

# DINDAN

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Enclosure cooling unit

Model

**20ACU/003**

User's guide



## Authorized Service Center

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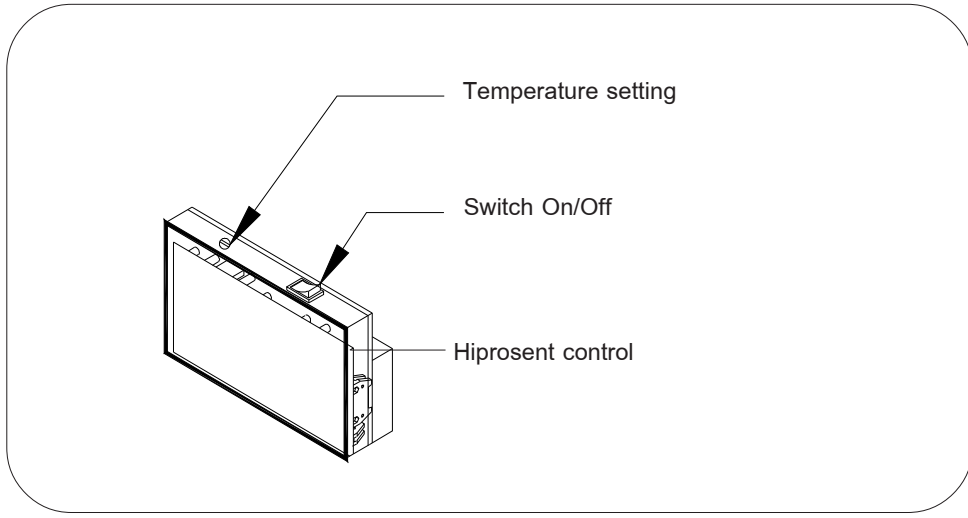
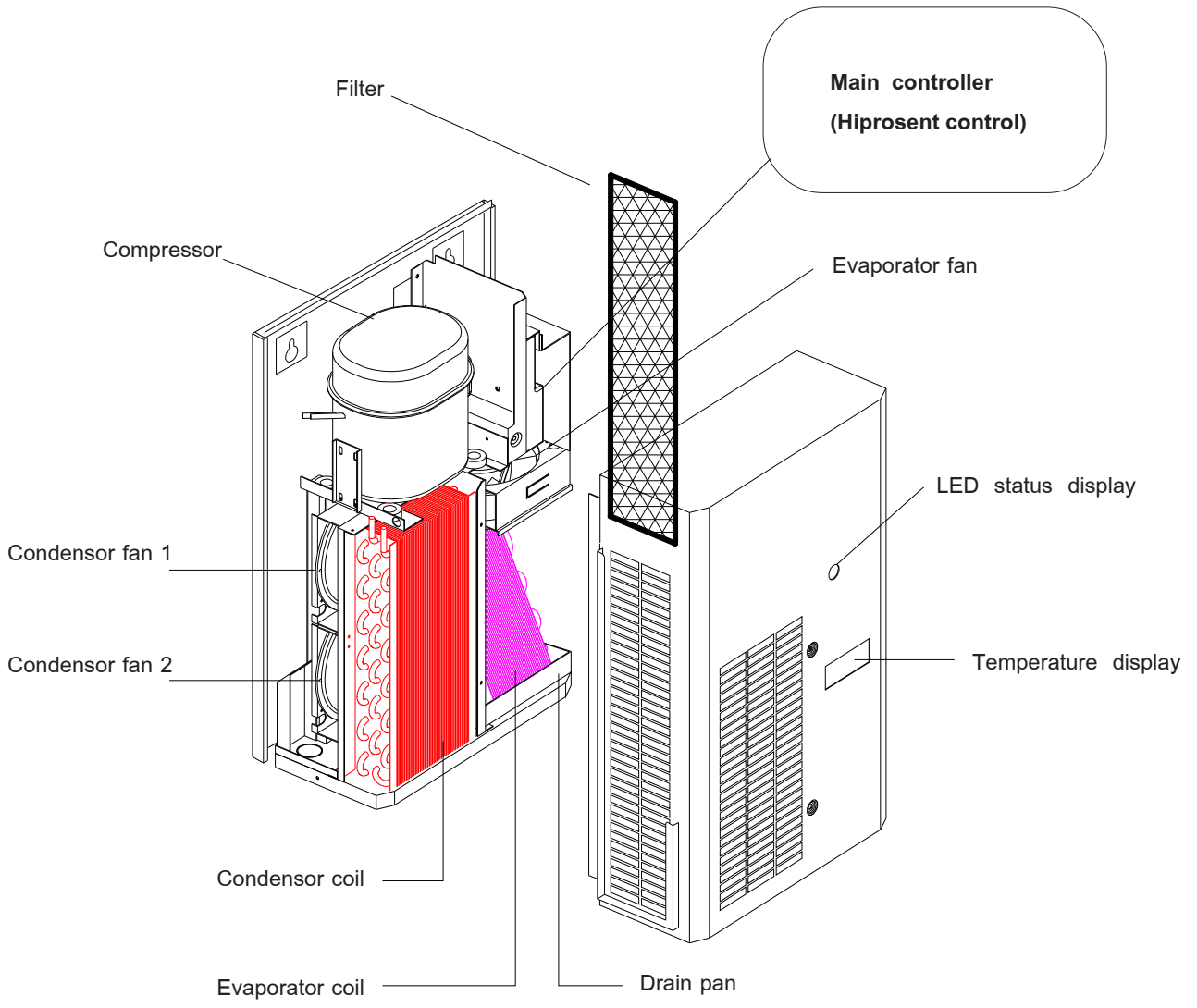
## **Introduction**

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/003





**Main Controller box**



## 2. Specifications

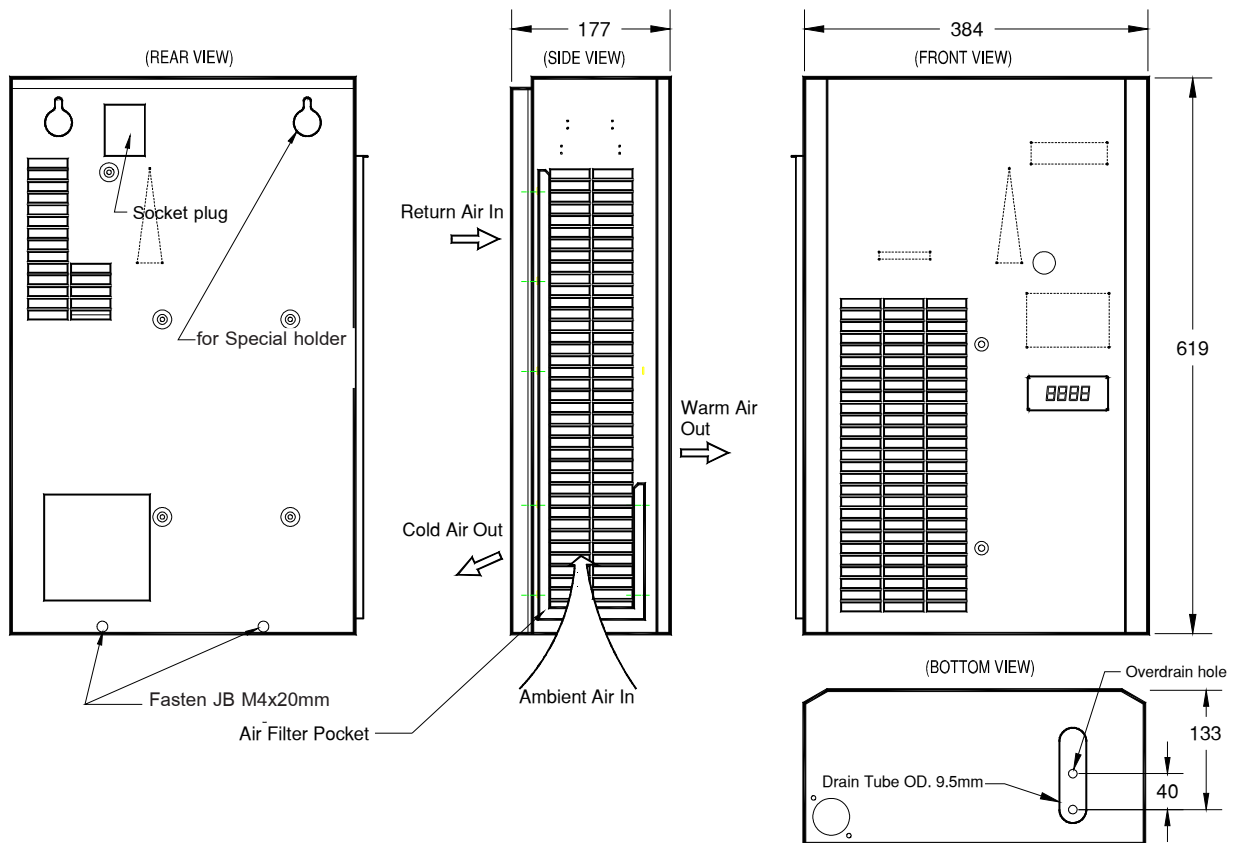
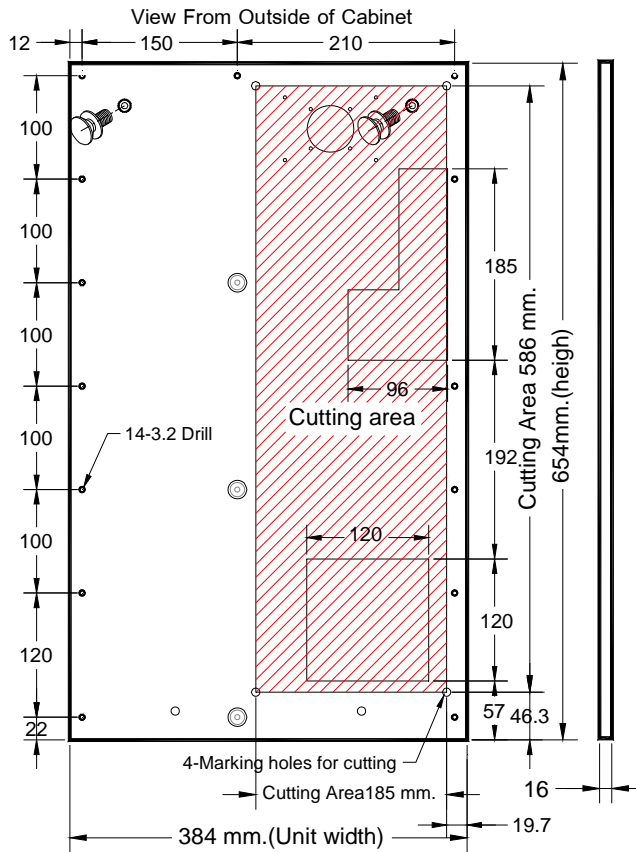
# DINDAN

**Characteristics** (under normal operating condition at ambient temp. +35°C)

<b>Model</b>		<b>20ACU/003</b>
<b>Capacity</b>	Watt	600
<b>Installation type</b>		panel
<b>Input</b>	single-phase (V.)	220V+20% / -15%
	frequency (Hz.)	50/60
	current (A.)	2.57
<b>Compressor</b>	hermetic type	reciprocate
	torque start type	high
	refrigerant type	134a
	lock rotor (A.)	10.70
<b>System operate</b>	direct expand	yes
<b>Hi-prosent ctrl1</b>	thermostat	yes
	condensor thermal detector	yes
	anti-freeze detector	yes
	compressor overheat detector	none
	water detector	none
<b>Protection</b>	over drain protect system	yes
<b>Display</b>	thermometer (red 7 segment 19 mm.)	yes
	system status (2 colour LED)	yes
<b>Electrical equip.</b>	safety device	7A. slow-blow fuse
<b>Evaporator coil</b>	face area x rows	42.5 sq.inch x 2
	servo fan (r.p.m.)	2850
	number of fan x cfm (0.18 inH <sub>2</sub> O)	1 x 135
<b>Condenser coil</b>	face area x rows	78.75 sq.inch x 3
	servo fan (r.p.m.)	2850
	number of fan x cfm (0.2 inH <sub>2</sub> O)	2 x 158
<b>Physical data</b>	approx.weight (kgs.)	31.5
	dimension (mm.)	W:384 D:177 H:619
	condensate drain	OD. 3/8 inch
	internal casing	electro-galvanize
<b>Air filter</b>	width x lenth (mm.)	110 x 536



Installation Plate & Templet for cutting Area



### 3. Notification

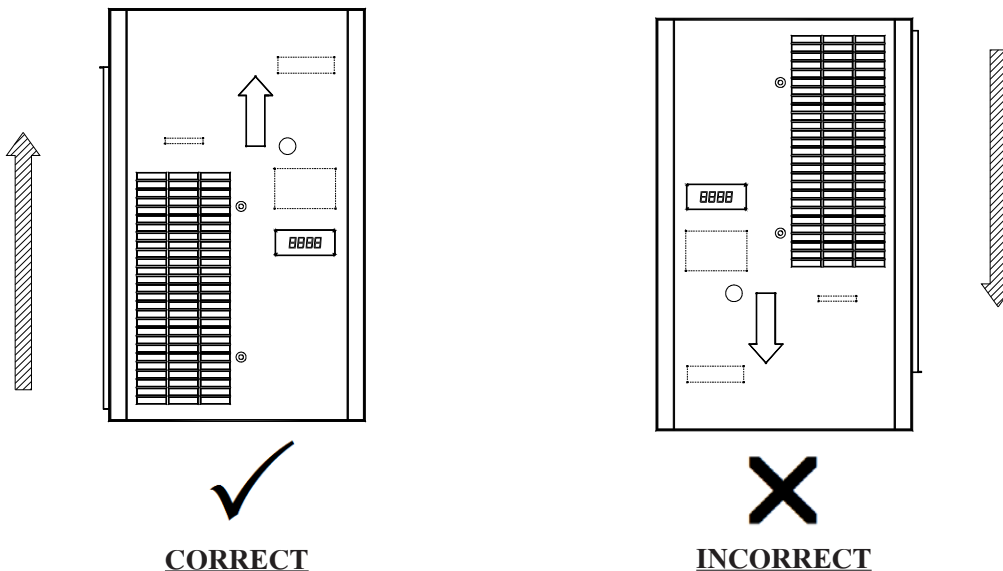
- Before, drilling, and cut. should use clean dry cloth, or the inventory doesn't lead the electricity, covers the equipment for protects iron dust touches the electrical equipment while installing. (In case of machine still operate.)
- Cooling unit should be installed in the good circulation area
- 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  $10^{\circ}\text{C}$  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  $25^{\circ}\text{C}$ , 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

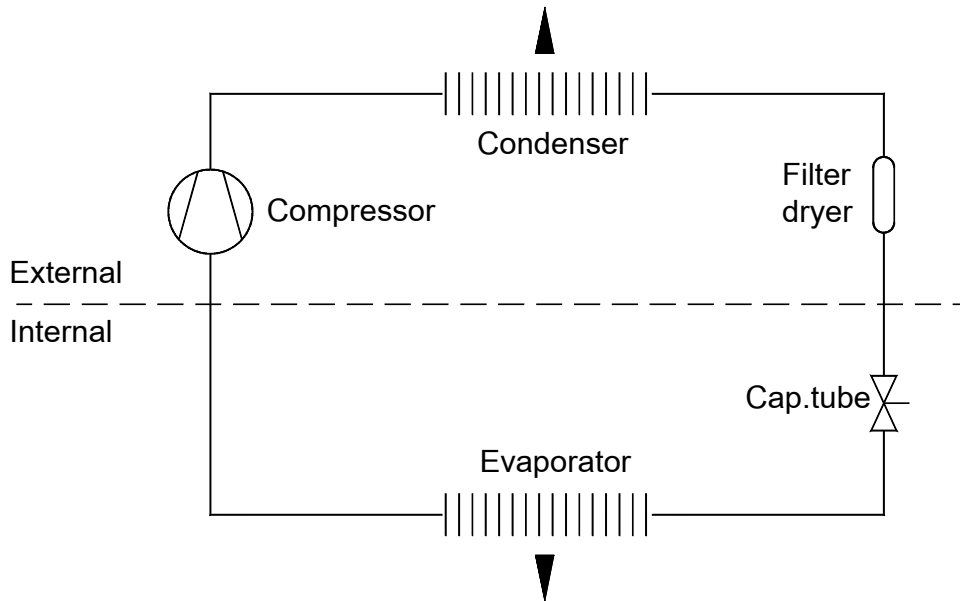
### Protective equipment

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

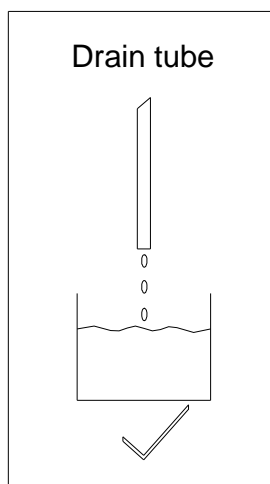
- LED light will display green colour (continuously) to indicate condition.
- Under any abnormal condition, please see pages 20.

## Refrigeration Cycle

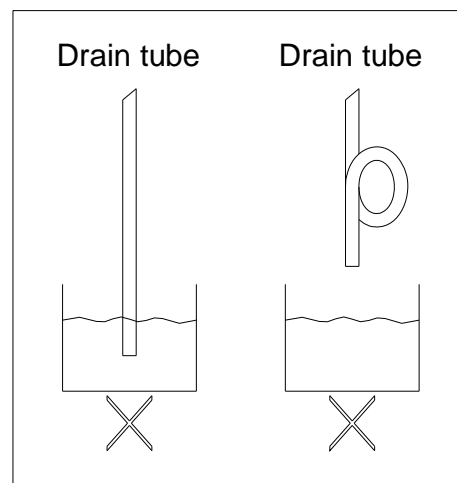


## Drainage

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**

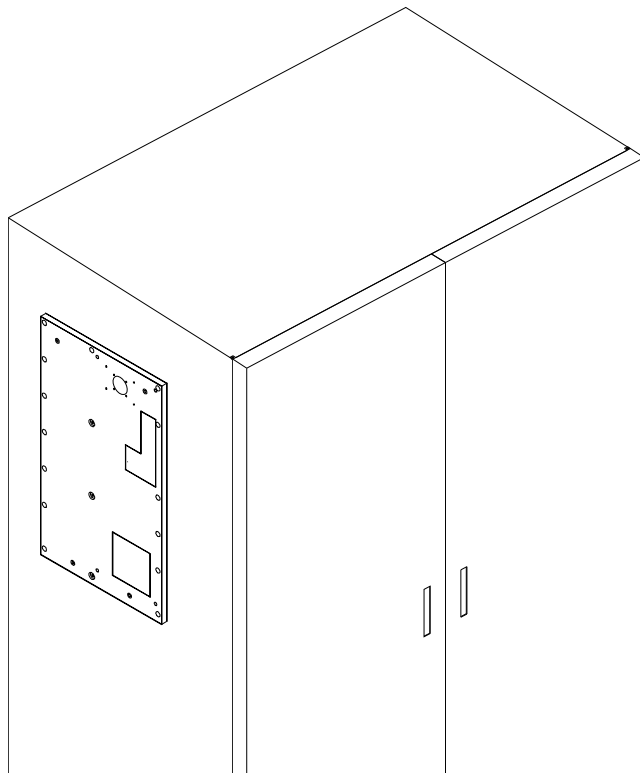
## 5. Installation

### Accessories for 20ACU/003

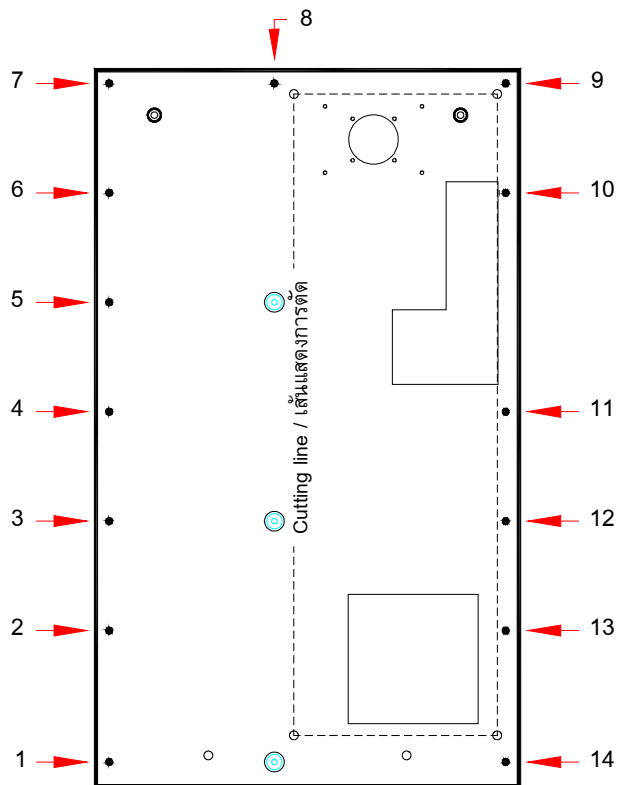
<u>Items</u>	<u>Quantity</u>
Cooling unit	1
User's guide & Warranty card	1
Socket plug guard	1
Socket plug	1
Special holder	2
Foam gasket	1
Air filter	1
Installation plate	1
3/8" Drain Tube ( 200 cm. )	1
3 x 1 Sq.mm VCT power cord. 200 cm.	1
Self tapping screw 1/8" x 3/8" ( <i>for Installation plate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

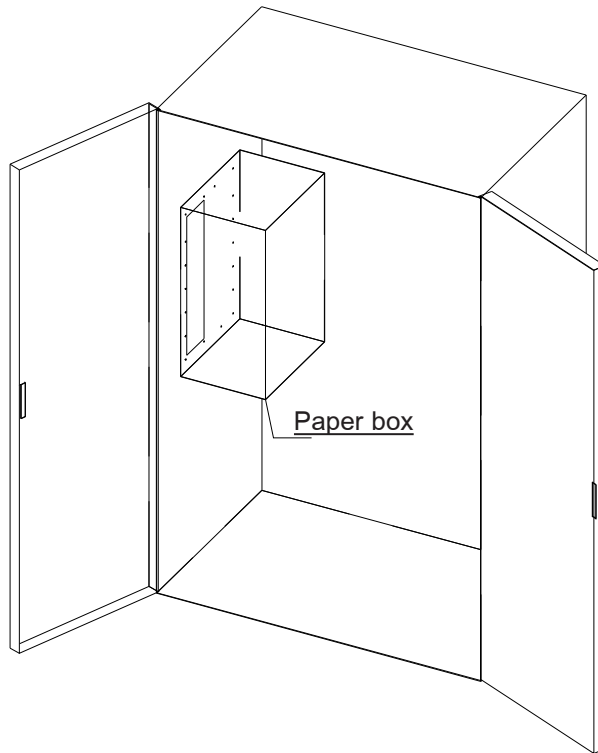
1. Align installation plate in the position to be installed.



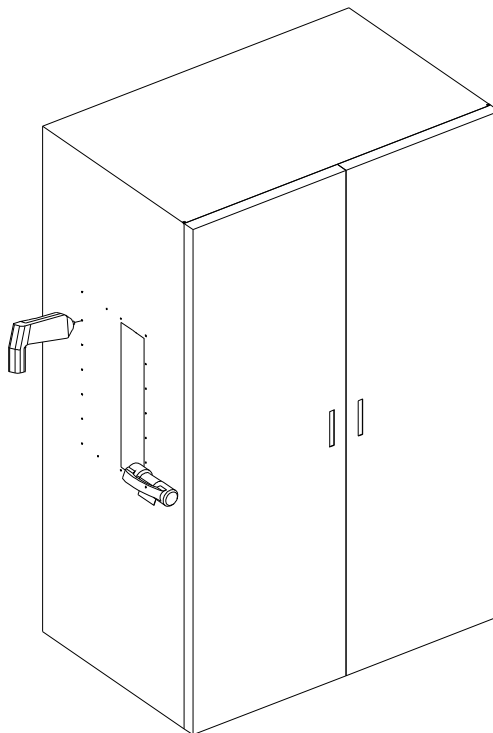
2. Layout 14 positions for drilling and cutout along the dot line with Jigsaw



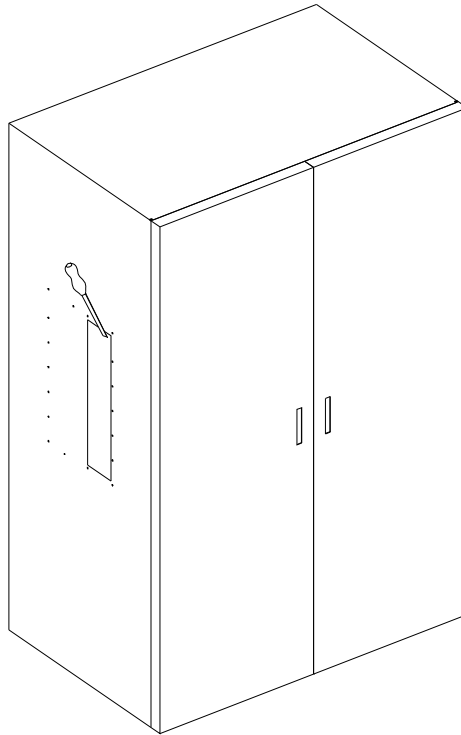
3. Cover equipments inside cabinet with clean and dry cloth, and cover with paper boxes at position will be drilled and cutted in order to prevent metal script falling in cabinet.



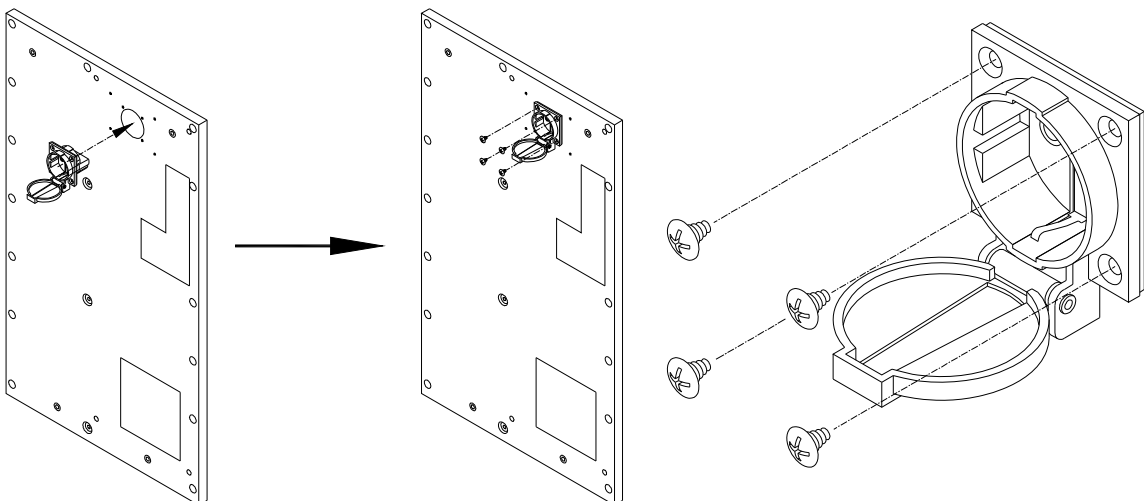
4. Drill and cut the holes and area as be pointed out from installation plate.



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

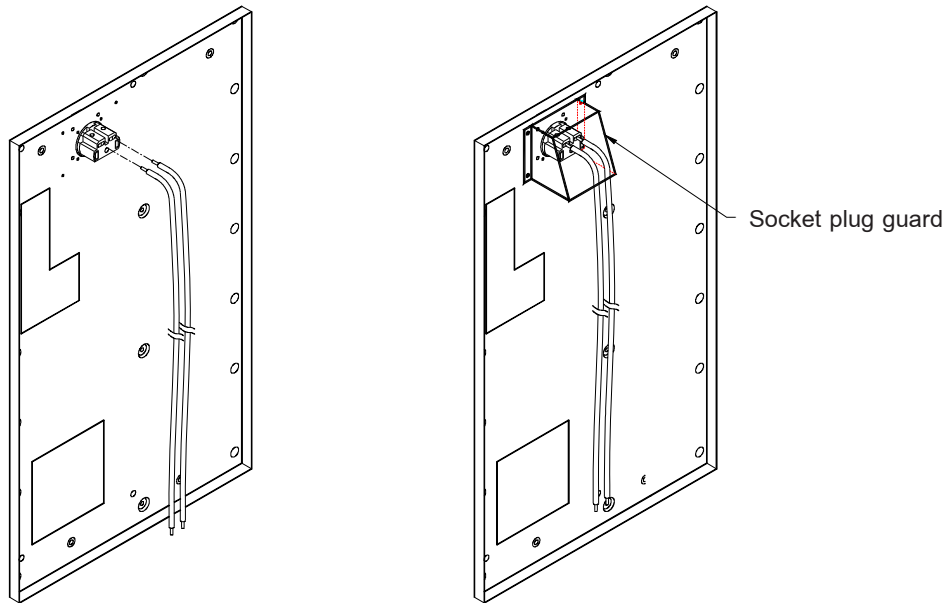




## 7. Socket plug Installation

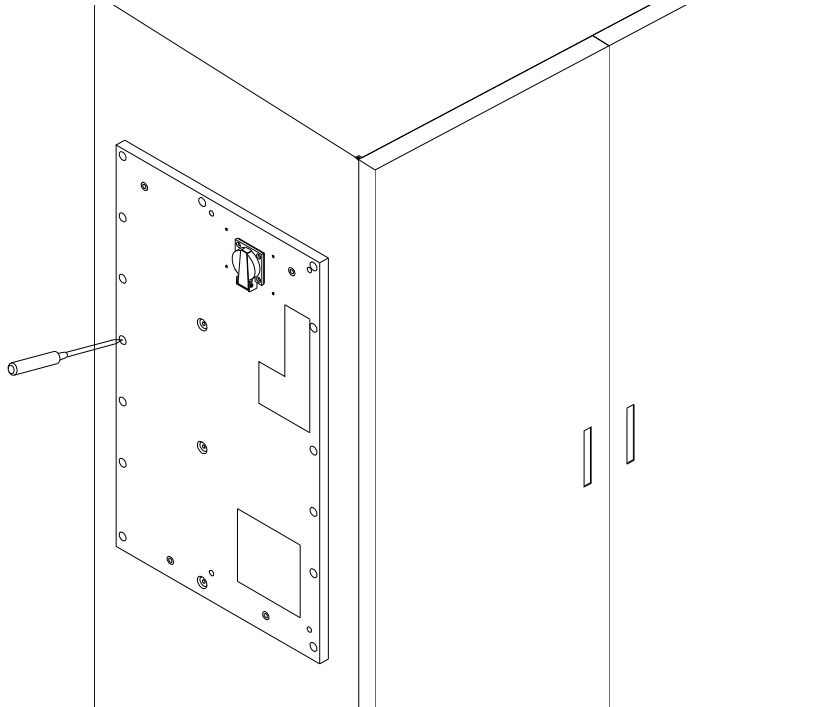
7.1 Put the cable in the socket plug and screw.

7.2 Install the socket plug guard.



## 8. Installation plate attachment

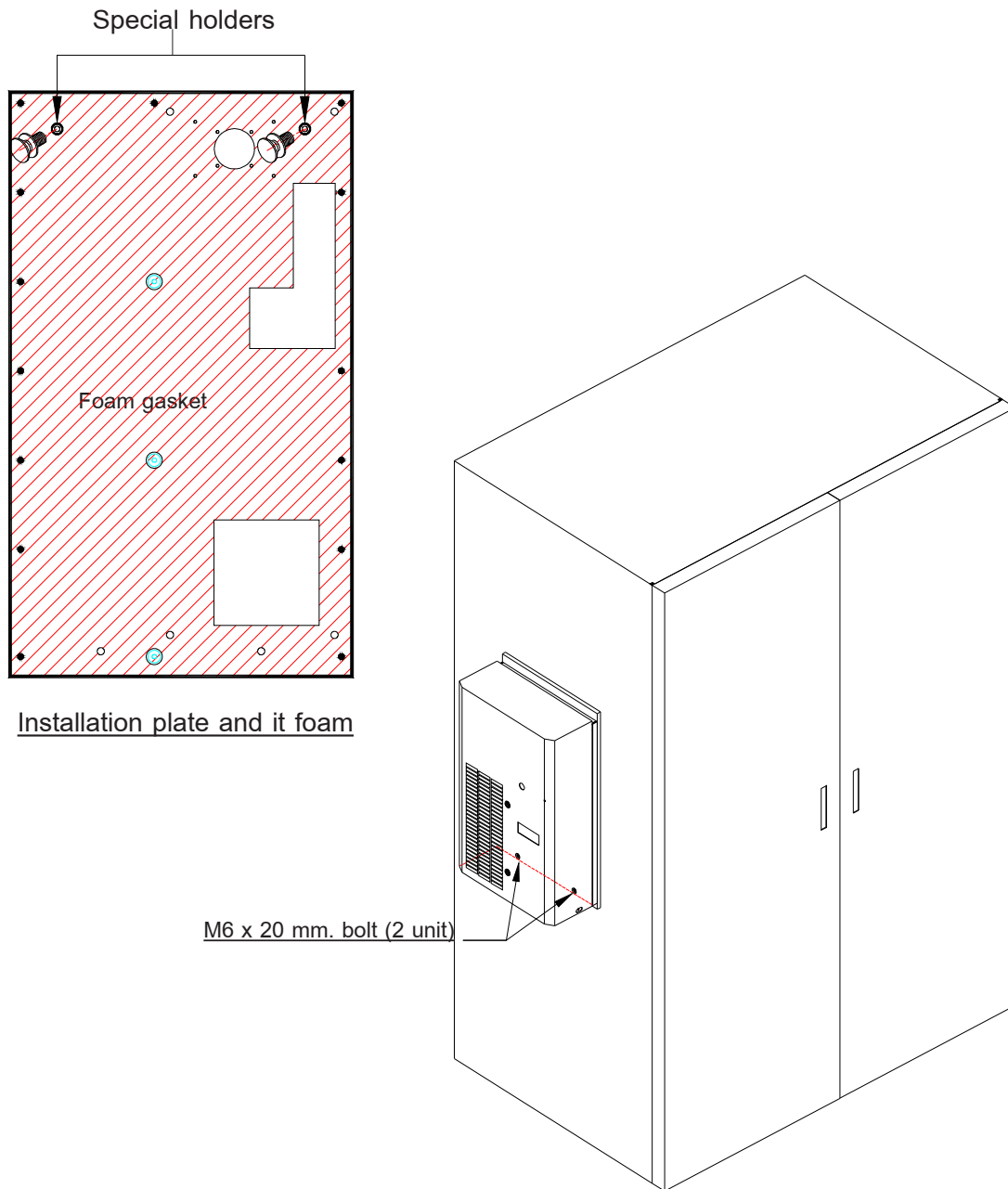
8.1 Install the Installation plate with 14 self tapping screws



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

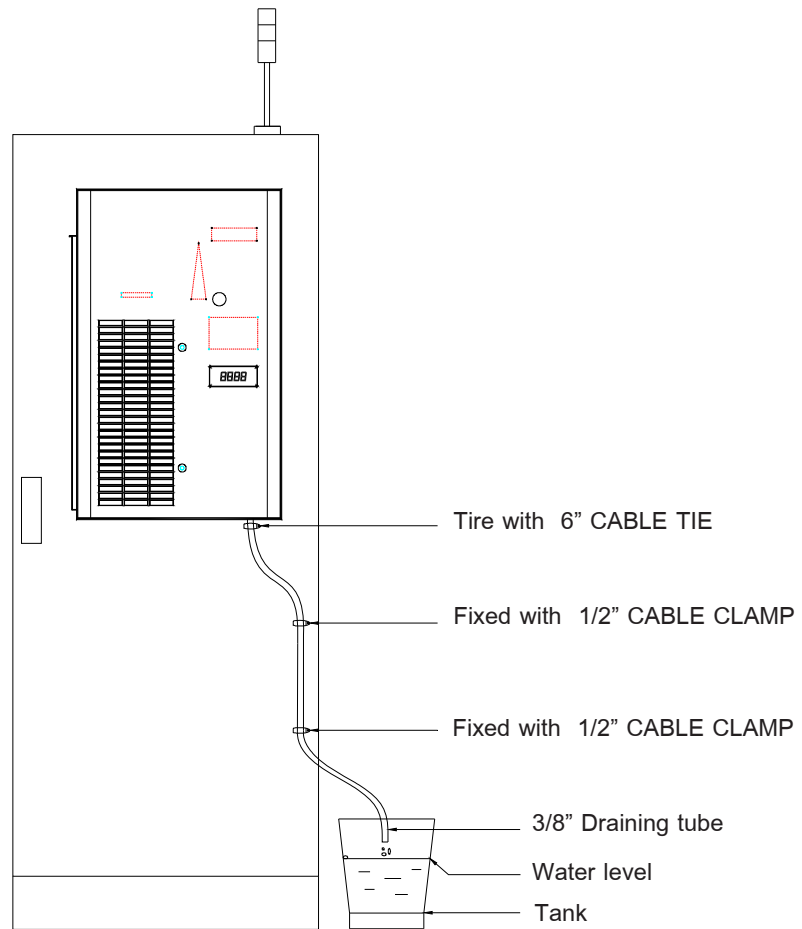
**Beware Breaker shouldn't be shared its load with any other components.**

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.



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

11. Install the draining tube by the illustrature below



Illustrate of drainage wiring

Beware:

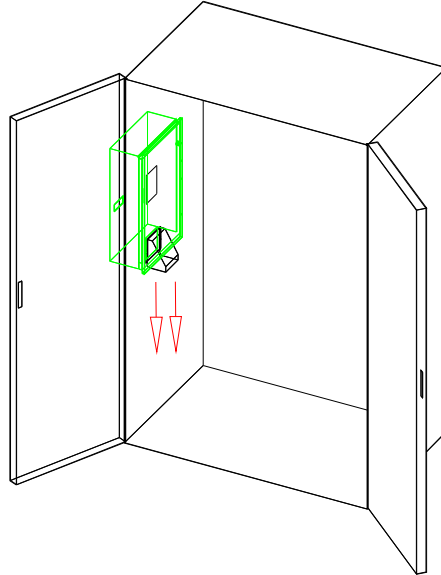
Avoid dipping draing tube below than water level  
which be clogged its drainage

12. Turn on breaker for operation

**Air diverter installation**(In the necessary case)

**1. Divert air down**

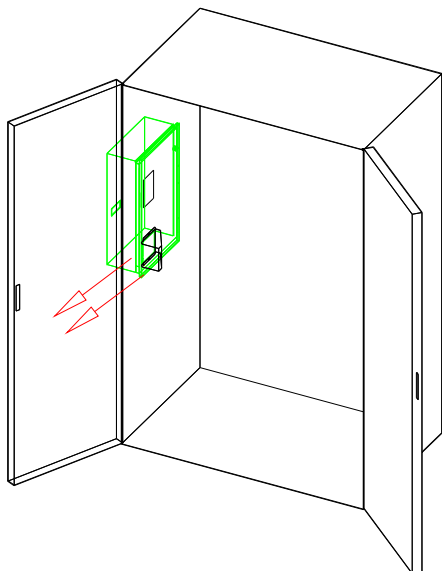
Turn the air diverter to blow air down as shown below the drill and fix it.



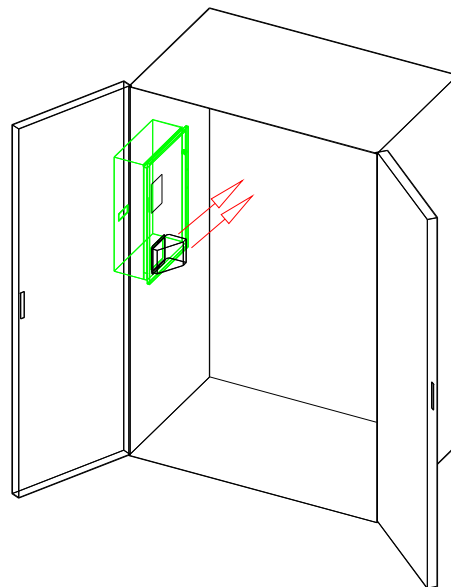
**2. Divert air to left and right**

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**

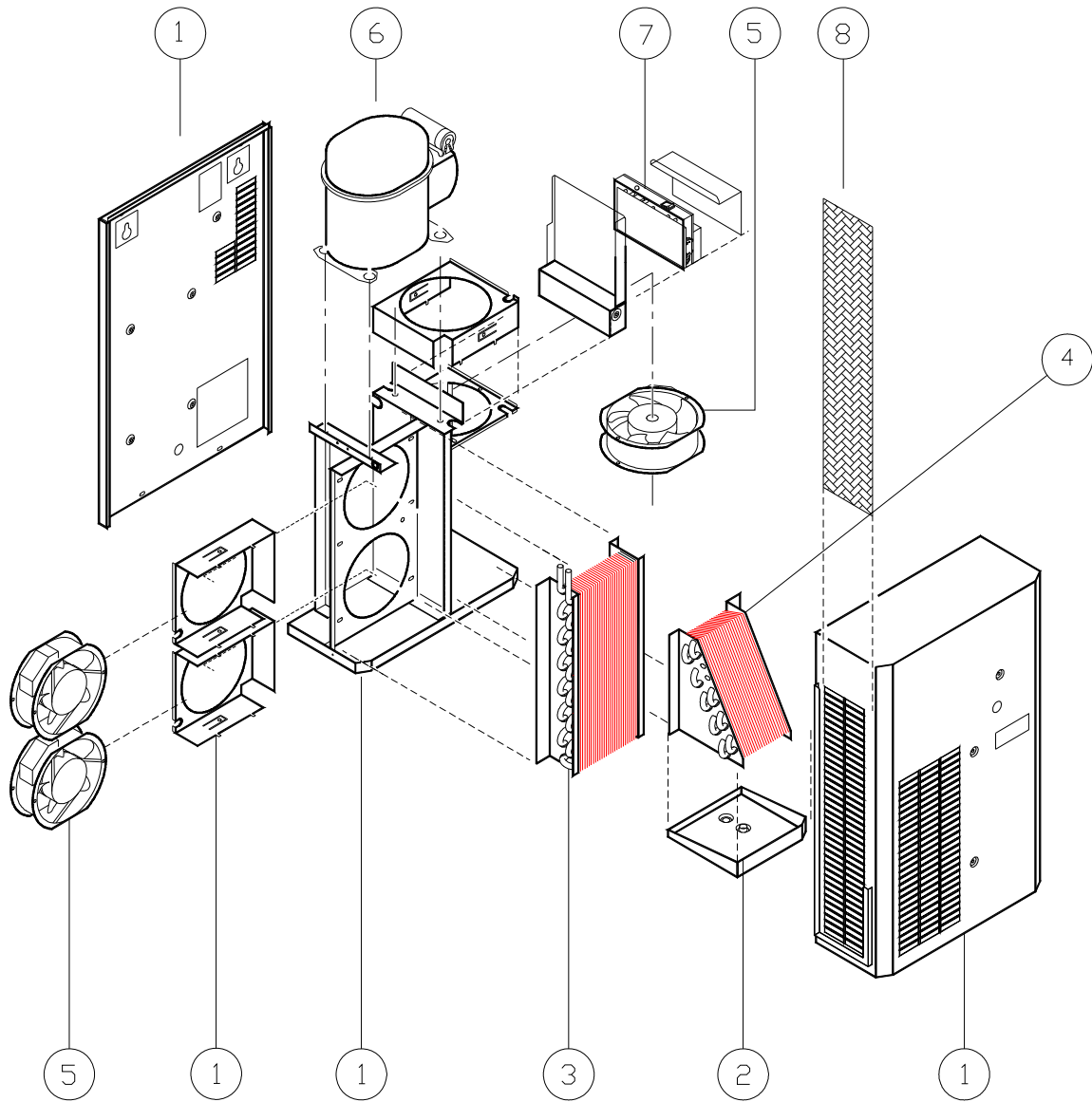
Maintenance of DINDAN cooling unit can be simply done by giving care to the air filter and condensor coil not to be clogged up. The cleaning interval for the air filter depends on how dirty it is of the area where it is installed.

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:

<b>Fault display</b>	<b>Nature of fault</b>	<b>Cause</b>	<b>Remedy</b>	<b>Unit's operation</b>
Red color conti- nuously blink	Hi-pressure in re- frigerant 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 color blink	Risk of icing	Operational indication, icing up Evaporator contaminated Evaporator fan defective Lack of coolant	Raise the set point value of the internal temperature Clean Replace Carry out of cooling service	Automatically shut off
No signal	Unit not operate	Control panel switch off No voltage supply Breaker's tripped Under voltage Internal fuse has broken	Switch on the control panel Supply new line power Replace or switch on Check line voltage connection Carry out of cooling service	Unit not operate

## 8. Assembly and part number



ITEM	DESCRIPTION	PART NUMBER	Qty.	PART AVAILABLE
1	main casing	-	1	No
2	drain pan	-	1	No
3	condenser coil	-	1	No
4	evaporator coil	-	1	No
5	servo fan	EP-03-012	3	Yes
6	compressor	EP-04-001	1	Yes
7	control board	XEE-22-011	1	Yes
8	filter	CR-15-203	1	Yes