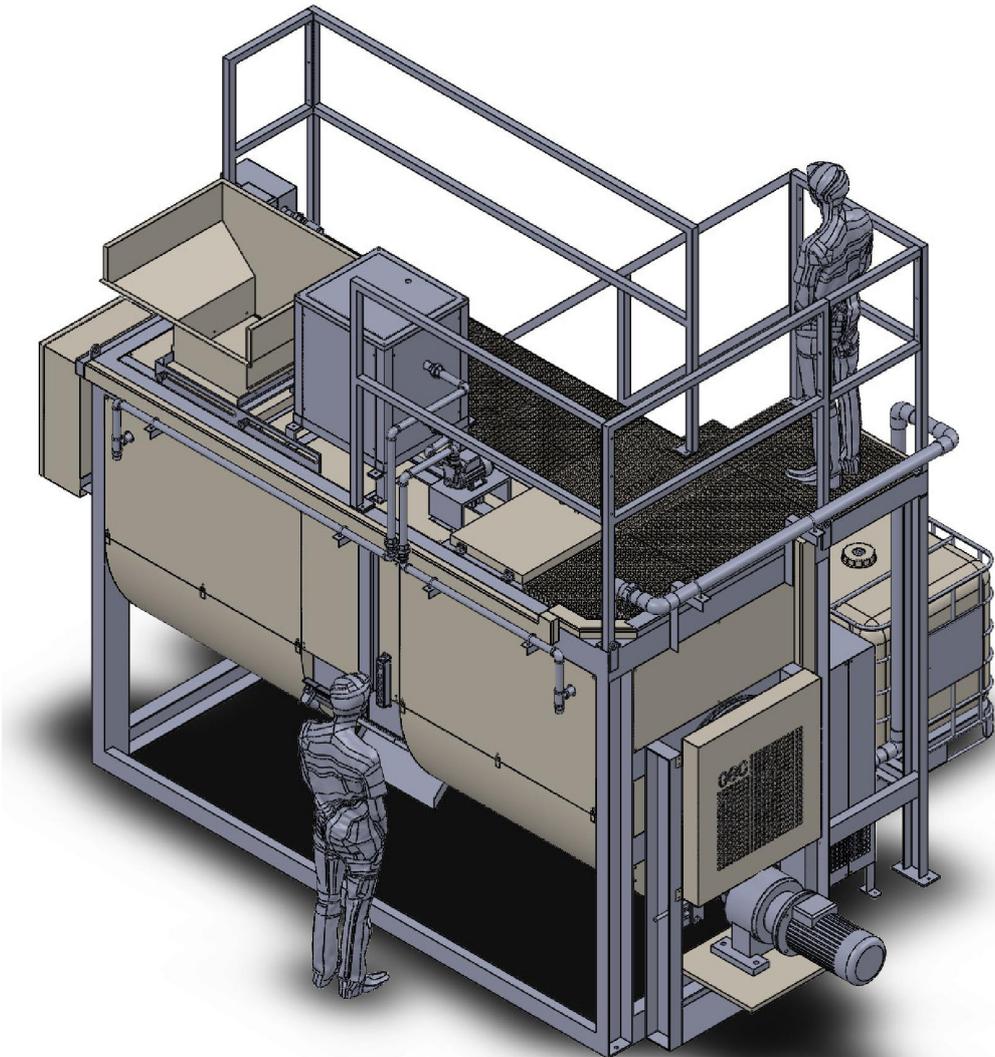




**USER MANUAL**  
**FOR**  
**24HRS BIO REMEDIATION MACHINE**  
**BRM-5000**  
**Patent Pending Number PI2018700916**



PREPARED BY: JOSEPH WONG  
REVISION: 00  
DATED: 1 MARCH 2021

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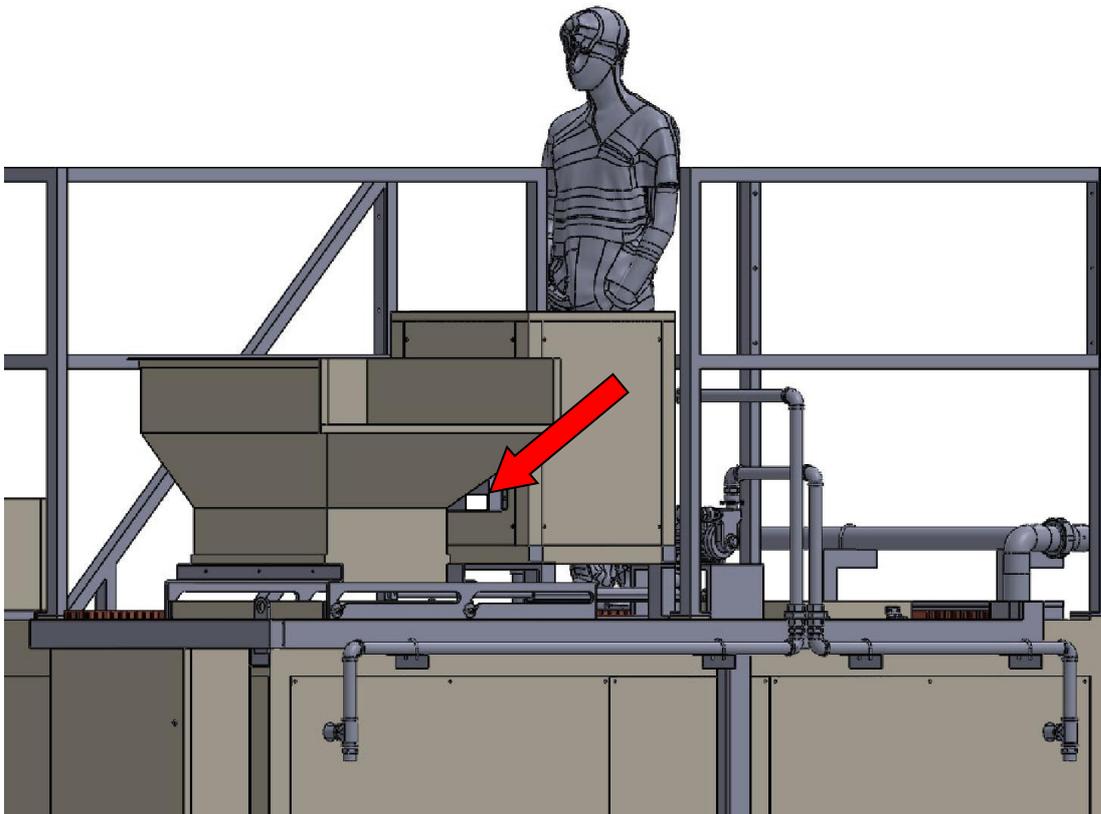
**The purpose of this manual is to illustrate the technical details of the machine, the know-how of operating, the maintenance procedure, trouble shooting and repair and the set up procedure.**

**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 assistant.**

**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

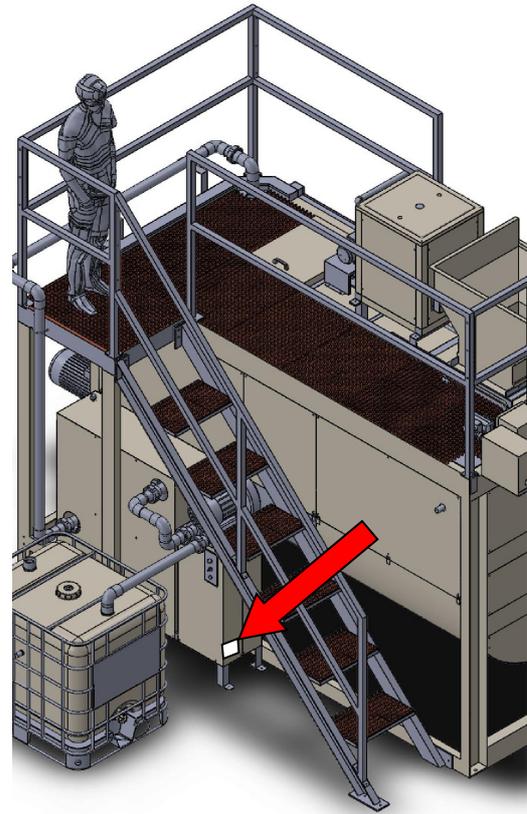
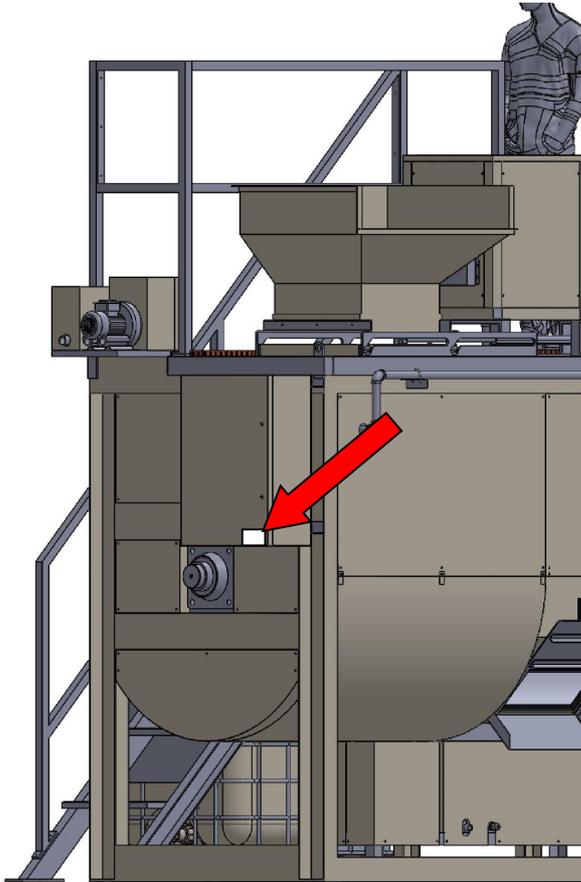


Location (**RED ARROW**)

Caution mark (1) located at bottom right of back of oil heater 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.



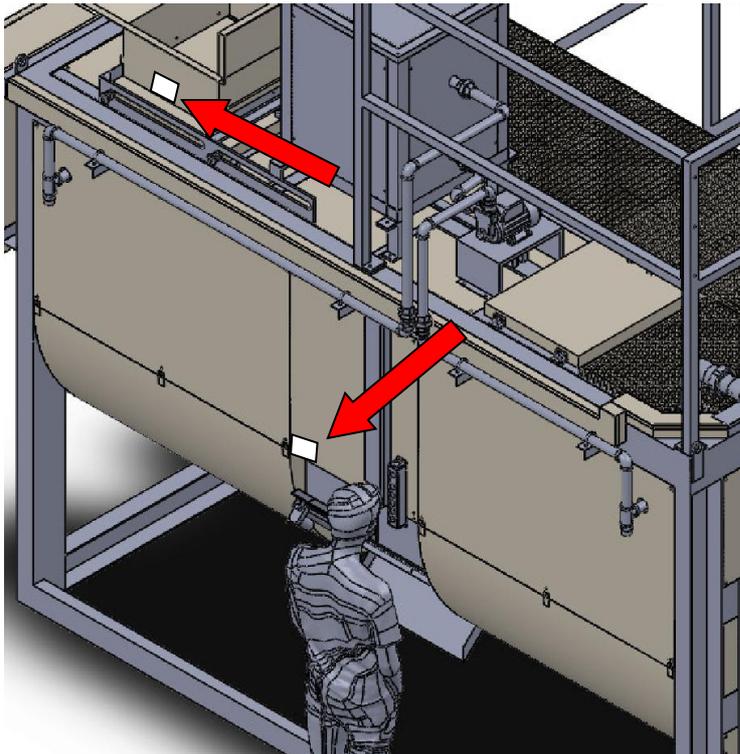
Location (RED ARROW)

Caution mark located at bottom right corner of the control box door.

2 x Caution mark located at bottom corner of the side panel of condensing unit.

**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)

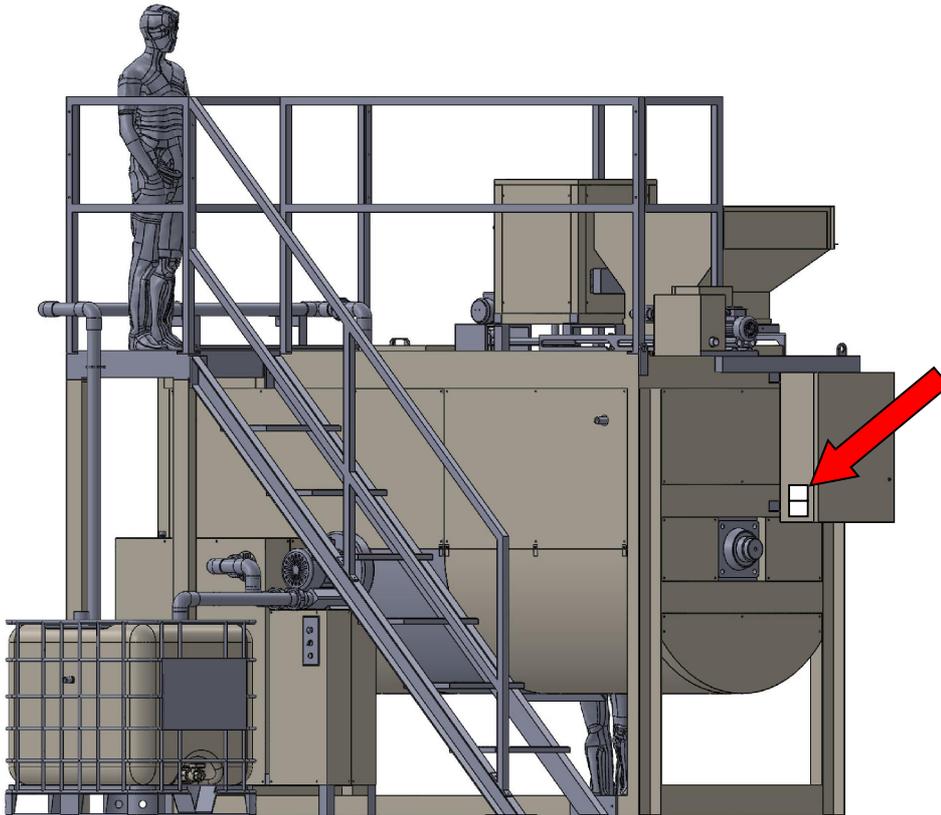
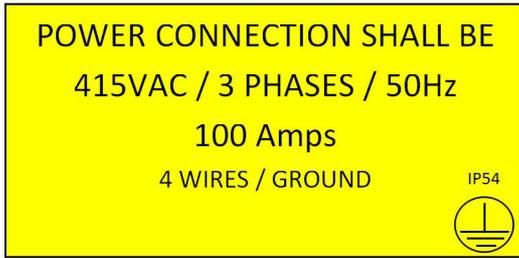
Caution mark located at front top of the inlet door.

Caution mark located at the front of the Inlet Chute.

**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.

## 2.4 Power Supply Requirement Tag



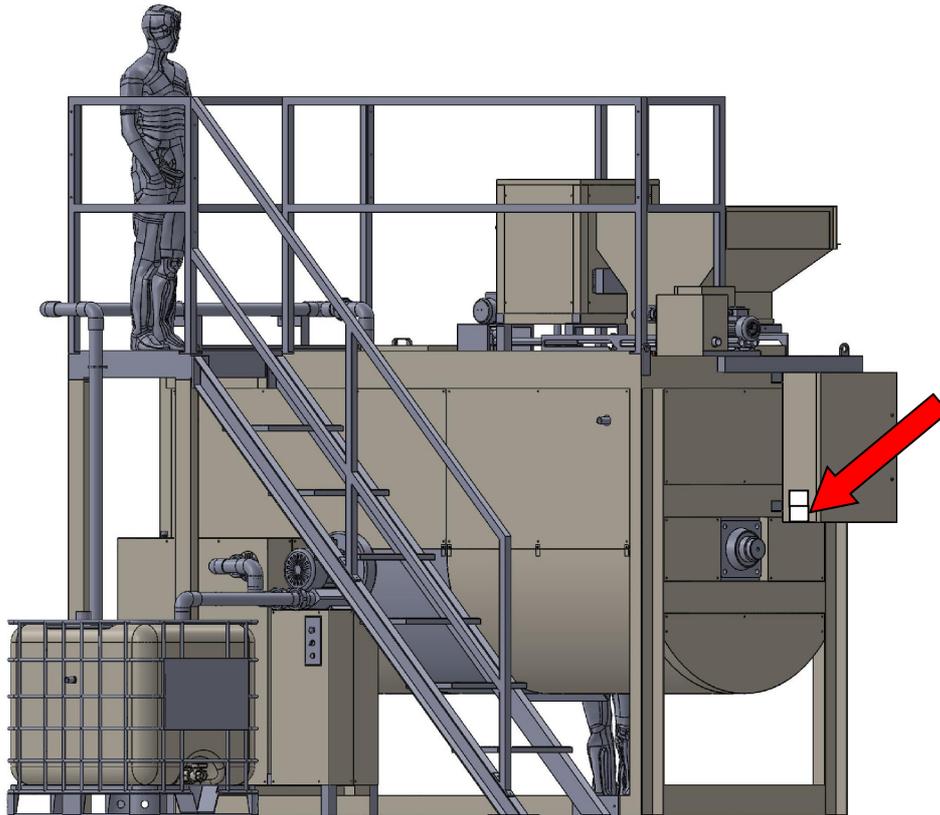
### Location (RED ARROW)

Caution mark located at bottom side of the back of control box.

### 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

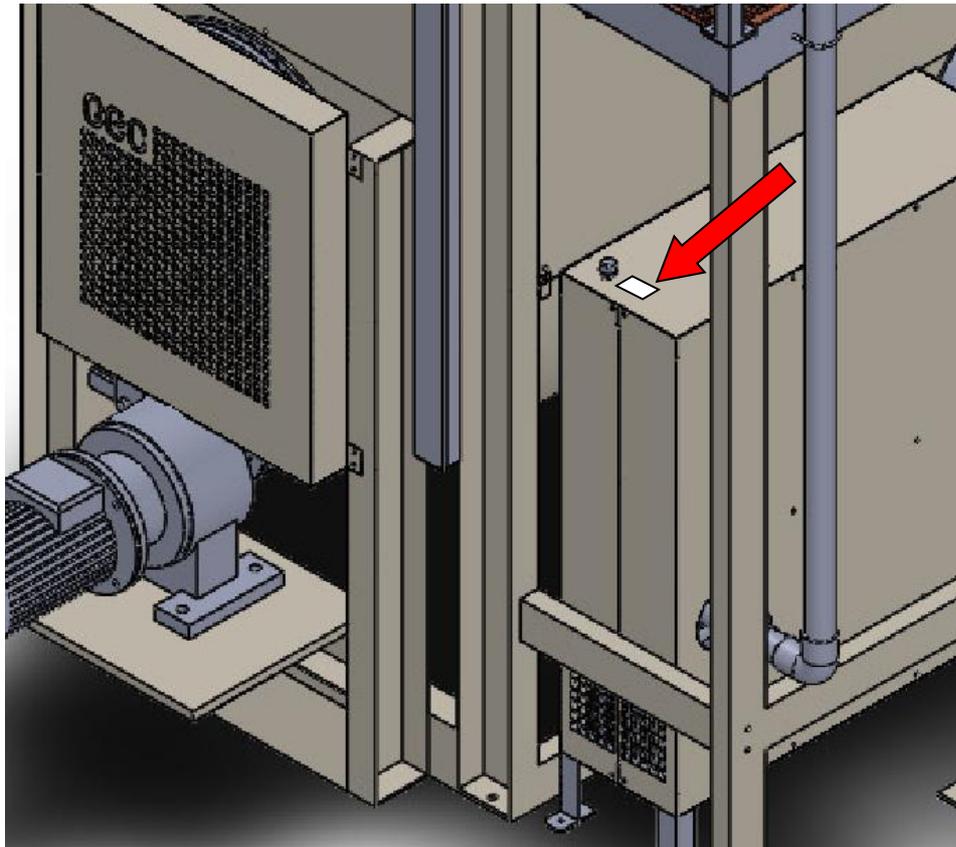


### Location (RED ARROW)

Caution mark located at bottom side of the back of control box.

### Caution

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



Location (**RED ARROW**)

Water Inlet (Cooling Coil Reservoir) located at top front side of the condensing unit.

**Caution**

Please ensure that the water level for the cooling coil reservoir is at sufficient level all the time to ensure that the condensation process worked at maximum level. Low water level may also cause the water pump to burn.



**Location (RED ARROW)**

**5 x Cautious mark located at front side of the machine.**

**3 x Cautious mark located at the left side of the machine.**

**4 x Cautious mark located at the rear side of the machine.**

**1 x Cautious mark located at the right side of the machine.**

**Caution**

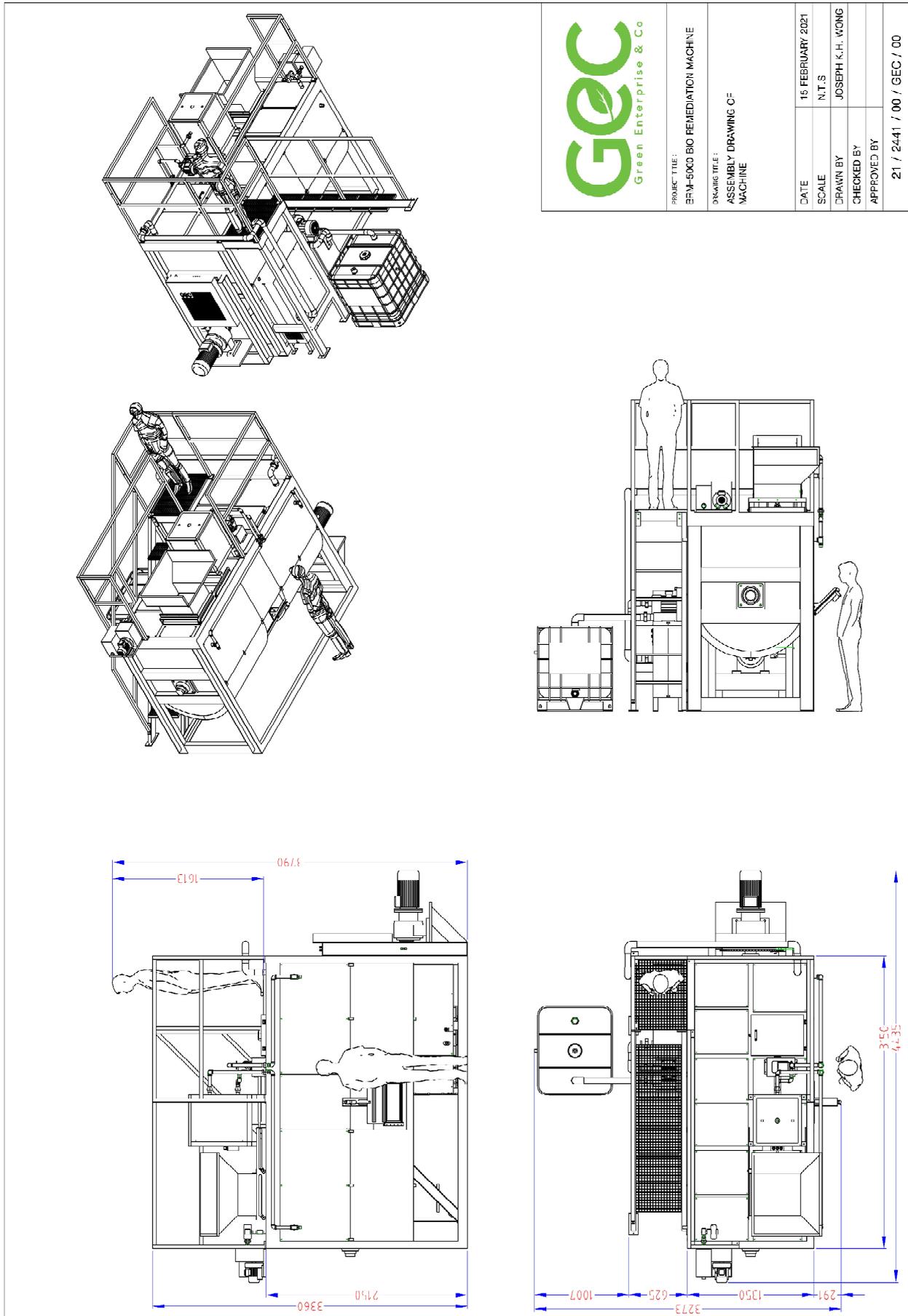
**Do not put your hand close to this area as the temperature is around 50°C - 70°C and it may cause serious burn.**

### **3.0 PRODUCT DESCRIPTION**

<b>3.1</b>	<b>Machine Description</b>		<b>24 Hours Rapid Composting Machine</b>
<b>3.2</b>	<b>Model</b>		<b>BRM-5000</b>
<b>3.3</b>	<b>Capacity</b>		<b>3500 Lites</b>
<b>3.4</b>	<b>Maximum Load</b>		<b>5000 Kgs</b>
<b>3.5</b>	<b>Dimension</b>	<b>(W)</b>	<b>175 cm (255 cm include Ladder)</b>
		<b>(L)</b>	<b>385 cm (521 cm include condensing unit)</b>
		<b>(H)</b>	<b>205 cm (366 cm include footing and railing)</b>
<b>3.6</b>	<b>Weight</b>		<b>2000 Kgs approx.</b>
<b>3.7</b>	<b>Power Rating</b>	<b>(V)</b>	<b>415 v / 50 Hz</b>
		<b>Phase</b>	<b>3</b>
		<b>(A)</b>	<b>100 Amps</b>
		<b>Wire</b>	<b>4 + Ground</b>
<b>3.8</b>	<b>Water Proof Standard</b>		<b>IP 54</b>
<b>3.9</b>	<b>Quality Standard</b>		<b>Machinery Device Directive - 2006/42/CE</b>

## 4.0 PRODUCT LAYOUT

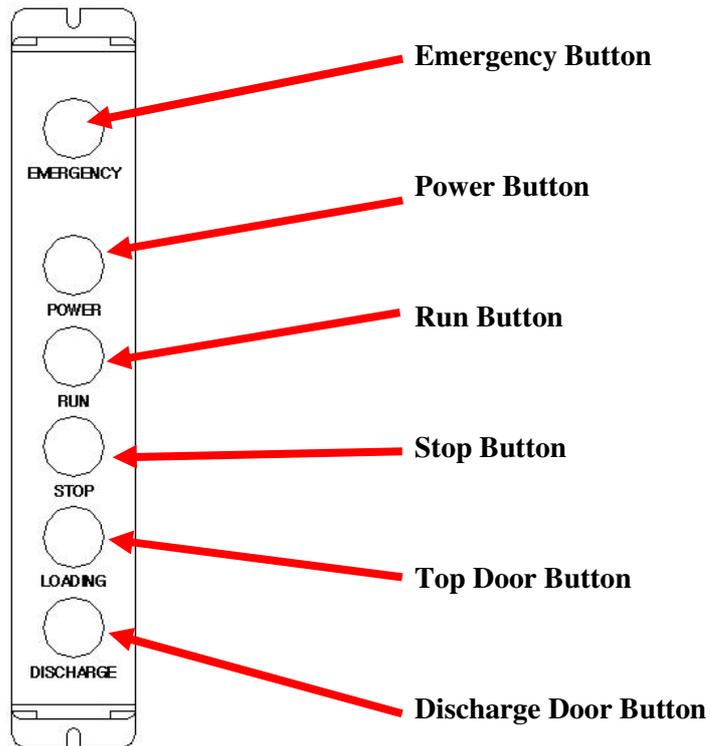
### 4.1 Machine Layout



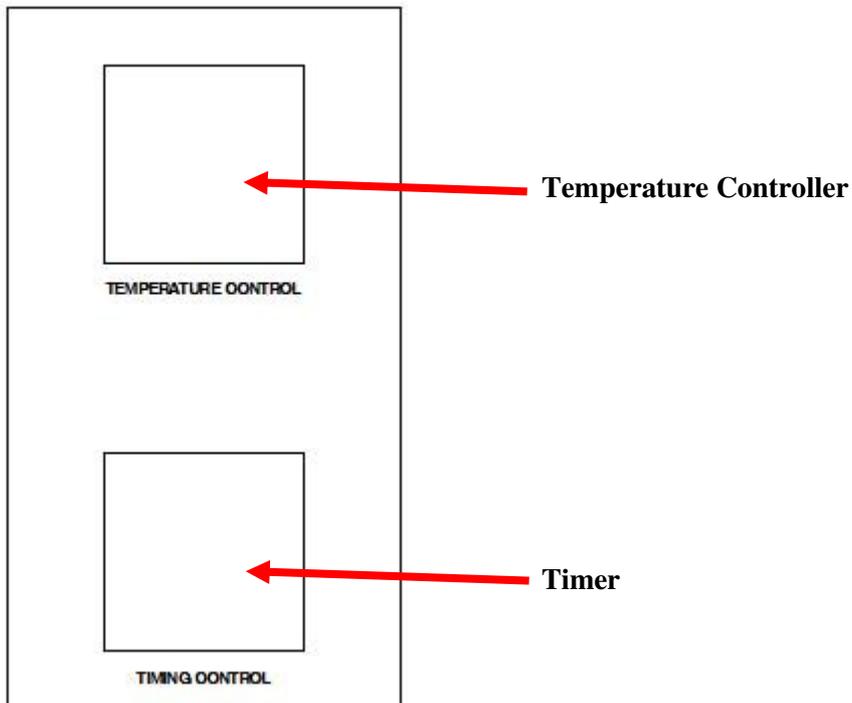
 <b>Green Enterprise &amp; Co</b>		PROJECT TITLE:	ERM-5000 BIO REMEDIATION MACHINE
		DRAWING TITLE:	ASSEMBLY DRAWING OF MACHINE
DATE	15 FEBRUARY 2021	CHECKED BY	JOSEPH K. H. WONG
SCALE	N.T.S	APPROVED BY	21 / 2441 / 00 / GEC / 00

## 4.2 Control Panel Layout

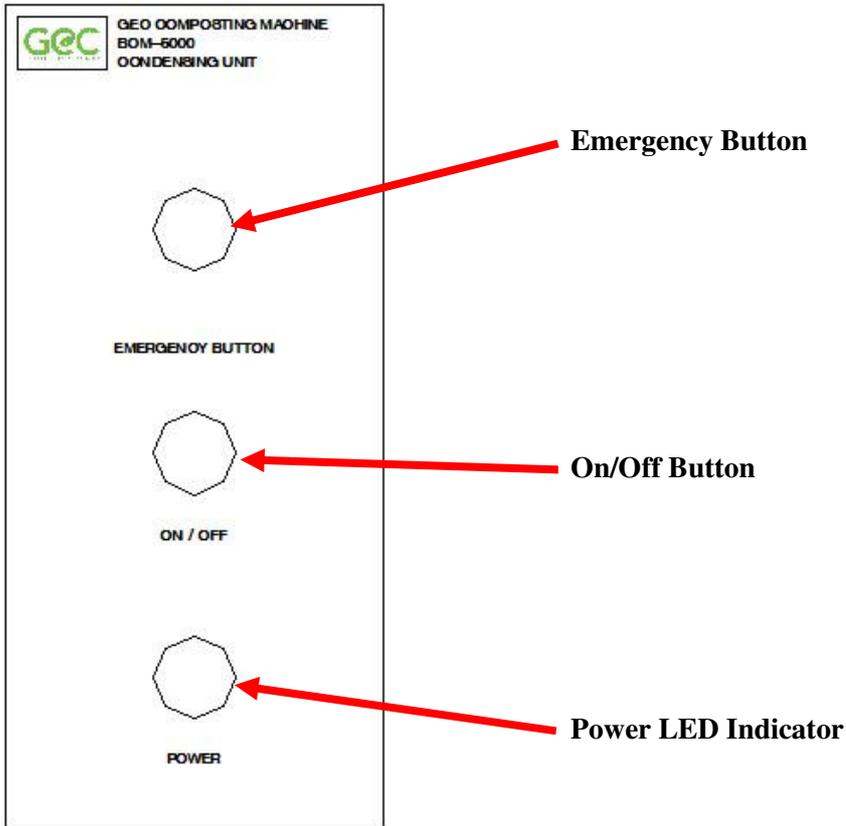
### 4.2.1 Main Control Panel



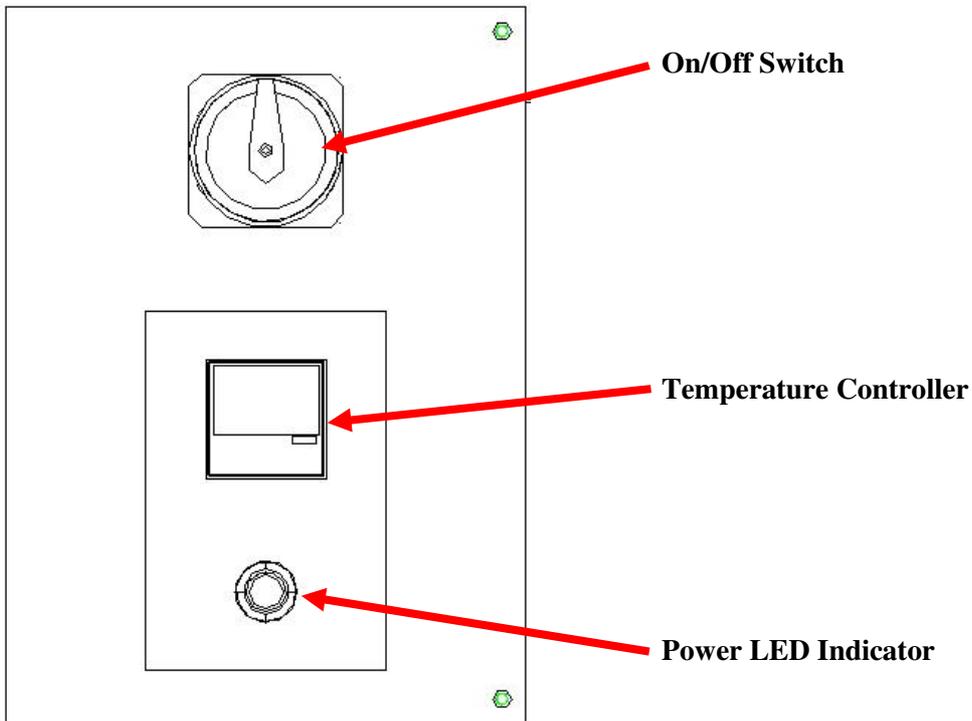
### 4.2.2 Main Controller Panel



### 4.2.3 Condensing Unit Panel



### 4.2.4 Hot Air Blower Panel

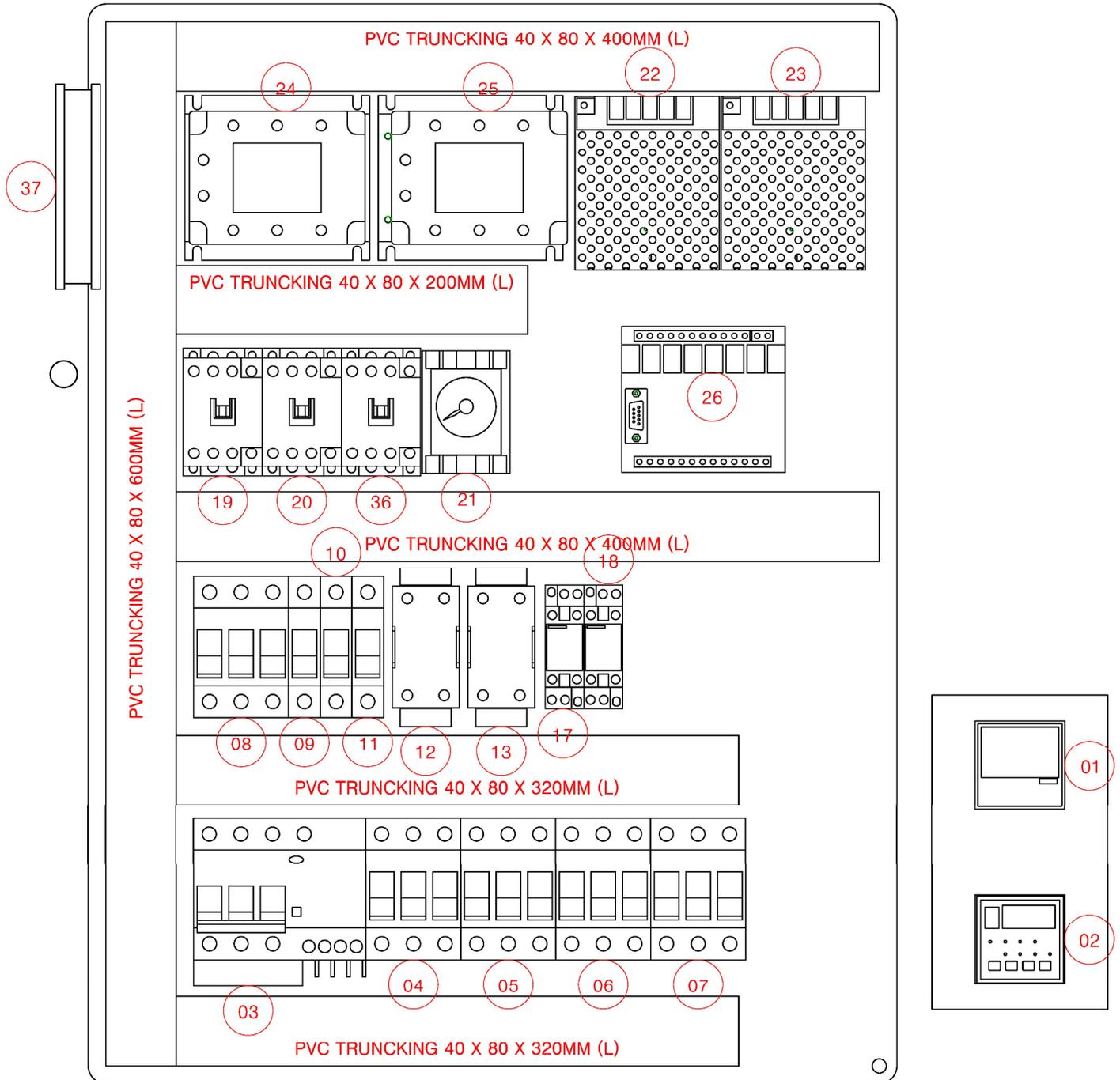


## 4.3 Electrical Panel Layout

### 4.3.1 Main Control Board

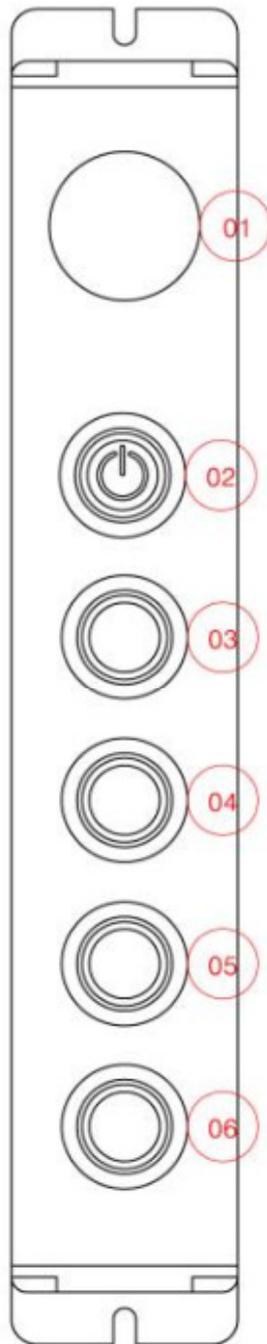
	Part Number	Description	Qty
4.3.1.1	REX-100	Temperature Controller	1 PC
4.3.1.2	XGHP48	Timer	1 PC
4.3.1.3	415V/100A/4P	ELCB	1 PC
4.3.1.4	25A/3P	MCB	1 PC
4.3.1.5	25A/3P	MCB	1 PC
4.3.1.6	25A/3P	MCB	1 PC
4.3.1.7	25A/3P	MCB	1 PC
4.3.1.8	25A/3P	MCB	1 PC
4.3.1.9	10A/1P	MCB	1 PC
4.3.1.10	10A/1P	MCB	1 PC
4.3.1.11	10A/1P	MCB	1 PC
4.3.1.12	10A/1P	MCB	1 PC
4.3.1.13	10A/1P	MCB	1 PC
4.3.1.14	10A/1P	SSR	1 PC
4.3.1.15	10A/1P	SSR	1 PC
4.3.1.16	MY2N/24VDC	Relay	1 PC
4.3.1.17	MY2N/24VDC	Relay	1 PC
4.3.1.18	25A/3P	Contactor, Overload Relay 14-18A	1 PC
4.3.1.19	25A/3P	Contactor	1 PC
4.3.1.20	AH3-1	Timer	1 PC
4.3.1.21	25W/24VDC	Power Supply	1 PC
4.3.1.22	25W/24VDC	Power Supply	1 PC
4.3.1.23	25A/3P	SSR	1 PC
4.3.1.24	25A/3P	SSR	1 PC
4.3.1.25	20MR	Control Board	1 PC
4.3.1.27	300W/220V	Oil Pump	1 PC
4.3.1.28	250MM	Door Actuator	1 PC

	Part Number	Description	Qty
	4.3.1.29	500MM Door Actuator	1 PC
	4.3.1.36	25A/3P Contactor	1 PC
	4.3.1.37	120 X 120 X 25 Cooling Fan	1 PC



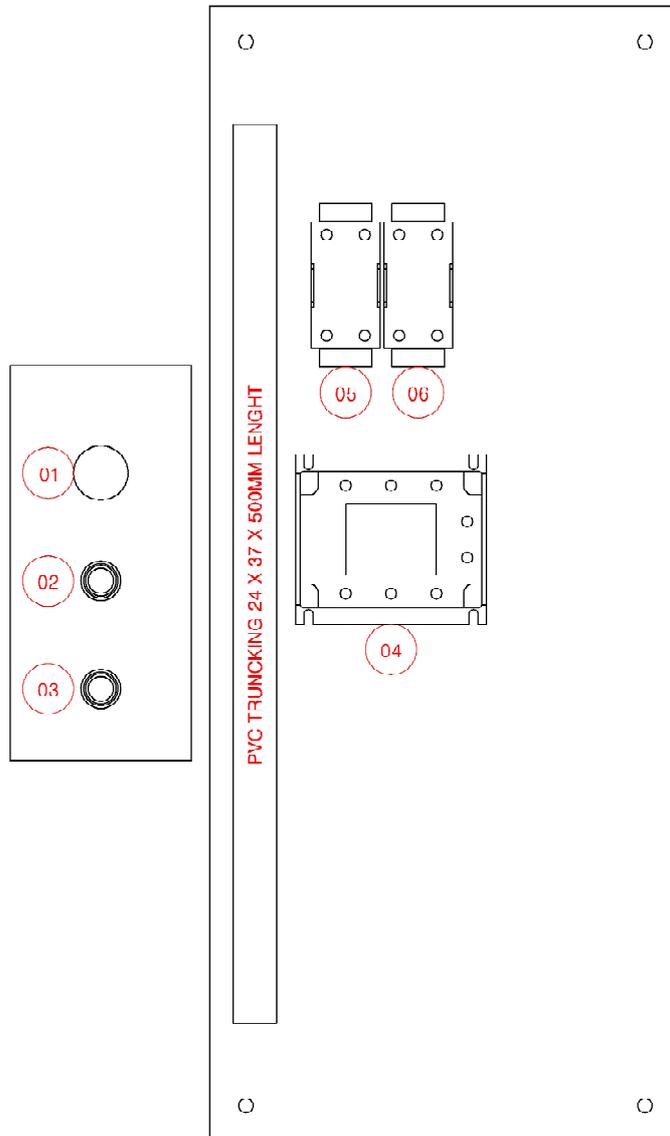
### 4.3.2 Main Controller Panel

	Part Number	Description	Qty
4.3.2.1	Ø22MM	Emergency Button	1 PC
4.3.2.2	Ø22MM	Self Lock Power Push Button	1 PC
4.3.2.3	Ø22MM	Momentary Push Button	1 PC
4.3.2.4	Ø22MM	Momentary Push Button	1 PC
4.3.2.5	Ø22MM	Self Lock Push Button	1 PC
4.3.2.6	Ø22MM	Self Lock Push Button	1 PC



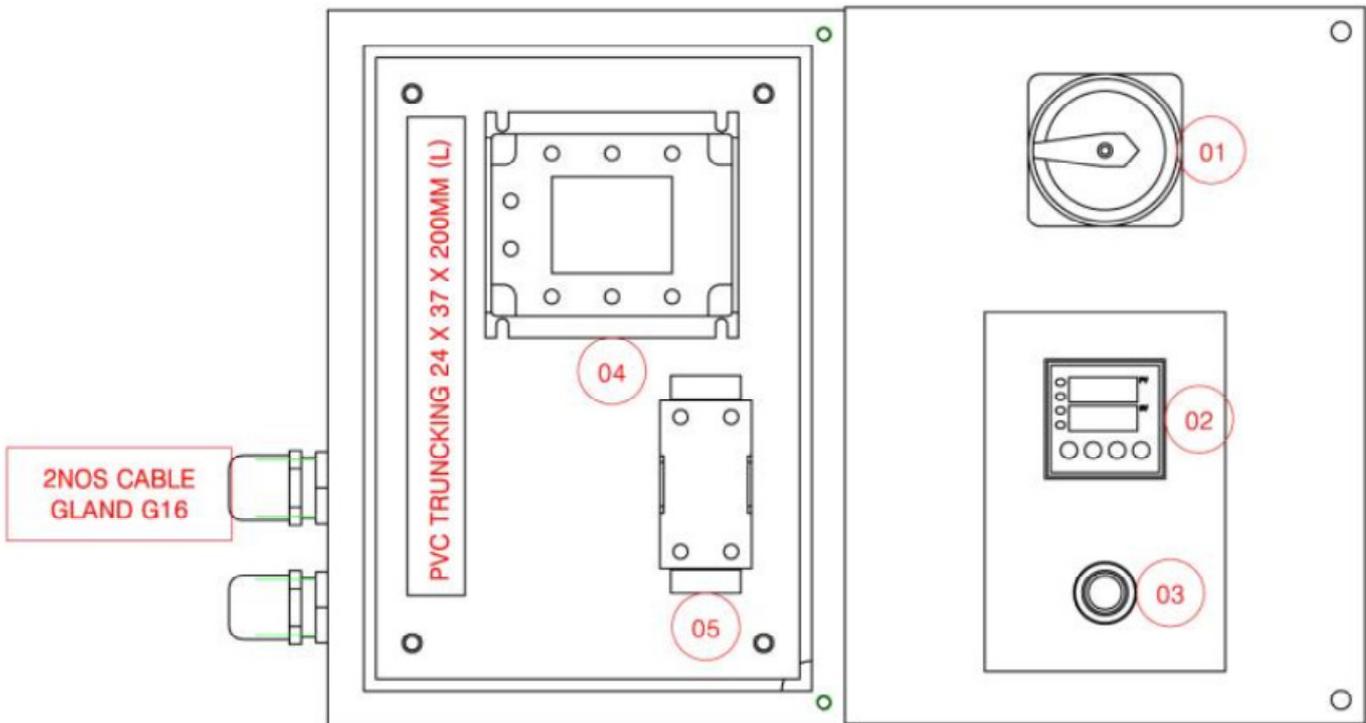
### 4.3.3 Condensing Unit Control Board

	Part Number	Description	Qty
4.3.3.1	Ø22MM	Emergency Button	1 PC
4.3.3.2	Ø22MM	Self Lock Power Push Button	1 PC
4.3.3.3	Ø22MM/24VDC	LED Indicator Light	1 PC
4.3.3.4	10A/3P	SSR	1 PC
4.3.3.5	10A/1P	SSR	1 PC
4.3.3.6	10A/1P	SSR	1 PC
4.3.3.7	2200W/3P/380V	Vacuum Pump	1 PC
4.3.3.8	2000MG/H, 220V	Ozone Generator	1 PC
4.3.3.9	280W, 220V	Water Pump	1 PC



#### 4.3.4 Condensing Unit Control Board

4.3.4.1	SFD11-20/4P/20A	Rotary Switch	1	PC
4.3.4.2	REX-C100	Temperature Controller	1	PC
4.3.4.3	Ø22MM/24VDC	LED Indicator Light	1	PC
4.3.4.4	10A/3P	SSR	1	PC
4.3.4.5	10A/1P	SSR	1	PC
4.3.4.6	212444-00-01-01	Heater 1KW	1	PC
4.3.4.7	212444-00-01-01	Heater 1KW	1	PC
4.3.4.7	212444-00-01-01	Heater 1KW	1	PC
4.3.4.7	120W/220V	Vacuum Pump	1	PC



**5.0 PART LIST**

	<b>Part Number</b>	<b>Description</b>	<b>Qty</b>	
<b>Main Structure</b>				
5.1	212441-00-01-01	Structure	1	PC
5.2	212441-00-01-02	Tank	1	PC
5.3	212441-00-01-03	Oil Jacket	1L / 1R	PC
5.4	212441-00-01-04	Oil Jacket Link	1	PC
5.5	212441-00-01-05	Bearing Holder	2	PCS
5.6	212441-00-01-06	Seal Holder	2	PCS
5.7	212441-00-01-07	Seal Holder	2	PCS
5.8	212441-00-01-08	Shaft	1	PC
5.9	212441-00-01-09	Motor Mount	1	PC
5.10	212441-00-02-10	Main Sprocket	1	PC
5.11	212441-00-02-11	Motor Sprocket	1	PC
5.12	212441-00-02-12	Tension Sprocket	1	PC
5.13	212441-00-02-13	Top Clamp	8	PCS
5.14	212441-00-02-14	Bottom Clamp	8	PCS
5.15	212441-00-02-15	Stand	8	PCS
5.16	212441-00-02-16	Mixer	8	PCS
5.17	212441-00-02-17	Front Outlet	1	PC
5.18	212441-00-02-18	Outlet Frame	1	PC
5.19	212441-00-03-19	Outlet Frame	1	PC
5.20	212441-00-03-20	Shim	2	PCS
5.21	212441-00-03-21	Sliding Guide	2	PCS
5.22	212441-00-03-22	Mount Plate	2	PCS
5.23	212441-00-03-23	Outlet Door	1	PC
5.24	212441-00-03-24	Mounting	1	PC
5.25	212441-00-03-25	Side Mount	2	PCS
5.26	212441-00-03-26	Front Mount	1	PC

	<b>Part Number</b>	<b>Description</b>	<b>Qty</b>	
5.27	212441-00-03-27	Bottom Mount	1	PC
5.28	212441-00-04-28	Pivot	1	PC
5.29	212441-00-04-29	Pivot	1	PC
5.30	212441-00-04-30	Top Frame	1	PC
5.31	212441-00-04-31	Corner Mount	44	PCS
5.32	212441-00-04-32	Inner Top Panel RL	1	PC
5.33	212441-00-04-33	Inner Top Panel RM	2	PCS
5.34	212441-00-04-34	Inner Top Panel RM	4	PCS
5.35	212441-00-04-35	Inner Top Panel RR	1	PC
5.36	212441-00-04-36	Inner Top Panel FL	1	PC
5.37	212441-00-05-37	Inner Top Panel FM	1	PC
5.38	212441-00-05-38	Inner Top Panel FR	1	PC
5.39	212441-00-05-39	Outer Top Panel RL	1	PC
5.40	212441-00-05-40	Outer Top Panel FM	3	PCS
5.41	212441-00-05-41	Outer Top Panel RM	4	PCS
5.42	212441-00-05-42	Outer Top Panel FL	1	PC
5.43	212441-00-05-43	Outer Top Panel FM	1	PC
5.44	212441-00-05-44	Outer Top Panel FR	1	PC
5.45	212441-00-05-45	Manhole	1	PC
5.46	212441-00-06-46	Mounting	4	PCS
5.47	212441-00-06-47	Shim	8	PCS
5.48	212441-00-06-48	Rail	2	PCS
5.49	212441-00-06-49	Pivot	1	PC
5.50	212441-00-06-50	Pivot	1	PC
5.51	212441-00-06-51	Loading Door	1	PC
5.52	212441-00-06-52	Cover	2	PCS
5.53	212441-00-06-53	Cover	2	PCS
5.54	212441-00-06-54	Cover	2	PCS

	<b>Part Number</b>	<b>Description</b>	<b>Qty</b>
5.55	212441-00-07-55	Bottom Cover	4 PCS
5.56	212441-00-07-56	Bottom Cover	2 PCS
5.57	212441-00-07-57	Mounting	26 PCS
5.58	212441-00-07-58	Mounting	2 PCS
5.59	212441-00-07-59	Mounting	20 PCS
5.60	212441-00-07-60	Platform	1 PC
5.61	212441-00-07-61	Stand	1 PC
5.62	212441-00-07-62	Tie Bar	1 PC
5.63	212441-00-07-63	Ladder	1 PC
5.64	212441-00-08-64	Railing	1 PC
5.65	212441-00-08-65	Railing	1 PC
5.66	212441-00-08-66	Railing	1 PC
5.67	212441-00-08-67	Railing	1 PC
5.68	212441-00-08-68	Railing	1 PC
5.69	212441-00-08-69	Railing	1 PC
5.70	212441-00-08-70	Railing	1 PC
5.71	212441-00-08-71	Tensioner Pivot	1 PC
5.72	212441-00-08-72	Pivot	1 PC
5.73	212441-00-09-73	Pivot Pin	1 PC
5.74	212441-00-09-74	Tensioner Pivot	1 PC
5.75	212441-00-09-75	Sprocket Shaft	1 PC
5.76	212441-00-09-76	Shim	2 PCS
5.77	212441-00-09-77	Safety Cover	1 PC
5.78	212441-00-09-78	Side Panel	2 PCS
5.79	212441-00-09-79	Side Panel	2 PCS
5.80	212441-00-09-80	Side Panel	2 PCS
5.81	212441-00-09-81	Side Panel	2 PCS
5.82	212441-00-10-82	Side Panel	2 PCS

	<b>Part Number</b>	<b>Description</b>	<b>Qty</b>
5.83	212441-00-10-83	Panel Mount	4 PCS
5.84	212441-00-10-84	Panel Mount	4 PCS
5.85	212441-00-10-85	Panel Mount	8 PCS
5.86	212441-00-10-86	Panel Mount	4 PCS
5.87	212441-00-10-87	Pipe Rack	2 PCS
5.88	212441-00-10-88	Pipe Rack	4 PCS
5.89	212441-00-10-89	Chute	1 PC
5.90	212441-00-10-90	Machine Hook	4 PCS
5.91	212441-00-11-91	FRP 1	8 PCS
5.92	212441-00-11-92	FRP 2	1 PC
5.93	212441-00-11-93	FRP 3	1 PC
5.94	212441-00-11-94	FRP 4	1 PC
5.95	212441-00-11-95	FRP 5	1 PC
5.96	212441-00-11-96	FRP 6	2 PCS
5.97	212441-00-11-97	FRP 7	1 PC
5.98	212441-00-11-98	FRP 8	1 PC
5.99	212441-00-11-99	Loading Chute	1 SET
5.100	212441-00-12-00	Chute Mount	2 PCS
5.101	212441-00-12-01	Boiler Mount	1 SET
5.102	212441-00-12-02	Boiler Mount	2 SET
5.103	212441-00-12-03	Pump Mount	1 PC
5.104	212441-00-12-04	Hot Air Pipe	1 PC
5.105	212441-00-12-05	Hot Air Pipe	1 PC
5.106	212441-00-12-06	Tensioner Stub	1 PC
<b>Oil Boiler</b>			
5.107	212442-00-01-01	Tank	1 PC
5.108	212442-00-01-02	Tank Cover	1 PC
5.109	212442-00-01-03	Base	1 PC

Part Number	Description	Qty
5.110 212442-00-01-04	Stand	4 PCS
5.111 212442-00-01-05	Top Frame	1 PC
5.112 212442-00-01-06	Side Cover	1 PC
5.113 212442-00-01-07	Side Cover	1 PC
5.114 212442-00-01-08	Side Cover	2 PCS
5.115 212442-00-01-09	Top Cover	1 PC
5.116 212442-00-02-10	Wiring Cap	1 PC
5.117 212442-00-02-11	Cable Gland Holder	1 PC
5.118 212442-00-02-12	Mounting	4 PCS
5.119 212442-00-02-13	Bottom Plate	1 PC
<b>Condensing Unit</b>		
5.120 212443-00-01-01	Base	1 PC
5.121 212443-00-01-02	Stand	2L / 2R PC
5.122 212443-00-01-03	Top Base	1 PC
5.123 212443-00-01-04	Clamp	4 PCS
5.124 212443-00-01-05	Top Frame	1 PC
5.125 212443-00-01-06	Side Cover	1 PC
5.126 212443-00-01-07	Side Cover	1 PC
5.127 212443-00-01-08	PVC Pipe	2 PCS
5.128 212443-00-01-09	PVC Pipe	1 PC
5.129 212443-00-02-10	Pipe Holder	1 PC
5.130 212443-00-02-11	Rear Panel	1 PC
5.131 212443-00-02-12	Control Mount	1 PC
5.132 212443-00-02-13	Mount Plate	1 PC
5.133 212443-00-02-14	Panel Mount	1 PC
5.134 212443-00-02-15	Panel	1 PC
5.135 212443-00-02-16	Top Panel	1 PC
5.136 212443-00-02-17	Side Panel	1 PC

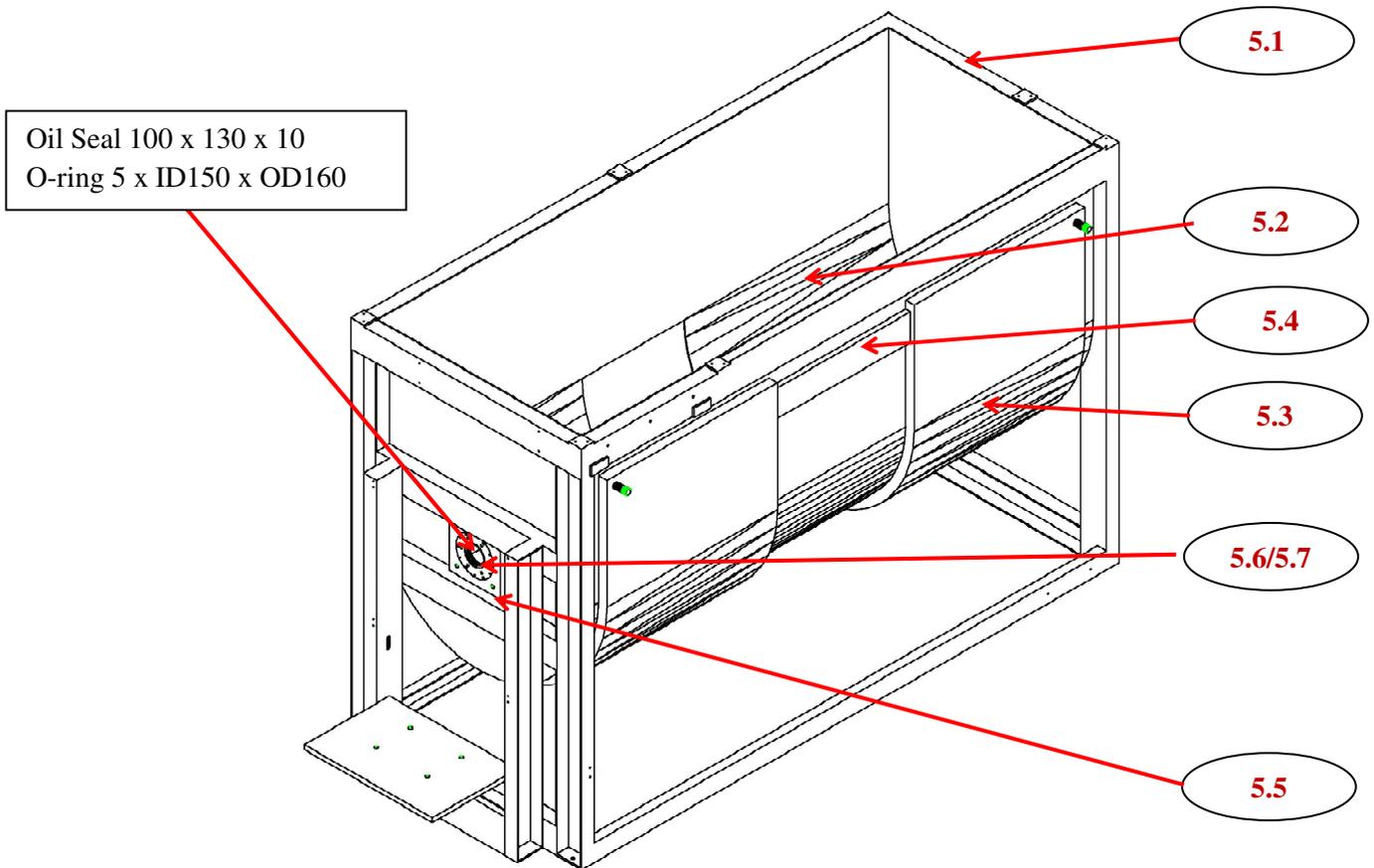
Part Number	Description	Qty
5.137 212443-00-02-18	Side Panel	1 PC
5.138 212443-00-03-19	Pipe Mount	2 PCS
5.139 212443-00-03-20	Pipe Mount	4 PCS
<b>Hot Air Blower</b>		
5.140 212444-00-01-01	Heater 1KW	3 PCS
5.141 212444-00-01-02	Heater Mount	1 PC
5.142 212444-00-01-03	Heater Chamber	1 PC
5.143 212444-00-01-04	Base	1 PC
5.144 212444-00-01-05	Base Mount	1 PC
5.145 212444-00-01-06	Side Cover	1 PC
5.146 212444-00-01-07	Side Cover	1 PC
5.147 212444-00-01-08	Top Cover	1 PC
5.148 212444-00-01-09	Control Box	1 PC
5.149 212444-00-02-10	Control Box Door	1 PC
5.150 212444-00-02-11	Control Mount	1 PC
5.151 212444-00-02-12	Panel	1 PC
<b>Oil Piping</b>		
5.152 DN25	GI T Join	2 PCS
5.153 DN25	GI Elbow	10 PCS
5.154 DN25	GI Union Join	4 PCS
5.155 DN25	GI Nipple	7 PCS
5.156 DN25 X 82MM	GI Pipe 1	1 PC
5.157 DN25 X 915MM	GI Pipe 2	1 PC
5.158 DN25 X 347MM	GI Pipe 3	1 PC
5.159 DN25 X 274MM	GI Pipe 4	1 PC
5.160 DN25 X 915MM	GI Pipe 5	1 PC
5.161 DN25 X 554MM	GI Pipe 6	1 PC
5.162 DN25 X 435MM	GI Pipe 7	1 PC

Part Number	Description	Qty
5.163 DN25 X 150MM	GI Pipe 8	1 PC
5.164 DN25 X 110MM	GI Pipe 9	1 PC
<b>Air Piping</b>		
5.165 DN50	PVC Elbow	2 PCS
5.166 DN50	PVC Union Join	10 PCS
5.167 DN50	PVC Female Adaptor	4 PCS
5.168 DN50 X 90MM	PVC Pipe 1	1 PC
5.169 DN50 X 1670MM	PVC Pipe 2	1 PC
5.170 DN50 X 190MM	PVC Pipe 3	1 PC
5.171 DN50 X 1660MM	PVC Pipe 4	1 PC
5.172 DN50 X 40MM	PVC Pipe 5	2 PCS
<b>Water Scrubber</b>		
5.173 DN50	PVC Elbow	1 PC
5.174 DN50	PVC Female Adaptor	2 PCS
5.175 DN50	PVC Male Adaptor	2 PCS
5.176 DN15	PVC Female Adaptor	1 PC
5.177 DN15	PVC Male Adaptor	1 PC
5.178 DN15	PVC Elbow	1 PC
5.179 DN50 X 642MM	PVC Pipe 1	1 PC
5.180 DN50 X 30MM	PVC Pipe 2	1 PC
5.181 DN50 X 470MM	PVC Pipe 3	1 PC
5.182 DN15 X 150MM	PVC Pipe 4	1 PC
5.183 DN15 X 30MM	PVC Pipe 5	1 PC
5.184 1000 Liters	IBC Tank	1 PC
<b>Electrical Part</b>		
5.185 900MM	White Trunking 50 x 75 - 1	1 PC
5.186 2850MM	White Trunking 50 x 75 - 2	1 PC
5.187 1800MM	White Trunking 50 x 75 - 3	1 PC

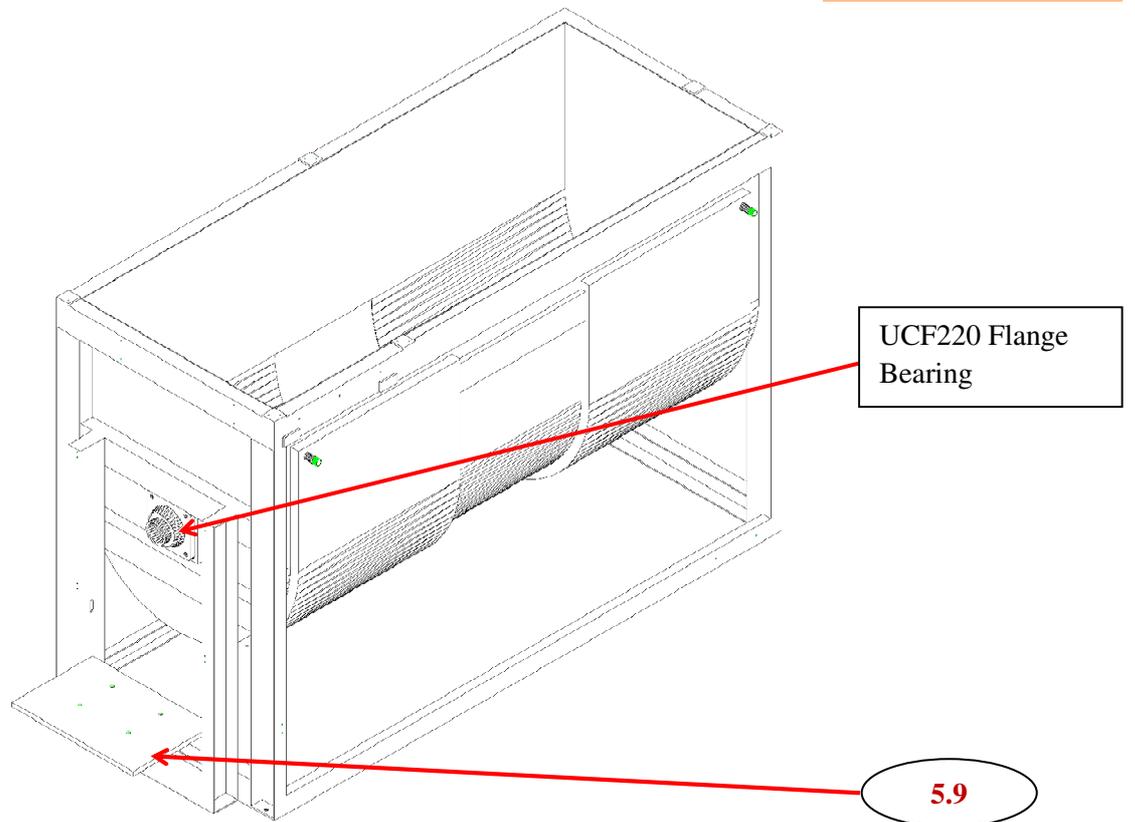
<b>Part Number</b>	<b>Description</b>	<b>Qty</b>
5.188 75MM	White Trunking 50 x 75 - 4	1 PC
5.189 199MM	White Trunking 50 x 75 - 5	1 PC
5.190 249MM	White Trunking 50 x 75 - 6	1 PC
5.191 1100MM	White Trunking 50 x 75 - 7	1 PC
5.192 1400MM	White Trunking 50 x 75 - 8	1 PC
5.193 212448-00-01	Switch Panel	1 PC
5.194 212448-00-02	Control Box	1 PC
5.195 212448-00-03	Box Mounting	2 PCS
5.196 212448-00-04	Panel	1 PC

6.0 PARTS' LOCATION

6.1 Figure 1

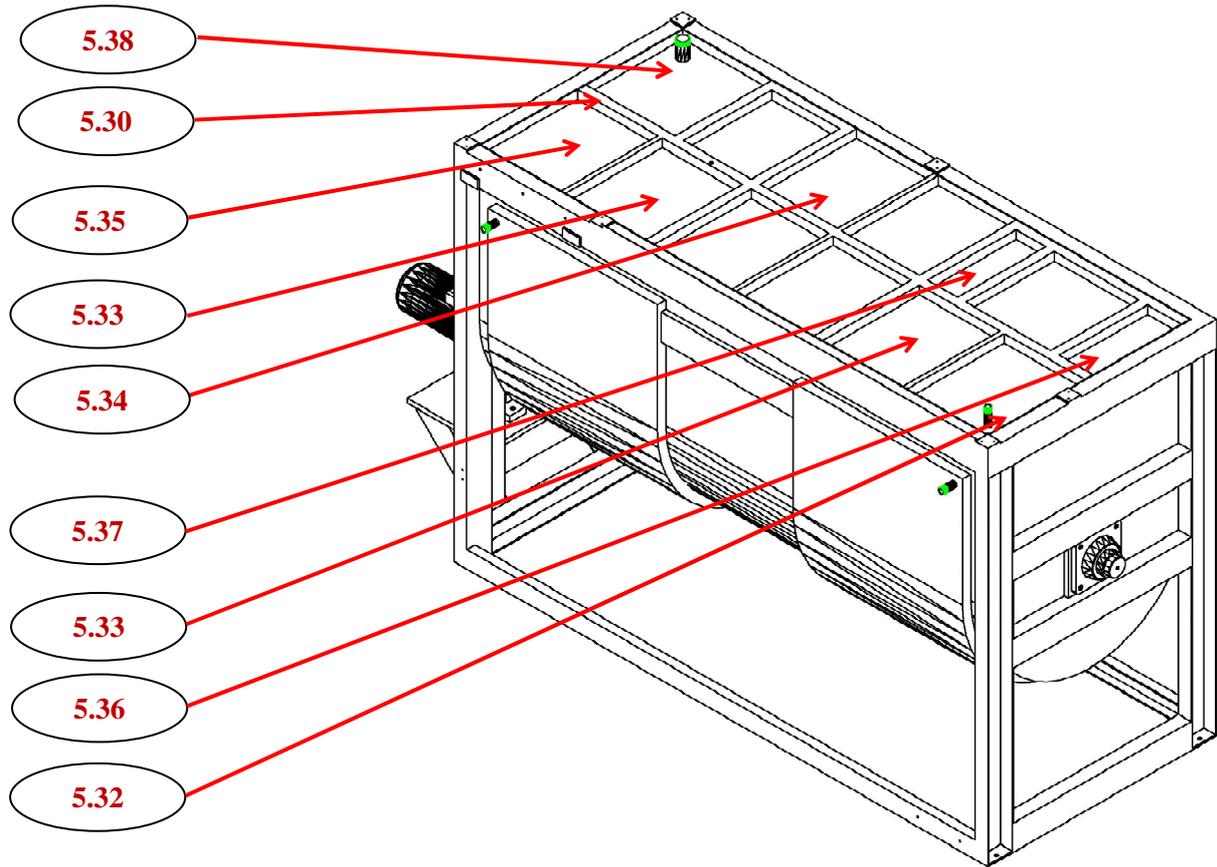


6.2 Figure 2

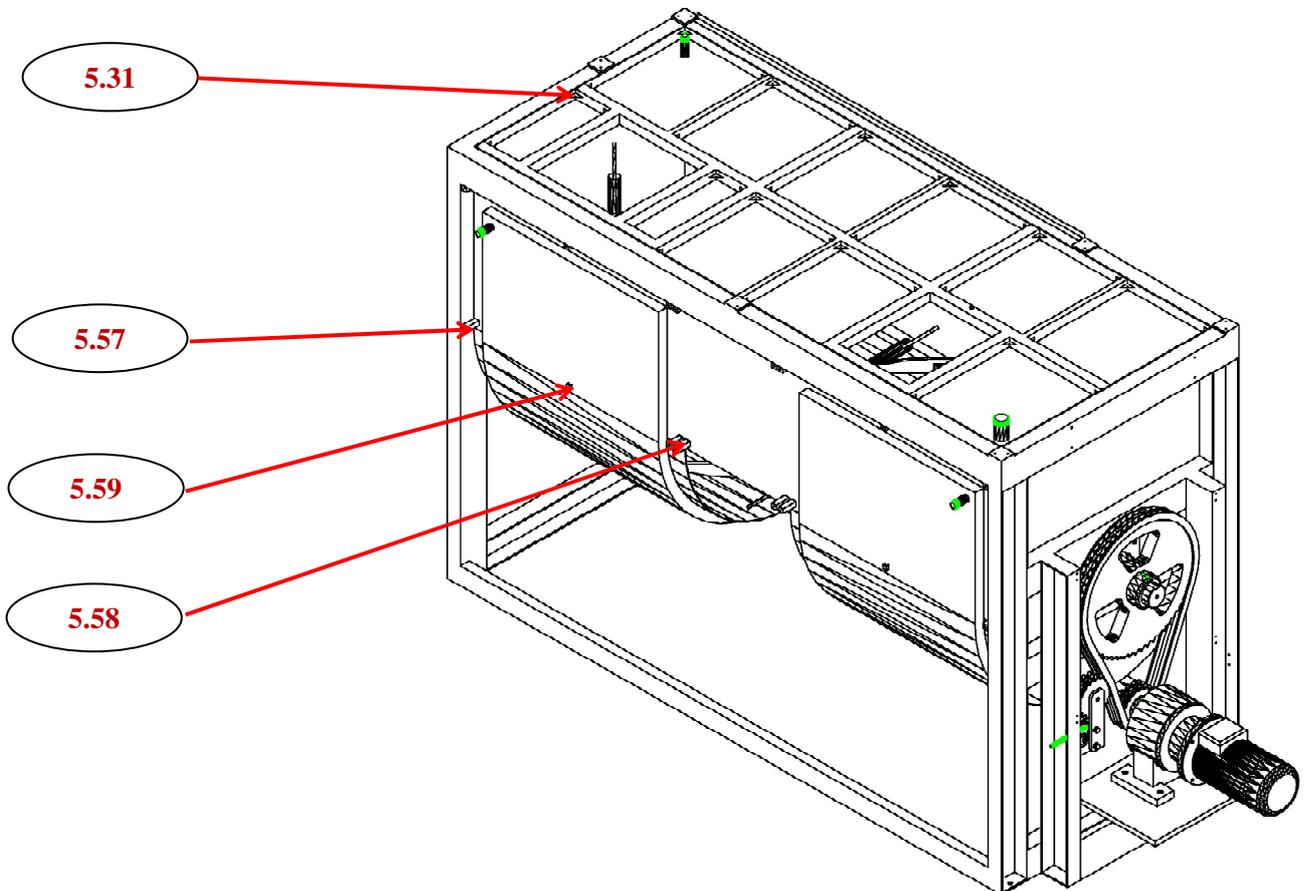




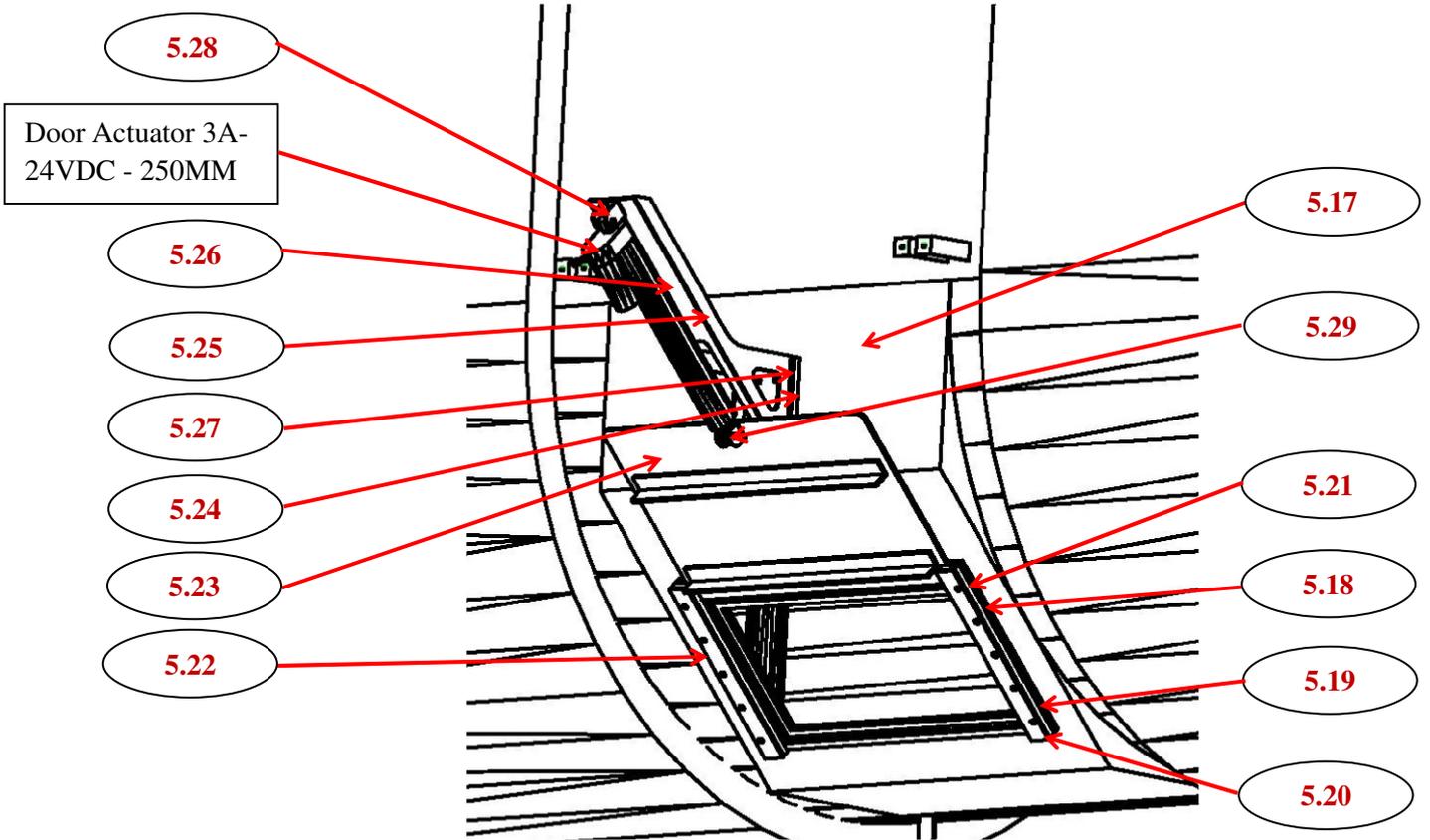
6.6 Figure 5



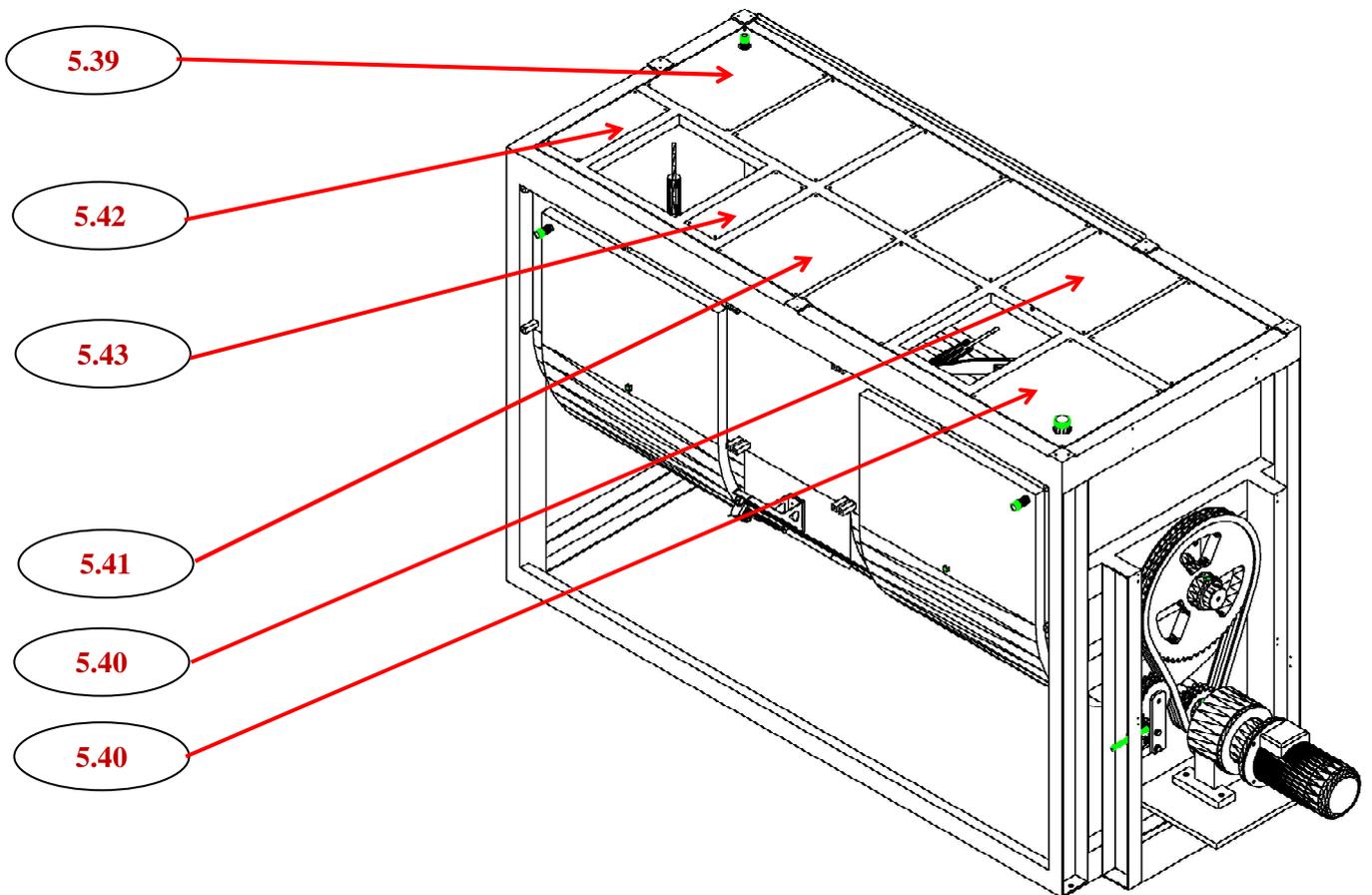
6.6 Figure 6



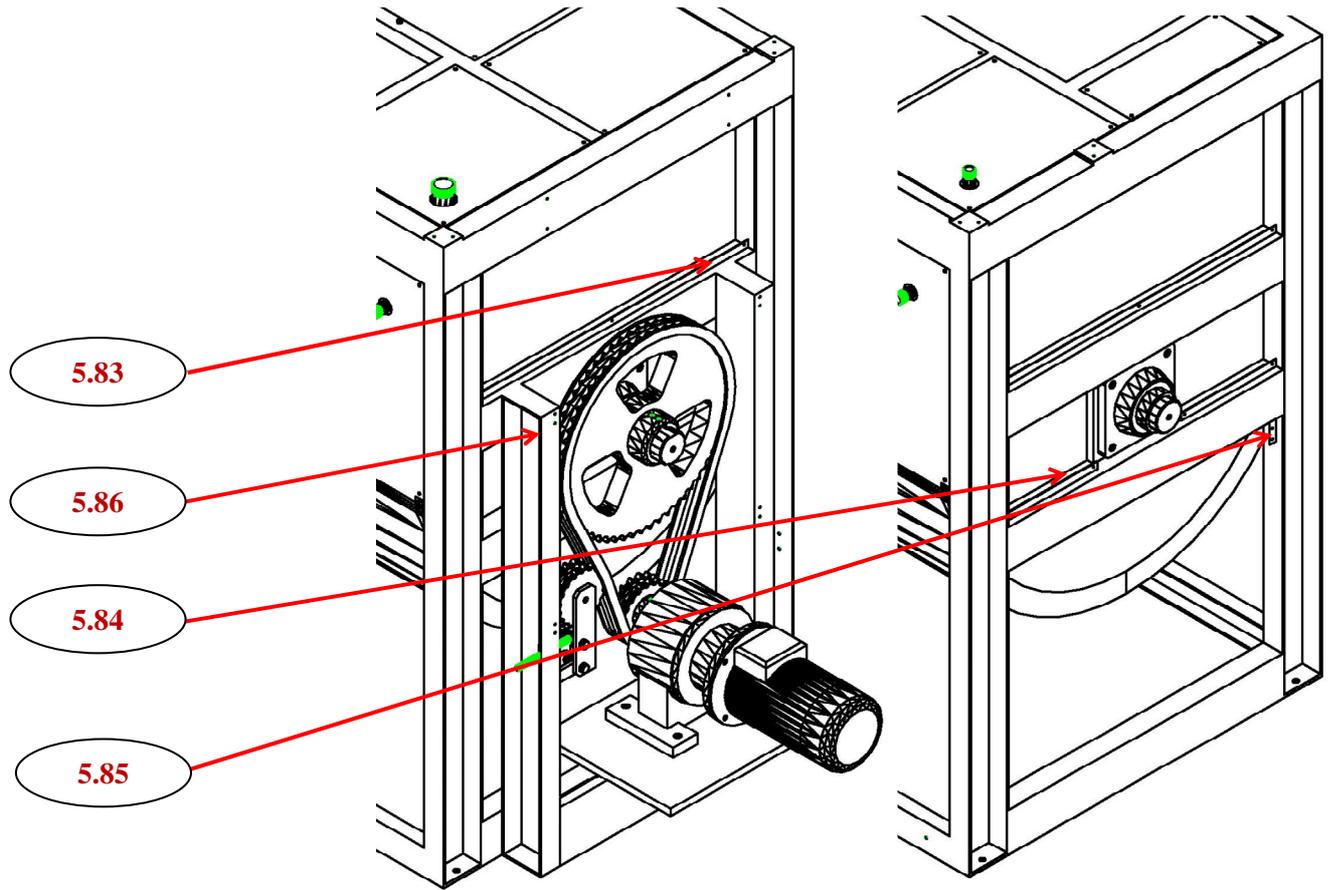
6.7 Figure 7



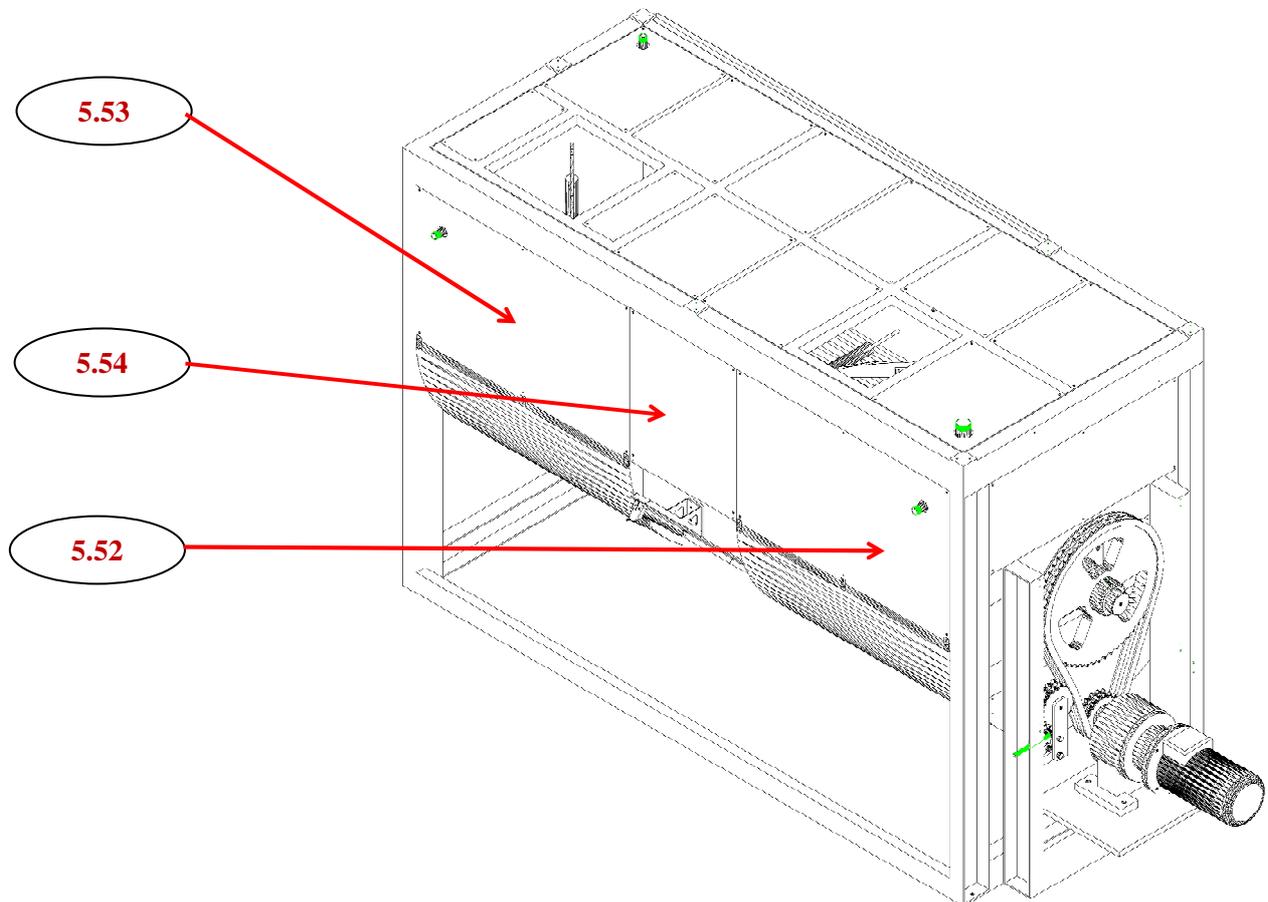
6.8 Figure 8



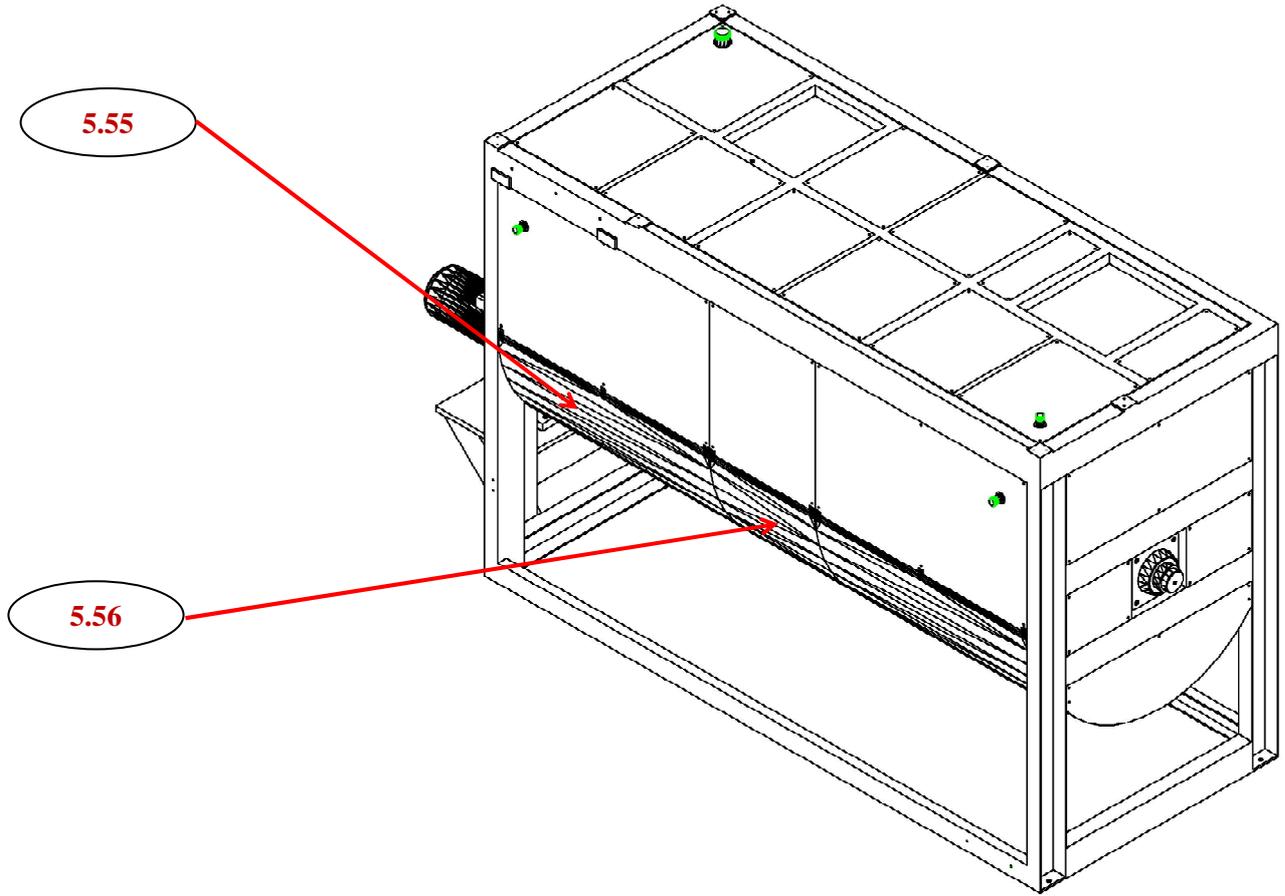
6.9 Figure 9



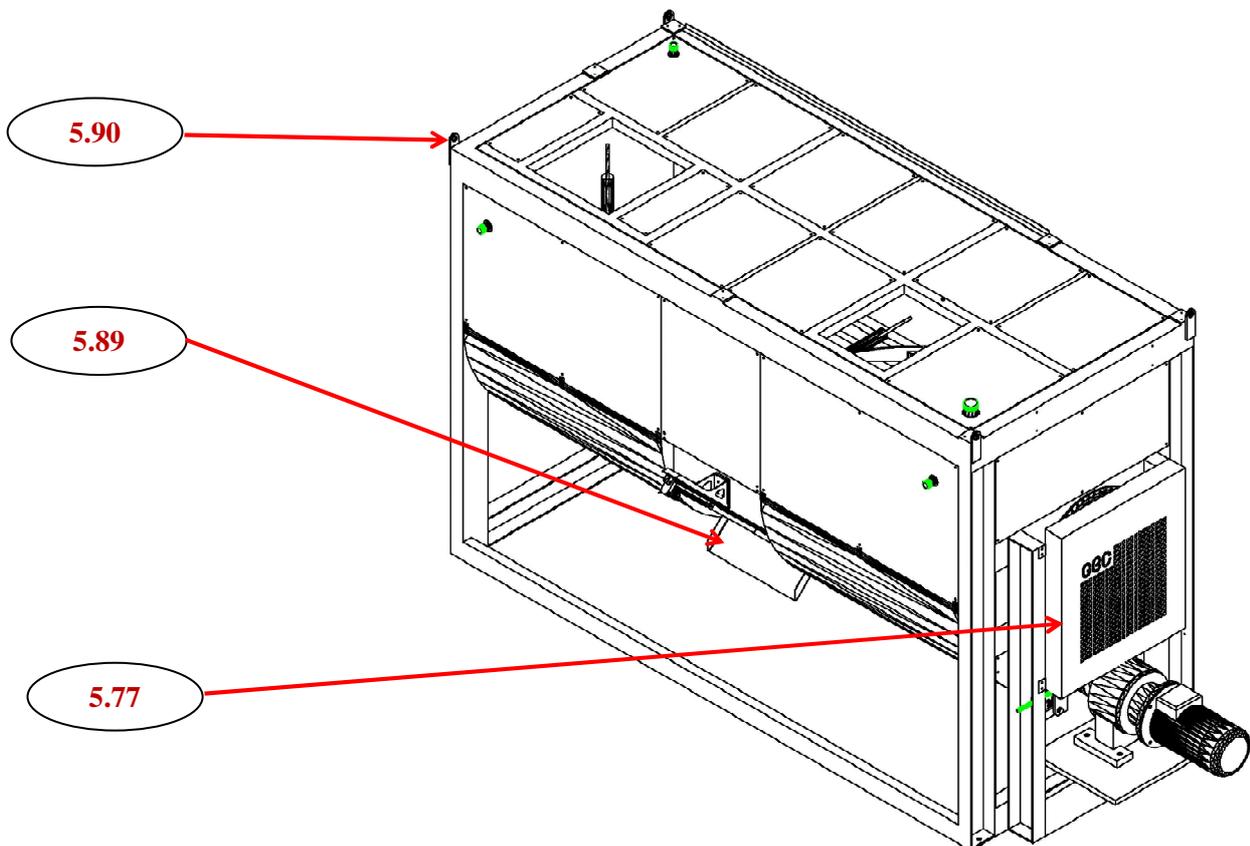
6.10 Figure 10



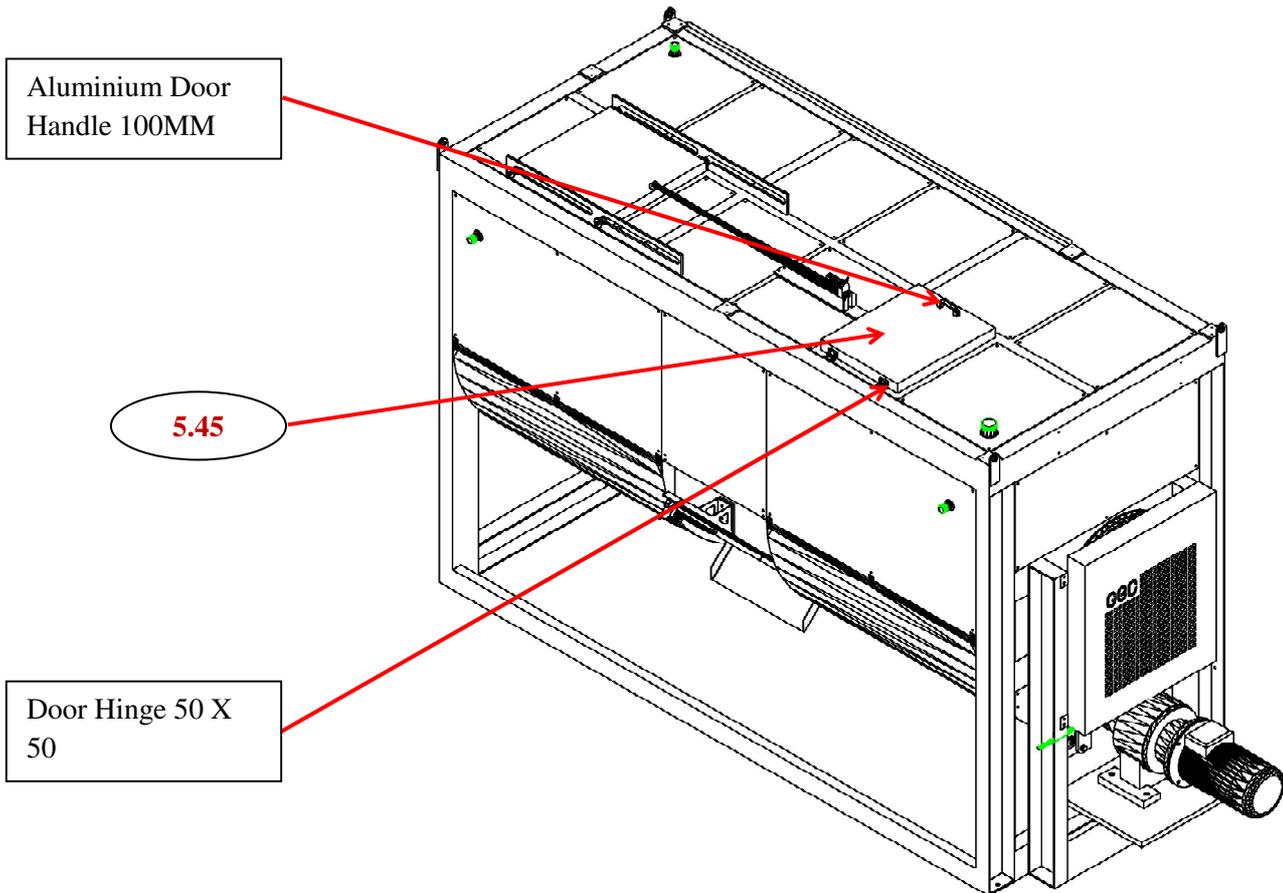
6.11 Figure 11



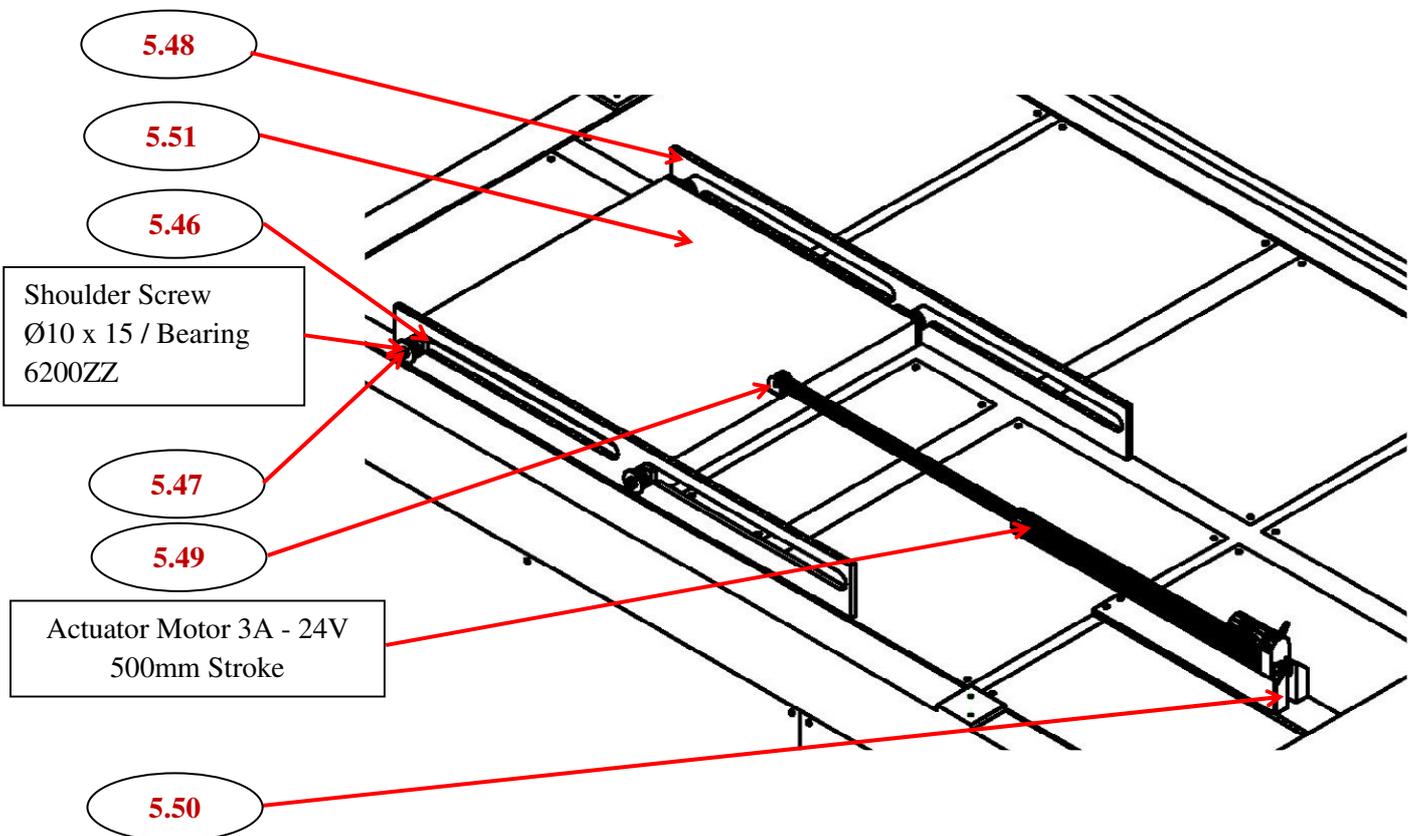
6.12 Figure 12



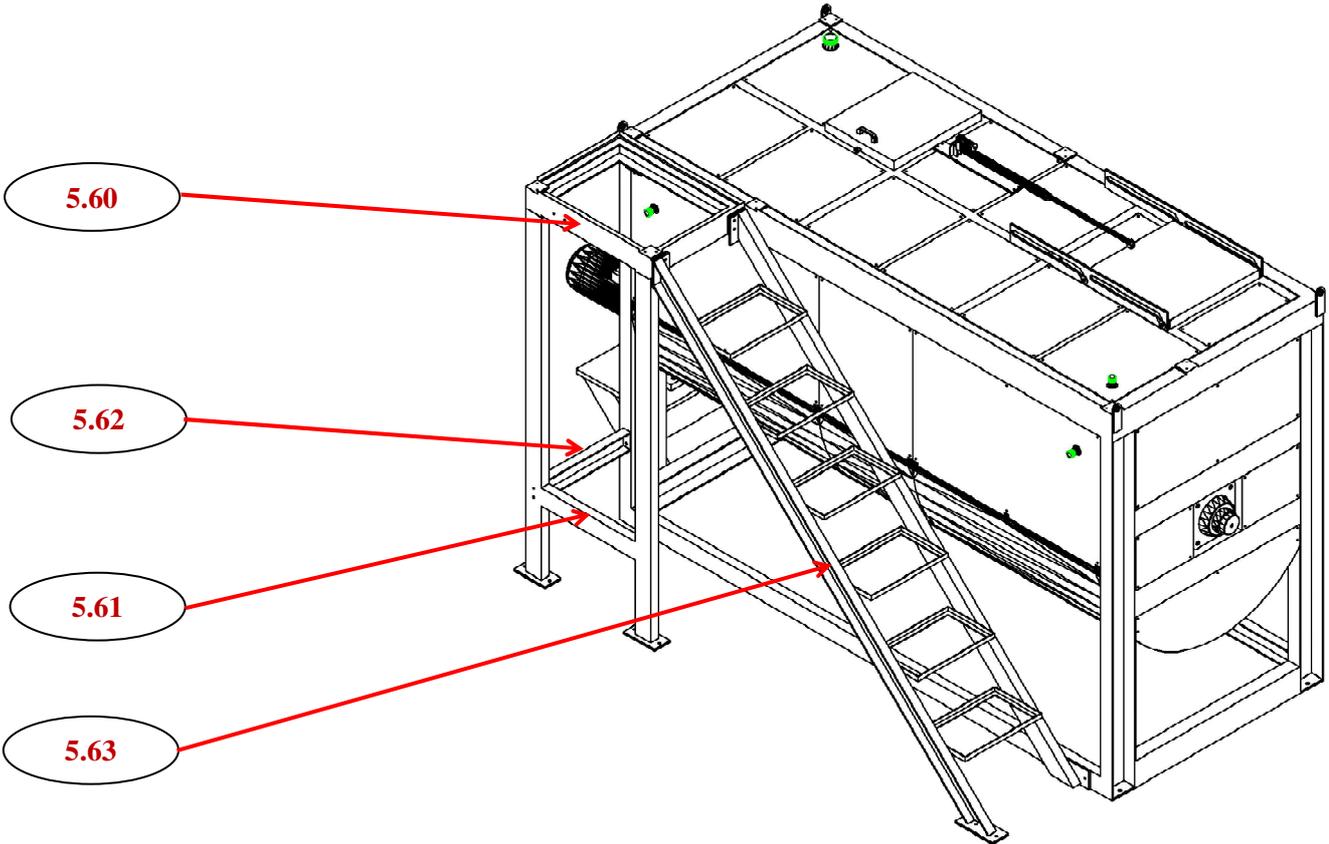
6.13 Figure 13



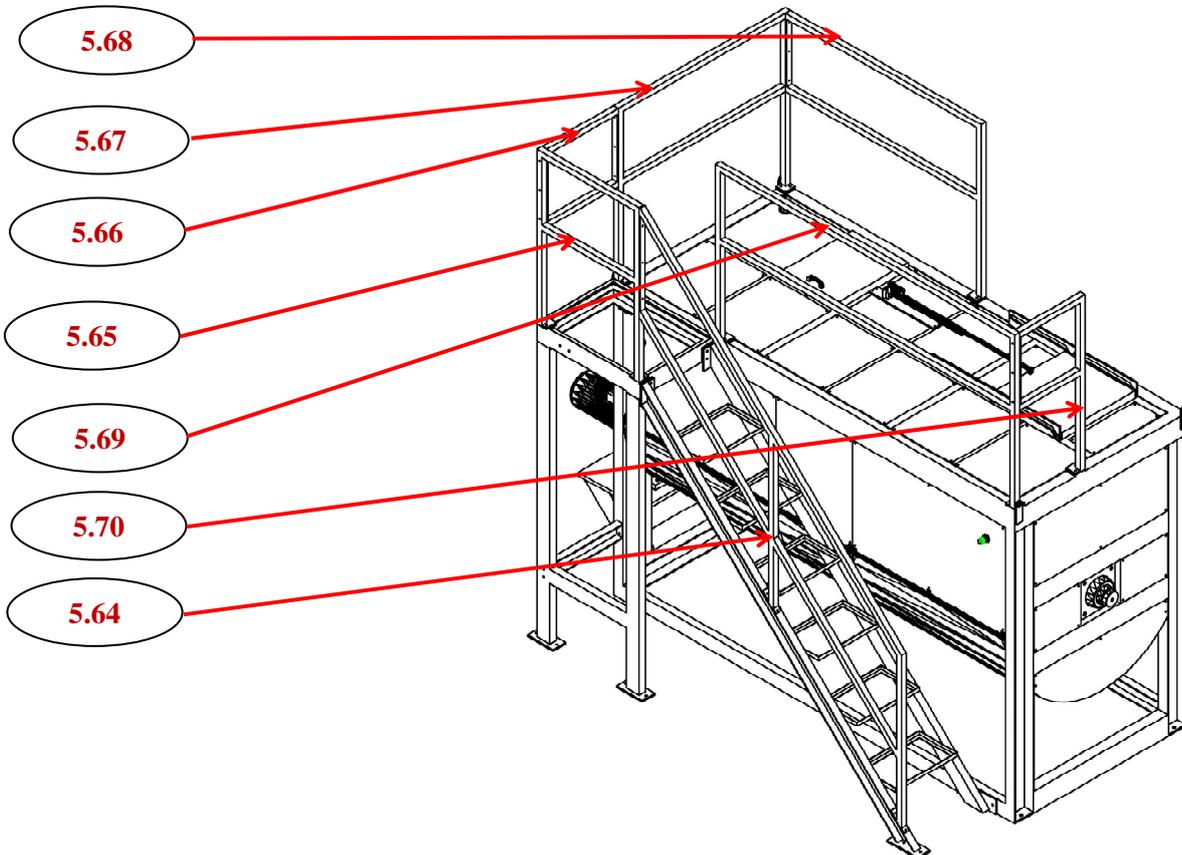
6.14 Figure 14



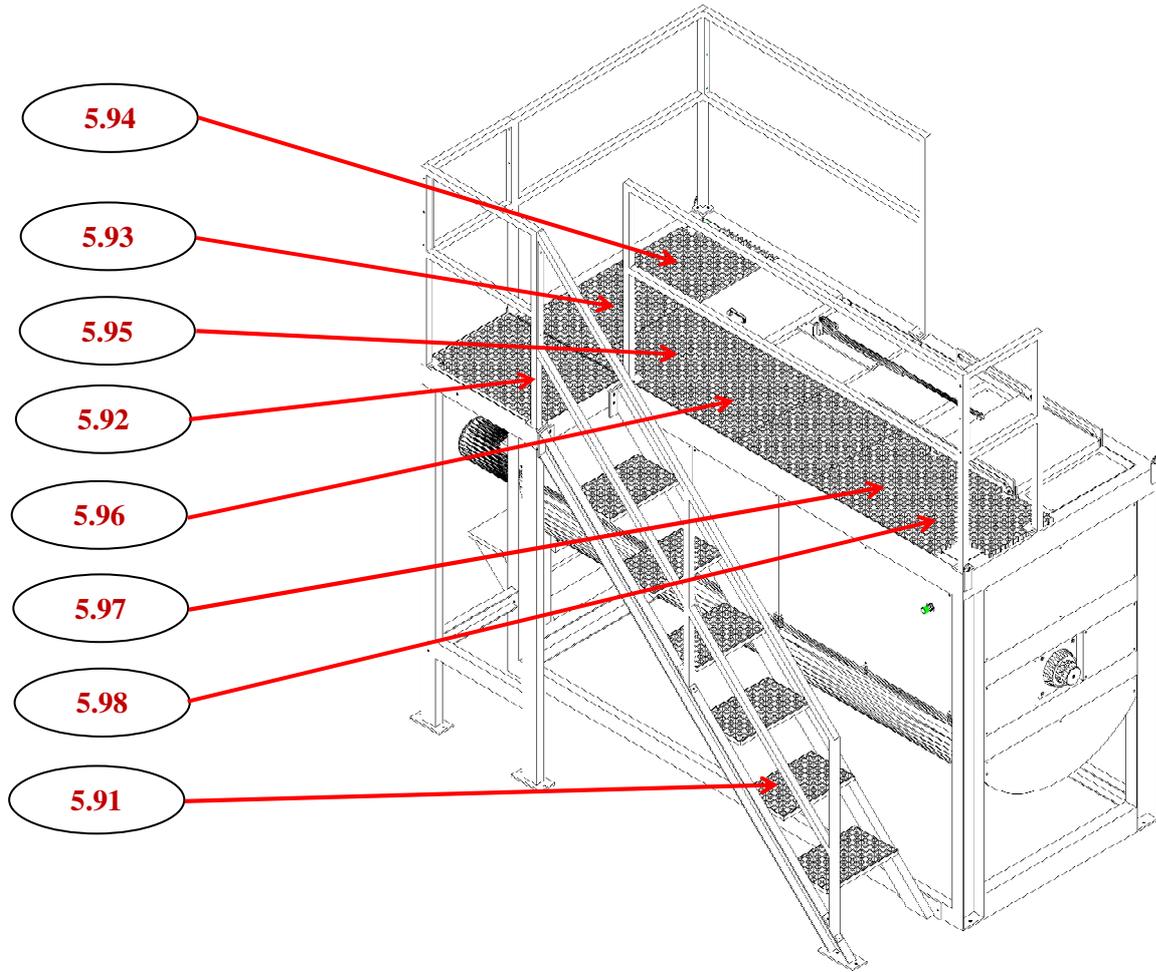
6.15 Figure 15



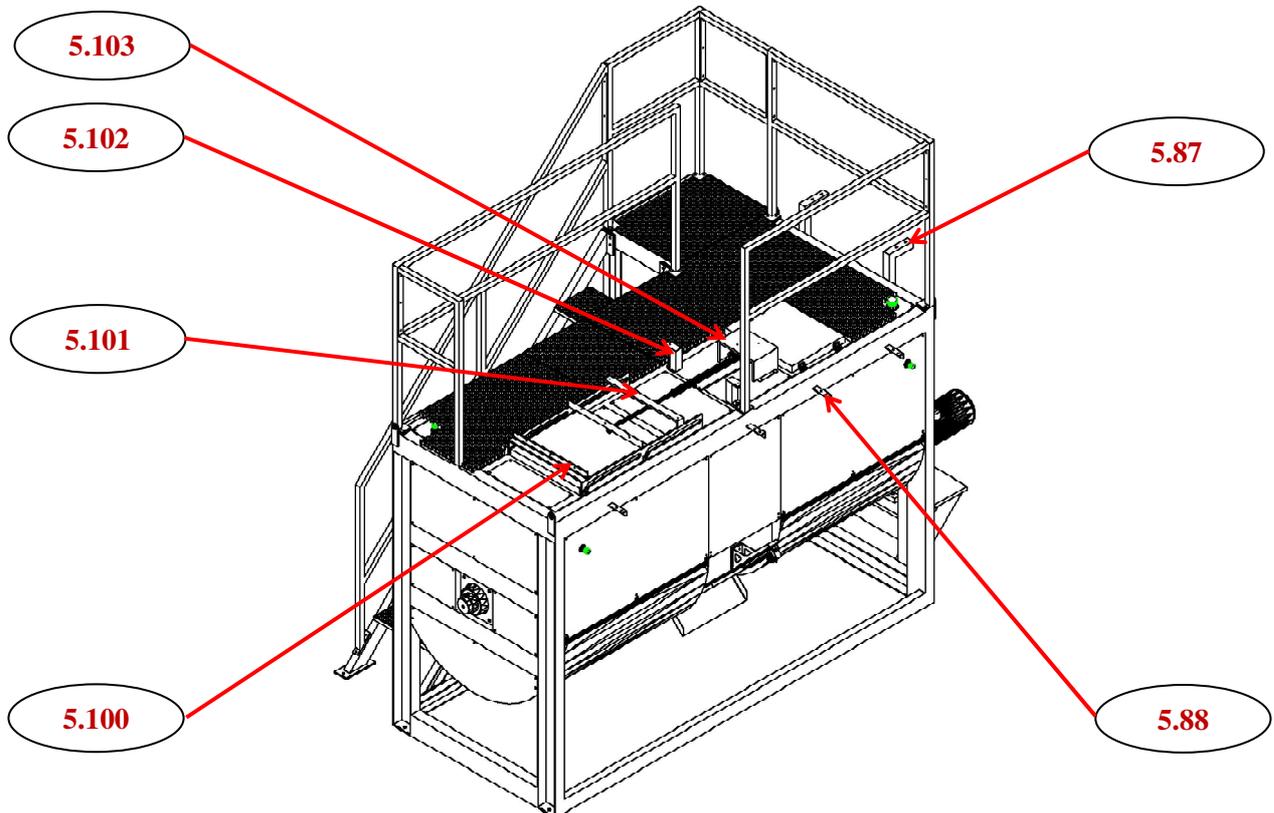
6.16 Figure 16



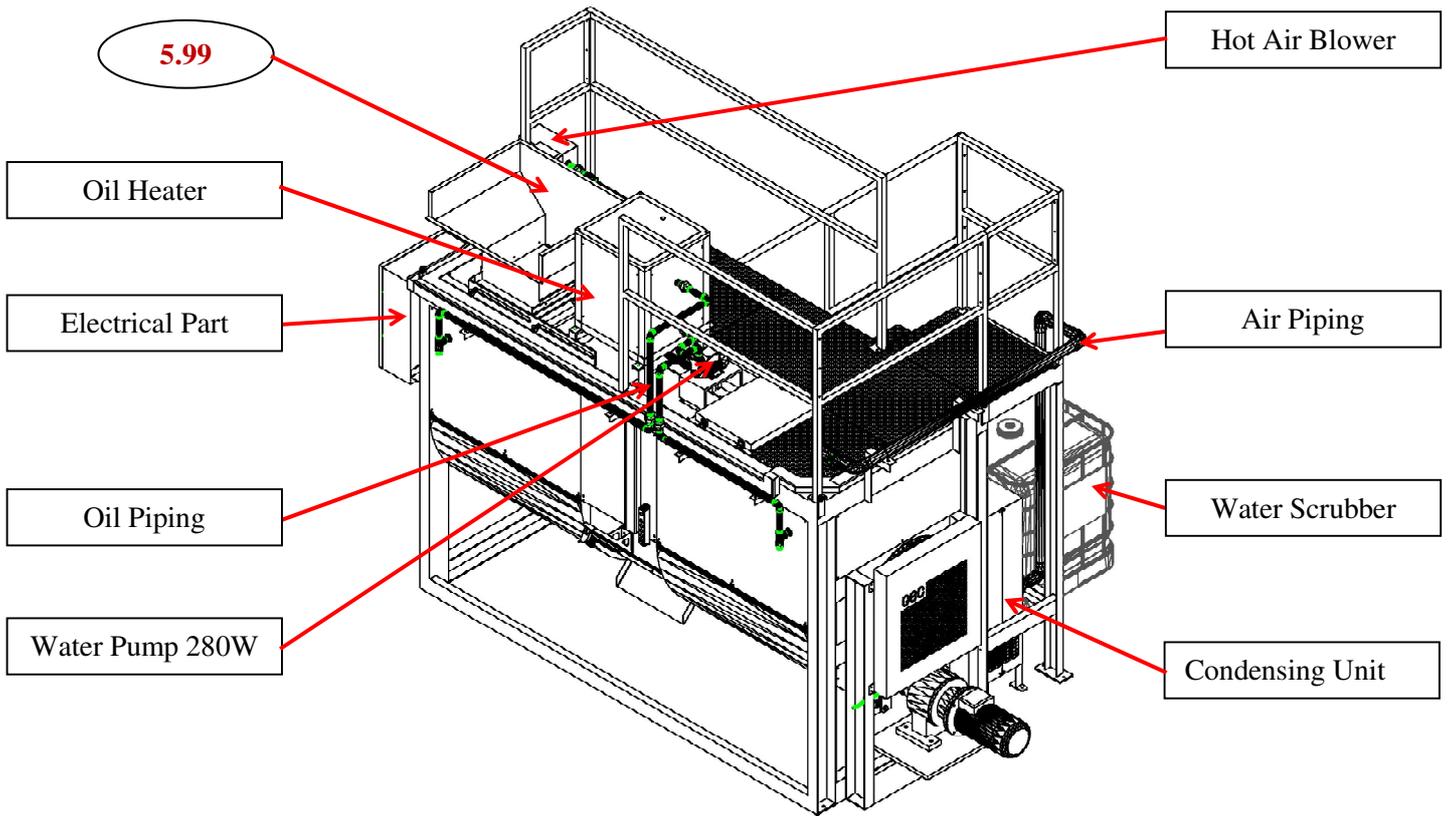
6.17 Figure 17



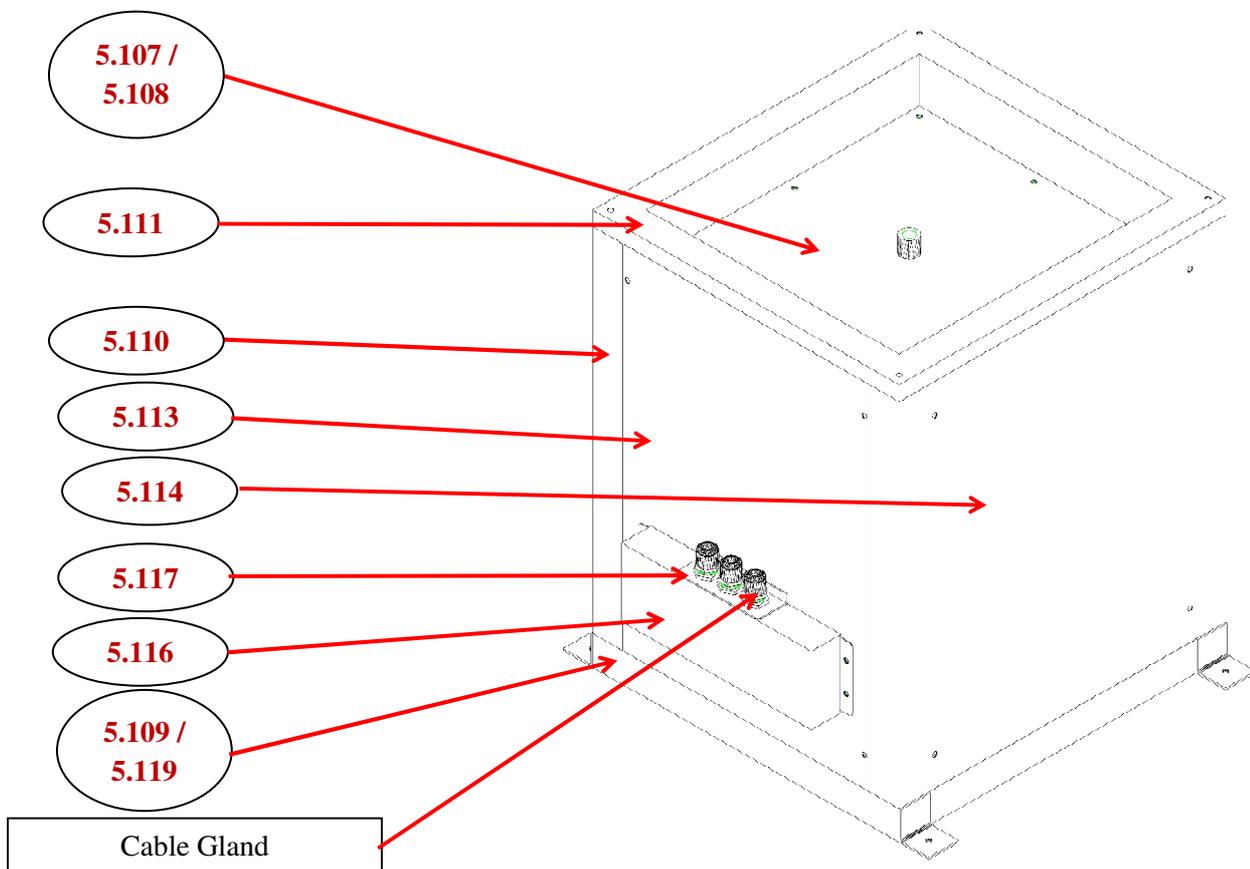
6.18 Figure 18



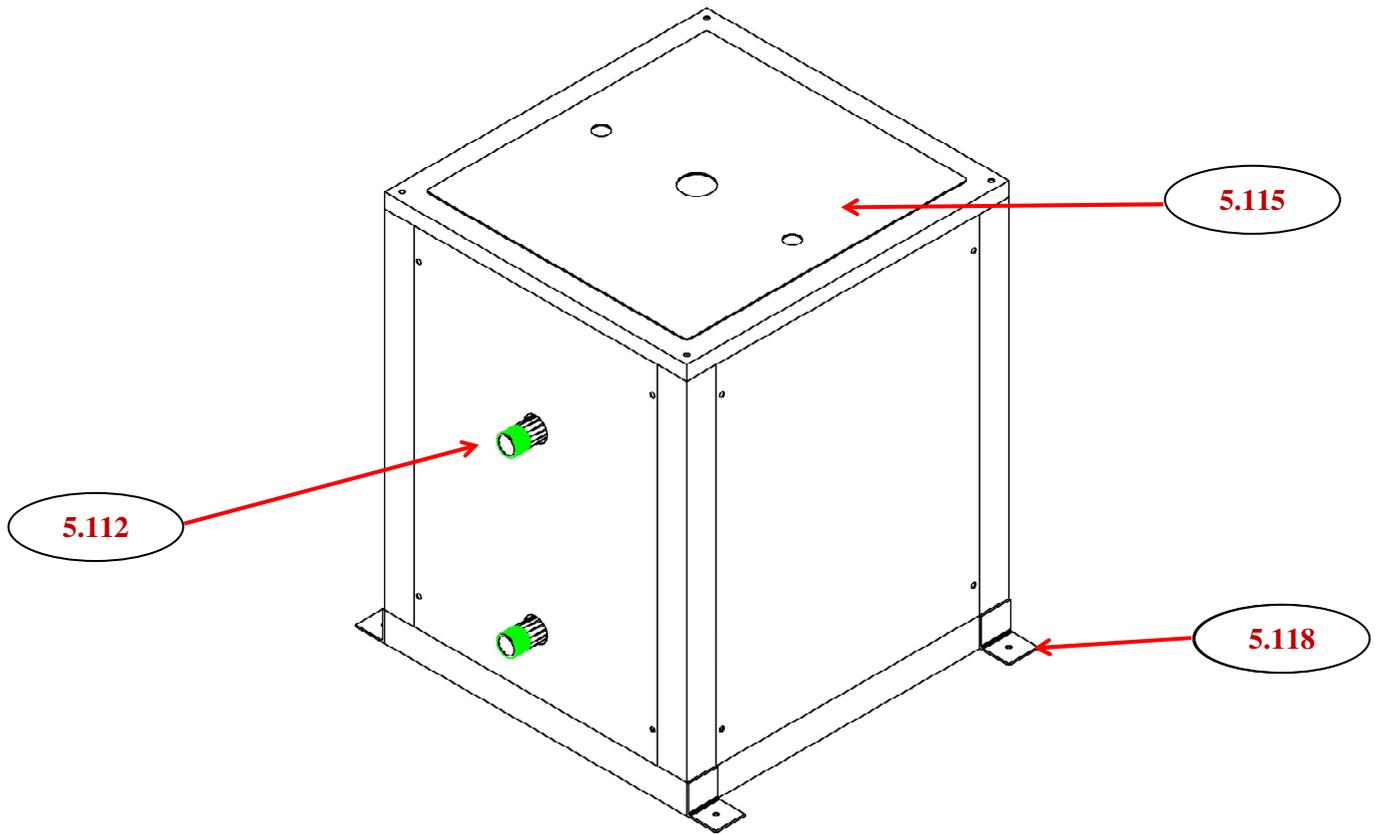
6.19 Figure 19



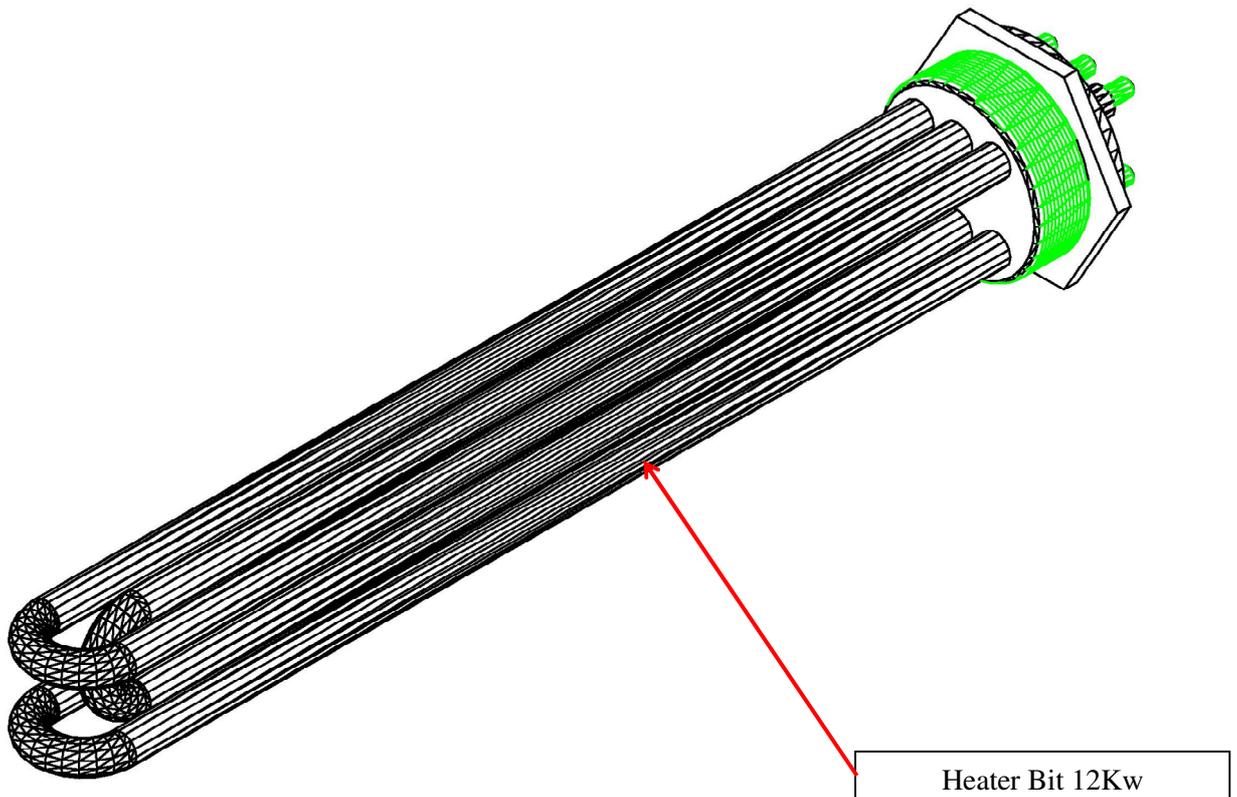
6.20 Figure 20



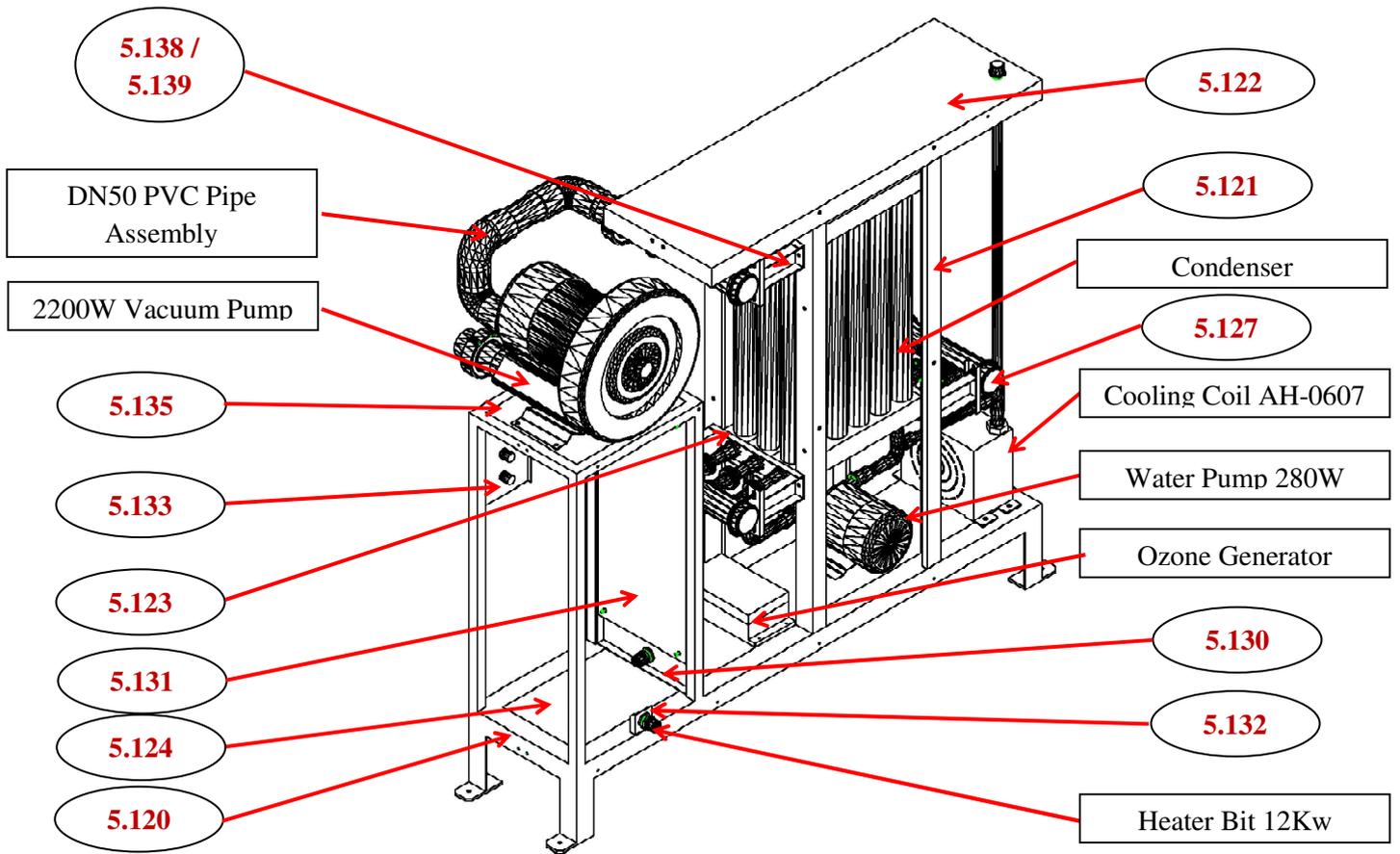
6.21 Figure 21



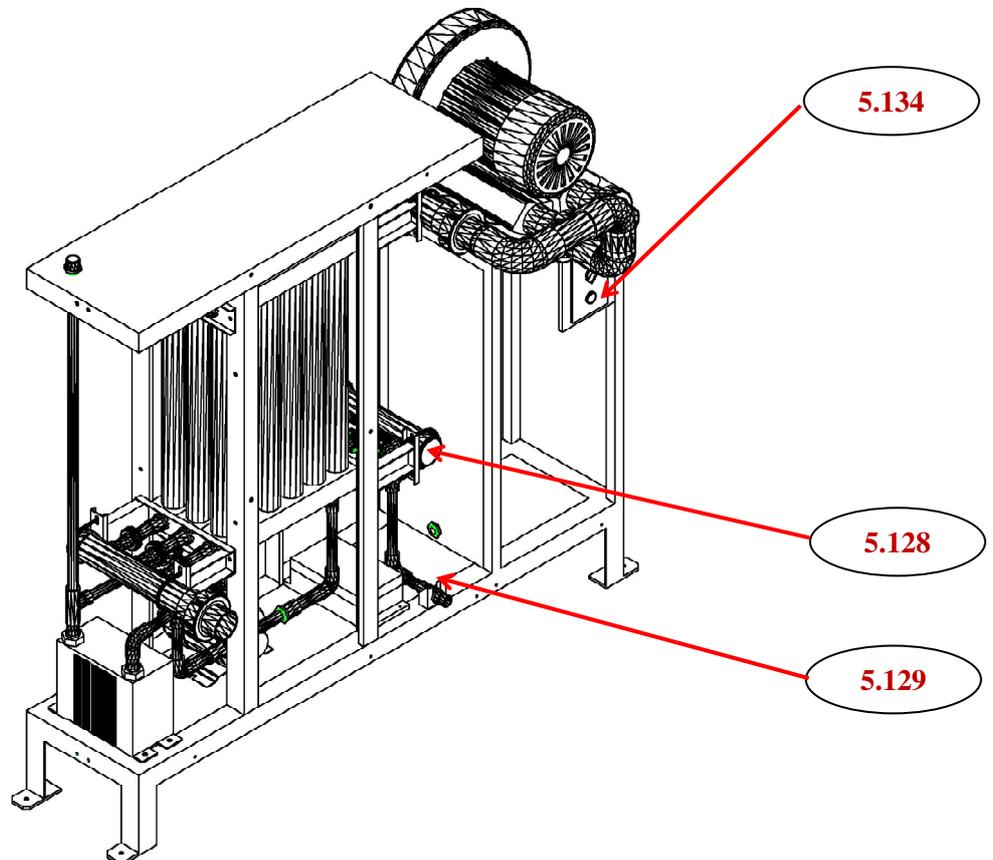
6.22 Figure 22



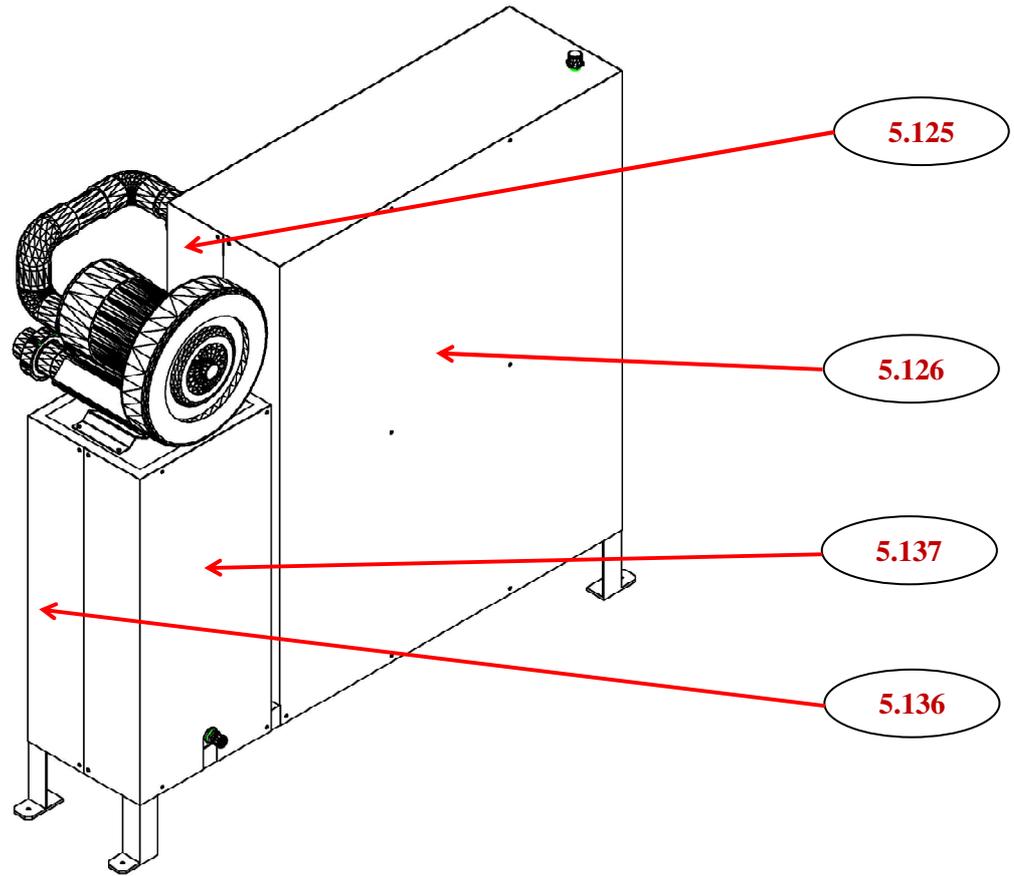
6.23 Figure 23



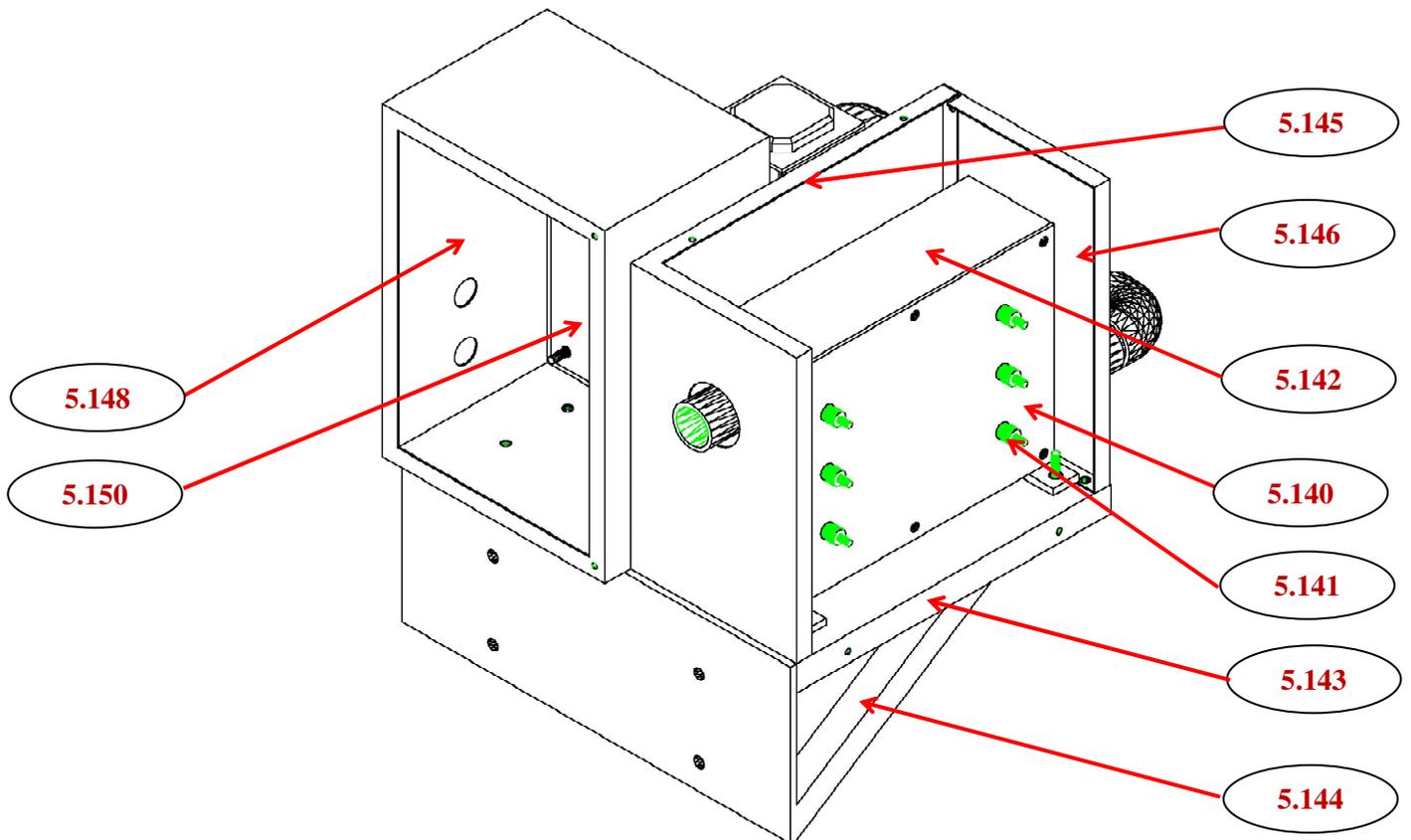
6.24 Figure 24

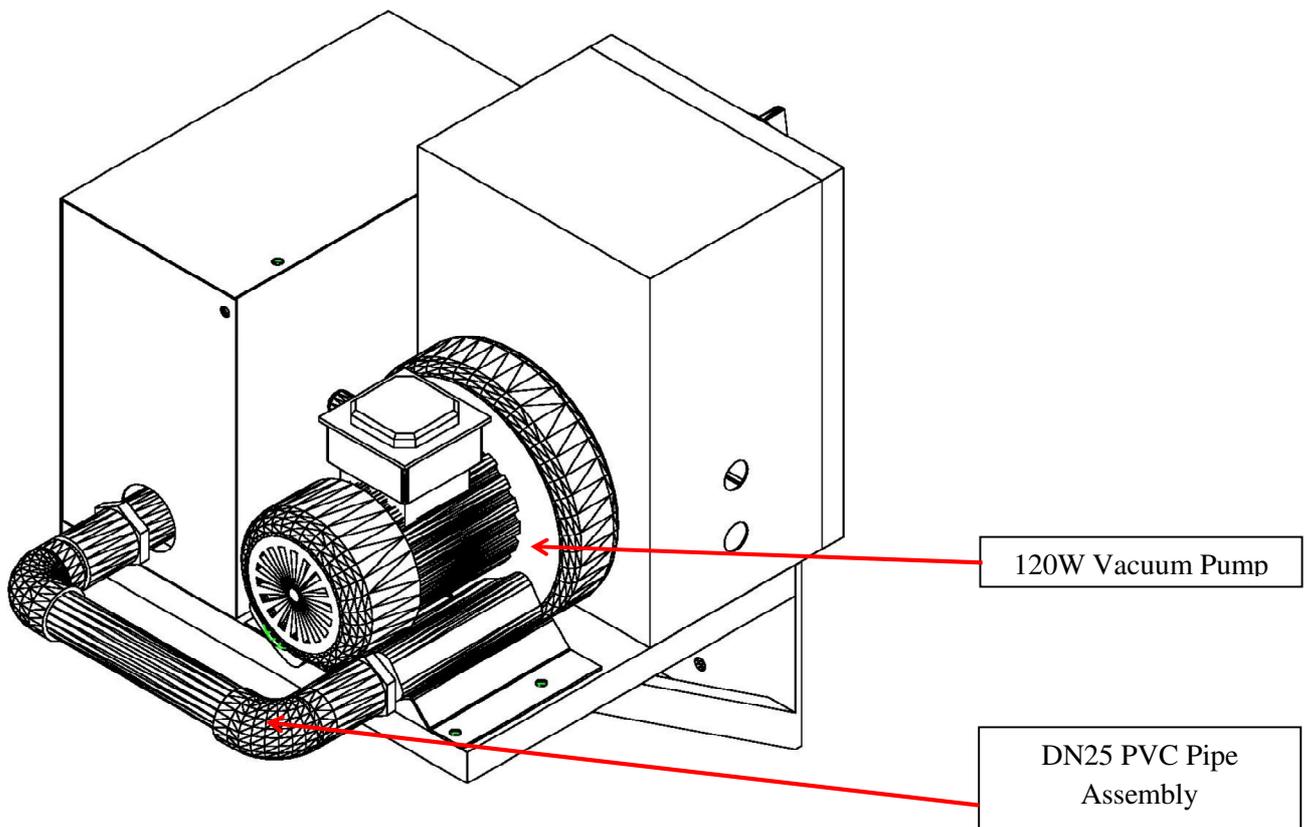
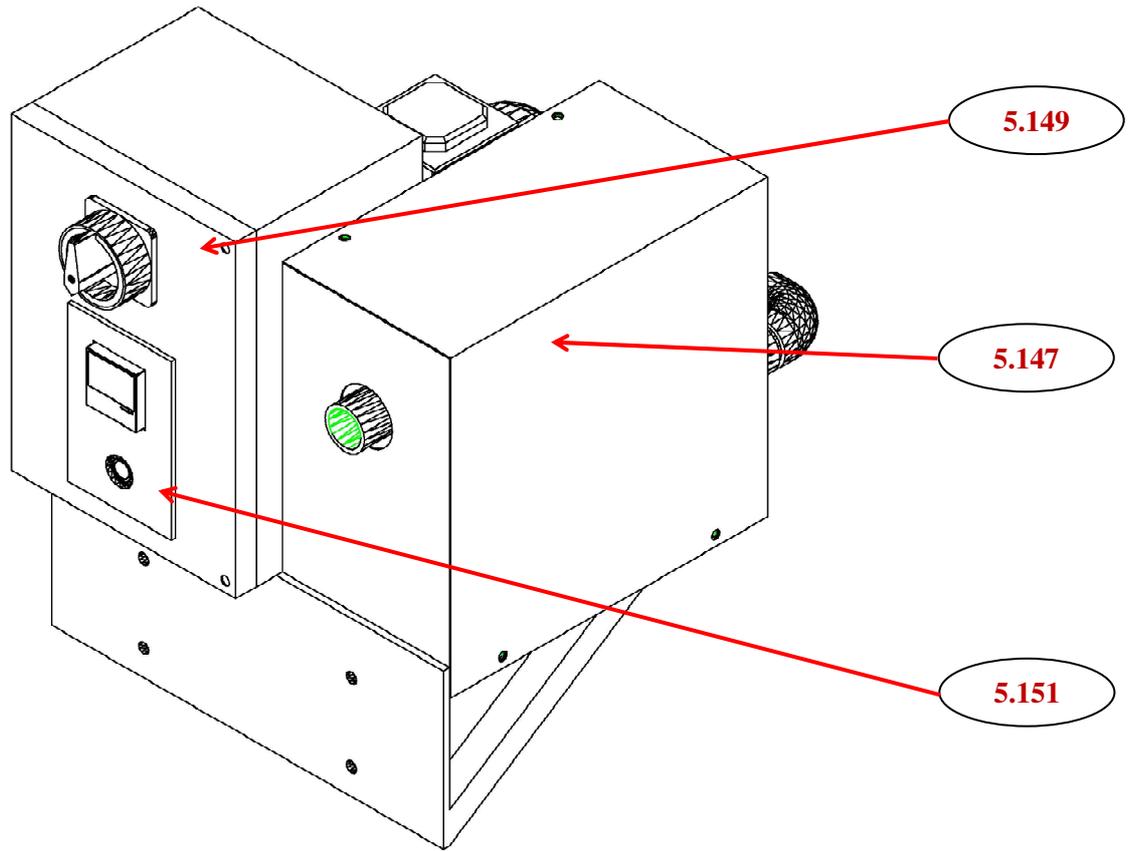


6.25 Figure 25

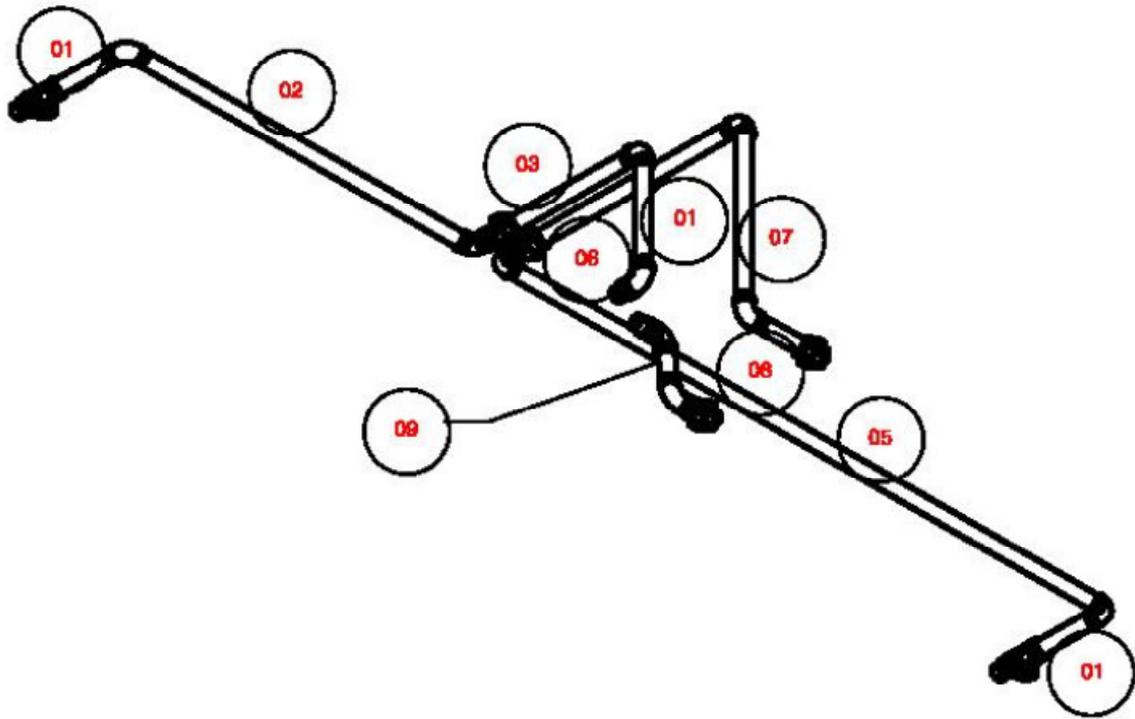


6.26 Figure 26

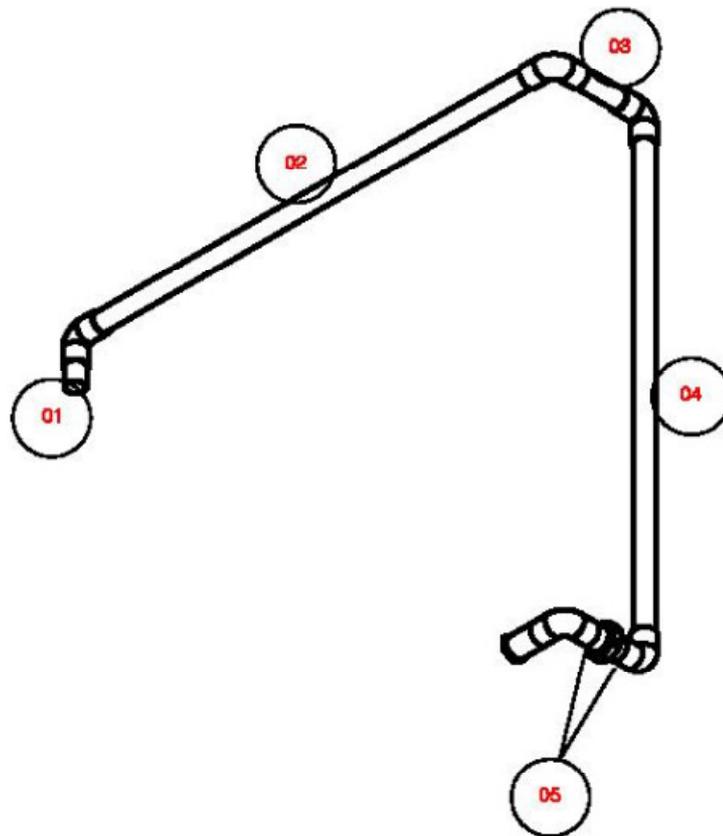




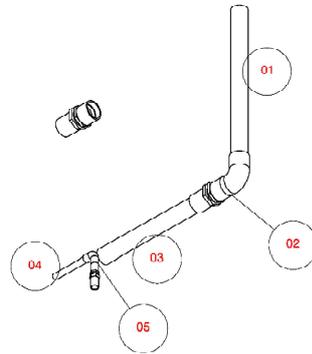
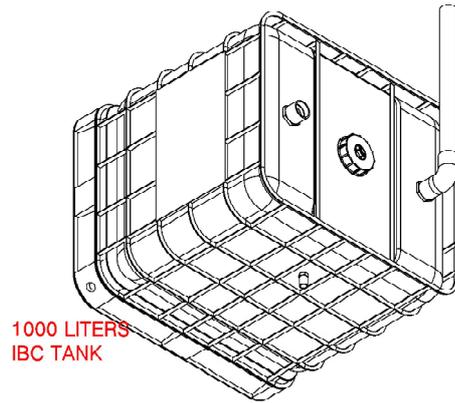
6.29 Figure 29 (Oil Piping)



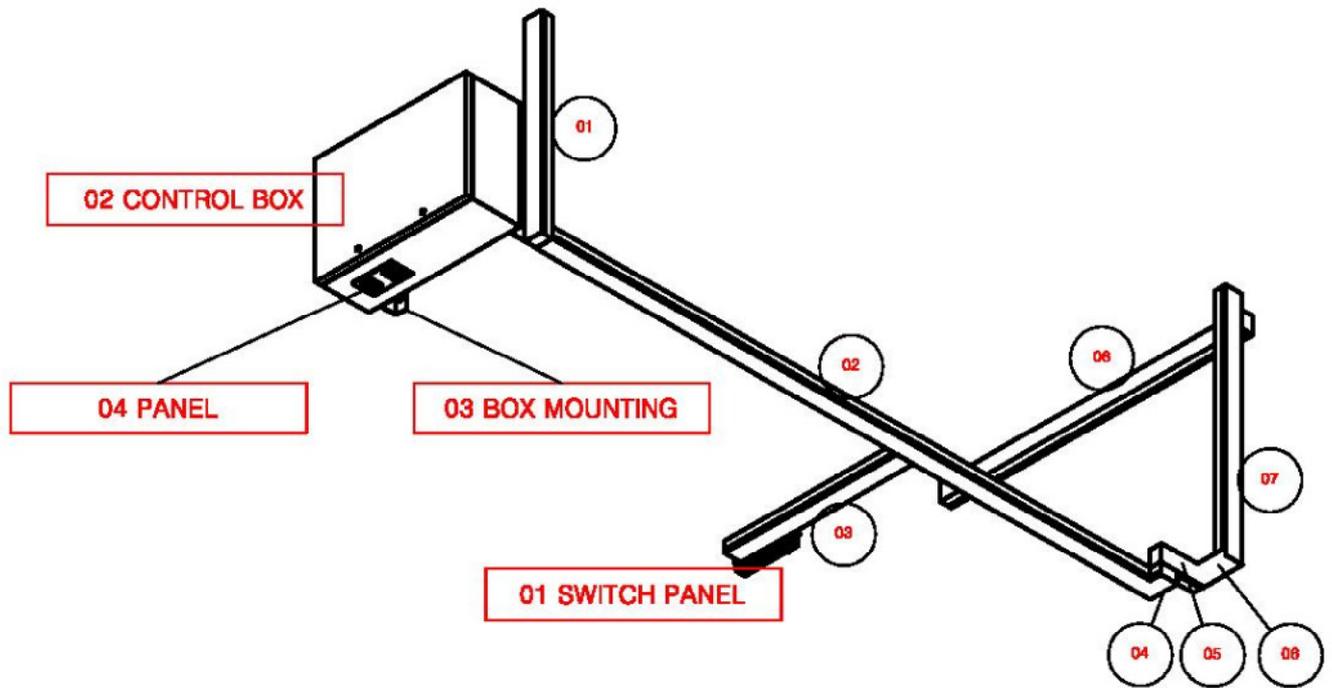
6.30 Figure 30 (Air Piping)



6.31 Figure 31 (Water Scrubber)



6.32 Figure 32 (Electrical Part)



## 7.0 INSTALLATION & ADJUSTMENT

7.1 Machine will be packed in 20ft shipping container.



7.2 Unpack the machine from the shipping container. (Please ensure that no damages were done to the machine)

### 7.3 Packing List

7.3.1	Composting Machine	1 Unit
7.3.2	Railing	1 Lot
7.3.3	Ladder	1 Lot
7.3.4	FRP Flooring	1 Lot
7.3.5	Oil Heater & Oil Circulating Pump	1 Set
7.3.6	Condensing Unit & Hot Air Blower	1 Set
7.3.7	Piping	1 Lot
7.3.8	Composting Powder	1 Lot

### 7.4 Move machine to the allocated area.

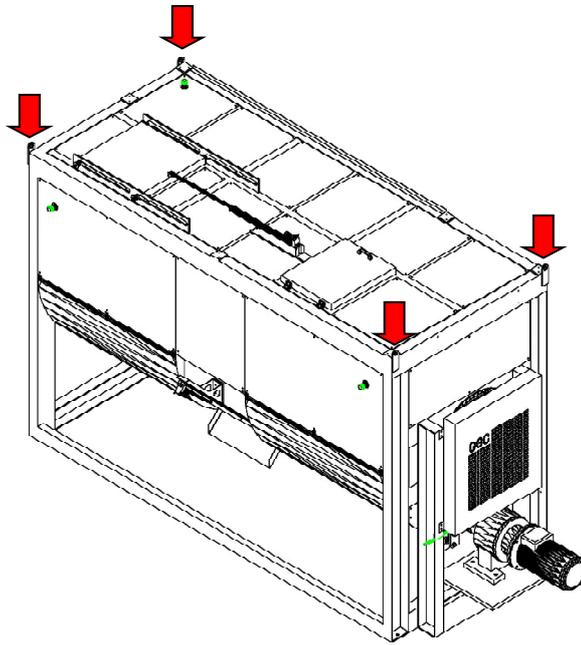
7.4.1	Floor Space	4000mm x 8000mm x 6000mm(H) Approx.
7.4.2	Reinforced Flooring	Concrete Grade Shall Be G30. Allowable soil bearing is assumed to be 100kN/m <sup>2</sup> .
7.4.3	Fastener Spec	All connection bolts, nuts, spring washer and anchor bolts that are to be used for member connection shall conform to BS 3692. All nuts and bolts shall be of hexagonal shape.

#### 7.4.4

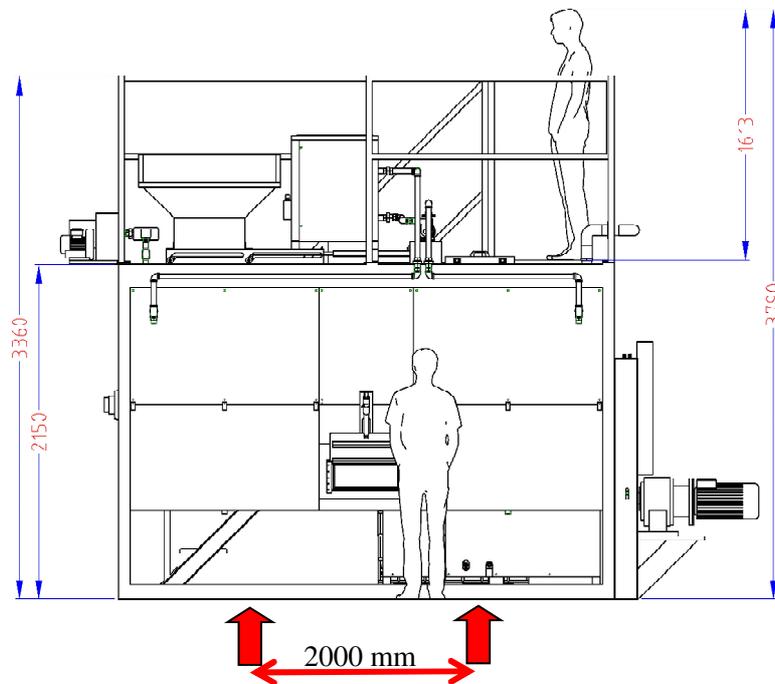
Machine to be move to allocated area in two ways:

7.4.4.1 By using crane (Minimum Lifting Capacity 10 Metric Tones)

Use the Machine Hook at 4 top edges of machine.

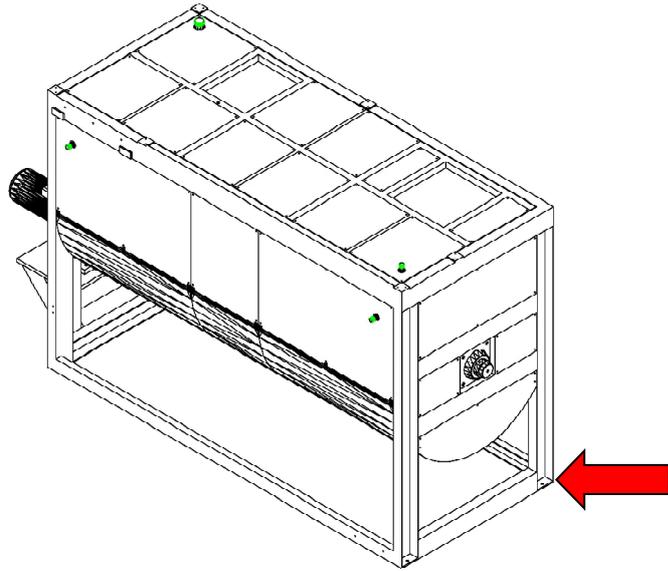


7.4.4.2 By using forklift (Minimum Lifting Capacity 10 Metric Tones and fork length to be minimum 2000mm)

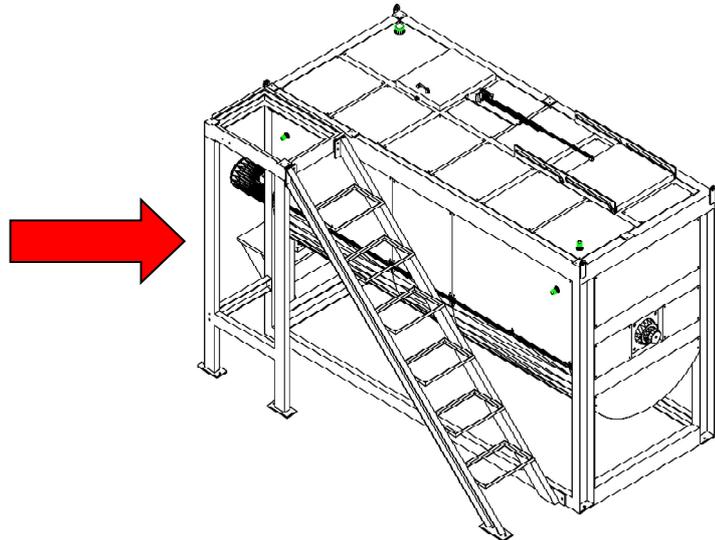


**7.5 Installation procedure:**

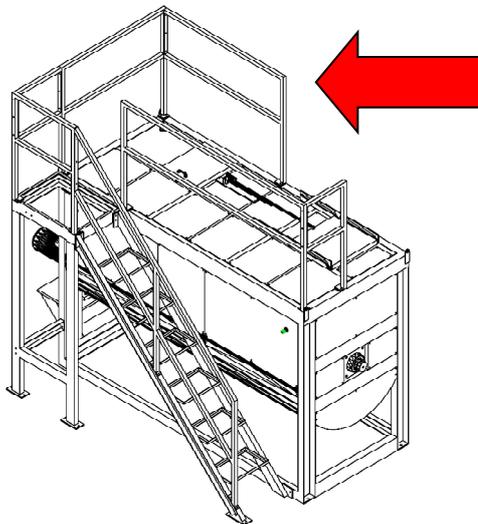
**7.5.1 Mounted the unit to the reinforced flooring with 4nos 1/2” anchor bolts.**



**7.5.2 Assemble the rear platform and ladder M10 Bolts Assembly.**

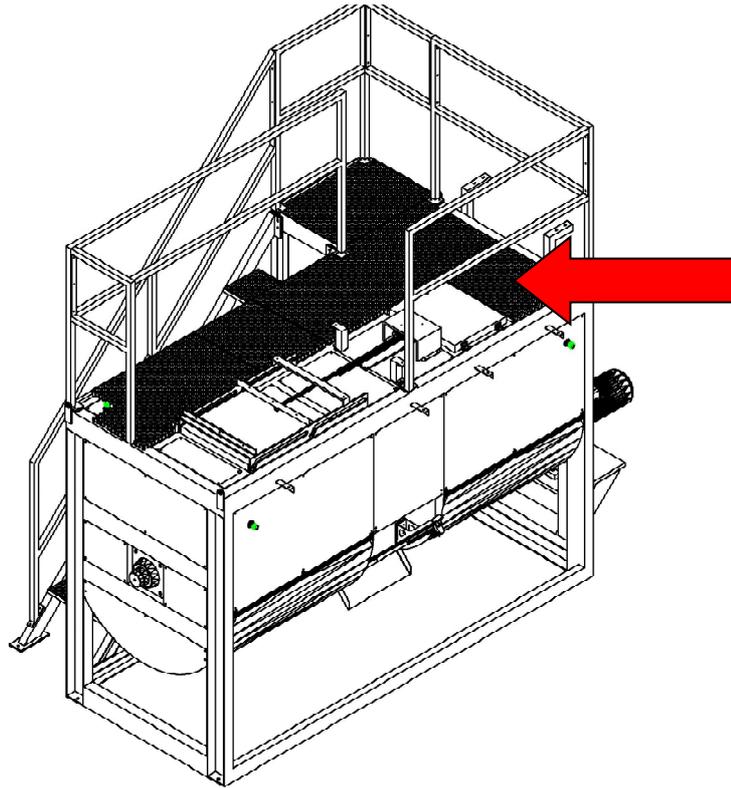


**7.5.3 Assemble all railings with M8 Bolt Assembly.**



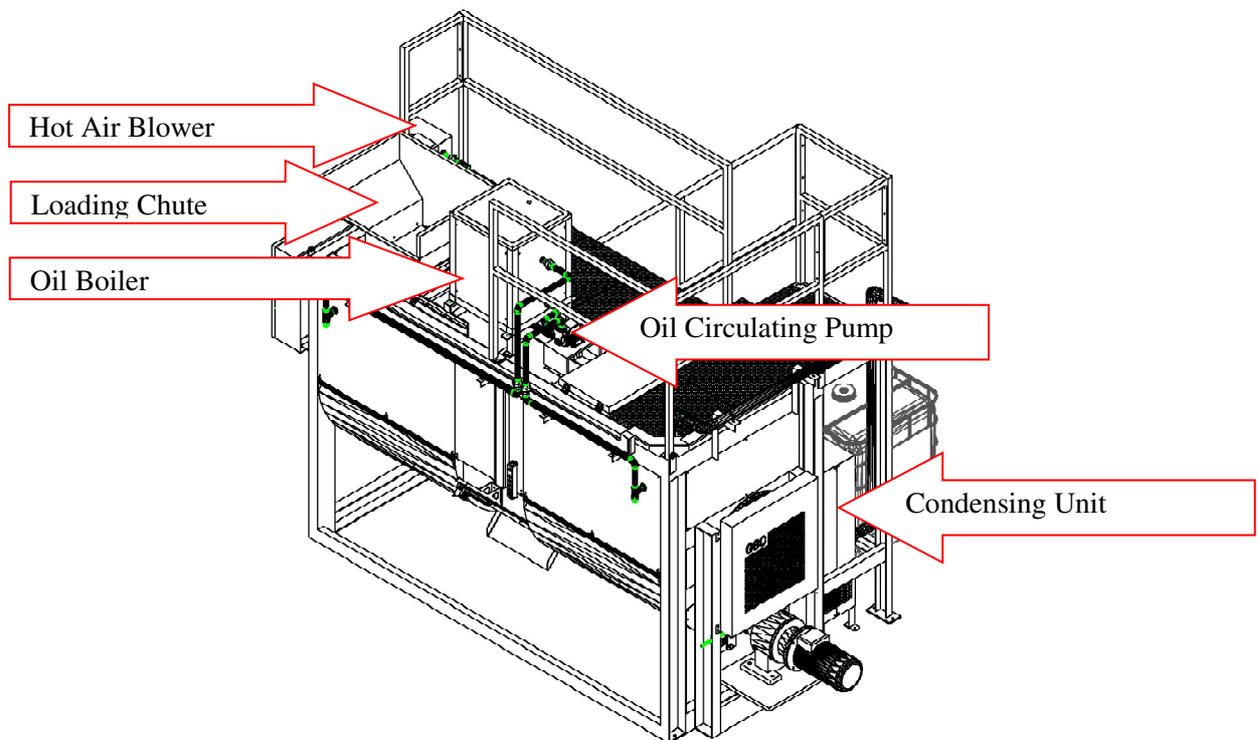
7.5.4

Assemble and lay all FRP floor panel.

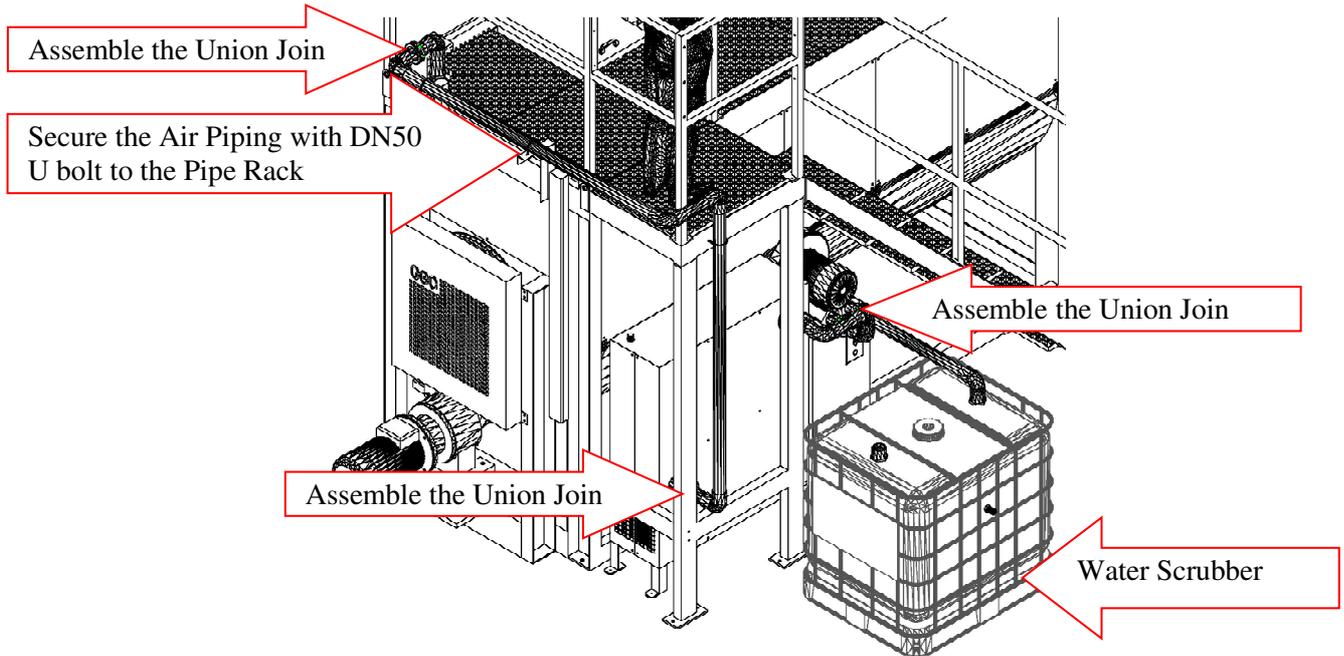


7.5.5

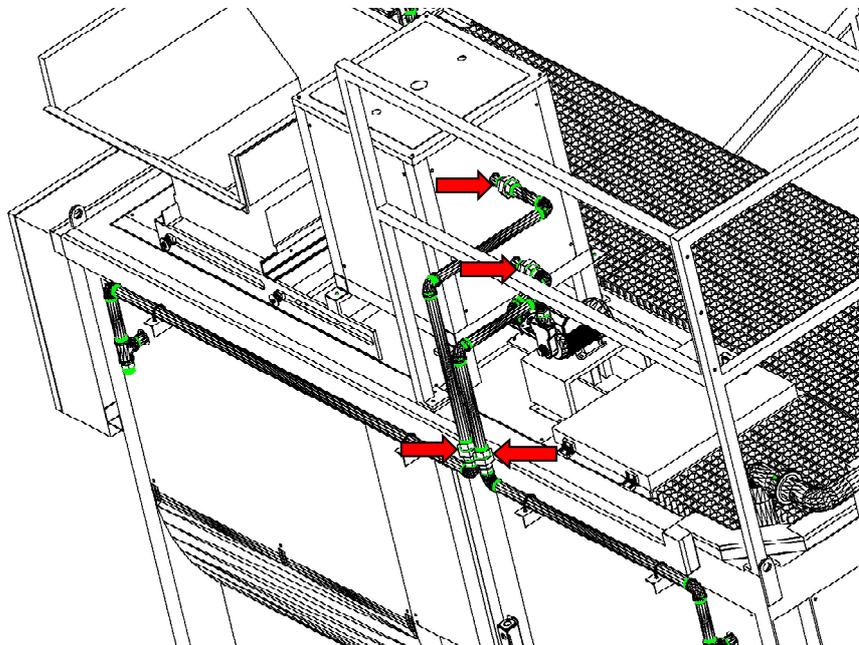
Assemble others component : Loading Chute, Oil Boiler, Oil Circulating Pump, Condensing Unit and Hot Air Blower.



### Assemble Air Piping Assembly and Water Scrubber.

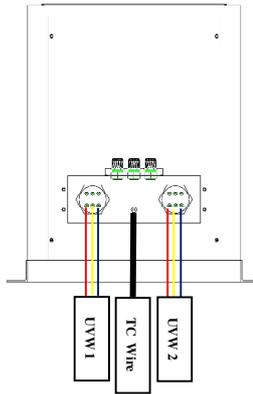


### Assemble Oil Piping Assembly by using 4NOS DN25 Union Join. (Red Arrow)

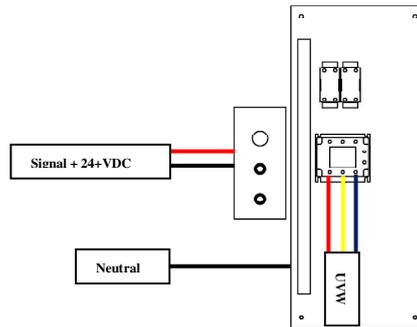


7.5.6

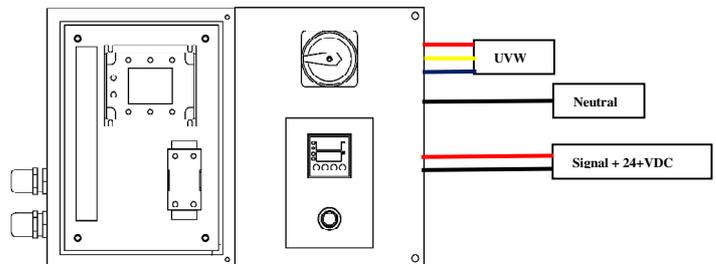
**Plug up the following components :**  
**Oil Boiler - UVW - 2 sets + 1 set Thermocouple wire**



**Condensing Unit - UVW + Neutral + 1 set 24VDC control signal**



**Hot Air Blower - UVW + Neutral + 1 set 24VDC Control Signale**



**Oil Circulating Pump - Single Phase ( 2 wire + Ground)**

**7.6 Plug up the machine to the power source.**

- 415 V
- 100 Amps
- 3 Phase
- 4 Wire

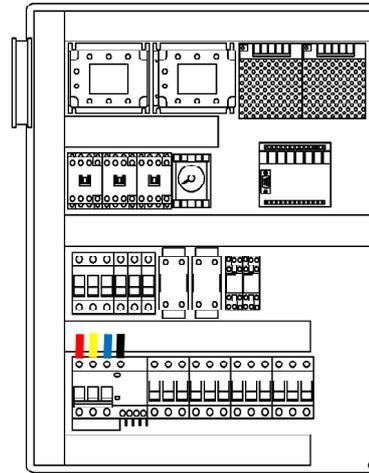
**■ U (Phase)**

**■ V (Phase)**

**■ W (Phase)**

**■ Neutral**

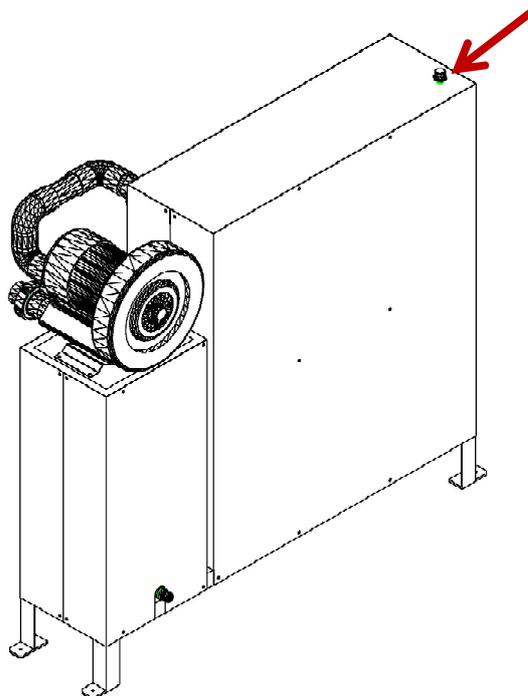
- Ground wire



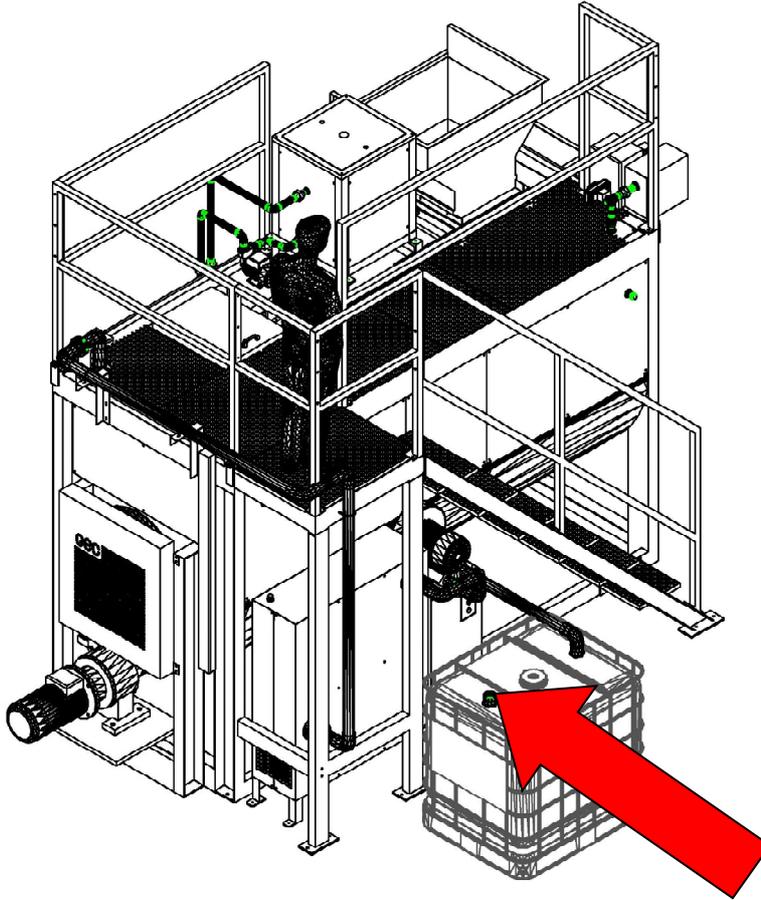
**7.7 Before the machine is power on, check the following item.**

**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.**

- Top up water for the cooling coil reservoir system.

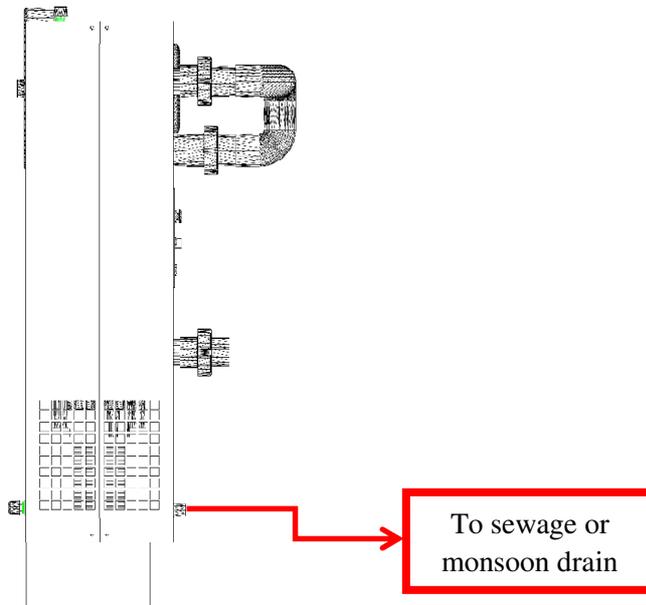
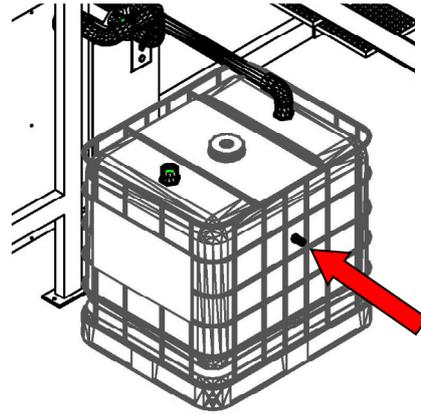
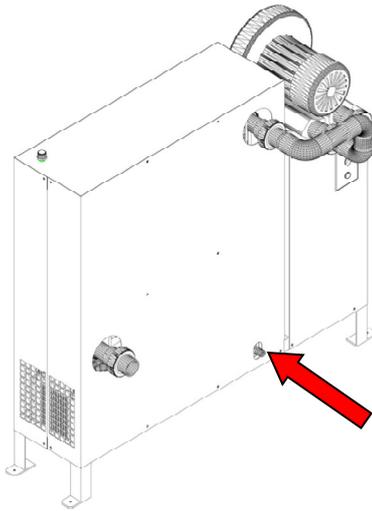


## 7.8 Installing Hot Air Exhaust pipe.



Please join the hot air exhaust pipe (red arrow) to the roof of building.

## 7.9 Installing Water overflow Exhaust pipe.



Please join the water overflow 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.

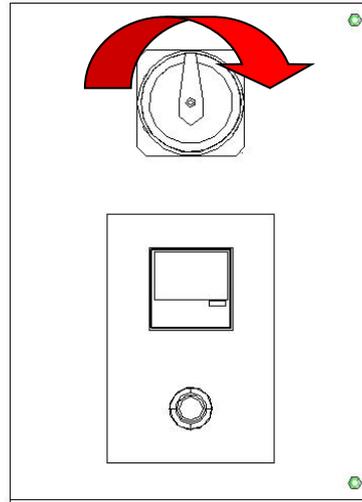
7.10 Power on the machine.

7.11 Check the rotation of the mixer [ motor to run at clock wise]. Change the incoming phase wire to ensure that the motor run at correct direction.

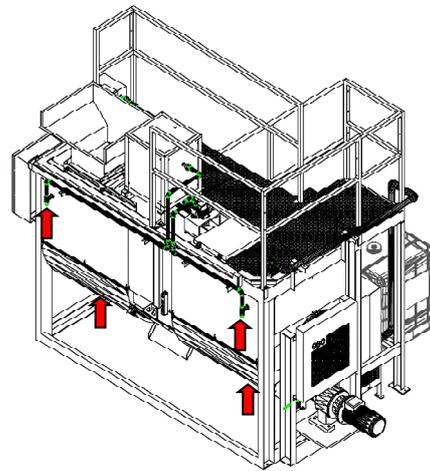
7.12 Factory Default Setting

- Heater Temperature (Temperature Controller REX-C100, 95°C)
- Machine Run Time (Timer XHPG48 is 10Hrs on Timer 1, 12Hrs on Timer 2 and 2Hrs on Timer 3)
- Hot Air Blower Temperature Setting 100°C

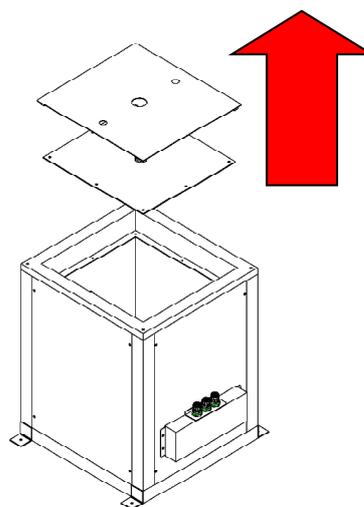
- 7.13 Switch of the Hot Air Blower.**  
Once the machine running running,  
The indicator on Temperature Controller  
will be on and the power LED will be on.  
The factory default setting for the hot air  
Blower is 100°C.



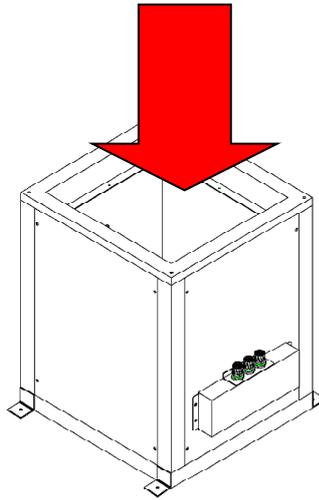
- 7.14 Filling approx. 500 Litres of Heating Oil to Oil Boiler and Oil Jacket.**  
Ensure all hand valve (**Red Arrow**) is close tightly  
before filling the boiler and oil jacket.



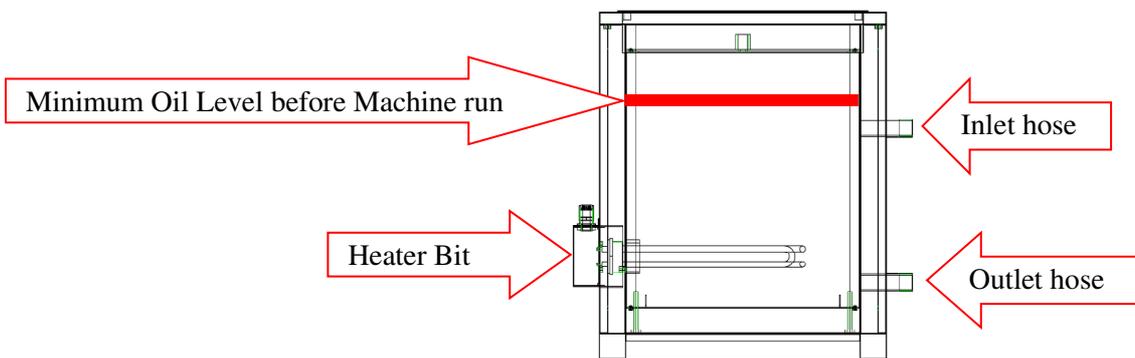
- 7.15 Open the top cover of Oil Boiler.**



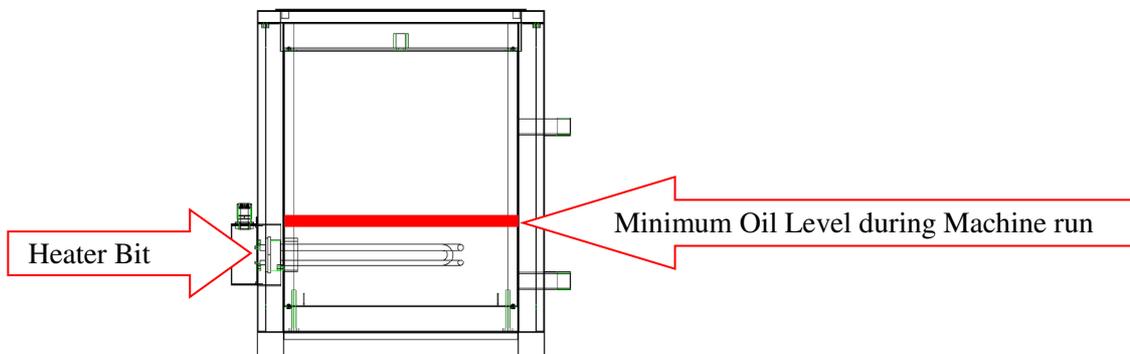
**7.16 Fill Heating Oil thru the top of Oil Boiler.**



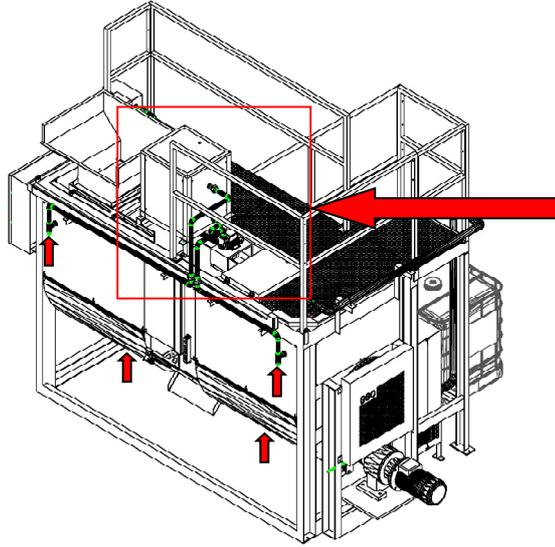
**7.17 Heating Oil level filled must above the Inlet Hose (indicated per drawing) before machine run.**



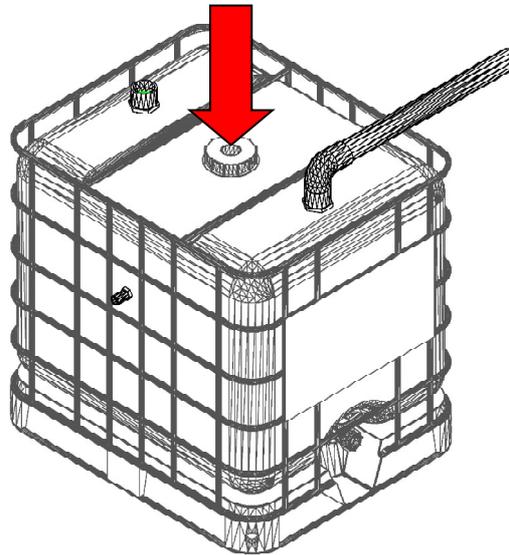
**7.18 Heating Oil level filled must above the Heater Bit (indicated per drawing) during machine run.**



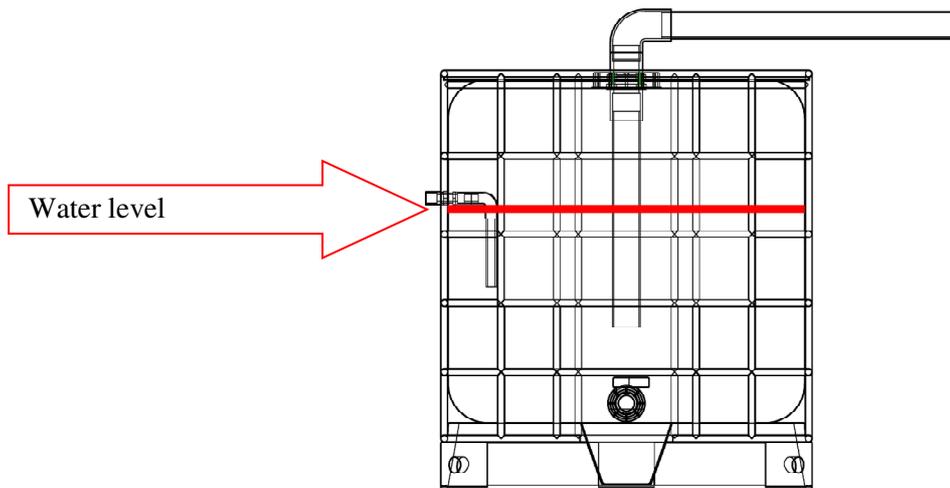
7.19 After Heating oil filled, check for oil leakage on all the joints, hand valve Boiler and oil jacket.  
(Red Arrow)



7.20 Open the cap (Red Arrow) and fill water to the Water Scrubber.



Fill water up to the indicated level.

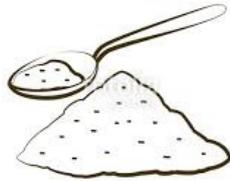


## 8.0 STANDARD OPERATION PROCEDURE

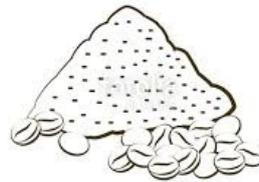
### 8.1 Input Materials Preparation



**Kitchen Waste**



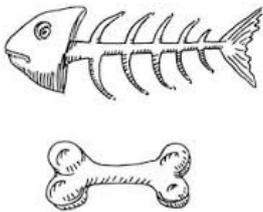
**Starches**



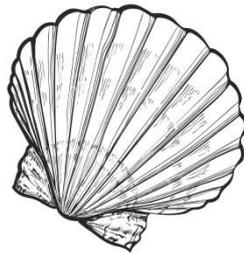
**Coffee Ground**



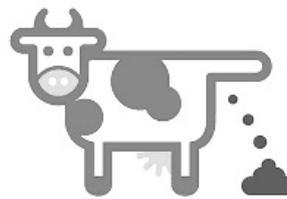
**Meat**



**Fish & Bone**



**Shell**



**Animal Manure**



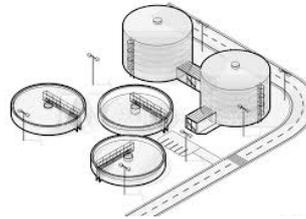
**Wood Chip & Sawdust**



**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

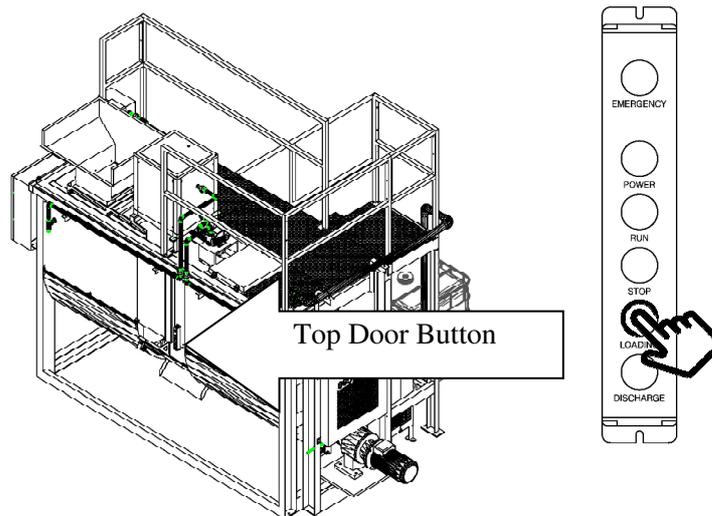
Please do not run COPRA in this machine as copra may cause spontaneous combustion during our process.



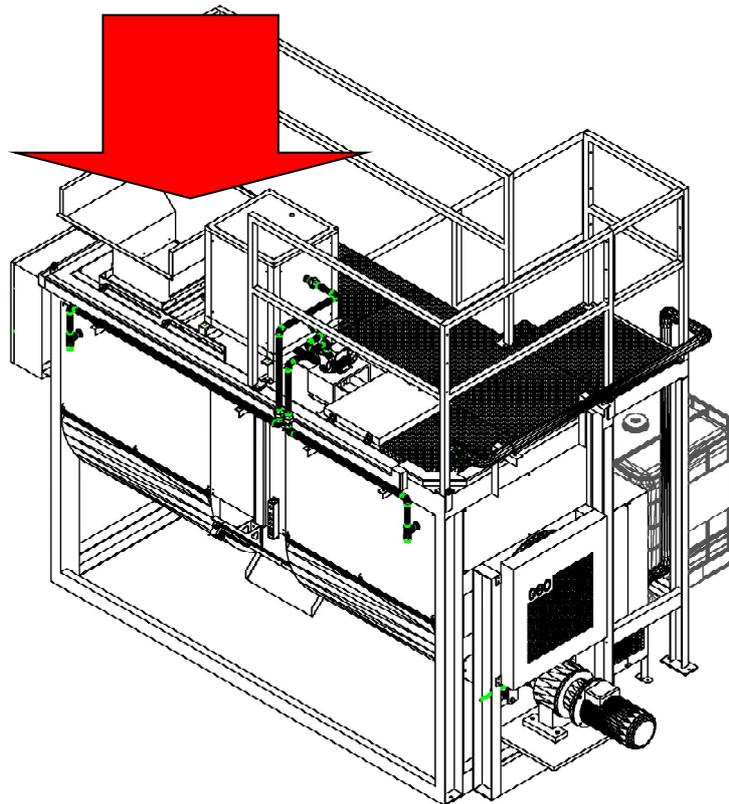
Copra (or khobara) is the dried meat or kernel of the **coconut**, which is the fruit of the **coconut palm** (*Cocos nucifera*). **Coconut oil** is extracted from copra, making it an important agricultural commodity for many coconut-producing countries. It also yields de-fatted coconut cake after oil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

## 8.3 Machine Operation

### 8.3.1 Press the Loading Button to open the loading door.



### 8.3.1 Load the prepared mixture into the machine (refer Para 8.1) by using a inclined conveyor, forklift or bulldozer.

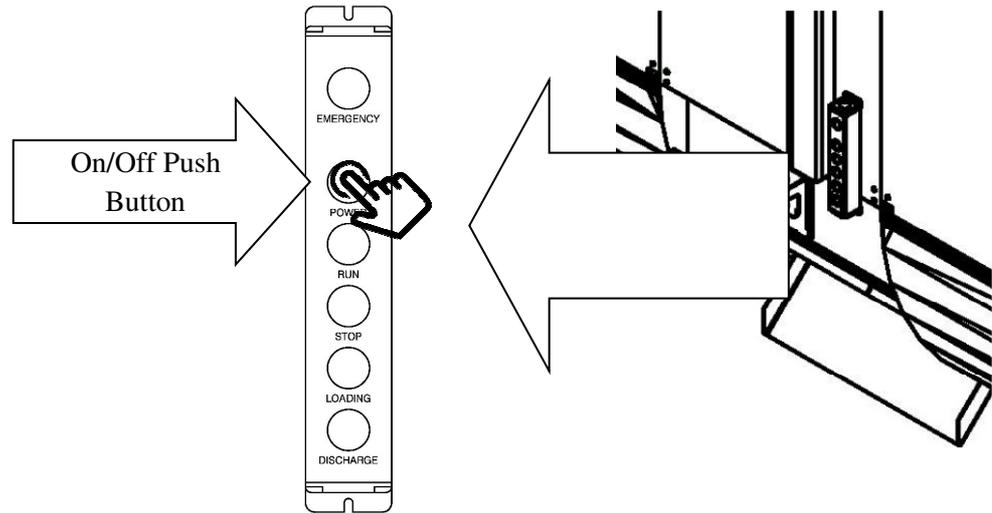


8.3.2 The mixture loaded into the machine shall at the level just cover the mixer. Excessive loading may broke the mixer.

8.3.3 \* First/Initial Run\*, Add in 100 kilogram of GEC's Composting Powder into the chamber.

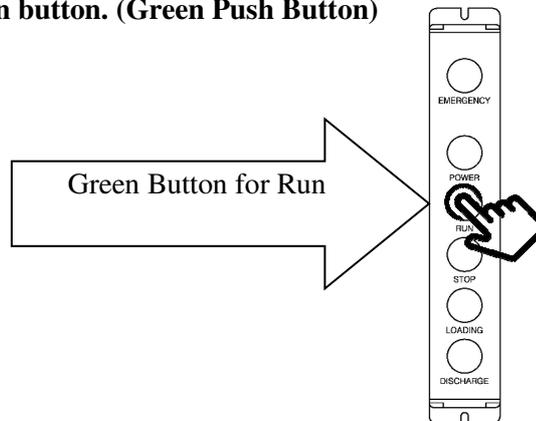
8.3.4 Closed the loading door by releasing the Loading Button .

**8.3.5 Switch on the machine. (Power Push Button)**

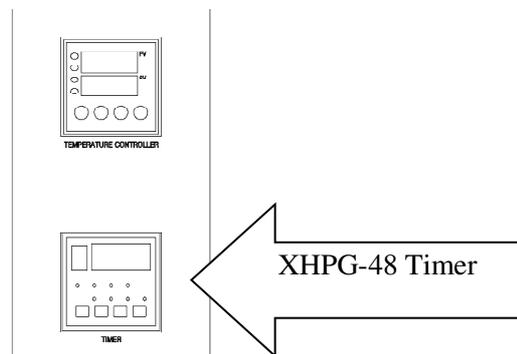


**8.3.6 Allow the machine to boot up for 30 seconds.**

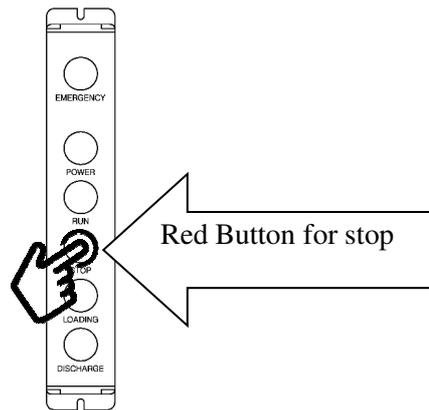
**8.3.7 Press the run button. (Green Push Button)**



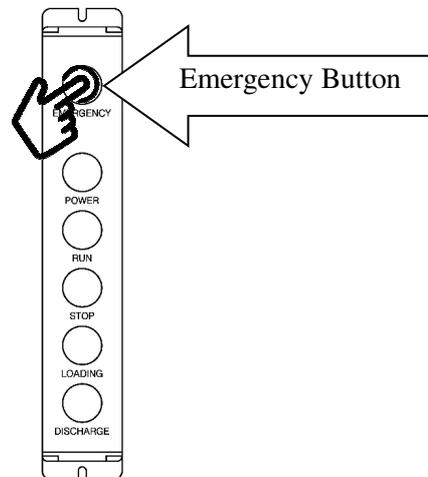
**8.3.8 The machine will automatically shut down after the machine completed the cycle time set in the XHPG-48 Timer. (Refer Para 7.12)**



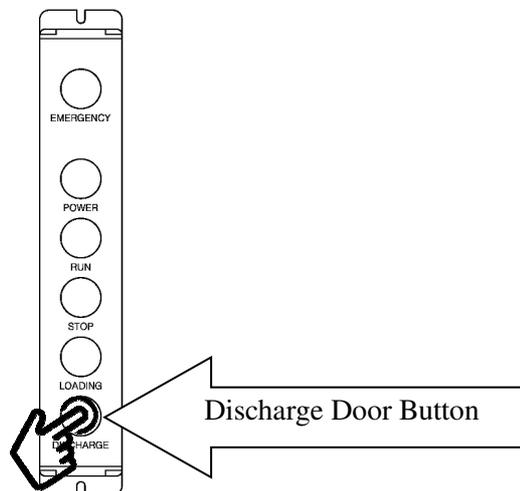
- 8.3.9** During the operation of the machine, you may stop the machine by press the stop button. (Red Push Button). Once this button is engaged, the machine will be reset.



- 8.3.10** In case of emergency, you may push the emergency button. Upon release of the emergency button, the machine will resume operation without resetting the machine.



- 8.3.11** After completion of full operation cycle, you may discharge the machine by pressing the discharge door button.

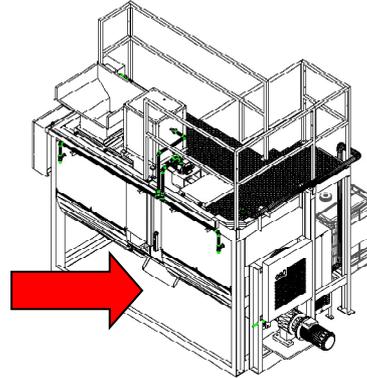


- 8.3.12** The end product from the process is an immature compost and it shall be kept in a dry storage area for a natural cooling down period of 48Hrs to 72Hrs.
- 8.3.13** After the cooling down period, check the temperature and Ph Level of the compost.
- 8.3.14** The temperature of the compost should not exceed 55°C. If it exceeds the required temperature, the compost shall be kept further to cool down the temperature.

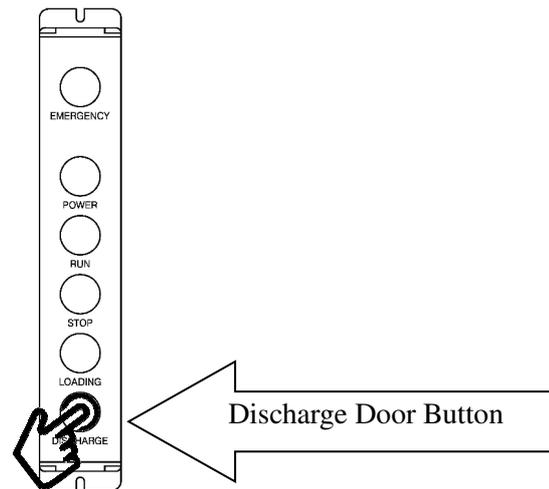
- 8.3.15 Recondition the compost with lime stone powder or Bio-char powder to achieve the desire Ph Level.
- 8.3.16 Left 10% of the compost produced in the chamber to prepare for the next production run.
- 8.3.17 The GEC's composting powder shall need to be replenished every 12 months.

## 8.4 Compost Discharge Process

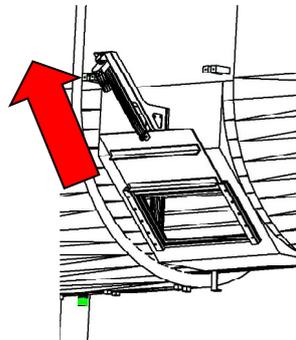
- 8.4.1 After completion of 24 hour cycle, Put a bin or a unloading conveyer in front of the machine, under the chute.



- 8.4.2 Push the Discharge Door Button.



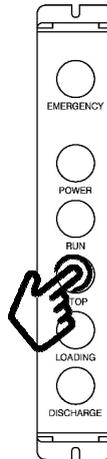
- 8.4.3 Discharge door will open after the Discharge Door Button is engaged.



**8.4.4 Press the run button for auto discharge.**



**8.4.5 After complete discharge, press the stop.**



**8.4.6 Before close the discharge door, ensure that the surrounding area is clean and free of residues.**

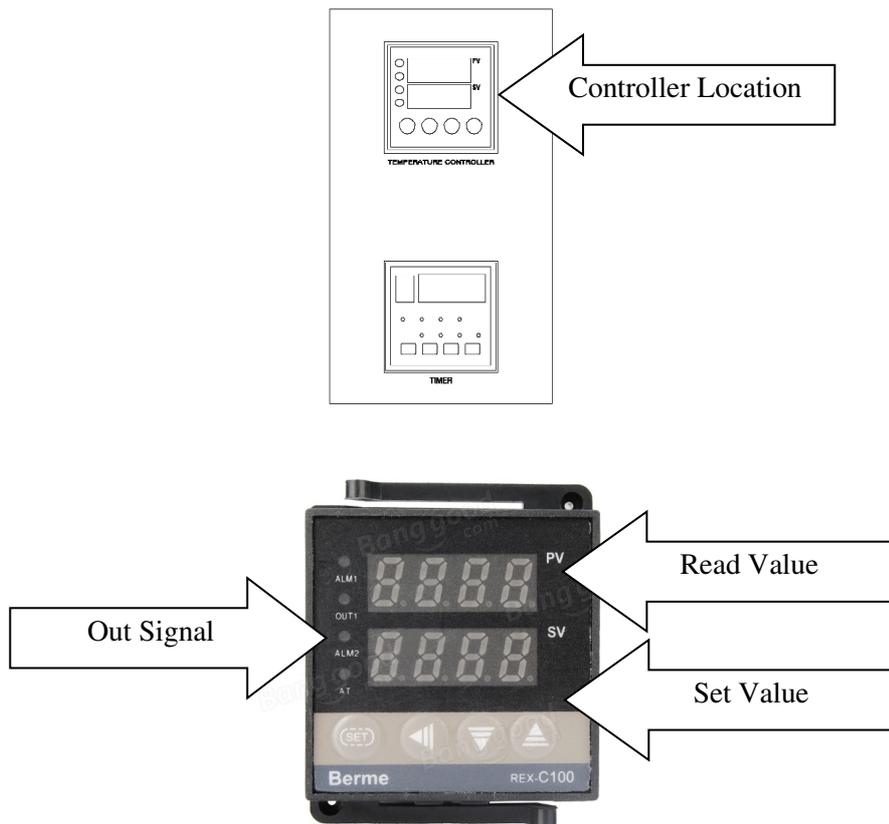
**Release the Discharge Door Button to close the discharge door.**

## **8.5 Default Process**

<b>8.5.1</b>	<b>Heating Process</b>	<b>-</b>	<b>First 12 Hours</b>
<b>8.5.2</b>	<b>Dehydration Process</b>	<b>-</b>	<b>Last 2 Hours</b>
<b>8.5.3</b>	<b>Total Machine Run Time</b>	<b>-</b>	<b>24 Hours</b>

## 8.6 Parameter Setting

### 8.6.1 REX-C100 Temperature Controller (Heating Temperature)



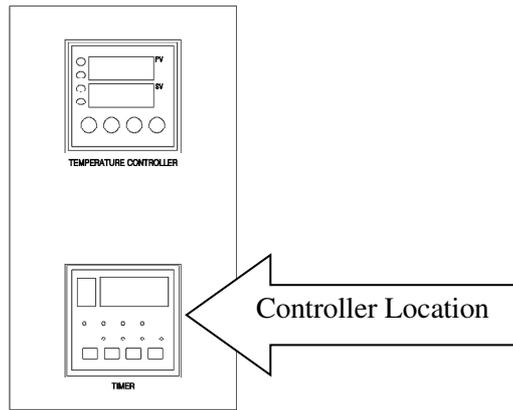
Press the left arrow key to start setting  
SV value will be blinking.  
Use the left, up and down button to do setting.



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 XHPG-48 Timer (Heater timing & Machine Run Time)



**Press the run button and hold during the whole setting sequence.**

**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.**

**Release the run button and then press the stop button to complete the whole sequence.**

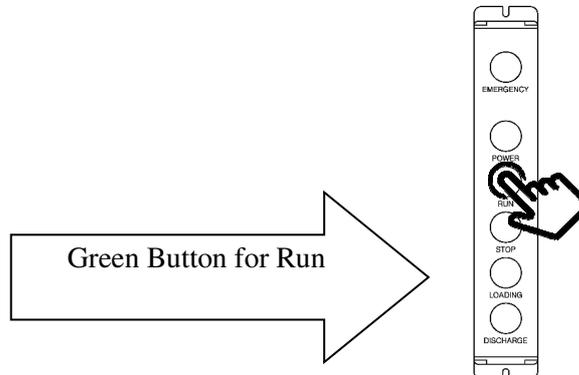
**- Factory Default Setting is 12Hrs for T1, 10Hr for T2 and 2Hrs for T3.**

**- 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 into waste to cut down the order 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 8.7.2).

8.7.5 After fully loaded the machine, you may run the full 24 hours run (para 8.3.7) to complete the fermentation process.

## 8.8 LED Indication

8.8.1	Main Panel	Machine Condition
	<p>Power LED - ON</p> <p>Run LED - Off</p> <p>Stop LED - On</p>	<p>Machine Power On</p> <p>Machine on standby</p>
8.8.2	Main Panel	Machine Condition
	<p>Power LED - ON</p> <p>Run LED - On</p> <p>Stop LED - Off</p>	<p>Machine Power On</p> <p>Machine Running</p>
8.8.3	Main Panel	Machine Condition
	<p>Power LED - ON</p> <p>Run LED - Blinking</p> <p>Stop LED - Off</p>	<p>Machine Power On</p> <p>Machine Running on 2 hrs process</p>

8.8.4



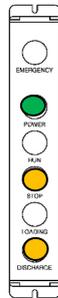
Main Panel

Power LED - Blinking  
Run LED - Blinking  
Stop LED - Blinking

Machine Condition

Emergency Button engaged

8.8.5



Main Panel

Power LED - On  
Stop LED - On  
Discharge Door LED - On

Machine Condition

Machine Power On  
Motor Standby  
Discharge Door Open  
Air Heater and Condensing Unit off

8.8.6



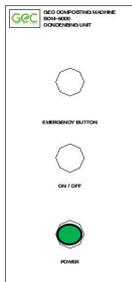
Main Panel

Power LED - On  
Stop LED - On  
Top Door LED - On

Machine Condition

Machine Power On  
Motor Standby  
Loading Door Open  
Air Heater and Condensing Unit off

8.8.7



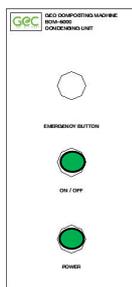
Condensing Unit Panel

Power LED - On  
LED - Off

Condensing Unit Condition

Condensing Unit Power On  
Condensing Unit Stop Running

8.8.8



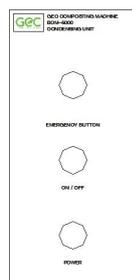
Condensing Unit Panel

Power LED - On  
On/Off LED - On

Condensing Unit Condition

Condensing Unit Power On  
Condensing Unit Running

8.8.9



Condensing Unit Panel

Power LED - Off  
On/Off LED - Off

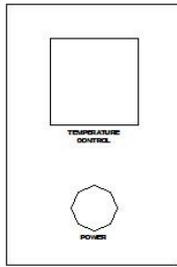
Condensing Unit Condition

Emergency Button Engaged

8.8.10

### Hot Air Blower Panel

Hot Air Blower Condition



Power LED - On

Hot Air Blower Running

## 9.0 MAINTENANCE AND SCHEDULE

No	Maintenance Description	Maintenance Job	Schedule
1	Mixer	Check for broken mixer	After every run
2	Heating Oil	Check for oil level (refer para 7.17 & 7.18)	After every run
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	Power Roller Chain	Greasing/ Oiling	Monthly
7	Flange Bearing UCF220	Greasing	Monthly
8	Viton Seal	Check for leakage	Monthly
9	Chamber Wall	Check for leakage	Monthly
10	Viton Seal	Replace new seal	Yearly
11	Water Cooling Reservoir System	Top up water (Para 7.7, Page 48)	Monthly

## 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 machine must be unplug and with the water scrubber, condensing unit, ladder and platform to be uninstalled.
- 10.4 Move the machine by using crane or forklift (refer para 7.4.4).
- 10.5 In the case of transporting the machine, the machine shall wrap and secure before it is transported.

## 11.0 MACHINE FAULT AND REPAIRING

### 11.1 Trouble Shooting

No	Problem	Potential Cause
11.1.1	Motor stop to run	a The emergency button is engaged
		b The Hydraulic Power Pack electrical connection is loose
		c The motor is burned
		d The Controller Board is not functioning
		e Electrical circuit failure (refer para 11.1.12)
11.1.2	The Whirlpool Pump stop to run	a The emergency button is engaged
		b The pump's electrical connection loosed
		c The pump burned
		d The Controller Board is not functioning
		e Electrical circuit failure (refer para 11.1.12)
11.1.3	Machine cannot heat up	a The heater burned
		b The SSR burned
		c The thermocouple burned
		d The temperature controller burned
		e The setting of the temperature controller is incorrect
		f The setting of XHPG-48 Timer is incorrect
		g The PLC Controller is not functioning
		h Electrical circuit failure (refer para 11.1.12)
11.1.4	Controller Board could not boot up	a The 24v power supply burned
		b The Controller Board is burned
		c Electrical circuit failure (refer para 11.1.12)
11.1.5	Timer XHPG-48 does not allow to do setting	a Refer Operation Manual of XHPG-48 to do the Setting
		b The Timer burned
		c Electrical circuit failure (refer para 11.1.12)
11.1.6	Machine do not run when push run button	a The run button is damaged.
		b The Emergency button is engaged.
		c The Controller board burned

No	Problem	Potential Cause
11.1.7	Air flow of the machine is low or non	<ul style="list-style-type: none"> <li>d Electrical circuit failure (refer para 11.1.12)</li> <li>a The air piping system is clogged</li> <li>b The vacuum pump burned</li> <li>c Electrical circuit failure (refer para 11.1.12)</li> </ul>
11.1.8	Loading Door not functioning	<ul style="list-style-type: none"> <li>a The door actuator burned</li> <li>b The mechanical parts broken</li> <li>c Electrical circuit failure (refer para 11.1.12)</li> </ul>
11.1.9	Discharge Door not functioning	<ul style="list-style-type: none"> <li>a The door actuator burned</li> <li>b The mechanical parts broken</li> <li>c Electrical circuit failure (refer para 11.1.12)</li> </ul>
11.1.10	Hot Air Blower not functioning	<ul style="list-style-type: none"> <li>a The Temperature Controller burned</li> <li>b The heater burned</li> <li>c Electrical circuit failure (refer para 11.1.12)</li> </ul>
11.1.11	Machine trip	<ul style="list-style-type: none"> <li>a Main motor trip</li> <li>b Vacuum pump trip (Hot Air Blower &amp; Condensing Unit)</li> <li>c Heater burned (Oil Boiler &amp; Hot Air Boiler)</li> <li>d Water pump trip</li> <li>e Oil pump trip</li> <li>f Wire insulation damaged causing electrical leakage</li> <li>g One of the components in the control box burned</li> <li>h Electrical circuit failure (refer para 11.1.12)</li> </ul>

**11.1.12 Electrical Circuit failure**

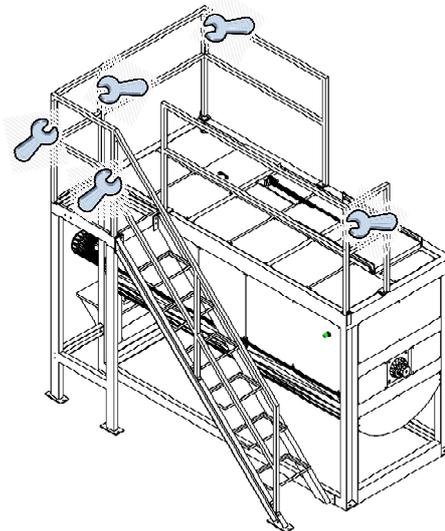
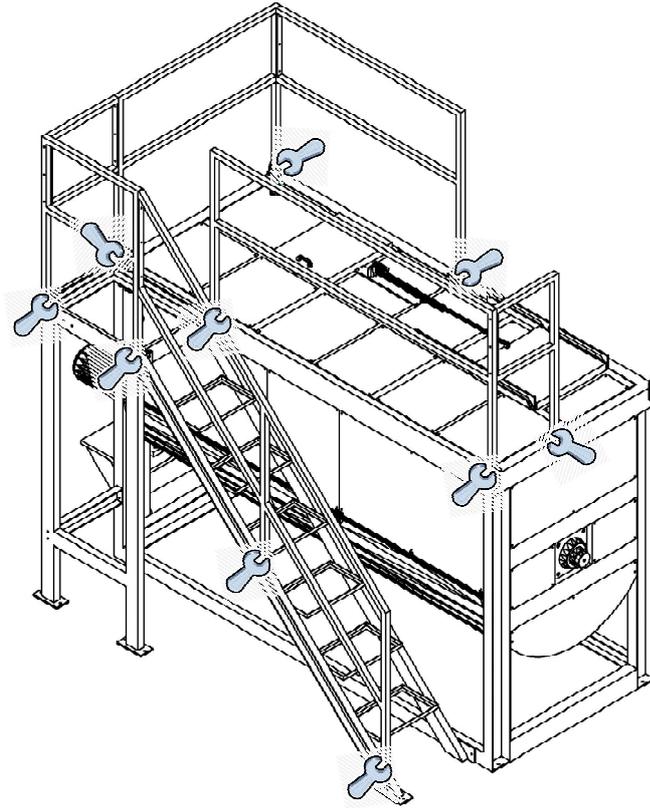
		Check for Component failure						
Panel	Emergency Button	03 ELCB	09 MCB	01 Emergency button	22 Power Supply	26 Control Board		
Panel	Power Button	03 ELCB	09 MCB	02 Power Self Lock button	22 Power Supply	26 Control Board		
Panel	Power Button	03 ELCB	09 MCB	03 Momentary Push button	22 Power Supply	26 Control Board		
Panel	Run Button	03 ELCB	09 MCB	04 Momentary Push button	22 Power Supply	26 Control Board		
Panel	Stop Button	03 ELCB	09 MCB	05 Momentary Push button	22 Power Supply	26 Control Board		
Panel	Loading Button	03 ELCB	09 MCB	06 Self Lock Push button	22 Power Supply	26 Control Board		

### Check for Component failure

Panel	Discharge Button	03 ELCB	09 MCB	07 Self Lock Push button	22 Power Supply	26 Control Board		
Control Box	Temperature Controller	03 ELCB	09 MCB	22 Power Supply	26 Control Board	11 MCB		
Control Box	Timer	03 ELCB	09 MCB	22 Power Supply	26 Control Board	11 MCB	12 SSR	
Machine	Motor	03 ELCB	09 MCB	22 Power Supply	26 Control Board	04 MCB	19/20/21 Contactor	22 Timer
Machine	Loading Door	03 ELCB	09 MCB	22 Power Supply	26 Control Board	17 Relay		
Machine	Discharge Door	03 ELCB	09 MCB	22 Power Supply	26 Control Board	18 Relay		
Machine	Oil Boiler	03 ELCB	09 MCB	22 Power Supply	26 Control Board	05/06 MCB	24/25 SSR	
Machine	Condensing Unit	03 ELCB	09 MCB	22 Power Supply	26 Control Board	07 MCB		
Condensing Unit	Vacuum Pump	C1 Emergency Button	C2 Power Button	C4 SSR				
Condensing Unit	Ozone Generator	C1 Emergency Button	C2 Power Button	C5 SSR				
Condensing Unit	Water Pump	C1 Emergency Button	C2 Power Button	C6 SSR				
Machine	Hot Air Blower	03 ELCB	09 MCB	22 Power Supply	26 Control Board	08 MCB		
Hot Air Blower	Heater	H2 Temperature Controller	H4 SSR					
Hot Air Blower	Vacuum Pump	H5 SSR						
Machine	Oil Pump	03 ELCB	09 MCB	22 Power Supply	26 Control Board	10 MCB	13 SSR	

## 11.2 Dismantling Procedure

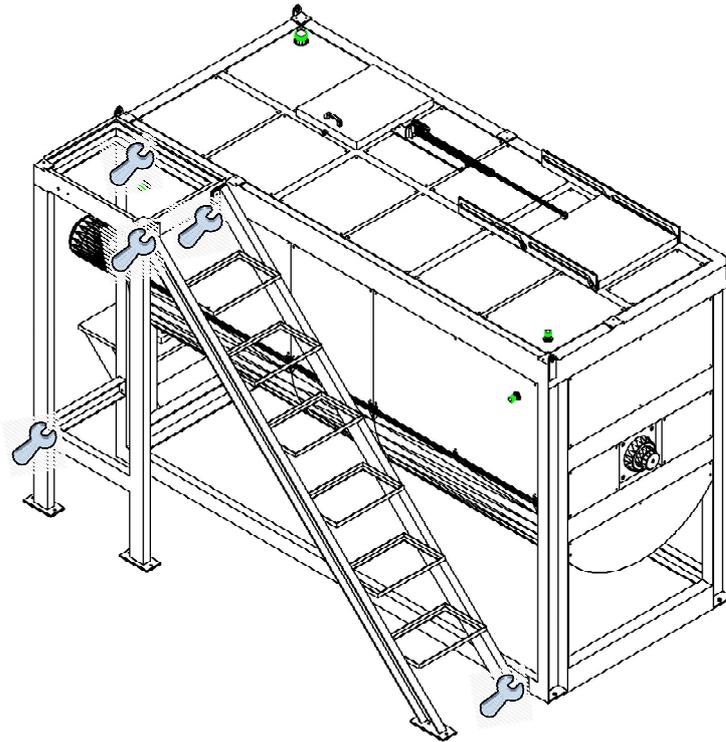
### 11.2.1 Top Railing



**Dismantle 20 number of M8 bolts on railing footing to dismantle the railing from machine the top cover.**

**Dismantle 15 number of M8 bolts on railing tie bar to dismantle the railing assembly.  
Please ensure that appropriate wrench or spanner used to avoid damages on the bolt.**

## 11.2.2 Ladder and Platform



**Dismantle 4 number of M10 bolts to open the tie bar.**

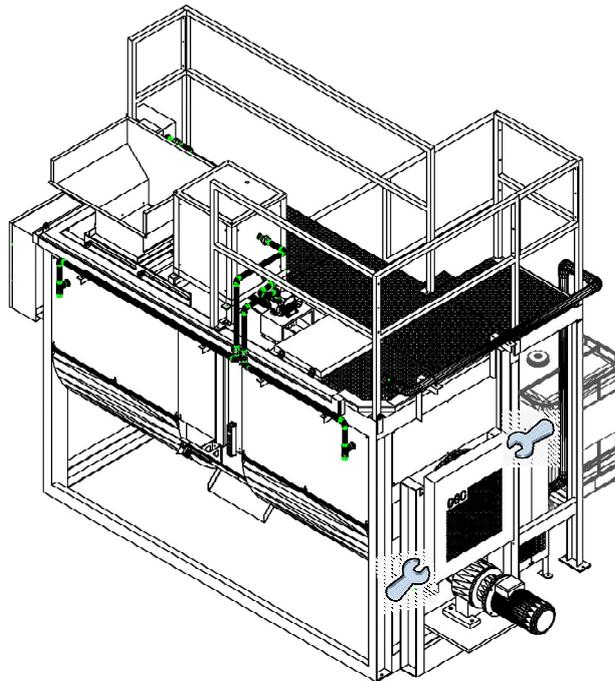
**Dismantle 4 number of M8 bolts to open the Platform Support Column.**

**Dismantle 3 number of M10 bolts to open the Platform from the machine.**

**Dismantle 8 number of M10 bolts to open the Ladder from the Platform.**

**Please ensure that appropriate wrench or spanner used to avoid damages on the bolt**

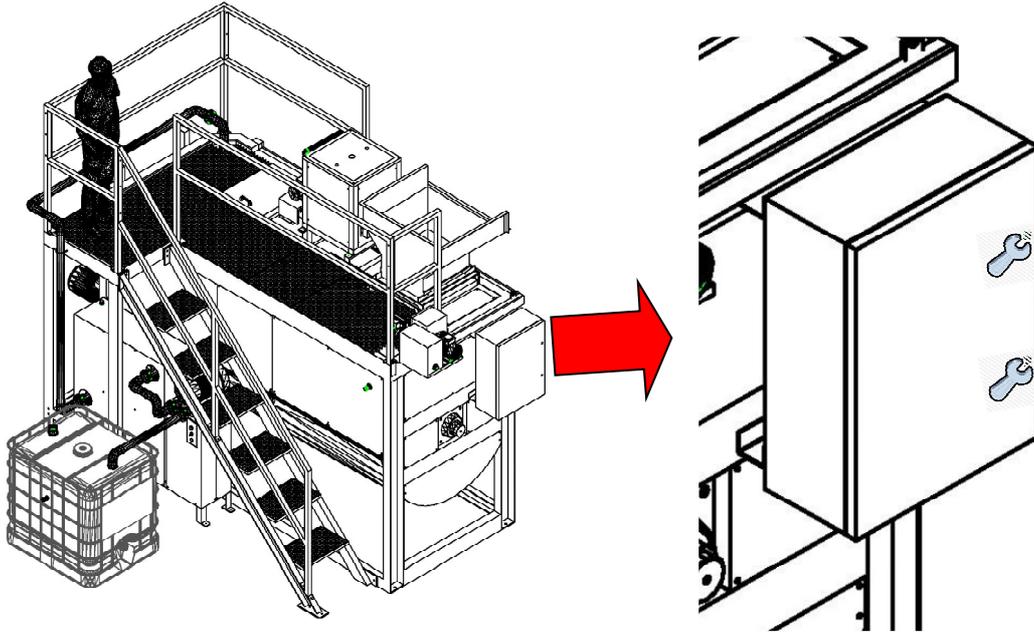
## 11.2.3 Chain Cover



**Dismantle 8 number of M6 bolts to open the Chain Cover.**

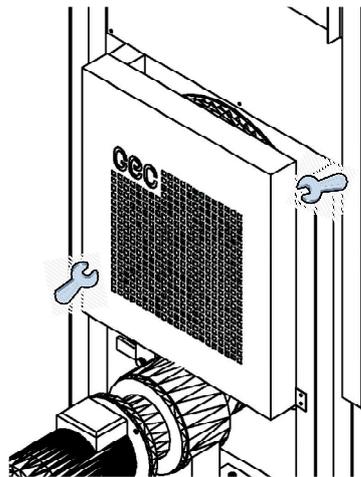
**Please ensure that appropriate wrench or spanner used to avoid damages on the bolt.**

## 11.2.4 Control Box Door



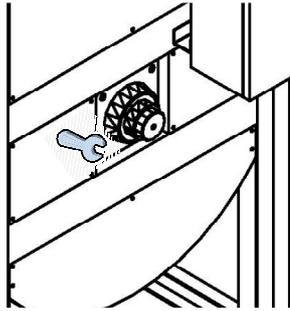
**Dismantle 2 number of lock to open side door to access to Control Panel.**

## 11.2.5 Drive Area



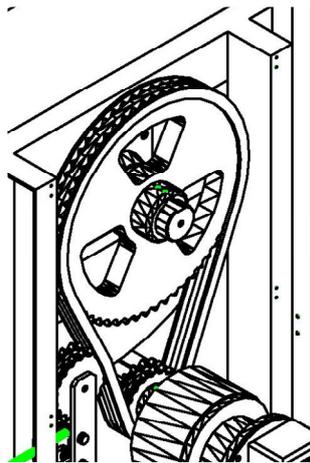
**Dismantle 8 number of M6 bolts to open the Chain Cover.**  
**Please ensure that appropriate wrench or spanner used to avoid damages on the bolt.**

### 11.2.6 Dismantling Bearing & replacing Viton Seal at control panel side



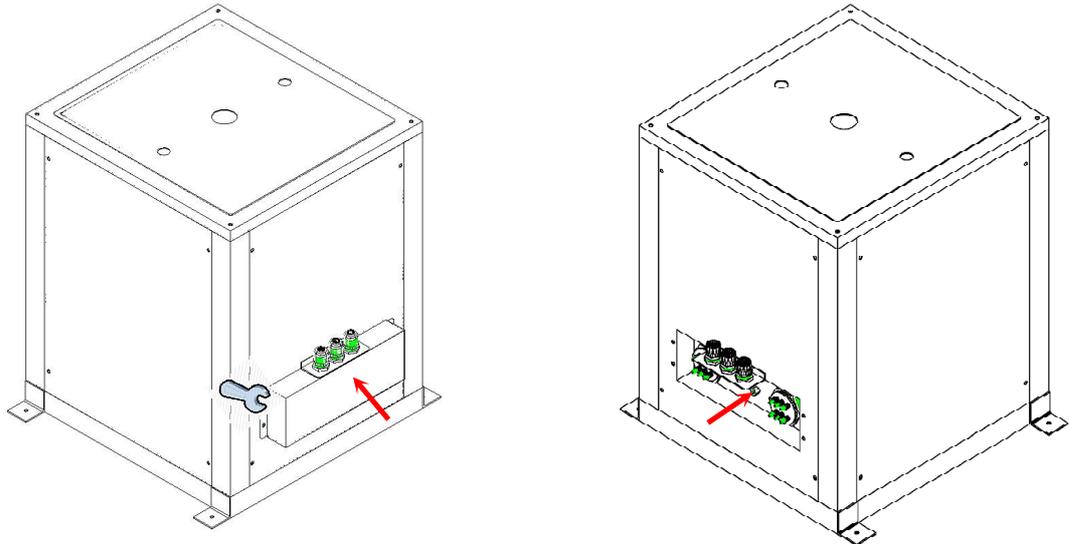
**Dismantle 2 number of M20 nuts to dismantle the bearing.**  
**Use a bearing puller to dismantle the bearing.**  
**Dismantle 6 numbers of M6 Bolts to dismantle the seal holder.**  
**Please ensure that appropriate wrench or spanner used to avoid damages on the bolt.**

### 11.2.7 Dismantling Bearing & replacing Viton Seal at drive area



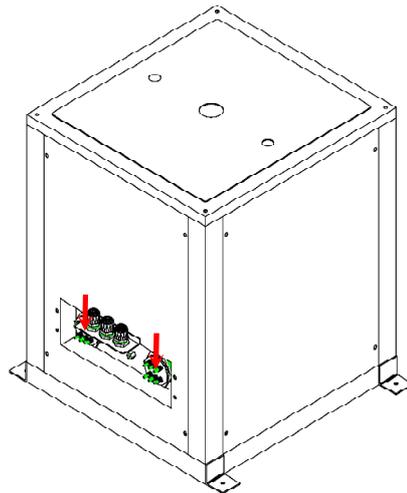
**Dismantle the roller chain (disengage the connection link).**  
**Dismantle the sprocket (unlock the set screw and use a puller to disengage the sprocket).**  
**Dismantle 4 number of M20 nuts to dismantle the bearing.**  
**Use a bearing puller to dismantle the bearing.**  
**Dismantle 6 numbers of M6 Bolts to dismantle the seal cap.**  
**Please ensure that appropriate wrench or spanner used to avoid damages on the bolt.**

## 11.2.8 Access to Thermocouple



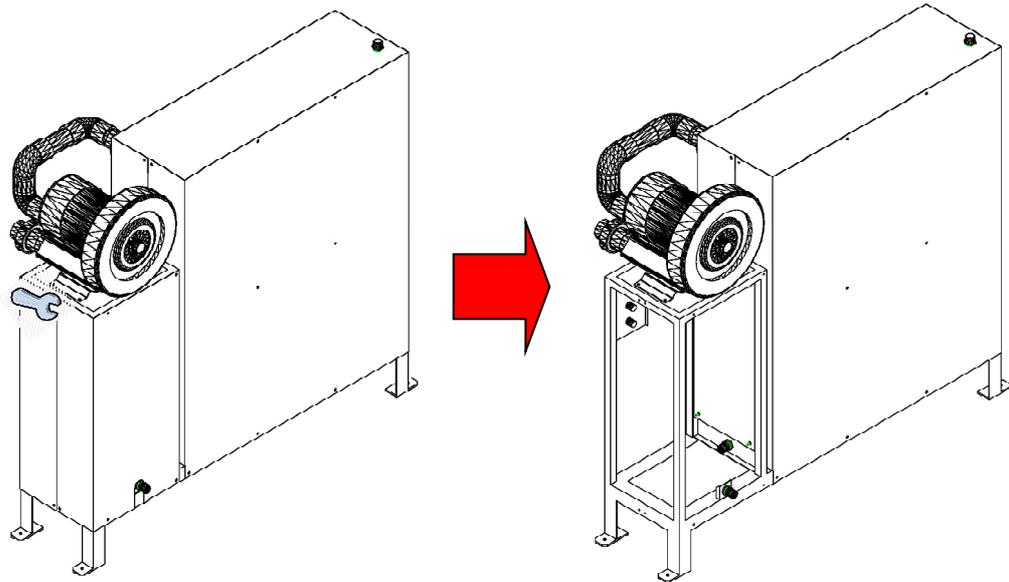
**Dismantle 4 number of M6 Bolts to open the Wiring Cap on the Oil heater.  
Thermocouple are mounted at the middle of the heater.**

## 11.2.9 Access to heater



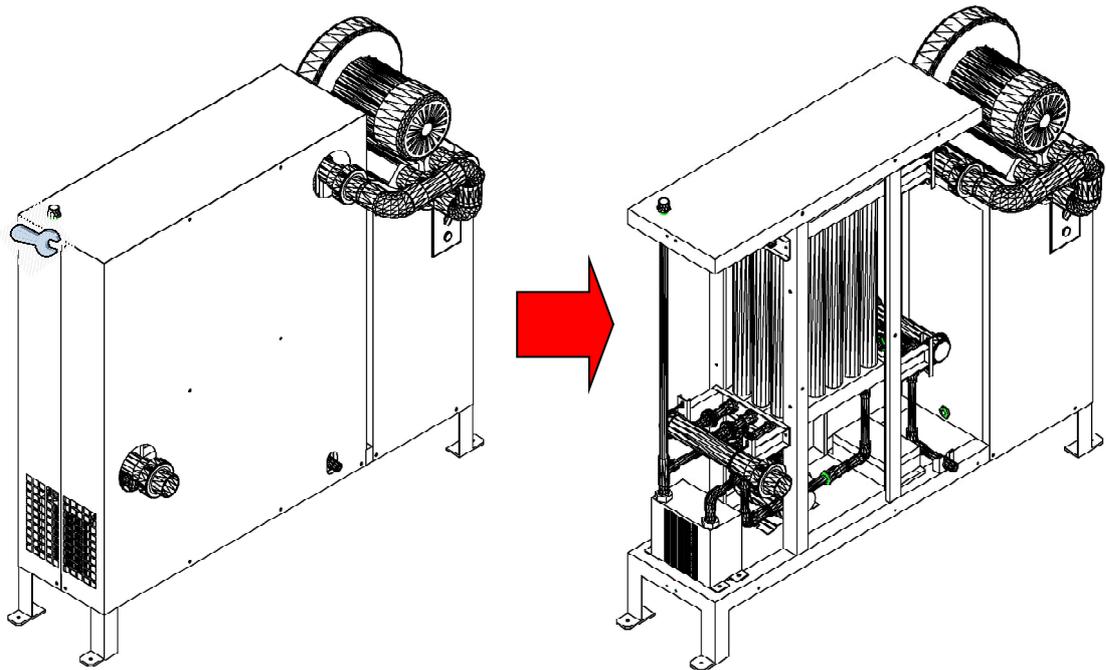
**Dismantle 4 number of M6 Bolts to open the Wiring Cap on the Oil heater.  
Please ensure that appropriate wrench or spanner used to avoid damages on the bolt.**

### 11.2.10 Access to Control Board for Condensing Unit



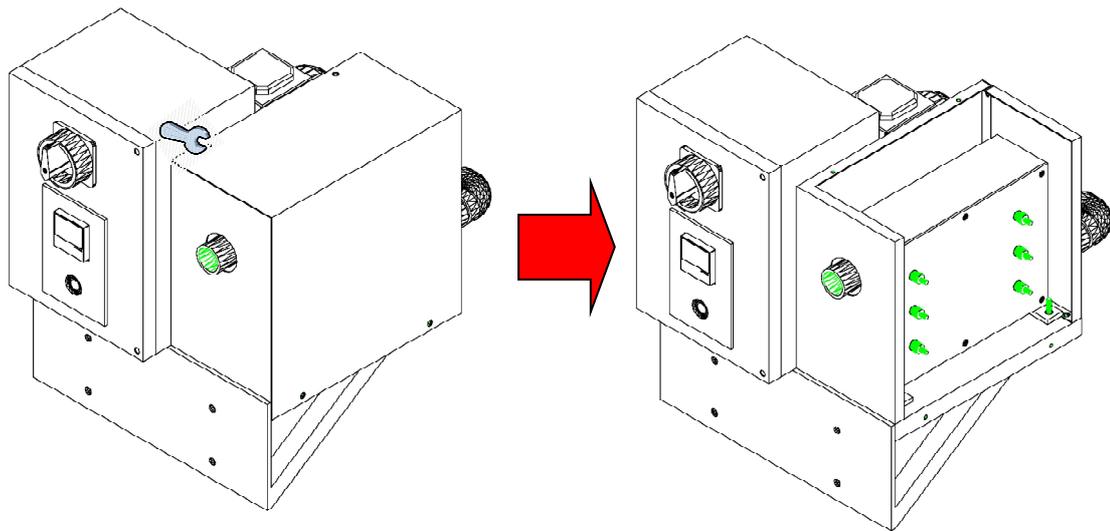
**Dismantle 12 number of M6 Bolts to open the side cover on the Condensing Unit.**

### 11.2.10 Access to Component for Condensing Unit



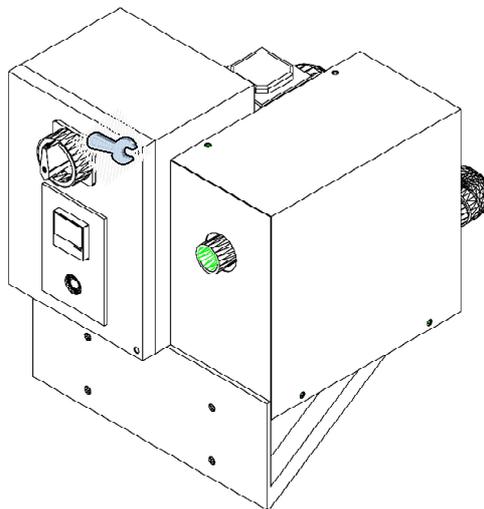
**Dismantle 18 number of M6 Bolts to open the side cover on the Condensing Unit.**

### 11.2.11 Access to Heater for Hot Air Blower



**Dismantle 4 number of M6 Bolts to open the side cover on the Hot Air Blower.**

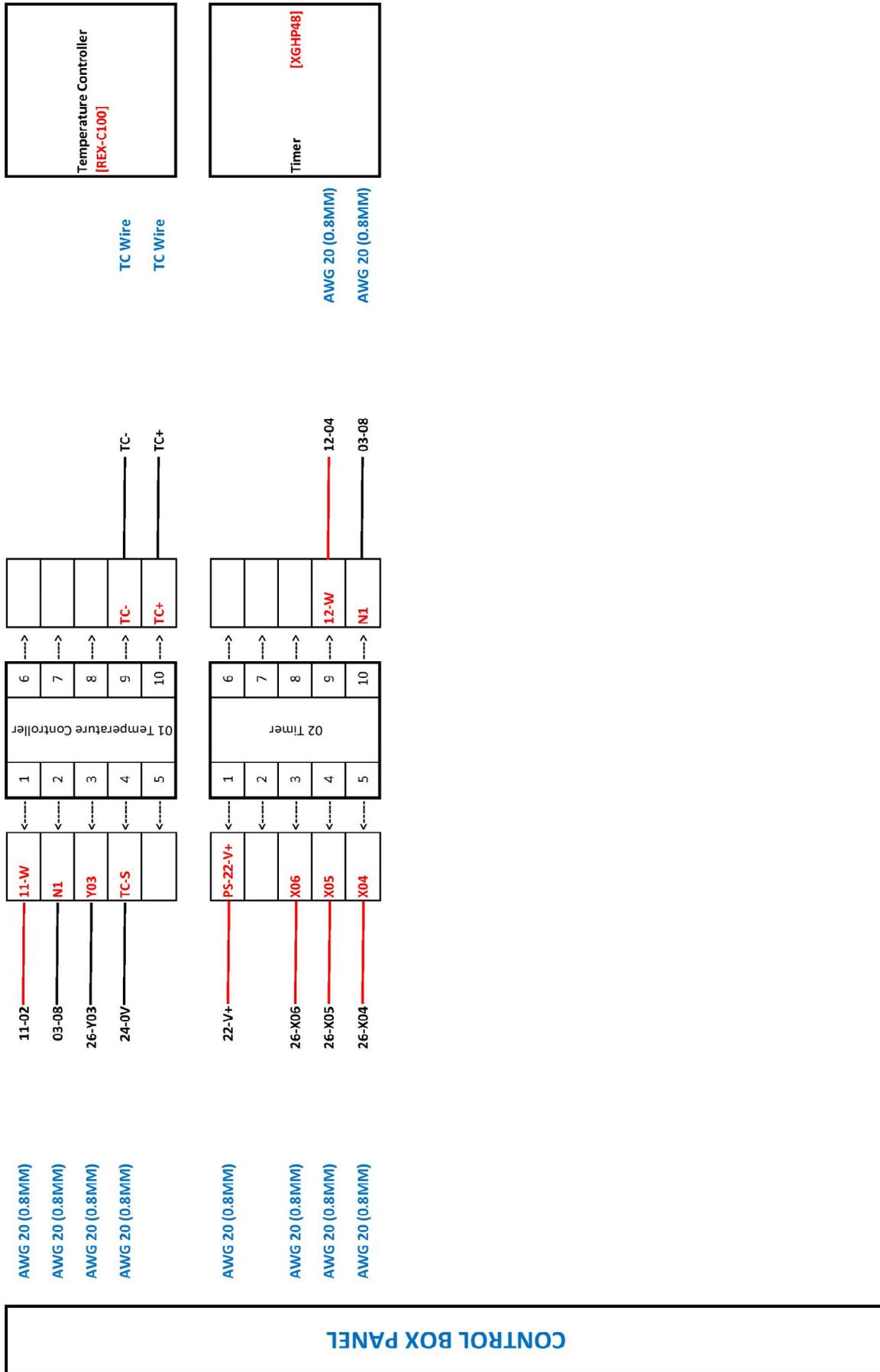
### 11.2.12 Access to Control Panel for Hot Air Blower



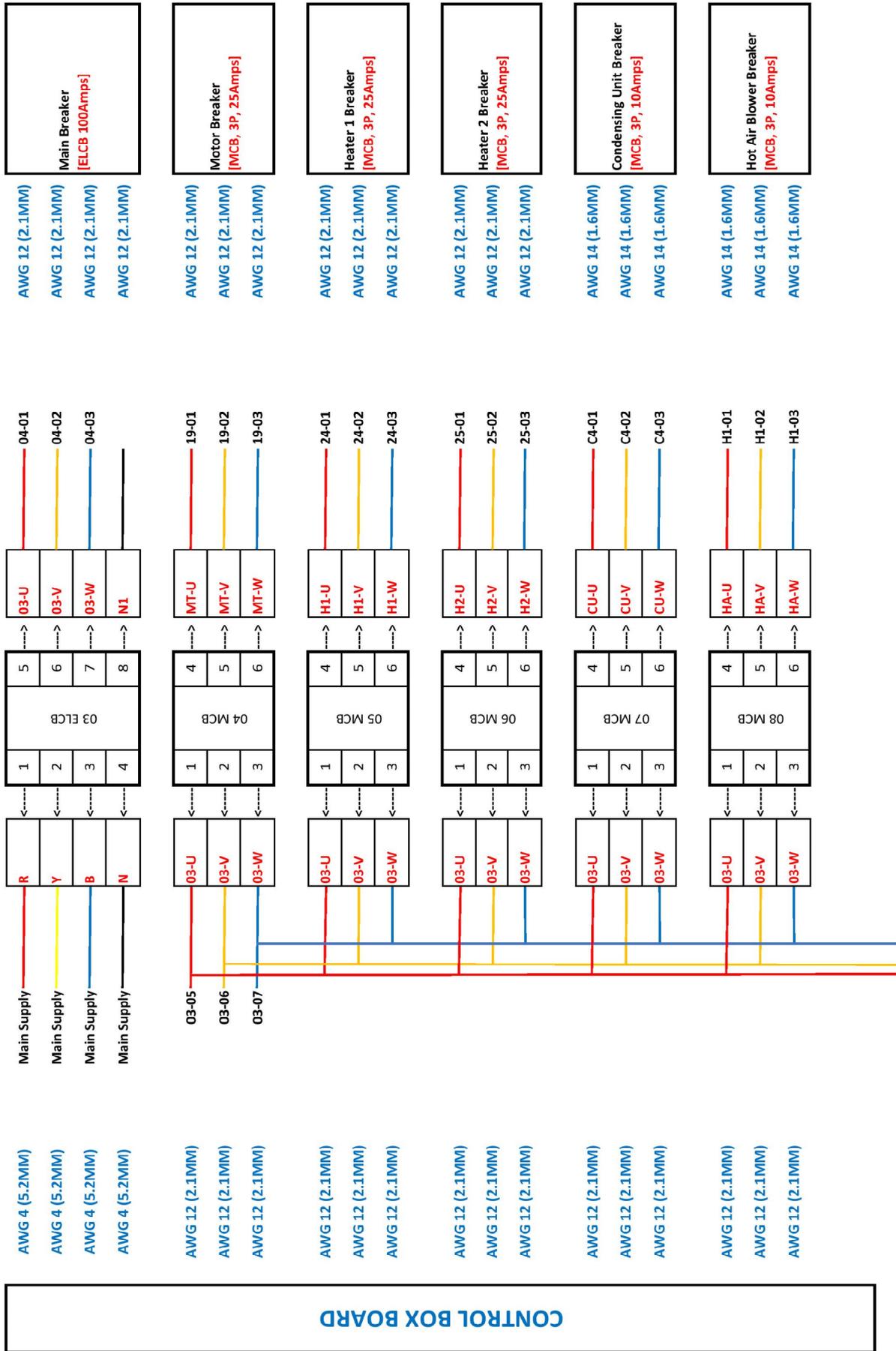
**Dismantle 2 number of M6 Bolts to open the door of control box on the Hot Air Blower.**



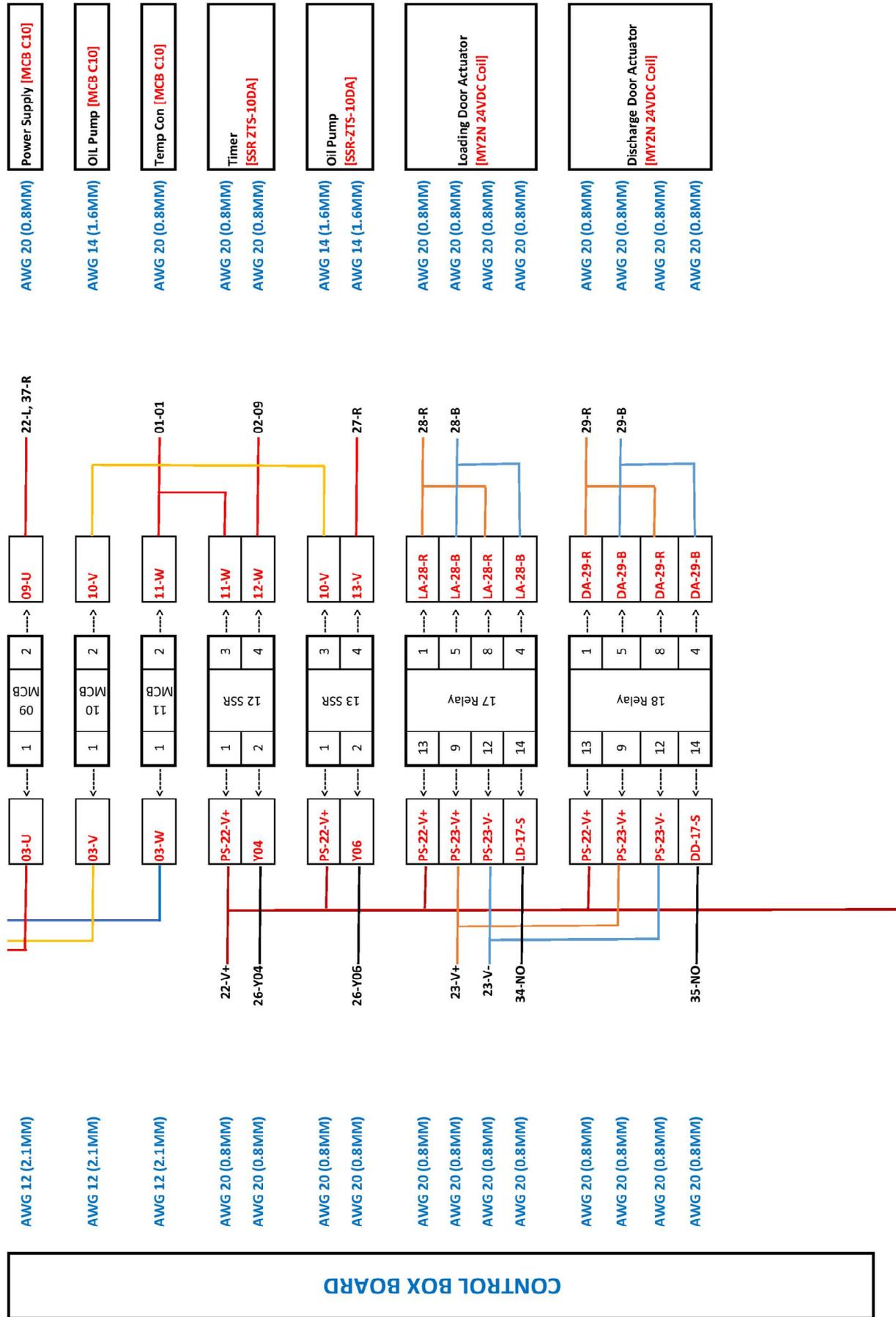
BRM-5000 ELECTRICAL



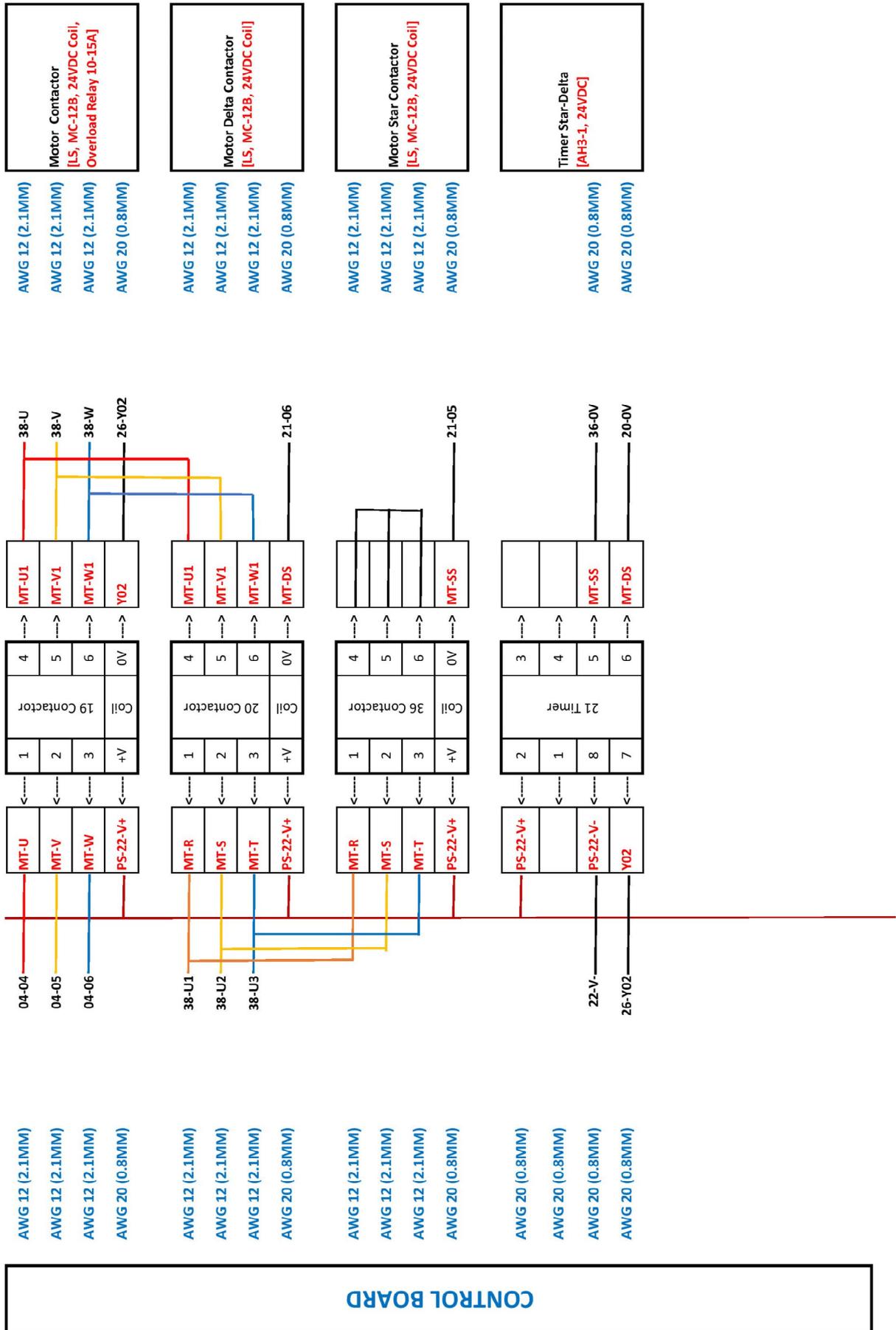
**BRM-5000 ELECTRICAL**



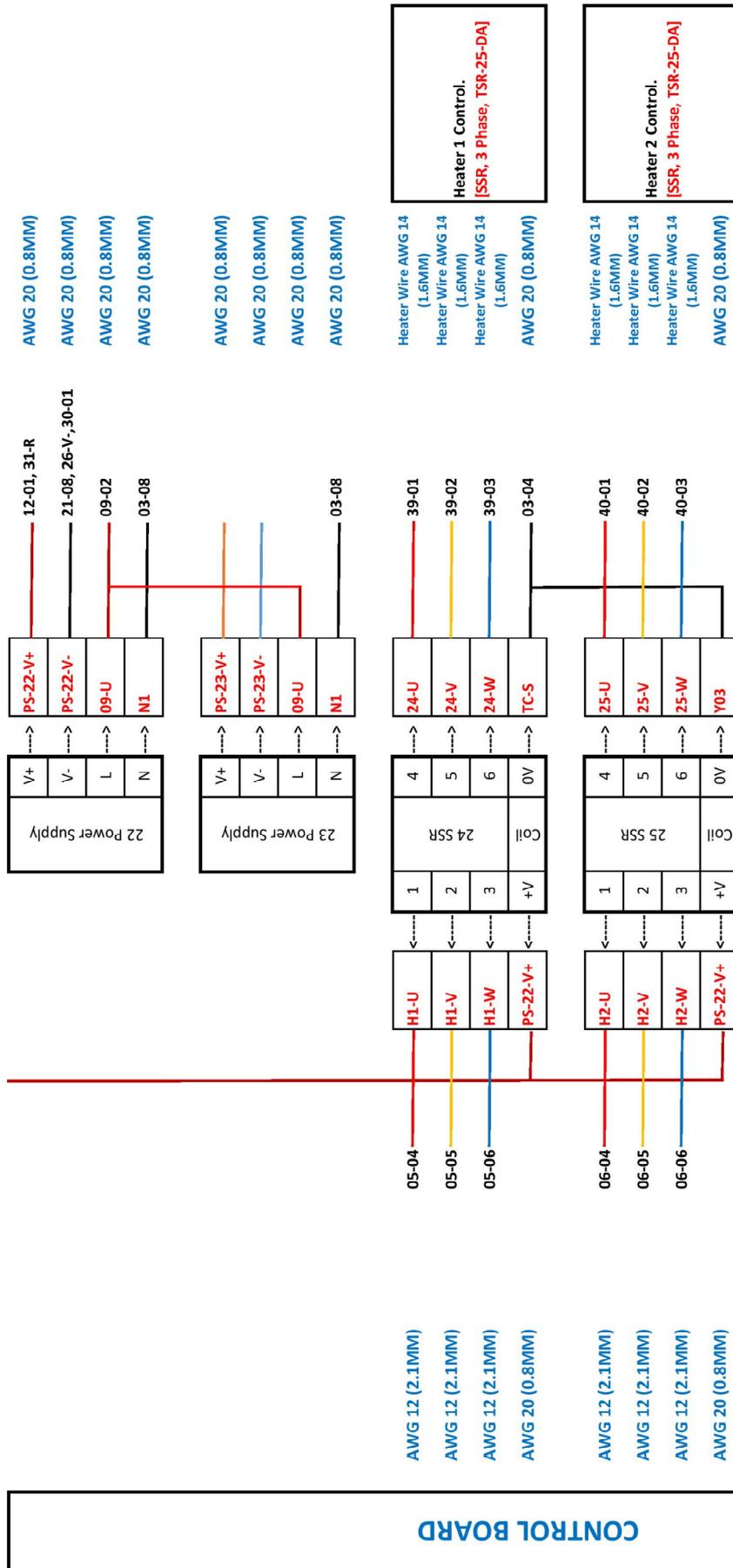
**BRM-5000 ELECTRICAL**



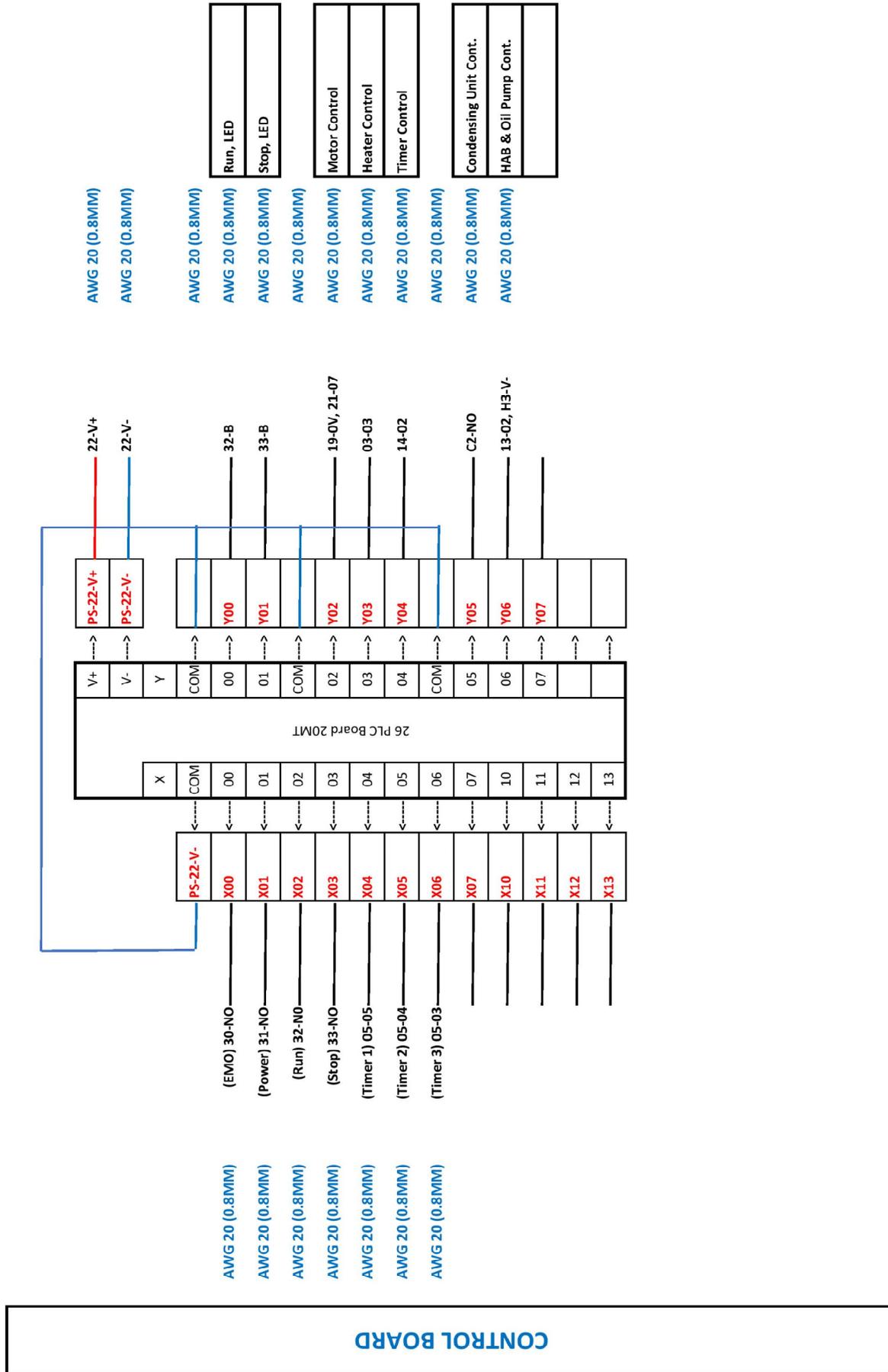
**BRM-5000 ELECTRICAL**



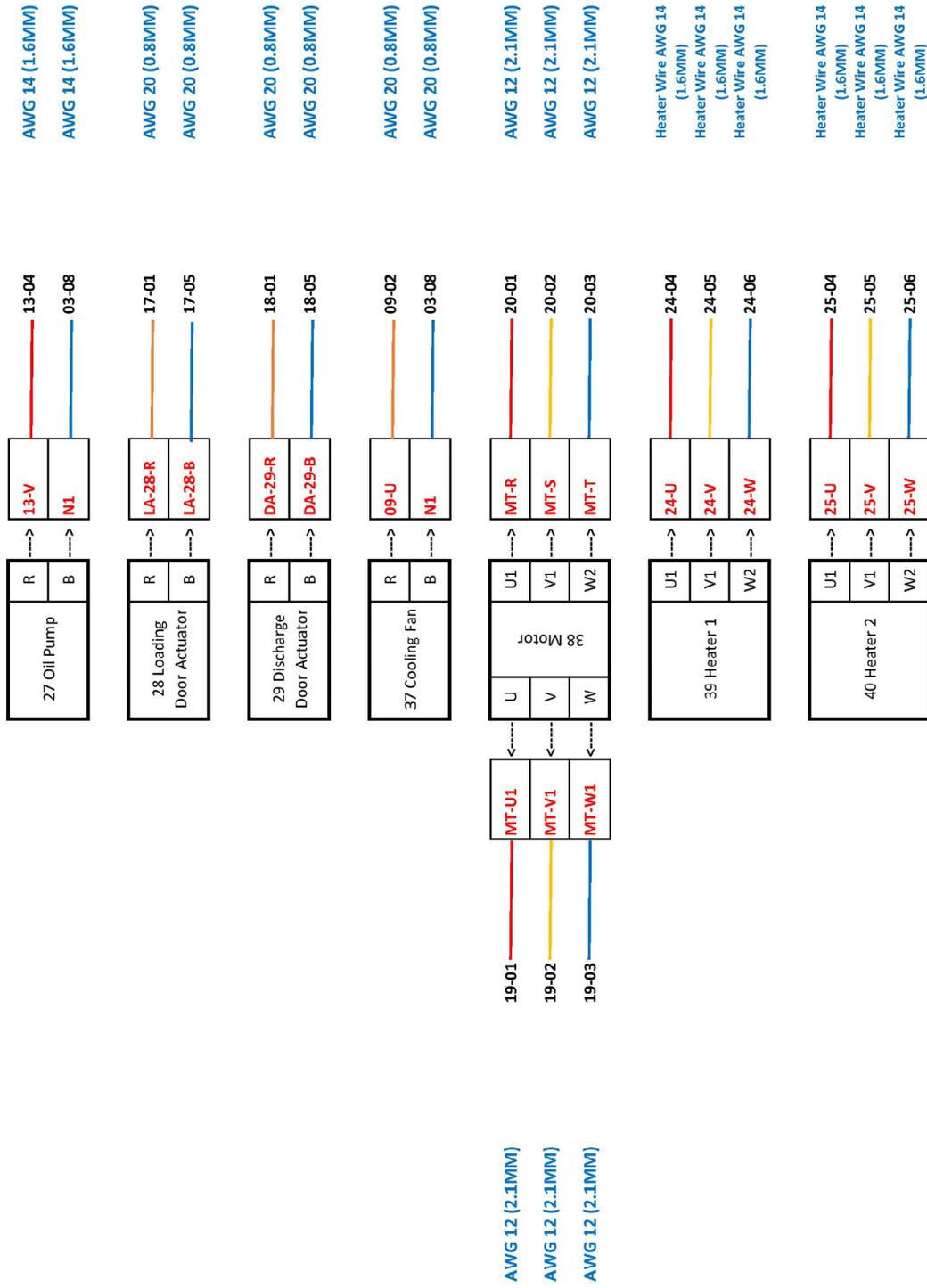
**BRM-5000 ELECTRICAL**



BRM-5000 ELECTRICAL



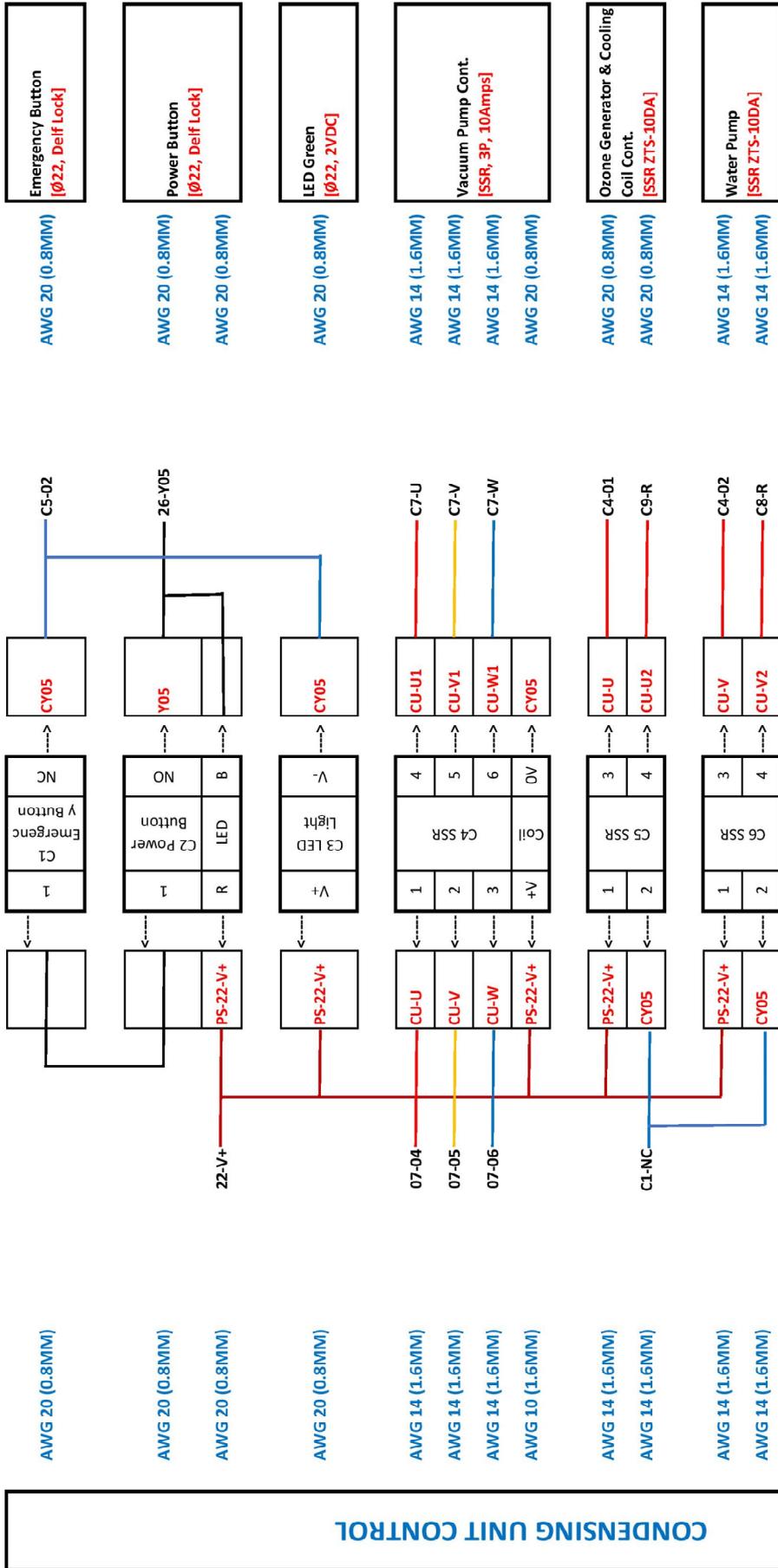
**BRM-5000 ELECTRICAL**



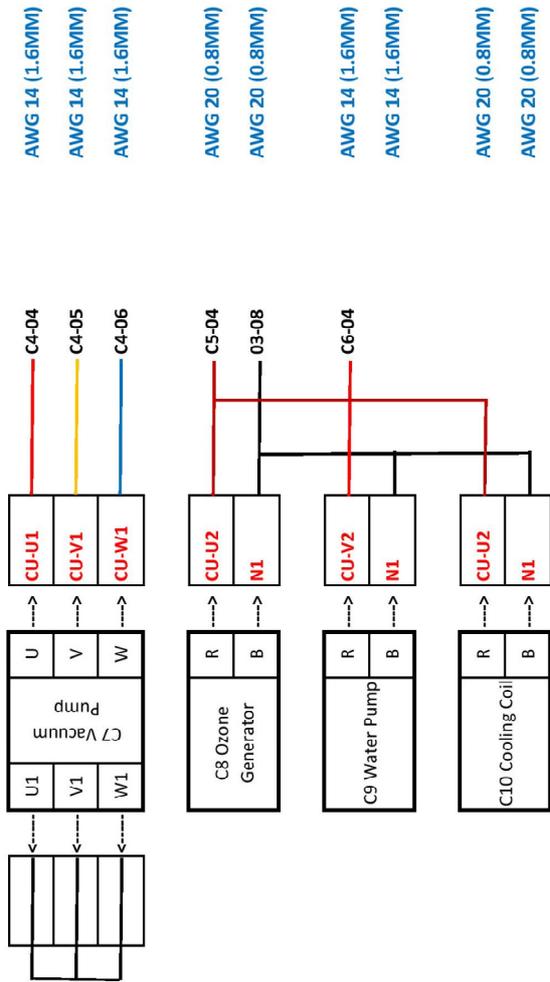
**COMPONENTS**

# 11.4 Condensing Unit Electrical Circuit (Cont'1)

## BRM-5000 ELECTRICAL



**BRM-5000 ELECTRICAL**



AWG 14 (1.6MM)

AWG 14 (1.6MM)

AWG 14 (1.6MM)

AWG 20 (0.8MM)

AWG 20 (0.8MM)

AWG 14 (1.6MM)

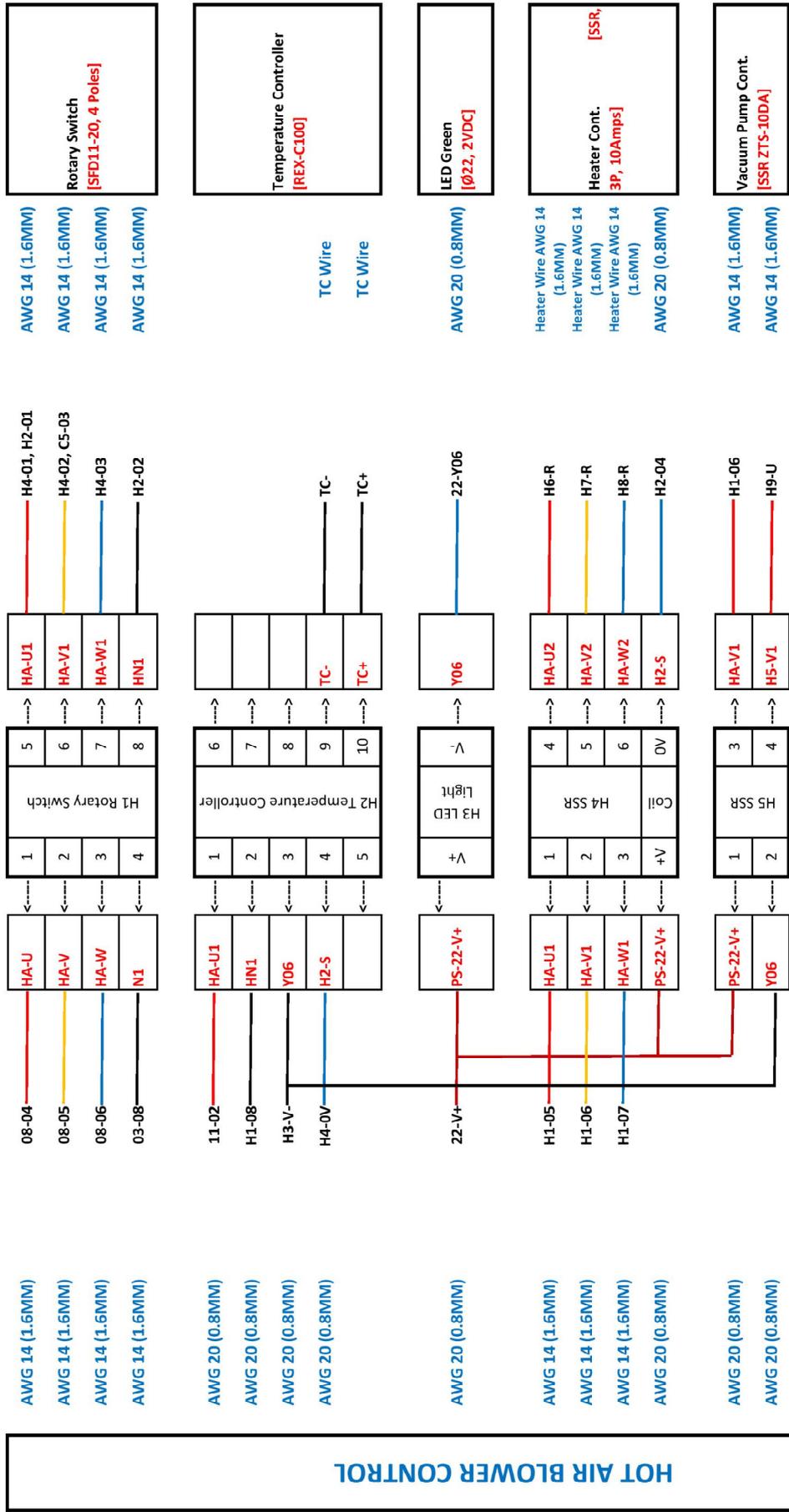
AWG 14 (1.6MM)

AWG 20 (0.8MM)

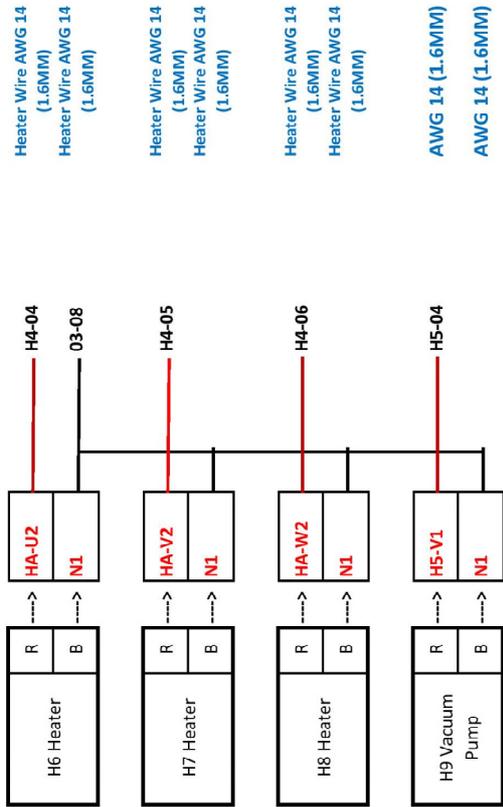
AWG 20 (0.8MM)

**CONDENSING UNIT COMPONENTS**

**BRM-5000 ELECTRICAL**



**BRM-5000 ELECTRICAL**



CONDENSING UNIT 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

Certificate Issue Date: 06.02.2021

1st Surveillance: 02.2022

2nd Surveillance: 02.2023

Certificate Expire Date: 05.02.2024

Head of Certificate



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**PROGRESSIVE INTERNATIONAL CERTIFICATIONS LTD.**

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

E-mail.: [info@picluk.com](mailto:info@picluk.com), Website: [www.picluk.com](http://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	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

Certificate Issue Date: 06.02.2021

1st Surveillance: 02.2022

2nd Surveillance: 02.2023

Certificate Expire Date: 05.02.2024

Head of Certificate



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**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

## 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



GEC Integration Sdn Bhd  
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13700 Prai, Penang, Malaysia.  
Phone: +60125080559  
mail.gecsb@gmail.com

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# 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.



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Phone: +60125080559  
mail.gecsb@gmail.com

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# 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



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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.**



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Page 4 of 4

### 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**