-140-B Timer is incorrect F) The PLC Controller is not functioning
4	PLC Controller could not boot up	A) The 24v meanwell power supply burned B) The PLC Controller is burned
5	Timer XGHPG-140-B does not allow to do setting	A) Refer Operation Manual of XGHPG-140-B to do the Setting B) The Timer burned
6	Machine do not run when push run button	A) The PLC Controller burned. B) The Push Button burned.
7	Air flow of the machine is low or non	A) The air filter in the mixer chamber is clogged B) The vacuum pump burned
8	Machine trip	A) Main motor burned. B) Vacuum pump burned. C) Heater burned D) Wire insulation damaged causing electrical leakage E) One of the components in the control box burned

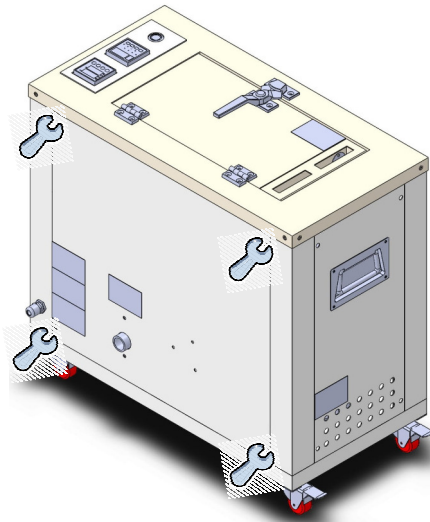
11.2 Dismantling Procedure

11.2.1 Top Cover



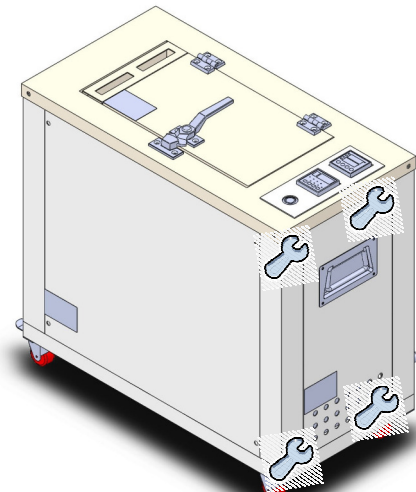
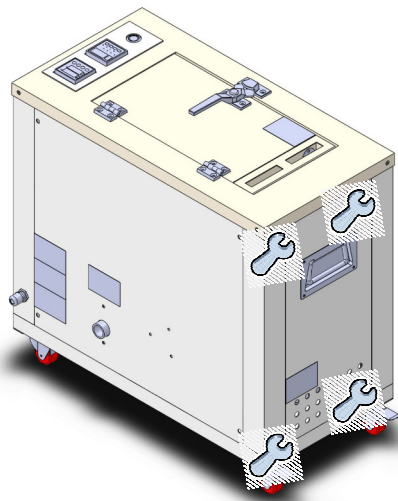
Dismantle 8 number of M6 bolts to open the top cover.
Please ensure that appropriate wrench or spanner used to avoid damages on the bolt.

11.2.2 Rear Cover



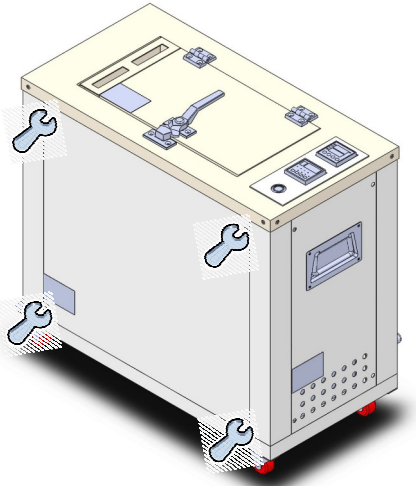
Dismantle 4 number of M6 bolts to open the rear cover.
Please ensure that appropriate wrench or spanner used to avoid damages on the bolt

11.2.3 Side Cover



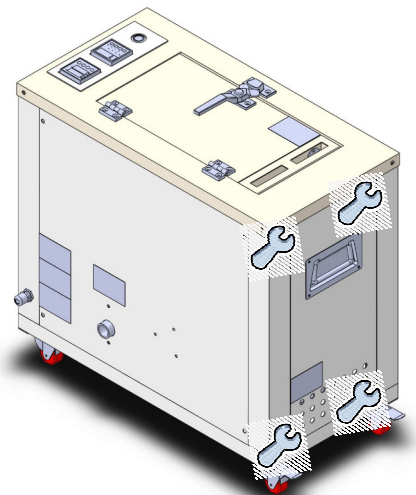
Dismantle 8 number of M6 bolts to open the side cover.
Please ensure that appropriate wrench or spanner used to avoid damages on the bolt.

11.2.4 Control Box



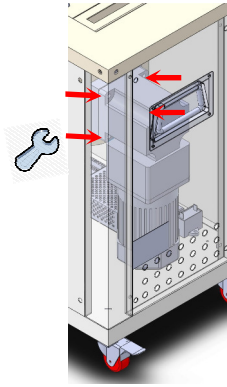
Dismantle 4 number of M6 bolts to open front cover to access to Control Panel.

11.2.5 Drive Area



Dismantle 4 number of M6 bolts to open the side door.
Please ensure that appropriate wrench or spanner used to avoid damages on the bolt.

11.2.6 Dismantling Bearing & replacing Viton Seal at drive area



Open the Side Cover.

Dismantle the roller chain (disengage the connection link).

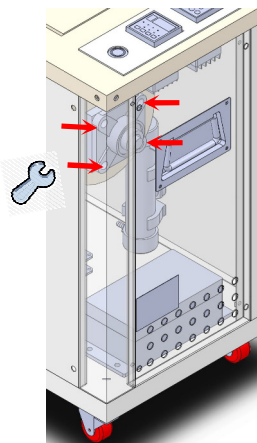
Dismantle the upper sprocket (unlock the set screw and use a puller to disengage the sprocket).

Dismantle 4 number of M6 bolts to open access to the bearing and viton seal.

Please ensure that appropriate wrench or spanner used to avoid damages on the nut.

Use a bearing puller to dismantle the bearing.

11.2.7 Dismantling Bearing & replacing Viton Seal at control panel side



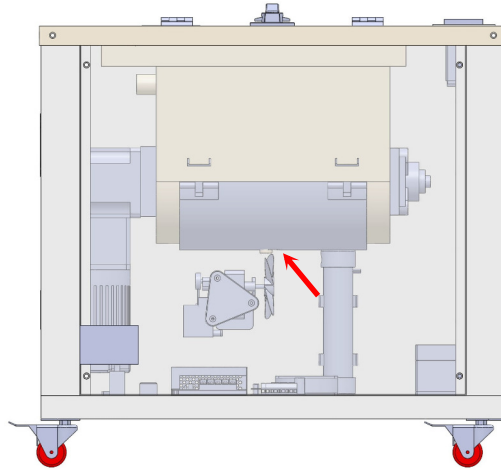
Open the top side cover.

Dismantle 4 number of M10 bolts to open access to the bearing and viton seal.

Please ensure that appropriate wrench or spanner used to avoid damages on the nut.

Use a bearing puller to dismantle the bearing.

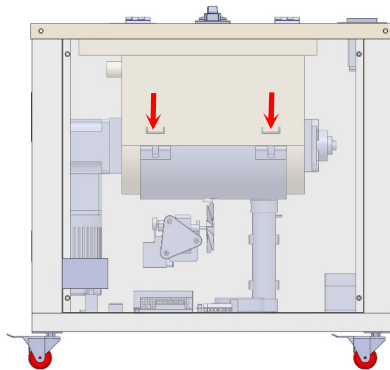
11.2.8 Access to Thermocouple



Open the front cover.

Thermocouple is mounted at the middle of the heater.

11.2.9 Access to heater

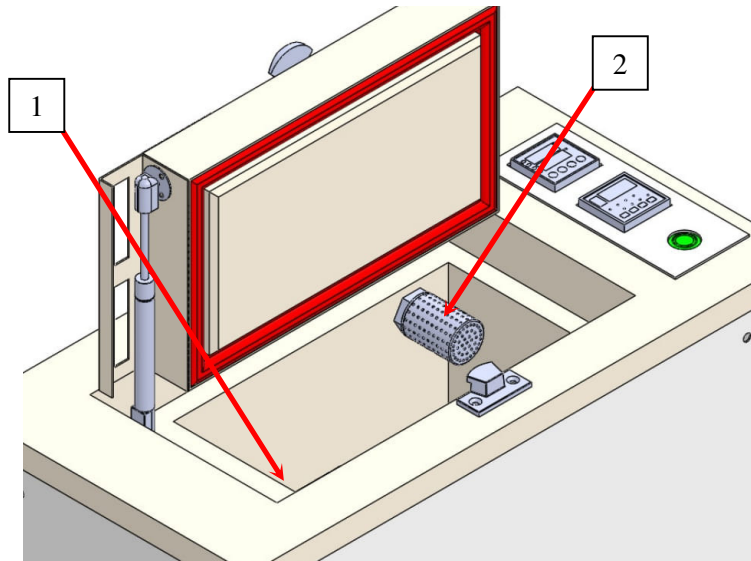


Open the top cover.

Dismantle 4 number of M5 cap screw at both side to dismantle the heater.

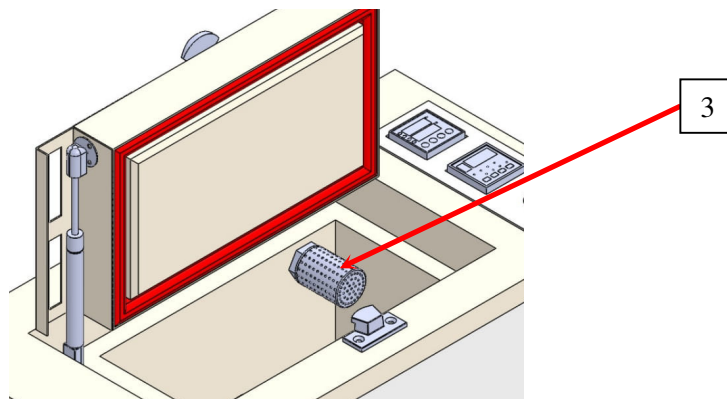
Please ensure that appropriate allen key used to avoid damages on the screw.

11.2.10 Access to Filter and Filter Maintenance

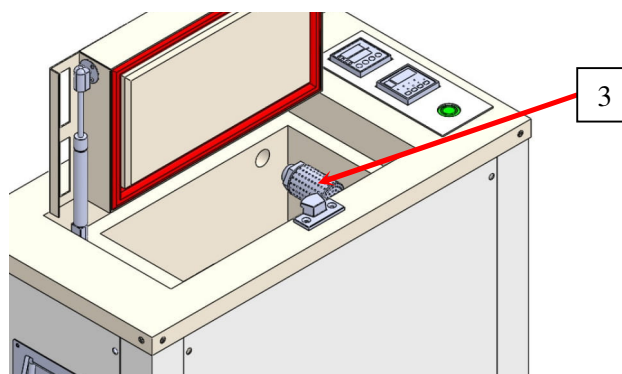


Open the top door.

Air inlet Filter [1] and air outlet filter are located at the top corner.

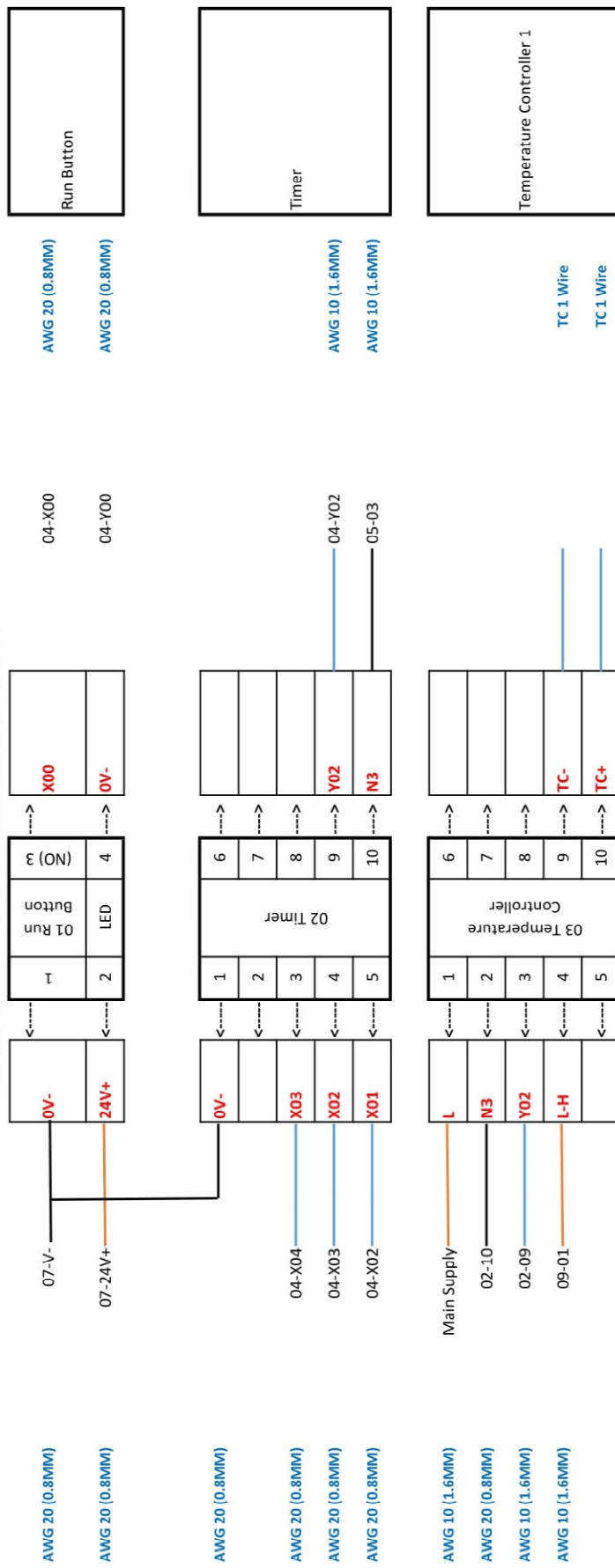


Use a spanner to open the filter [3] from the chamber.

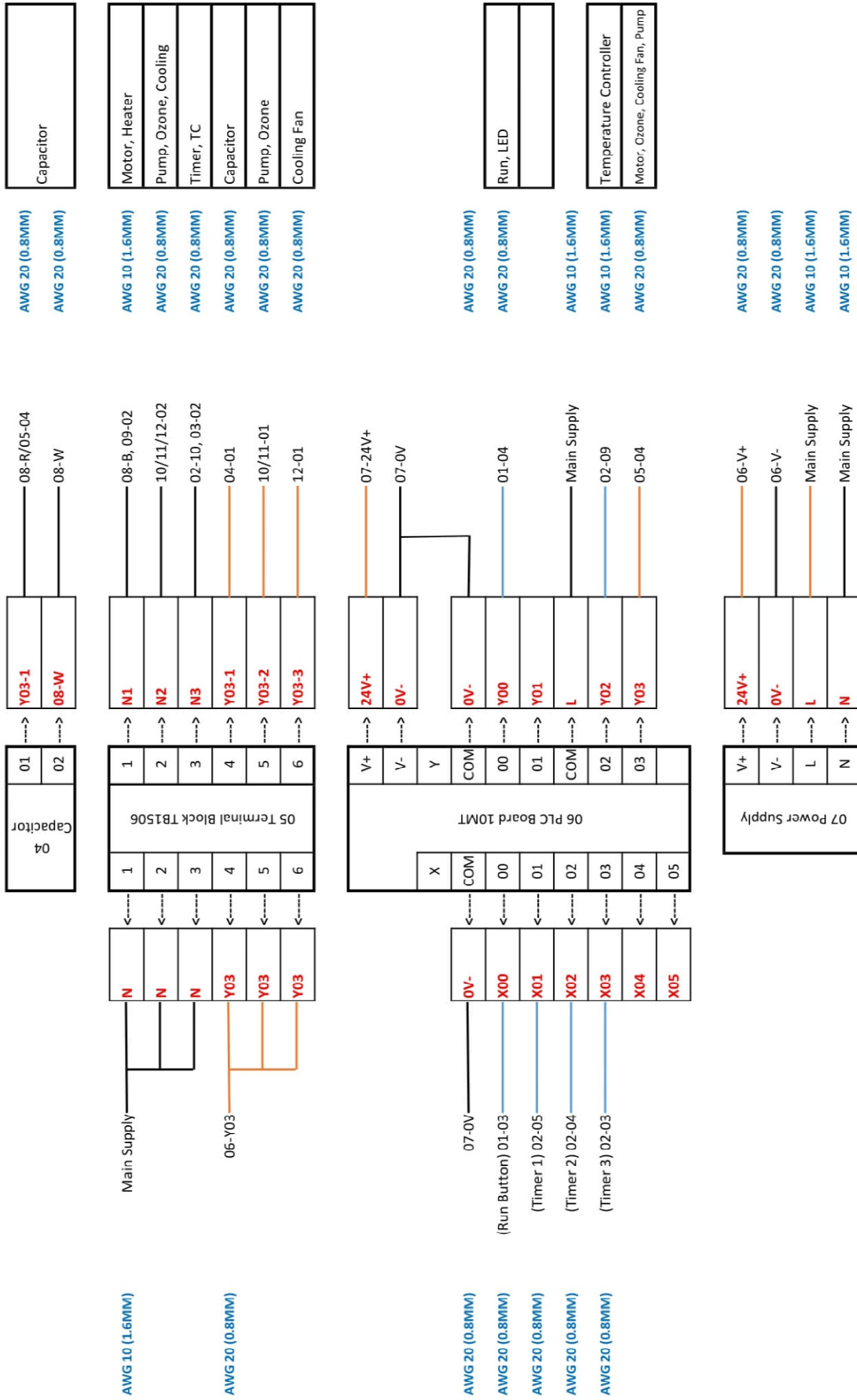


**After the filter [3] is open, wash filter with detergent and rinse with water.
Assemble back the filter [3].**

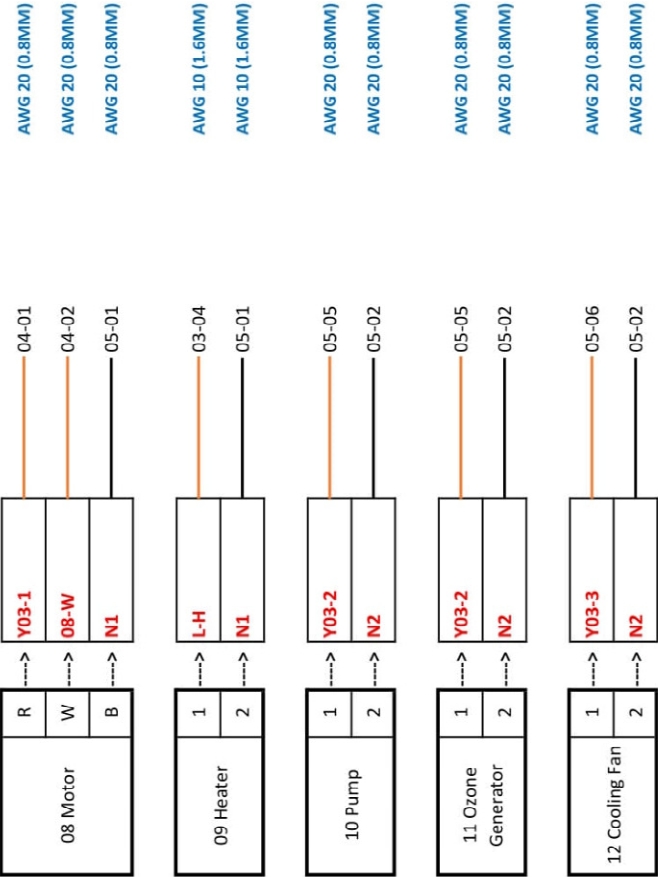
BCM-5 ELECTRICAL DIAGRAM REV02



BCM-5 ELECTRICAL DIAGRAM REV02



BCM-5 ELECTRICAL DIAGRAM REV02



COMPONENTS

12.0 ATTACHMENT

12.1 CE certification

12.2 MSDS for GEC's Composting Powder

12.3 References for NPK Level for different materials

12.4 Reference for C:N level

CERTIFICATE OF COMPLIANCE



The Governing Board of
Progressive International Certifications Limited hereby grant to:

GEC INTEGRATION SDN BHD

ADDRESS :- 2980-02, KOMPLEKS CHAI LENG, JALAN BARU, 13700 PRAI,
PENANG, MALAYSIA.

Is in compliance with
MACHINERY DEVICE DIRECTIVE - 2006/42/EC

For the following product

**24 HOUR WASTE COMPOST MACHINES/SYSTEMS SUCH AS SELLING NATURAL,
ENVIRONMENTALLY SAFE, TREATMENT METHODS AND MACHINES.
DETAILS AS PER SUPPLEMENT 0001**

In accordance with
TCF No. CE/01

The present certificate exclusively refers to the product above identified, in accordance to TCF submitted in PICL. Any
Changes or modification implemented on the mentioned product will not be covered by this certificate.

Registration No.: PICL/CE/0221/3632

Certificate Issue Date: 06.02.2021

1st Surveillance: 02.2022

2nd Surveillance: 02.2023

Certificate Expire Date: 05.02.2024

Head of Certificate



This Certificate of Registration is granted subject to the Regulations approved by the Board.

PROGRESSIVE INTERNATIONAL CERTIFICATIONS LTD.

Office 4, 219, Kensington High Street, Kensington, London, W8 6BD, England.

E-mail.: info@picluk.com, Website: www.picluk.com

For current validity of this certificate. Please visit our website

USE OF ACCREDITATION MARK INDICATES ACCREDITATION IN RESPECT OF THE ACTIVITIES COVERED BY
ACCREDITATION INSTITUTE ASSESMENT BODY (EUROPE) CERTIFICATION NUMBER 004



CERTIFICATE OF COMPLIANCE



PROGRESSIVE

The Governing Board of
Progressive International Certifications Limited hereby grant to:

ANNEXURE: I LIST OF PRODUCTS

SR. No	PRODUCT RANGE	PRODUCT NAME
1	1 KG	24 HOUR WASTE COMPOST MACHINE
2	5 KG	24 HOUR WASTE COMPOST MACHINE
3	15 KG	24 HOUR WASTE COMPOST MACHINE
4	100 KG	24 HOUR WASTE COMPOST MACHINE
5	200 KG	24 HOUR WASTE COMPOST MACHINE
6	300 KG	24 HOUR WASTE COMPOST MACHINE
7	500 KG	24 HOUR WASTE COMPOST MACHINE
8	1000 KG	24 HOUR WASTE COMPOST MACHINE
9	2000 KG	24 HOUR WASTE COMPOST MACHINE
10	3000 KG	24 HOUR WASTE COMPOST MACHINE
11	4000 KG	24 HOUR WASTE COMPOST MACHINE
12	5000 KG	24 HOUR WASTE COMPOST MACHINE
13	10 Ton	24 HOUR WASTE COMPOST SYSTEM
14	15 Ton	24 HOUR WASTE COMPOST SYSTEM
15	20 Ton	24 HOUR WASTE COMPOST SYSTEM
16	25 Ton	24 HOUR WASTE COMPOST SYSTEM

PAGE 1 OF 2

Registration No.: PICL/CE/0221/3632

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CERTIFICATE OF COMPLIANCE



The Governing Board of
Progressive International Certifications Limited hereby grant to:

ANNEXURE: I LIST OF PRODUCTS

SR. No	PRODUCT RANGE	PRODUCT NAME
1	30 Ton	24 HOUR WASTE COMPOST SYSTEM
2	40 Ton	24 HOUR WASTE COMPOST MACHINE
3	50 Ton	24 HOUR WASTE COMPOST MACHINE
4	1000 KG	24 HOUR BIO REMEDIATION MACHINE
5	2000 KG	24 HOUR BIO REMEDIATION MACHINE
6	3000 KG	24 HOUR BIO REMEDIATION MACHINE
7	4000 KG	24 HOUR BIO REMEDIATION MACHINE
8	5000 KG	24 HOUR BIO REMEDIATION MACHINE
9	500 KG	BIO CHAR MACHINE
10	1000 KG	BIO CHAR MACHINE
11	2000 KG	BIO CHAR MACHINE
12	500 KG	24 HOUR WASTE COMPOST MACHINE
13	1000 KG	24 HOUR WASTE COMPOST SYSTEM
14	2000 KG	24 HOUR WASTE COMPOST SYSTEM
15		TROLLEY SANITIZING MACHINE
16		SANITIZING SPRAY BOOTH
17		OZONE GENERATOR

PAGE 2 OF 2

Registration No.: PICL/CE/0221/3632

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ACCREDITATION INSTITUTE ASSESSMENT BODY (EUROPE) CERTIFICATION NUMBER 004

MATERIAL SAFETY DATA SHEET

Not classified as hazardous according to criteria of the American standards.

1.0 IDENTIFICATION

Product Name	COMPOSTING POWDER
Other Name	N/A
Chemical name	Bacterial Blend
Product Use	Use as additive for GEC Composting Machine and Assisted Fermentation Vessel
Company Name	GEC Integration Sdn Bhd
Address	See Below
Phone	See Below

2.0 HAZARD IDENTIFICATION

Hazard Classification	Not Classified as Hazardous According to American Standards All non toxic
Dangerous Goods	Not Classified as Dangerous Good According to The Criteria of The American Standards
Signs And Symptoms Of Acute Overexposure	See Below
Irritation	Non Irritant to Skin or Eyes
Antidote	Treat Symptomatically
16 Cfr Rating	Non-Toxic
NFPA Rating	(NFPA 704) Health 0 Fire 0
Flash Point	N/A
Auto-Ignition Temperature	N/A
Extinguishing Media	N/A
Fire Fighting Protection	N/A
Unusual Fire Hazards	N/A

3.0 COMPOSITION INFORMATION ON INGREDIENTS

Ingredient: C Tlv: Hazards	Contains no hazardous materials. All non toxic
Dot Hazard Class	No DOT Regulated
Appearance	Brown Powder
Hazardous Polymerization	Will Not Occur

MATERIAL SAFETY DATA SHEET

4.0 FIRST AID MEASURES

Signs And Symptoms Of Acute Overexposure	No Adverse Effects Have Been Found
Advise To Doctor	Treat Symptomatically
Inhalation	Normal Use Should Not Cause Irritation. If Reaction occurs, Remove to Fresh Air and Consult Your Physician.
Ingestion	Product Is Not To Be Taken Internally. If This Occurs Do Not Induce Vomiting, Rinse Mouth And Drink 1 Or 2 Large Glasses Of Water And Seek Medical Attention.
Skin	Normal Use Should Not Cause Irritation. Wash Skin With Soap And Water After Contact with Product. If Irritation Occurs, Consult Your Physician.
Eyes	If Product Contacts Eye Area, Flush with Water for 15 Minutes.
First Aid Facilities	Fresh Water To Drink Or To Rinse Where Affected

5.0 FIRE FIGHTING MEASURES

Extinguishing Media	N/A Use Appropriate Media Depending On The Source Of Fire
Flammable limits	N/A
Unusual Fire Hazards	None
Hazard From Combustible Products	If Involved In A Major Fire, This Product Does Not Emit Toxic Fumes, including Carbon Monoxide, Dioxide or Oxides of Sulfur
Precautions For Fire Fighters	Precautions Appropriate to The Source of Fire
Special Fire Provisions	None
Personal Protection	Use as Directed

6.0 ACCIDENTAL RELEASE MEASURES

Release Or Spill Procedures	In The Event of a Spill or Leak, Dispose of Waste In Compliance With The Local Regulations
Emergency Procedure	Slippery When Spills. Clean up Spills Immediately To Avoid Further Accident. Spills may be Softly Brushed up when Handling Large Spills, Wear Safety Boots, Safety Glasses and Gloves
Disposals	Dispose of Waste by Sending to Landfill, or in Accordance with the Local Regulations

7.0 HANDLING AND STORAGE

Storage	Avoid Extreme Heat, Store In A Cool Dry Place, Do Not Freeze. Store In Original Container. Shelf Life : 2 Years
Handling	This Product Is Intended to Use as Treatment of Waste Water.
Other Precautions	Good Housekeeping Procedures. Container Disposal : Do Not Reuse Container. When Empty Dispose of in Accordance with Local Laws And Ordinances.

MATERIAL SAFETY DATA SHEET

8.0 EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure Standards	None Established For This Product
Biological Limits	None Allocated
Engineering Controls	No Special Engineering Controls Required
Personal Protective Equipments	Protect Eyes with Splash Proof Glasses. Protect Skin with Rubber Gloves and Apron. When Handling in Bulk, Observe Good Industrial Hygiene Practice. No Other Protection Required.

9.0 PHYSICAL AND CHIMICAL PROPERTIES

Hazardous Polymerization	N/A
Appearance	Beige Powder
pH	N/A
Flash Point	N/A
Flammable Limits	Non Flammable Non Combustible
Auto-Ignition Temperature	N/A
Solubility In Water	Emulsifiable
Chemical Family	Bacteria Blend
Specific Gravity	.885
Boiling Point	310°F
Evaporation Rate	< 1 %
Vapor Density	0.012

10.0 STABILITY AND REACTIVITY

Chemical Stability	Non Chemical Product. Stable Product. Observe The Conditions Required For Storage And Handling
Conditions To Avoid	Extreme Heat or cold Strong Acids and Bases
Incompatibility	Not Compatible with Strong Acids
Hazardous Decomposition Products	N/A
Hazardous Polymerization	N/A

11.0 TOXICOLOGICAL INFORMATION

Health Hazard Information :	See Below
<u>Effects Of Overexposure</u>	No Adverse Effects Have Been Found
Ingestion	If Taken Internally May Be Harmful, Consult A Physician.
Skin	Prolonged Contact May Irritate Skin.
Eyes	No Adverse Effects Have Been Found
Toxicity Data	No Toxicity Data Available



GEC Integration Sdn Bhd
2980-02, Kompleks Chai Leng, Jalan Baru,
13700 Prai, Penang, Malaysia.
Phone: +60125080559
mail.gecsb@gmail.com

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MATERIAL SAFETY DATA SHEET

12.0 ECOLOGICAL INFORMATION

Ecotoxicity	Non Toxic. No Data Available
Persistent And Degradability	100 % Bio-Degradable
Mobility	No Data Available

13.0 DISPOSAL CONSIDERATIONS

Waste Disposal	Normally Suitable for Disposal at Approved Waste Site
Legislation	Dispose of in Accordance with Local Regulations

14.0 TRANSPORT INFORMATION

Proper Shipping Name	None Allocated
Class And Subsidiary Risk	None Allocated
Packing Group	None Allocated
Special Precautions	None Allocated
Hazard Chemical Code	None Allocated

15.0 OTHER INFORMATION

Contact Point	Joseph Wong
Title	Technical Consultant
Phone	+6012 508 0559
After Office Hours	Same
Shelf Life Of Product	2 Years Under Required Conditions

The information contained in this Material Safety Data Sheet is believed to be accurate and reliable ; however GEC Integration Sdn Bhd shall not be liable for any inaccuracy in the information or for any loss, injury or damage, whatsoever arising from the use of this product as conditions and methods of use are beyond our control. Users should read this Material Safety Data Sheet and evaluate the information in the context of how the user intends to use and handle this product in the workplace, including the use of this product with other products.

Date of issue : 15th of January 2021.

12.3 References for NPK Level for different materials

Alfalfa Pellets (3-1-2) avg release 40g/sq ft

Corn Gluten (6-0-0) avg release 15g/sq ft

Compost (1-1-1) slow release 125g/sq ft

Bird guano (10-3-1 variable) fast release 25g/sq ft

Cow manure (2-0-0 variable) avg release 60g/sq ft

Horse manure (5-2.5-6 variable) avg release 20g/sq ft

Soybean meal (6-1.5-2) avg release 20g/sq ft

Worm castings (1-0-0) slow release 150g/sq ft

Kelp (1-0.2-2) fast release 15g/sq ft

Insect manure (4-3-2) fast release 35g/sq ft

Fish emulsion (5-2-2 liquid) fast release 1ml/sq ft

Cottonseed meal (6-2-2) avg release 20g/sq ft

Bone meal (2-11-0) slow release 25g/sq ft

Blood meal (12-0-0) fast release 10g/sq ft

Alfalfa Hay: 2.45/05/2.1

Apple Fruit: 0.05/0.02/0.1

Apple Leaves: 1.0/0.15/0.4

Apple Pomace: 0.2/0.02/0.15

Apple skins(ash) : 0/3.0/11/74

Banana Residues (ash): 1.75/0.75/0.5

Barley (grain): 0/0/0.5

Barley (straw): 0/0/1.0

Basalt Rock: 0/0/1.5

Bat Guano: 5.0-8.0/4.0-5.0/1.0

Beans, garden(seed and hull): 0.25/0.08/03

Beet Wastes: 0.4/0.4/0.7-4.1

Blood meal: 15.0/0/0

Bone Black: 1.5/0/0

References for NPK Level for different materials (cont'l)

Bonemeal (raw): 3.3-4.1/21.0/0.2

Bonemeal (steamed): 1.6-2.5/21.0/0.2

Brewery Wastes (wet): 1.0/0.5/0.05

Buckwheat straw: 0/0/2.0

Cantaloupe Rinds (ash): 0/9.77/12.0

Castor pomace: 4.0-6.6/1.0-2.0/1.0-2.0

Cattail reeds and water lily stems: 2.0/0.8/3.4

Cattail Seed: 0.98/0.25/0.1

Cattle Manure (fresh): 0.29/0.25/0.1

Cherry Leaves: 0.6/0/0.7

Chicken Manure (fresh): 1.6/1.0-1.5/0.6-1.0

Clover: 2/0/0/0 (also contains calcium)

Cocoa Shell Dust: 1.0/1.5/1.7

Coffee Grounds: 2.0/0.36/0.67

Corn (grain): 1.65/0.65/0.4

Corn (green forage): 0.4/0.13/0.33

Corn cobs: 0/0/2.0

Corn Silage: 0.42/0/0

Cornstalks: 0.75/0/0.8

Cottonseed hulls (ash): 0/8.7/23.9

Cottonseed Meal: 7.0/2.0-3.0/1.8

Cotton Wastes (factory): 1.32/0.45/0.36

Cowpea Hay: 3.0/0/2.3

Cowpeas (green forage): 0.45/0.12/0.45

Cowpeas (seed): 3.1/1.0/1.2

Crabgrass (green): 0.66/0.19/0.71

Crabs (dried, ground): 10.0/0/0

Crabs (fresh): 5.0/3.6/0.2

References for NPK Level for different materials (cont'l)

Cucumber Skins (ash): 0/11.28/27.2

Dried Blood: 10.0-14.0/1.0-5.0/0

Duck Manure (fresh): 1.12/1.44/0.6

Eggs: 2.25/0.4/0.15

Eggshells: 1.19/0.38/0.14

Feathers: 15.3/0/0

Felt Wastes: 14.0/0/1.0

Field Beans (seed): 4.0/1.2/1.3

Field Beans (shells): 1.7/0.3/1.3

Fish (dried, ground): 8.0/7.0/0

Fish Scraps (fresh): 6.5/3.75/0

Gluten Meal: 6.4/0/0

Granite Dust: 0/0/3.0-5.5

Grapefruit Skins (ash): 0/3.6/30.6

Grape Leaves: 0.45/0.1/0.4

Grape Pomace: 1.0/0.07/0.3

Grass (imature): 1.0/0/1.2

Greensand: 0/1.5/7.0

Hair: 14/0/0/0

Hoof and Horn Meal: 12.5/2.0/0

Horse Manure (fresh): 0.44/0.35/0.3

Incinerator Ash: 0.24/5.15/2.33

Kentucky Bluegrass (green): 0.66/0.19/0.71

Kentucky Bluegrass (hay): 1.2/0.4/2.0

Leather Dust: 11.0/0/0

Lemon Culls: 0.15/0.06/0.26

Lemon Skins (ash): 06.33/1.0

Lobster Refuse: 4.5/3.5/0

References for NPK Level for different materials (cont'l)

Milk: 0.5/0.3/0.18

Millet Hay: 1.2/0/3.2

Molasses Residue

(From alcohol manufacture): 0.7/0/5.32

Molasses Waste

(From Sugar refining): 0/0/3.0-4.0

Mud (fresh water): 1.37/0.26/0.22

Mud (harbour): 0.99/0.77/0.05

Mud (salt): 0.4.0/0

Mussels: 1.0/0.12/0.13

Nutshells: 2.5/0/0

Oak Leaves: 0.8/0.35/0.2

Oats (grain): 2.0/0.8/0.6

Oats (green fodder): 0.49/0/0

Oat straw: 0/0/1.5

Olive Pomace: 1.15/0.78/1.3

Orange Culls: 0.2/0.13/0.21

Orange Skins: 0/3.0/27.0

Oyster Shells: 0.36/0/0

Peach Leaves: 0.9/0.15/0.6

Pea forage: 1.5-2.5/0/1.4

Peanuts (seed/kernals): 3.6/0.7/0.45

Peanut Shells: 3.6/0.15/0.5

Pea Pods (ash): 0/3.0/9.0

Pea (vines): 0.25/0/0.7

Pear Leaves: 0.7/0/0.4

Pigeon manure (fresh): 4.19/2.24/1.0

Pigweed (rough): 0.6/0.1/0

References for NPK Level for different materials (cont'l)

Pine Needles: 0.5/0.12/0.03

Potato Skins (ash): 0/5.18/27.5

Potaote Tubers: 0.35/0.15/2.5

Potatoe Vines (dried): 0.6/0.16/1.6

Prune Refuse: 0.18/0.07/0.31

Pumpkins (fresh): 0.16/0.07/0.26

Rabbitbrush (ash): 0/0/13.04

Rabbit Manure: 2.4/1.4/0.6

Ragweed: 0.76/0.26/0

Rapeseed meal: 0/1.0=2.0/1.0=3.0

Raspberry leaves: 1.45/0/0.6

Red clover hay: 2.1/0.6/2.1

Redrop Hay: 1.2/0.35/1.0

Rock and Mussel Deposits

From Ocean: 0.22/0.09/1.78

Roses (flowers): 0.3/0.1/0.4

Rye Straw: 0/0/1.0

Salt March Hay: 1.1/0.25/0.75

Sardine Scrap: 8.0/7.1/0

Seaweed (dried): 1.1-1.5/0.75/4.9 (Seaweed is loaded with micronutrients including: Boron, Iodine, Magnesium and so on.)

Seaweed (fresh): 0.2-0.4/0/0

Sheep and Goat Manure (fresh): 0.55/0.6/0.3

Shoddy and Felt: 8.0/0/0

Shrimp Heads (dried): 7.8/4.2/0

Shrimp Wastes: 2.9/10.0/0

Siftings From Oyster Shell Mounds: 0.36/10.38/0.09

Silk Mill Wastes: 8.0/1.14/1.0

Silkworm Cocoons:10.0/1.82/1.08

References for NPK Level for different materials (cont'l)

Sludge: 2.0/1.9/0.3

Sludge (activated): 5.0/2.5-4.0/0.6

Smokehouse/Firepit Ash:0/0/4.96

Sorghum Straw:0/0/1.0

Soybean Hay: 1.5-3.0/0/1.2-2.3

Starfish: 1.8/0.2/0.25

String Beans (strings and stems, ash): 0/4.99/18.0

Sugar Wastes (raw): 2.0/8.0/0

Sweet Potatoes: 0.25/0.1/0.5

Swine Manure (fresh): 0.6/0.45/0.5

Tanbark Ash: 0/0.34/3.8

Tanbark Ash (spent): 0/1.75/2.0

Tankage: 3.0-11.0/2.0-5.0/0

Tea Grounds: 4.15/0.62/0.4

Timothy Hay: 1.2/0.55/1.4

Tobacco Leaves: 4.0/0.5/6.0

Tobacco Stems: 2.5-3.7/0.6-0.9/4.5-7.0

Tomatoe Fruit: 0.2/0.07/0.35..Hot compost kill seed.

Tomatoe Leaves: 0.35/0.1/0.4

Tomatoe Stalks: 0.35/0.1/0.5

Tung Oil Pumace: 6.1/0/0

Vetch Hay: 2.8/0/2.3

Waste Silt: 9.5/0/0

Wheat Bran: 2.4/2.9/1.6

Wheat (grain): 2.0/0.85/0.5

Wheat Straw: 0.5/0.15/0.8

White Clover (Green): 0.5/0.2/0.3

Winter Rye Hay: 0/0/1.0

References for NPK Level for different materials (cont'l)

Wood Ash: 0/1.0-2.0/6.0-10.0 (A note on Wood ash: Wood Ash can contain chemicals that could harm plants and also carcinogens so, they should be composted in moderation)

Wool Wastes: 3.5-6.0/2.0-4.0/1.0-3.

12.4 References of C:N level for difference base materials:

Material	C:N
ASHES, WOOD	25:1
CARDBOARD, SHREDDDED	350:1
CORNS STALK	75:1
FRUIT WASTE	35:1
LEAVES	60:1
NEWSPAPERS, SHREDDDED	175:1
PEANUT SHELL	35:1
PINE NEEDLES	80:1
SAWDUST	325:1
STRAW	75:1
WOOD CHIPS	400:1
ALFALFA	12:1
CLOVER	23:1
COFFEE GROUND	20:1
FOOD WASTE	20:1
GARDEN WASTE	30:1
GRASS CLIPPING	20:1
HAY	25:1
MANURES	15:1
SEAWEED	19:1
VEGETABLES SCRAP	25:1
WEEDS	30:1

THE END