

DINDAN

Enclosure cooling unit

Model

20ACU/004

User's guide



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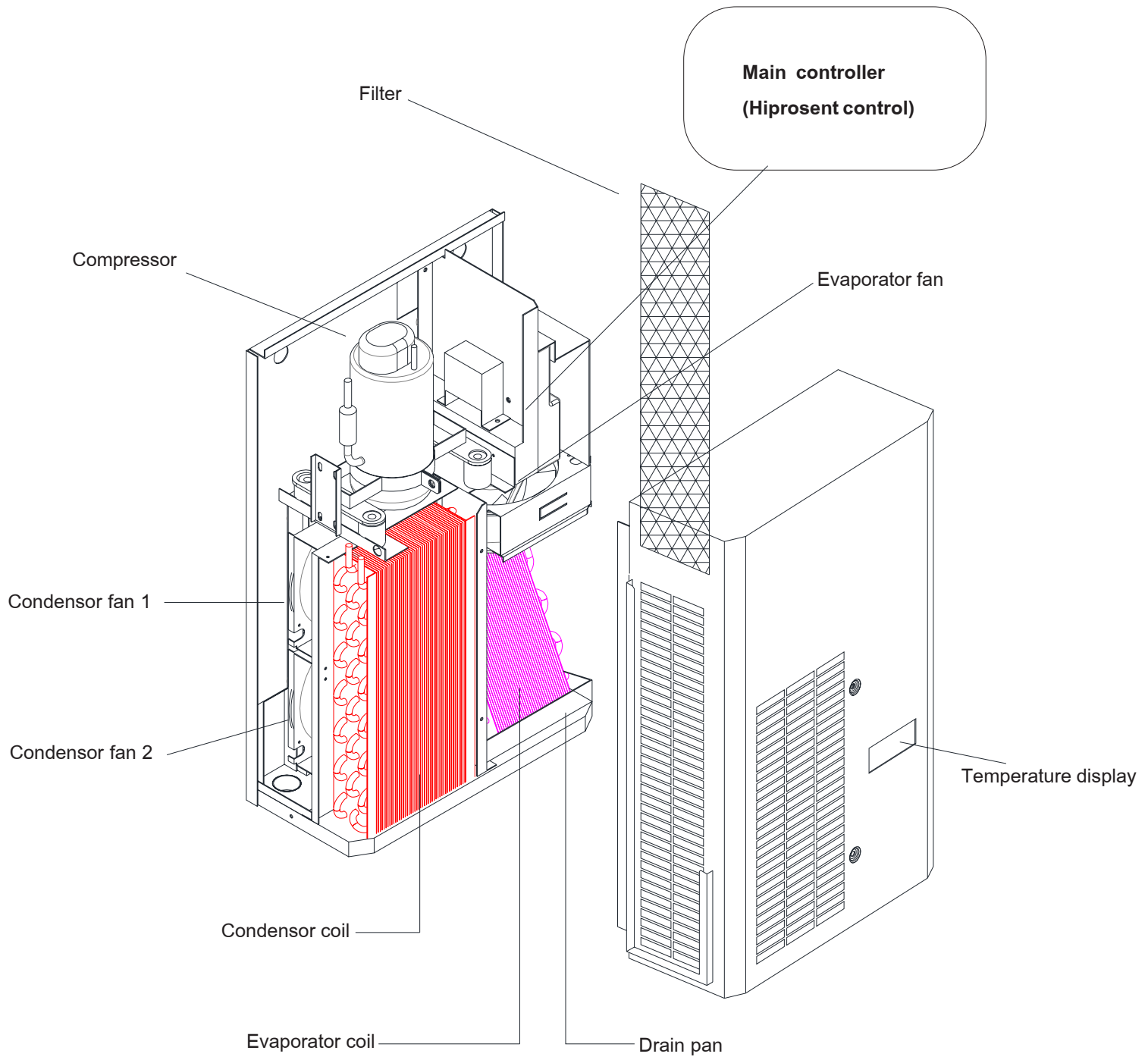
Introduction

Cooling unit for control cabinet is used for diminishing internal heat by providing cool air to the control cabinet that can protect sensitive equipment. It is specially designed to resist surrounding temperature as high as 40-50 °C and can function well in any factories including those with intensive dust, particles and oil mist or with high acidity.

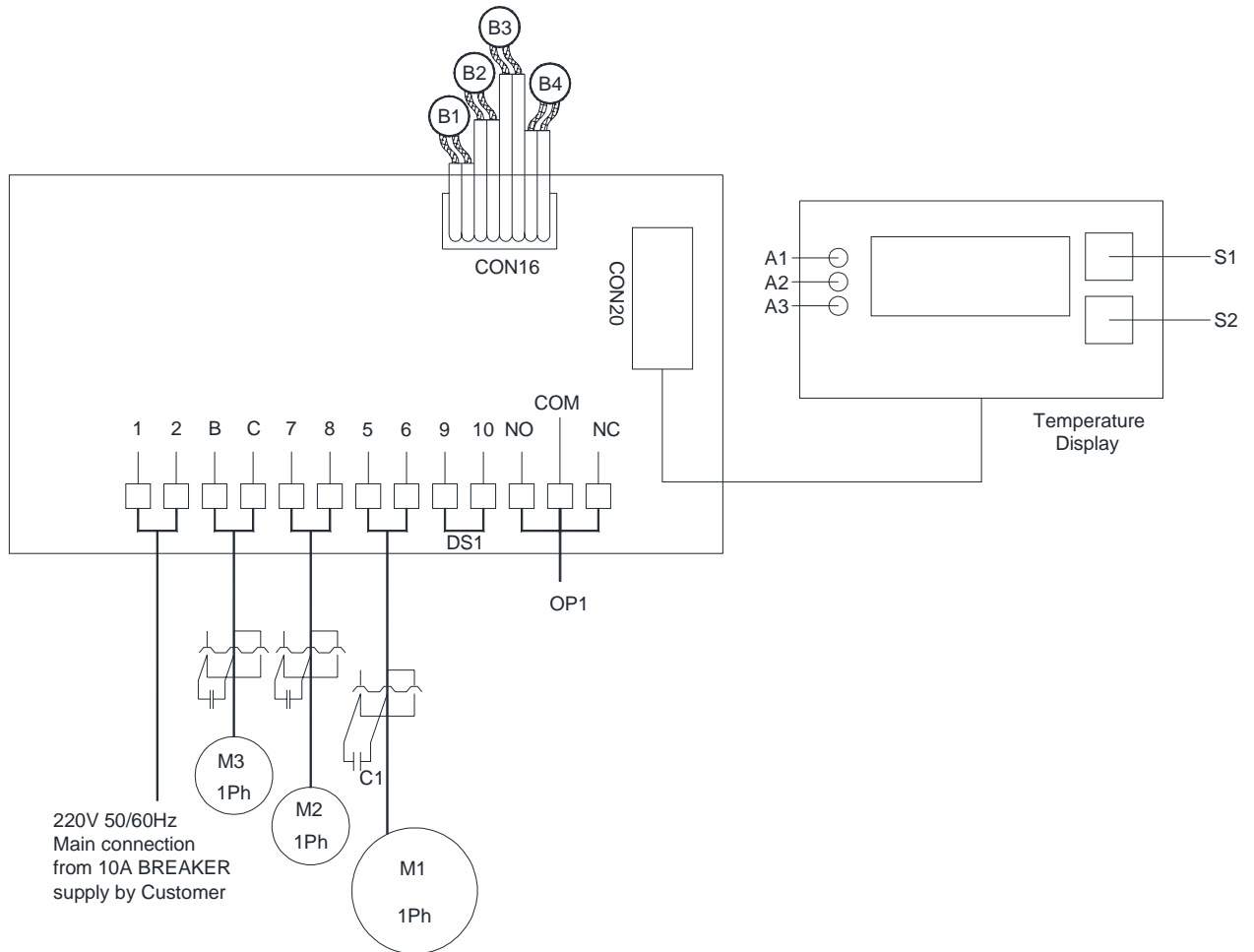
1. Over view

20ACU/004





HIPROSENT CONTROL (EGS035-1)



Control and Monitor

A1 = LED status

A2 = LED Over/Under Voltage Status

A3 = LED compressor's status

S1 = Temperature setting switch (Up)

S2 = Temperature setting switch (Down)

Cable and signal

B1 = Temperature sensor (inside cabinet)

B2 = Over heat sensor

B3 = Ice sensor

B4 = Ambient temperature sensor

220VAC

M1 = Compressor

M2 = Condenser Fan

M3 = Evaporator Fan

OP1 = Output Alarm มีหน้าสัมผัส NO และ NC

DS1 = Door Switch (NO = Alarm, NC = Normal)

2. Specifications

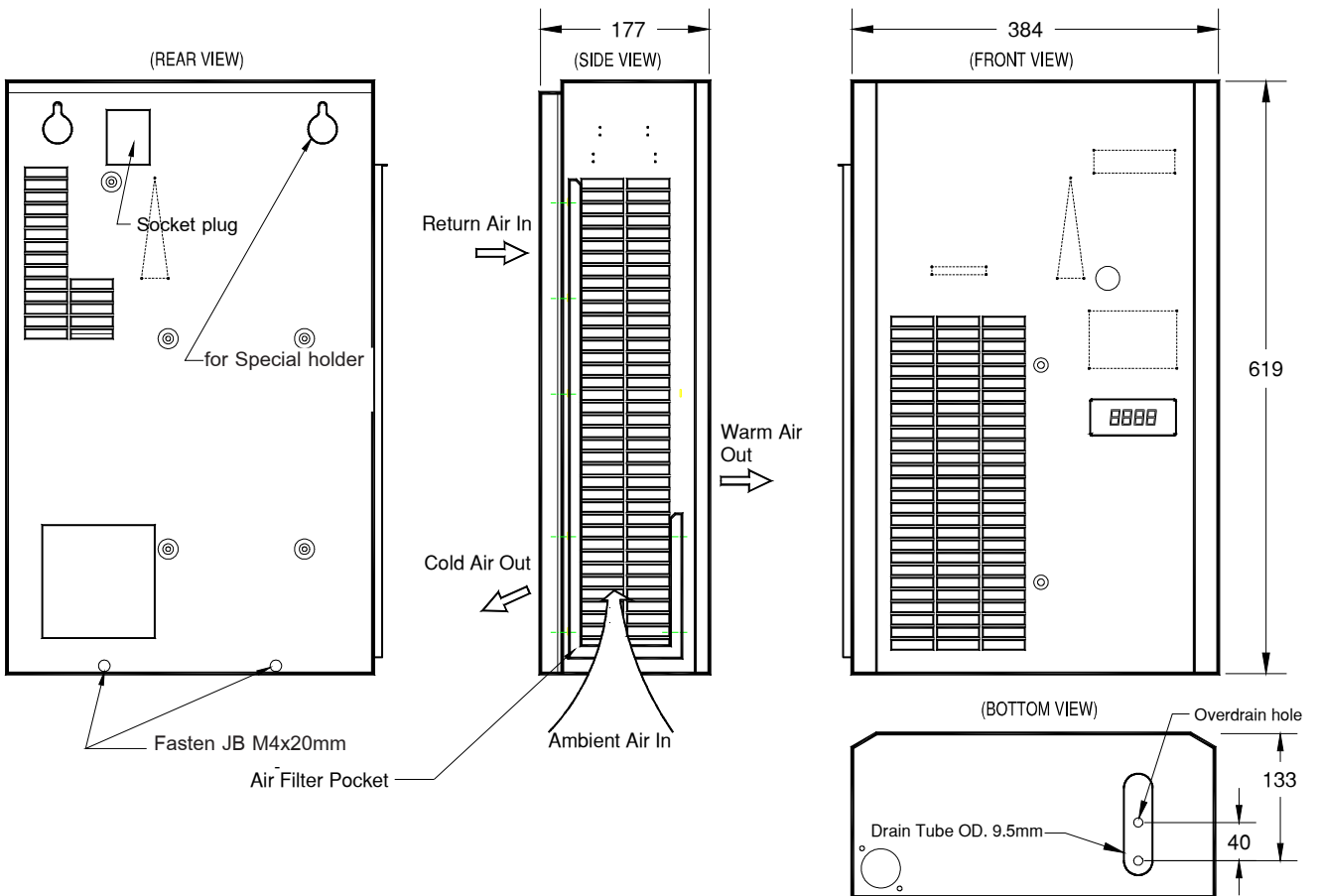
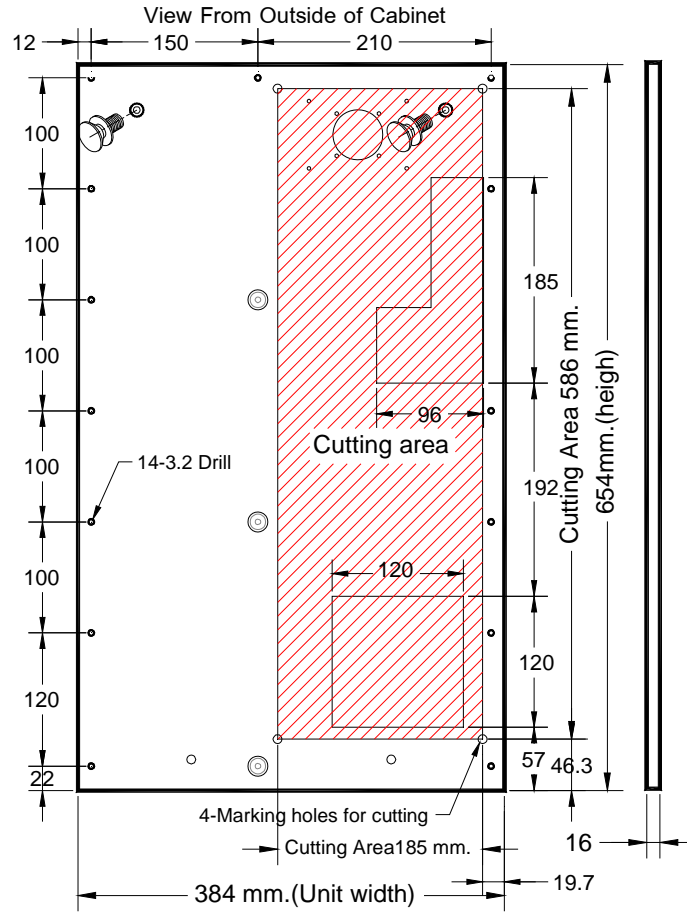
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Characteristics (under normal operating condition at ambient temp. +35^oC)

Model		20ACU/004
Capacity	Watt	600
Installation type		panel
Input	single-phase (V.)	220V+20% / -15%
	frequency (Hz.)	50/60
	current (A.)	1.9
Compressor	hermetic type	rotary
	refrigerant type	134a
System operate	direct expand	yes
Hi-prosent ctrl1	thermostat	yes
	condensor thermal detector	yes
	anti-freeze detector	yes
	compressor overheat detector	none
	water detector	none
Protection	over drain protect system	yes
Display	thermometer (red 7 segment 19 mm.)	yes
	system status (2 colour LED)	yes
Electrical equip.	safety device	7A. slow-blow fuse
Evaporator coil	face area x rows	42.5 sq.inch x 2
	servo fan (r.p.m.)	2850
	number of fan x cfm (0.18 inH ₂ O)	1 x 135
Condenser coil	face area x rows	78.75 sq.inch x 3
	servo fan (r.p.m.)	2850
	number of fan x cfm (0.2 inH ₂ O)	2 x 158
Physical data	approx.weight (kgs.)	31.5
	dimension (mm.)	W:384 D:177 H:619
	condensate drain	OD. 3/8 inch
	internal casing	electro-galvanize
Air filter	width x lenth (mm.)	110 x 536

*under normal operating condition at ambient temp. +45^oC

Installation Plate & Templet for cutting Area

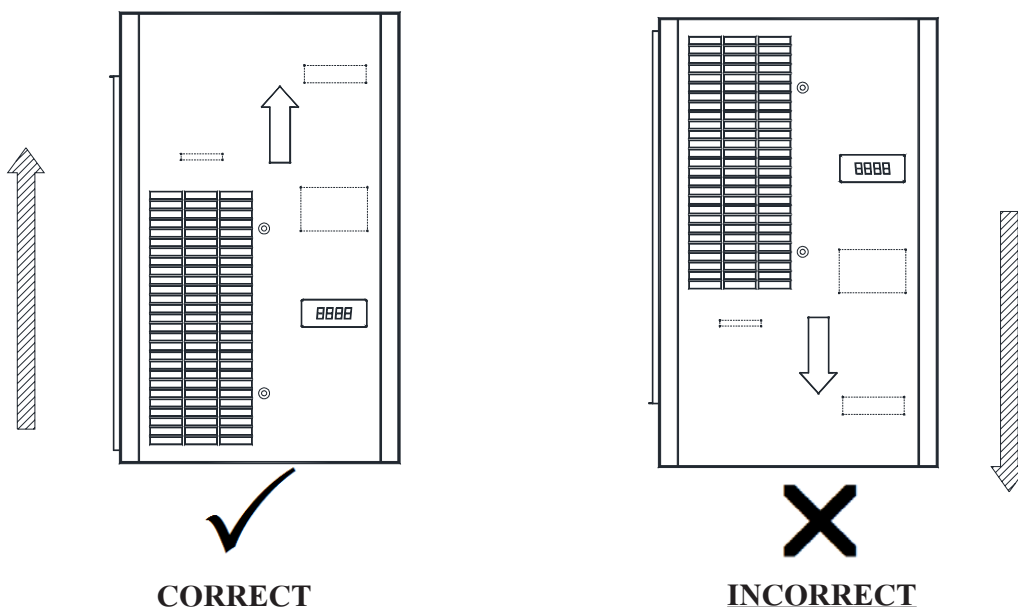


3. Notification

- Before, drilling, and cut. should use clean dry cloth, or the inventory doesn't lead the electricity, covers the equipment for protects iron dust touches the electrical equipment while installing. (In case of machine still operate.)
- Cooling unit should be installed in the good circulation area
- Check vertical and horizontal level of which their error shall be allowable within $\pm 2^{\circ}$ in order to facilitate efficient drainage
- Should always install gasket between Installation plate and Cooling Unit before hang the cooling unit on the installation plate
- Installing of drain tube (Page 17)
- In order to minimize water condensation, cabinet doors should be tightly closed during operation
- Circulation fan should be installed in cabinet if various equipment is densely installed inside
- In order to obtain highest performance and durability, repair and alteration of cooling unit should be under care of distributor
- Should not adjust temperature difference more than 10°C between environmental temperature and cooling space, to prevent moisture build up on some part in the cooling area when you open the cabinet panel
- If it is necessary to set temperature lower than 25°C , it is recommended to use precision cooling unit or contact your Professional Maker.
- The equipments that are locate in the cooling air stream have to be obstructed by the insulator to prevent water condensation

General Condition

- Storage: Cooling unit should be stored at temp not exceeding 70 °C
- Transportation: This type of cooling unit can't be laid down horizontally.
- Installation: It shall be installed in vertical direction only
(please see figure below)



Disposal of damaged Cooling Unit

As its refrigeration system contain Refrigerant and lubricating oil for compressor, in order to protect environment, these substances should be disposed of properly or other under direction given by distributor.

4. Technical information

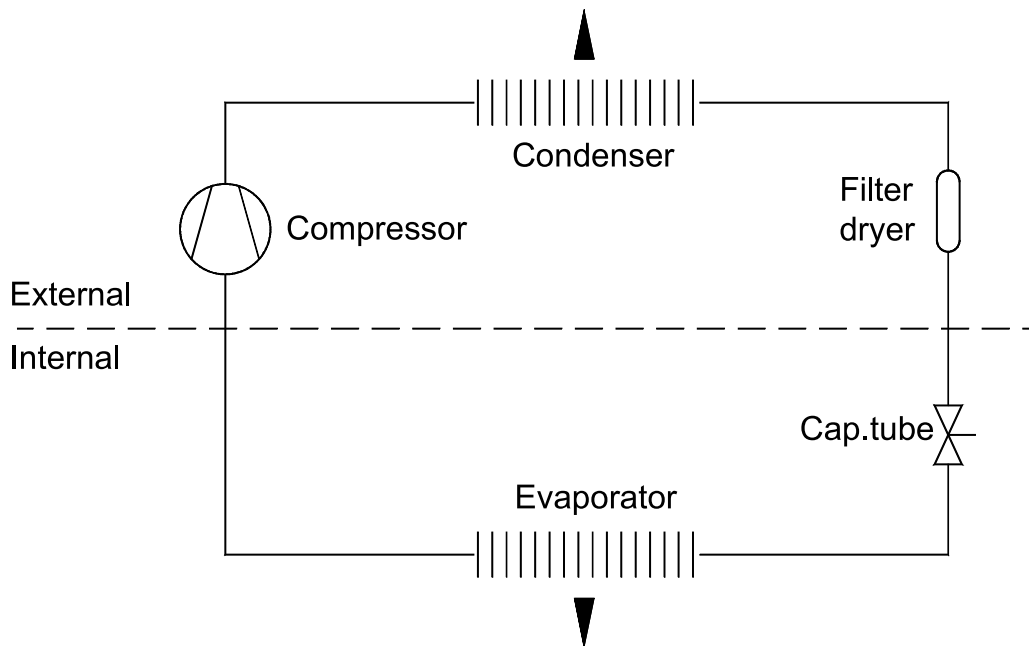
Protective equipment

Refrigeration system has been tested with high pressure device at 350 PSI. This series of cooling unit also contains electronic circuit and sensors are installed at significant points to monitor any defect of refrigeration cycle in order to reduce burden of the user and to prolong use life of cooling unit at more costeffective practice.

Note

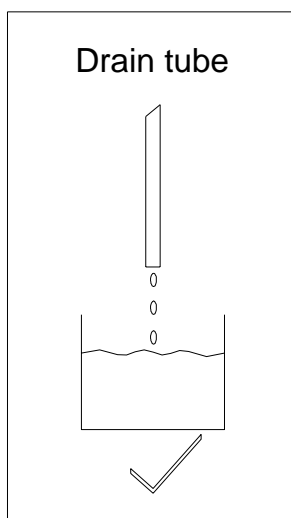
- LED light will display green colour (continuously) to indicate condition.
- Under any abnormal condition, please see pages 20.

Refrigeration Cycle

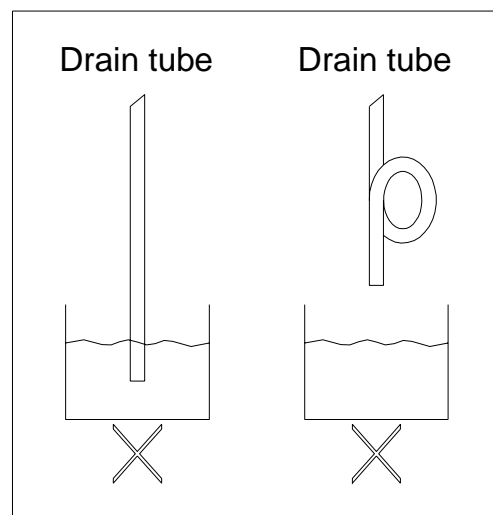


Drainage

Drainage of condensed water from cooling system shall be done by inserting drain tube under drainpan (see page 17) and trying not to left it twisted. Make sure, the other end of drain tube is not lower than water level in the container, in order to avoid water reflux



Correct installation



Incorrect installation

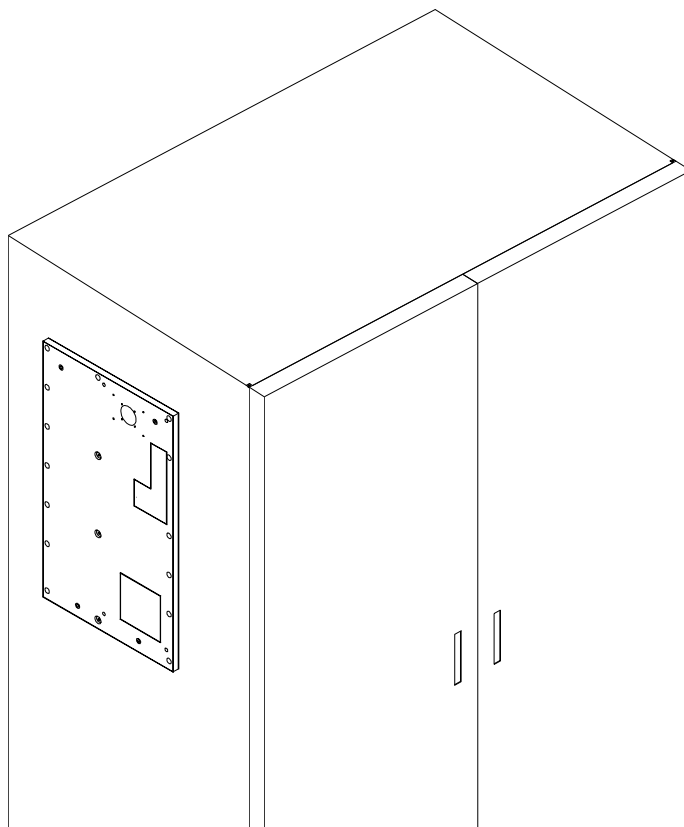
5. Installation

Accessories for 20ACU/004

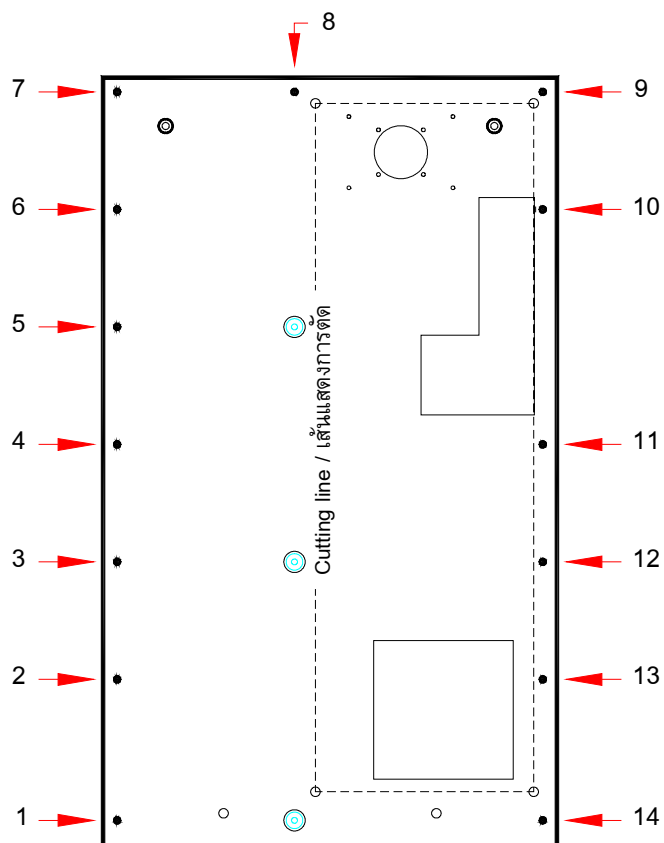
<u>Items</u>	<u>Quantity</u>
Cooling unit	1
User's guide & Warranty card	1
Socket plug guard	1
Socket plug	1
Special holder	2
Foam gasket	1
Air filter	1
Installing plate	1
3/8" Drain Tube (200 cm.)	1
3 x 1 Sq.mm VCT power cord. 200 cm.	1
Self tapping screw 1/8" x 3/8" (<i>for Installation plate</i>)	20
Self tapping screw 1/8" x 1/2" (<i>for Installation Socket plug guard</i>)	4
M6 x 20 mm. bolt	2
Plain washer (<i>for M6 x 20 mm. bolt</i>)	2
1/2" Cable clamp	2
6" Cable tie	3

Installation procedure

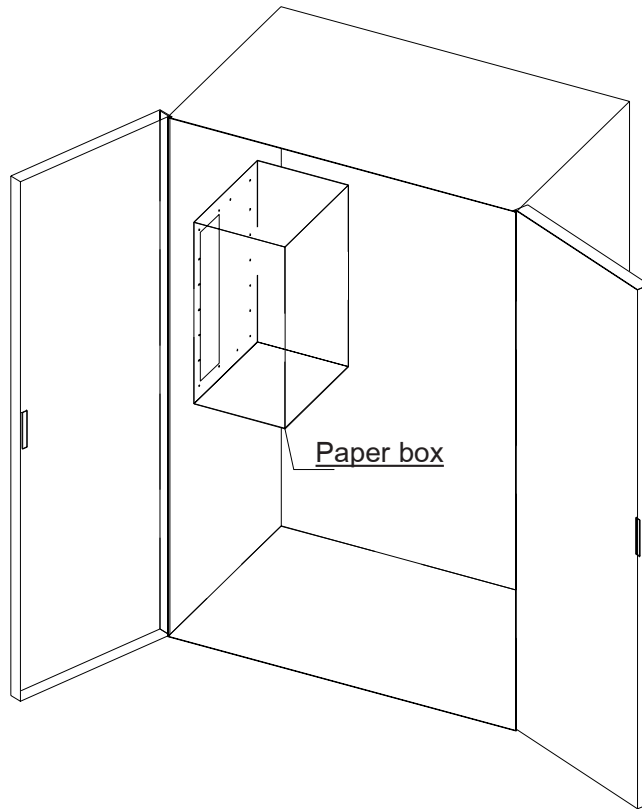
1. Align installation plate in the position to be installed.



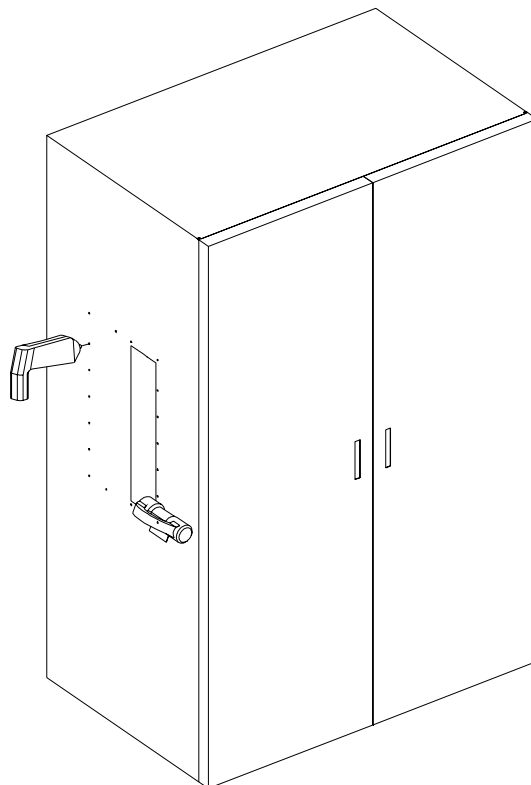
2. Layout 14 positions for drilling and cutout along the dot line with Jigsaw



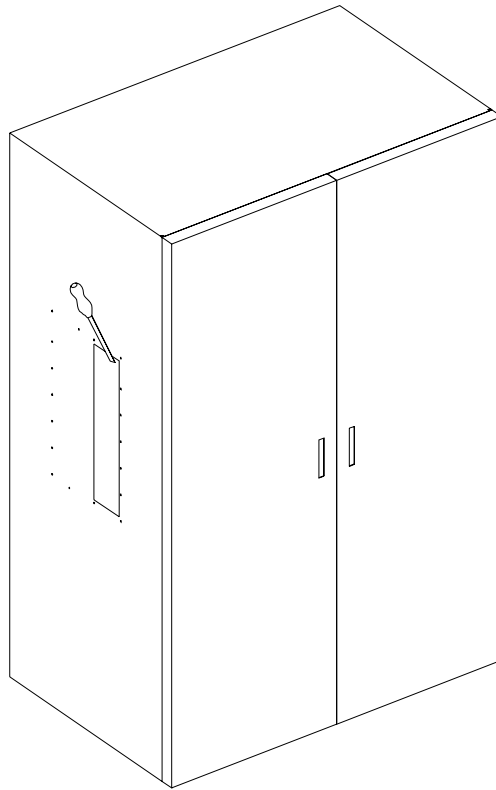
3. Cover equipments inside cabinet with clean and dry cloth, and cover with paper boxes at position will be drilled and cutted in order to prevent metal script falling in cabinet.



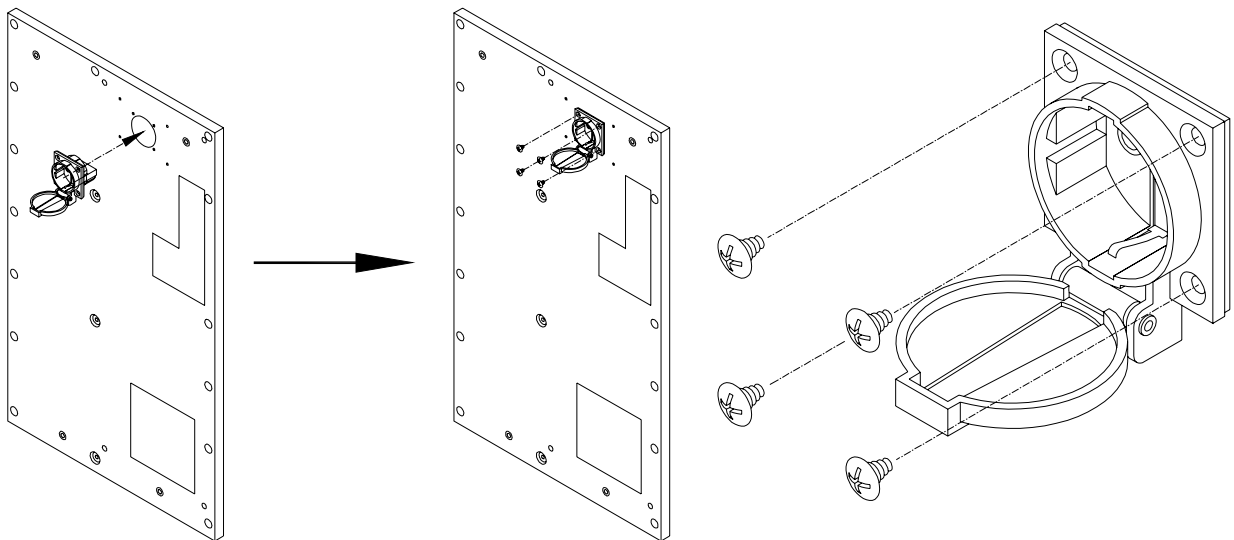
4. Drill and cut the holes and area as be pointed out from installation plate.



5. Chamfer the cutted edge and paint rust proff colour.



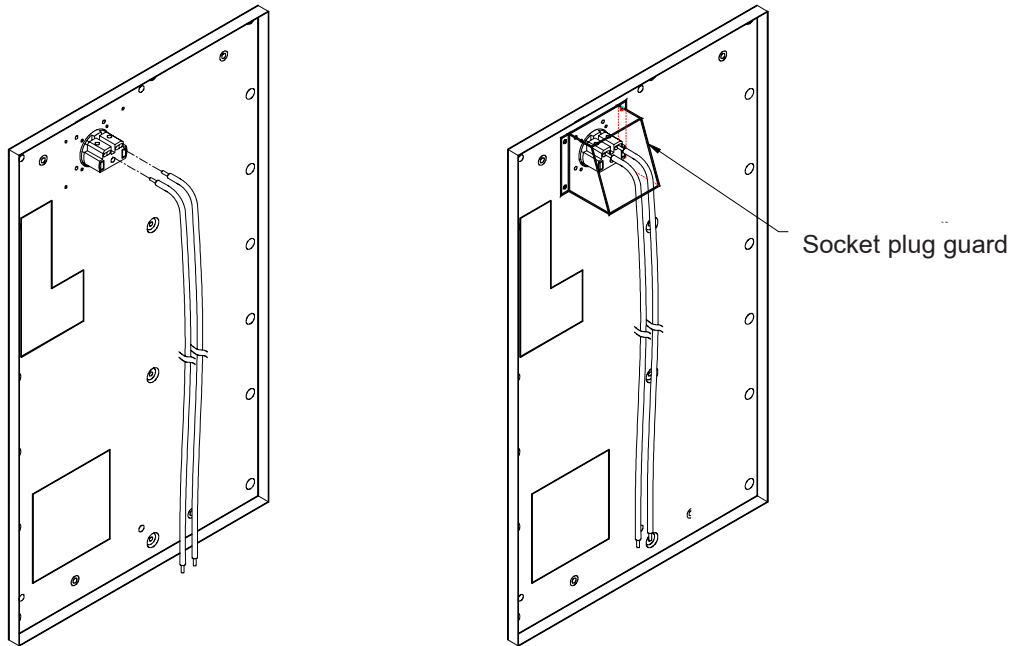
6. Put the socket plug in the position and screw it
be careful the socket plug cover must be opened downward only



7. Socket plug Installation

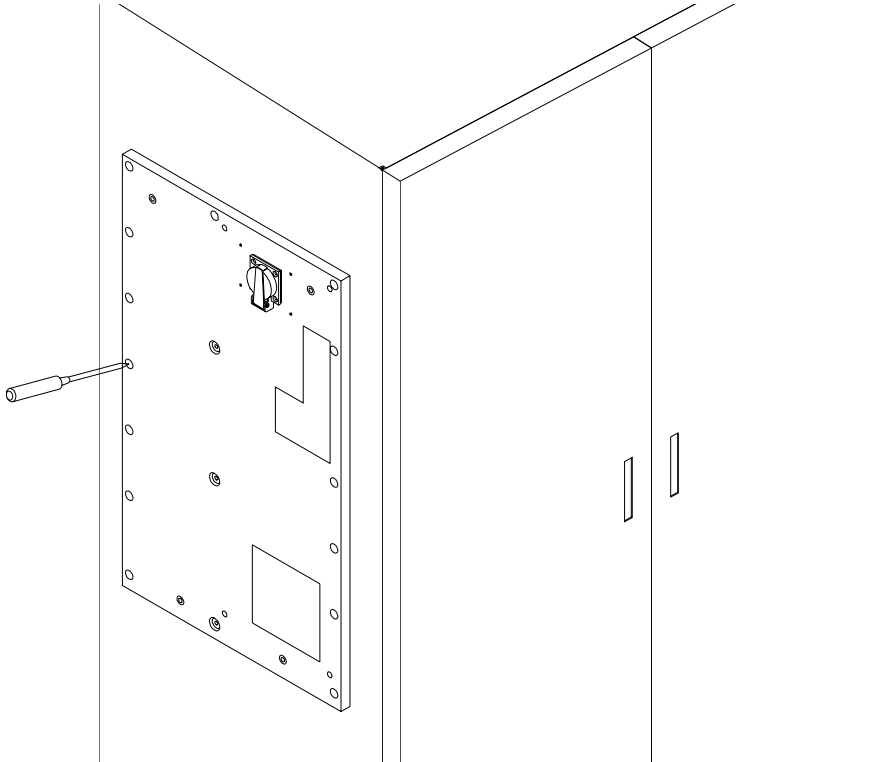
7.1 Put the cable in the socket plug and screw.

7.2 Install the socket plug guard.



8. Installation plate attachment

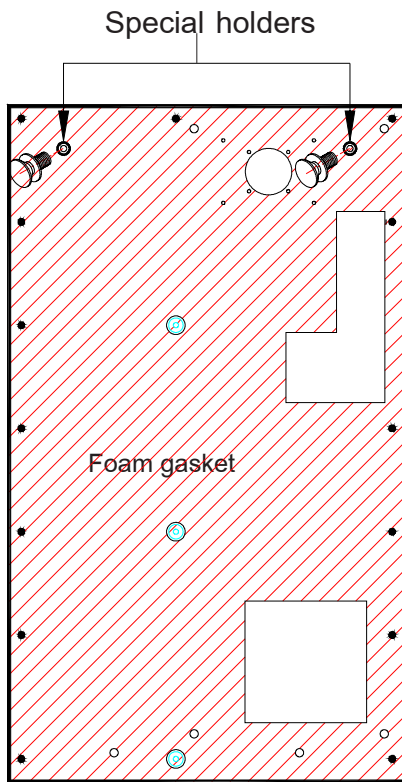
8.1 Install the Installation plate with 14 self tapping screws



8.2 Connect main power line with 220VAC which be connected to 10 Amp. breaker (Main power is 1 Sq.mm.)

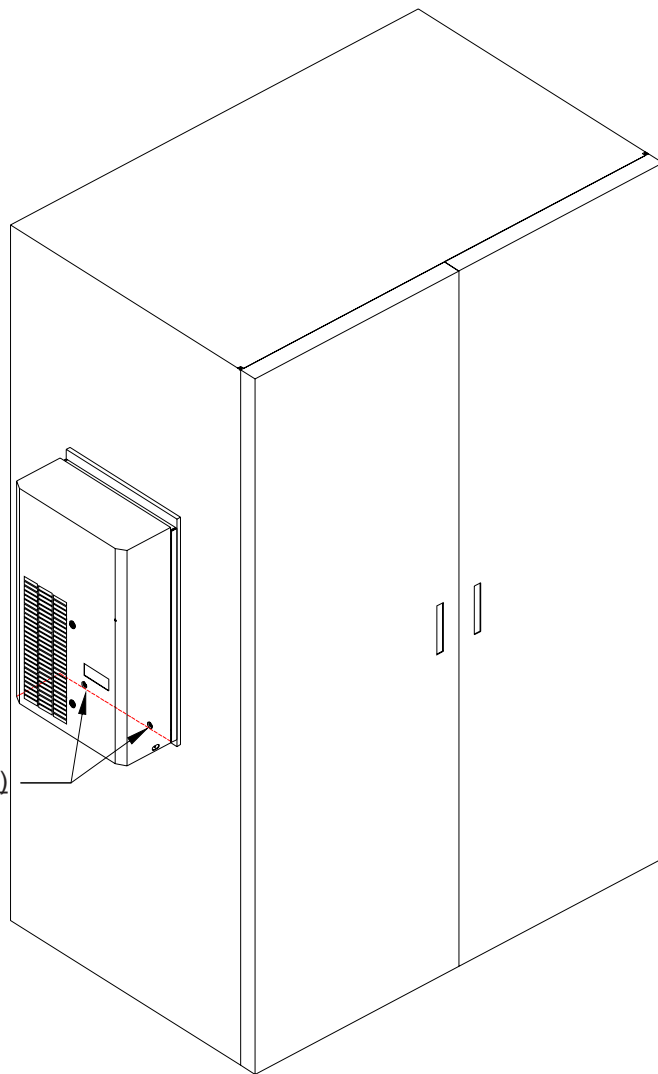
Beware Breaker shouldn't be shared its load with any other components.

9. Attach the foam gasket to the installation plate and fasten the special holders on it and then hang the cooling unit on this holders, fasten another 2 screws M6 x 20 mm. at the bottom of the cooling unit.



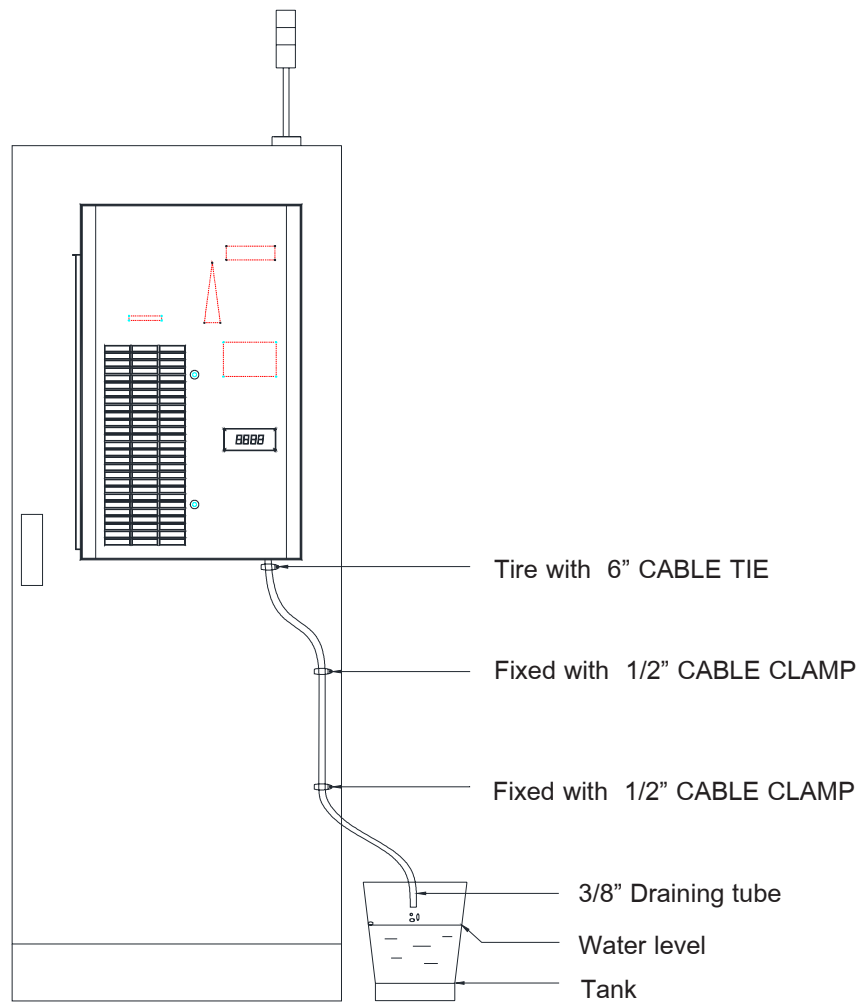
Installation plate and it foam

M6 x 20 mm. bolt (2 unit)



10. Uncover the frontal case of cooling unit then plug-in the plug.

11. Install the draining tube by the illustration below



Illustrate of drainage wiring

Beware:

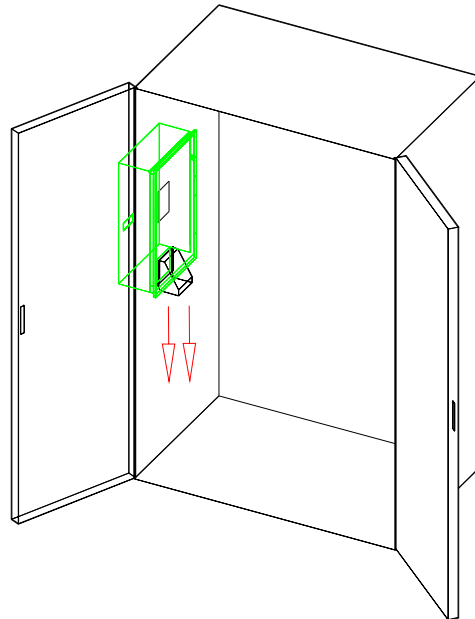
Avoid dipping draing tube below than water level
which be clogged its drainage

12. Turn on breaker for operation

Air diverter installation(In the necessary case)

1. Divert air down

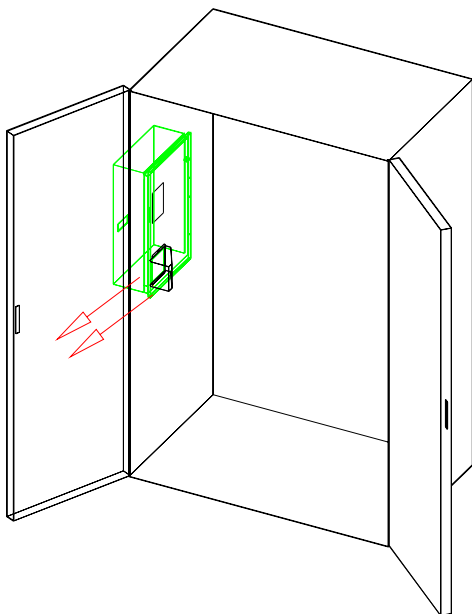
Turn the air diverter to blow air down as shown below the drill and fix it.



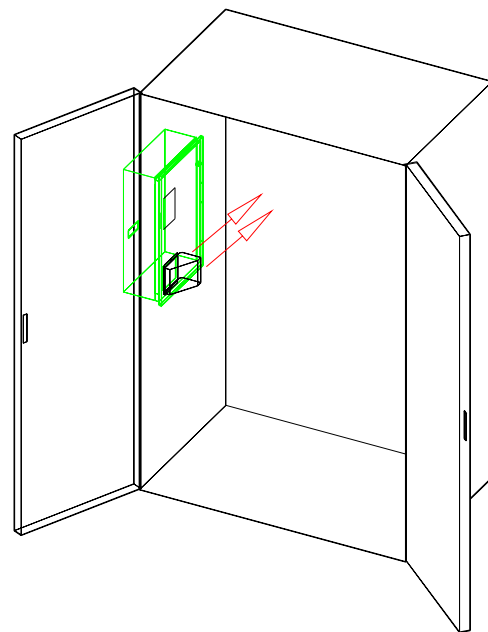
2. Divert air to left and right

Turn air diverter to left or turn air diverter to right

Drill and fix the diverter as shown below



Illustrate diverting the air to left



Illustrate diverting the air to right

Note: Air diverter is the additional, not appropriate with common installation equipment.

6. Maintenance

Maintenance of DINDAN cooling unit can be simply done by giving care to the air filter and condensor coil not to be clogged up. The cleaning interval for the air filter depends on how dirty it is of the area where it is installed.

In case of abnormal function, it can be noticed from LED light which is to change in corresponding with abnormal condition of cooling unit. For more details please see page 20.

7. Fault indication and analysis:

LED A / display	Nature of fault	Cause	Remedy	Unit's operation
Green / temperature	-	-	-	normal
Green / E01* (LED B = Red)	Over voltage	High voltage supply (264V.)**	Check line voltage connection and Supply new line power	Automatically shut off
Green / E02* (LED B = Red)	Under voltage	Under voltage supply (187V.)**	Check line voltage connection and Supply new line power	Automatically shut off
Green / E03	Over current	Defective equipment	Carry out of cooling service	Automatically shut off
Red & Green alternately blink / E04***	Flood of water	Obstruction in condensate drain	Clean or replace drain hose	Automatically shut off
Green / E05	Door Switch	Unit is not fitted vertically Control cabinet doors open	Adjust the enclosure level carefully Close the control cabinet door	Automatically shut off
Red color blink / E06	Risk of icing	Operational indication, icing up	Raise the set point value of the internal temperature	Automatically shut off
		Evaporator contaminated	Clean	
		Evaporator fan defective	Replace	
		Lack of coolant	Carry out of cooling service	
Red / E07	Hi-pressure in refrigerant system	Ambient temperature too high Condenser contaminated Filter mat contaminated Condenser fan defective	Unit's specified range of application exceed Clean Clean or replace Replace	The unit still operate
Red / E08	Alarm E07 more than 4 hr.(Ref Red / E07)	(Ref Red / E07)	(Ref Red / E07)	Automatically shut off
No signal	Unit not operate	Control panel switch off No voltage supply Internal fuse has broken	Switch on the control panel Supply new line power Carry out of cooling service	Unit not operate

Note * If the return voltage is normal. The cooling unit will run again automatically

** Hight Voltage cut-out/cut-in = 264/253 V. , Under Voltage cut-out/cut-in = 187/195 V.

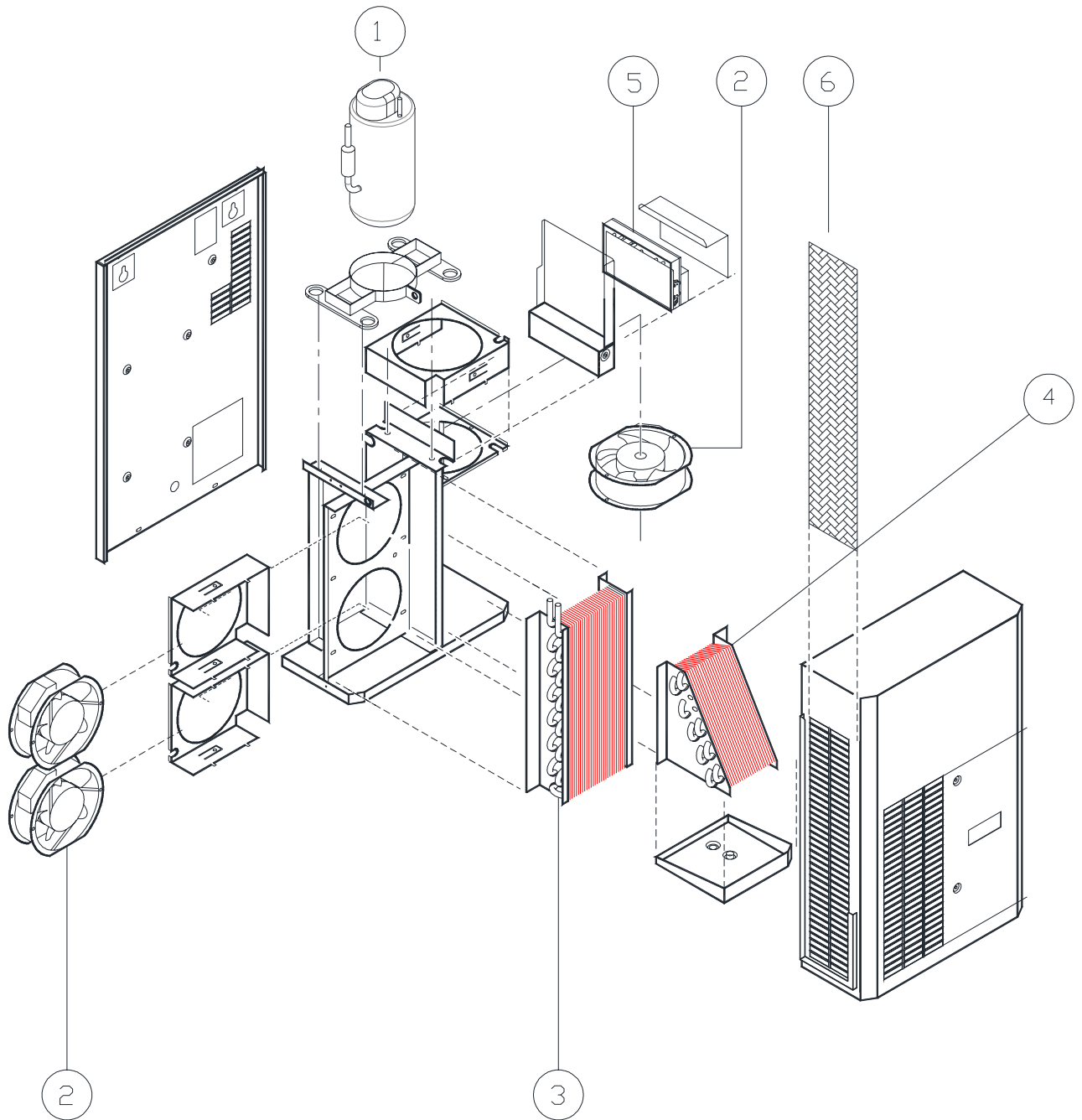
*** Top model only (rooftype installation model)

LED A = LED Status

LED B = LED Over/Under Voltage

LED C = LED Cooling (Compressor Status)

8. Assembly and part number



ITEM	DESCRIPTION	PART NUMBER
1	compressor	EP-04-009
2	servo fan	EP-03-015
3	condenser coil	-
4	evaporator coil	-
5	control board	XEE-22-016
6	filter	CR-15-203