

# DINDAN

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Enclosure cooling unit

Model

**40ACU/004-3**

User's guide



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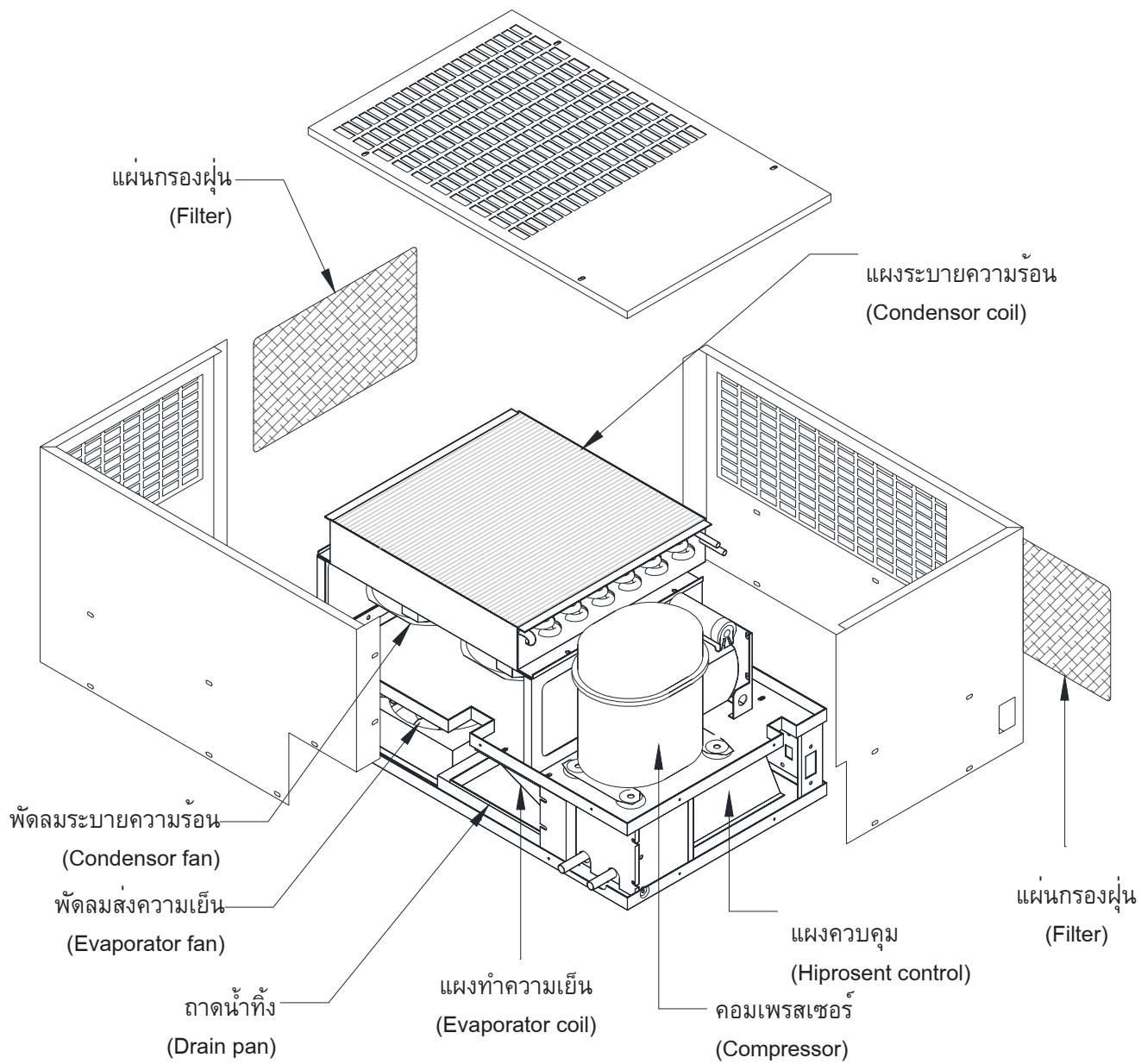
## **Introduction**

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.

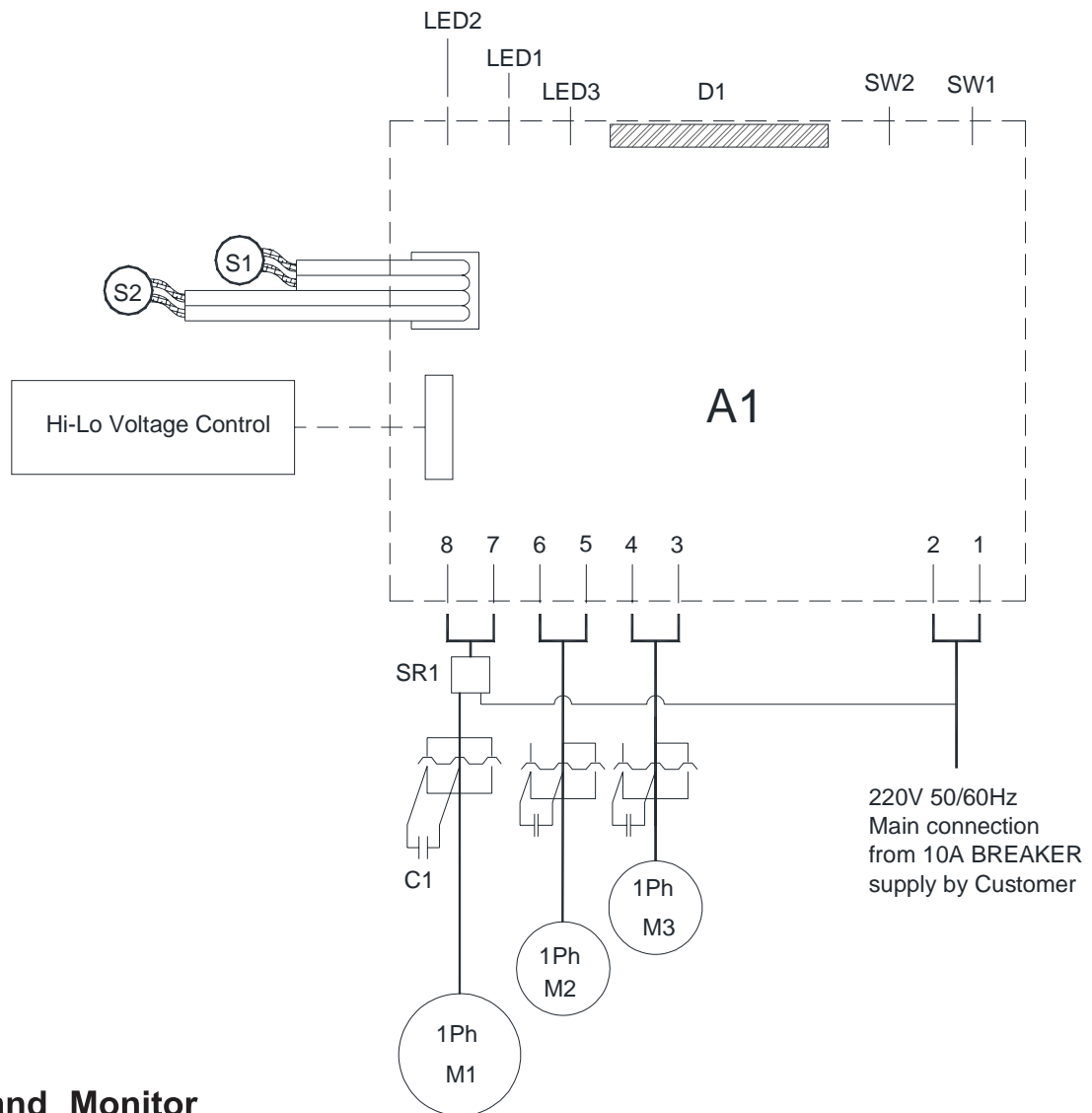
## 1. Over view

### 40ACU/004-3





## HIPROSENT CONTROL (EHE015-5)



### Control and Monitor

A1 = Main controller

SW1, SW2 = Temperature adjustment

D1 = Temperature display

LED1 = Condensing temp. over heat

LED2 = Unit is working

LED3 = Power on

### Cable and signal

S1 = Cooling space temp. sensor

S2 = Condensing temp. sensor

### 220VAC

C1 = Capacitor

M1 = Compressor

M2 = Condenser Fan

M3 = Evaporator Fan

SR1 = Solid State Relay

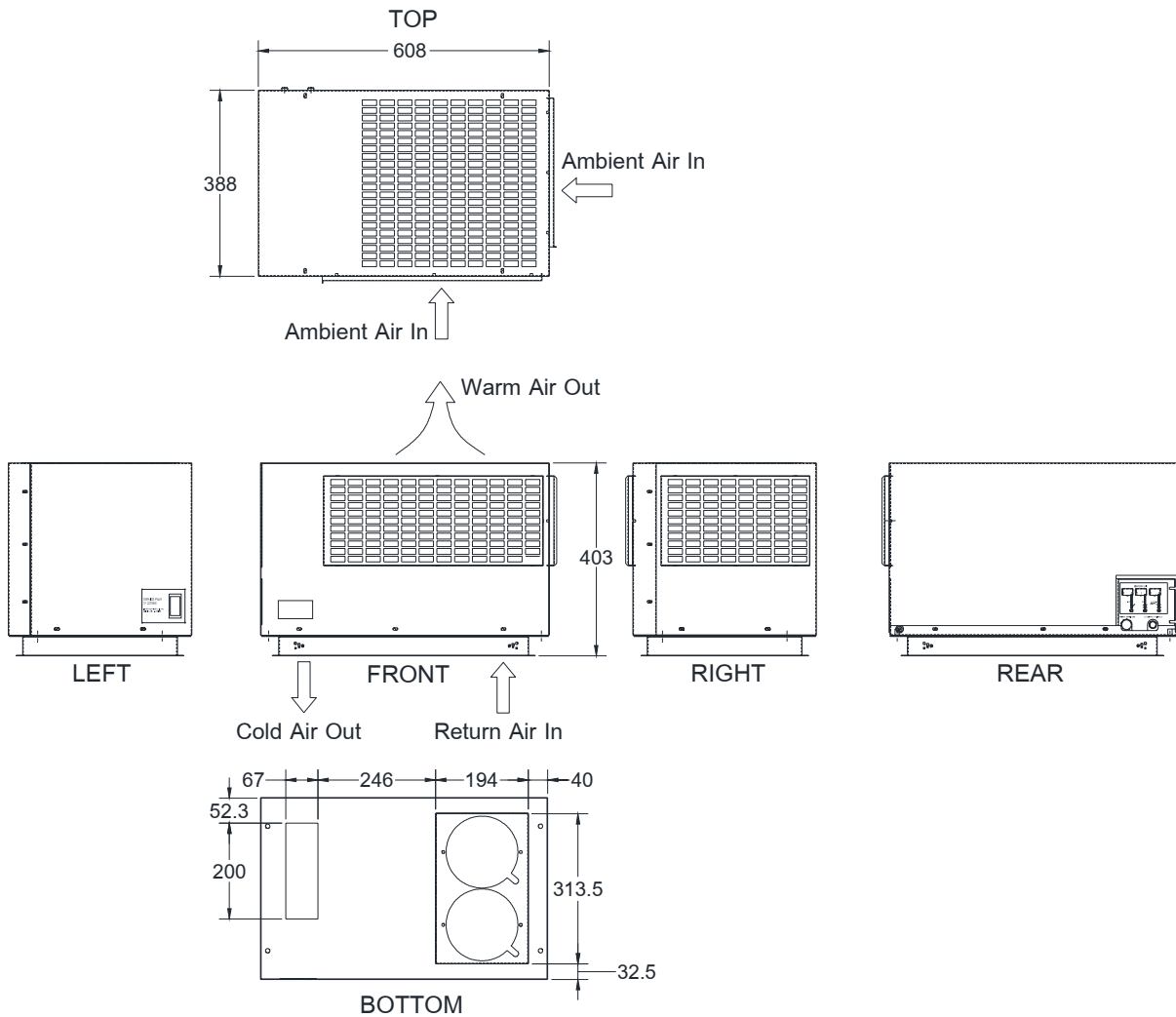
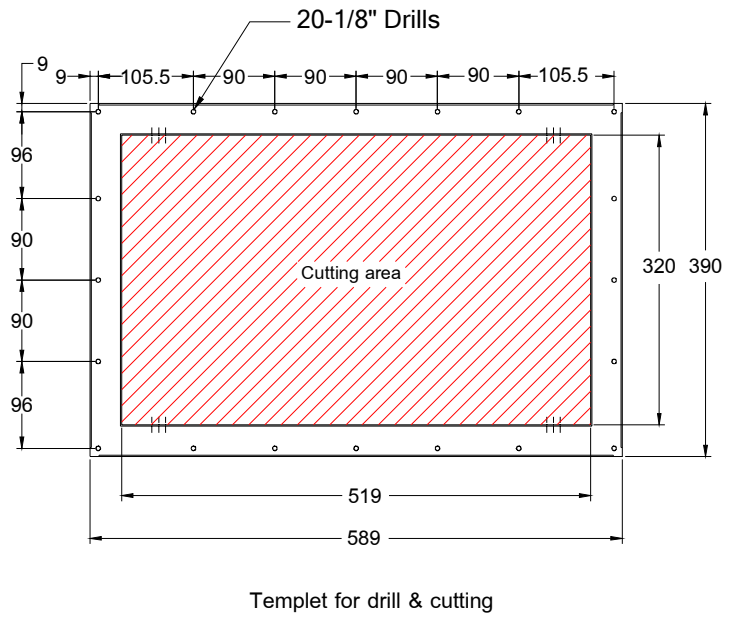
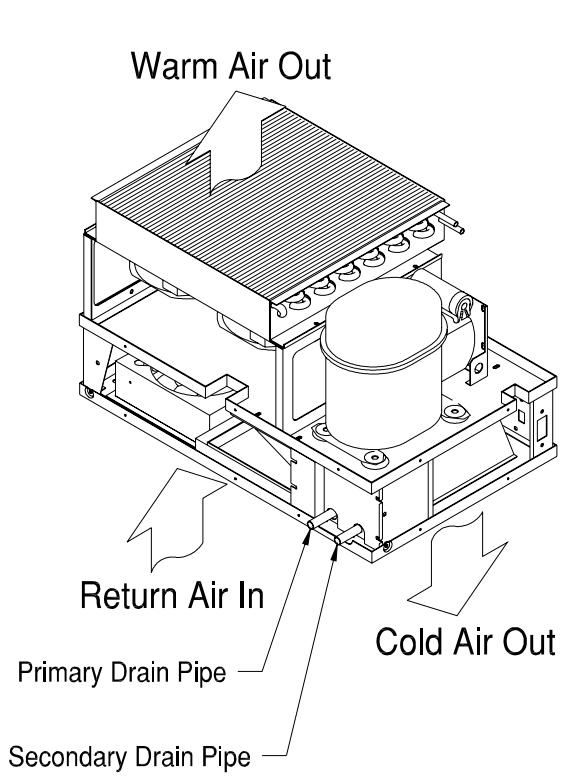
## 2. Specifications

# DINDAN

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

<b>Model</b>		<b>40ACU/004-3</b>
<b>Capacity W.</b>		1500
<b>Installation type</b>		top
<b>Input</b>	single-phase (V.)	220V+20% / -15%
	frequency (Hz.)	50/60
	current (A.)	3.60
<b>Compressor</b>	hermetic type	reciprocate
	torque start type	high
	refrigerant type	134A
	lock rotor (A.)	23.9
<b>Quick Balance</b>	with solinoid valve for easily restart	yes
<b>Hi-prosent ctrl.</b>	thermostat	yes
	condensor thermal detector	yes
	freeze protection	yes
	overflow condensate drain protection	yes
<b>Protection</b>	secondary drainpan	yes
<b>Electrical equip.</b>	safety device	7A slow-blow fuse
<b>Evaporator coil</b>	face area x rows	76.125 sq.inch x 2
	servo fan (r.p.m.)	2850
	number of fan x cfm (0.1 inH <sub>2</sub> O)	2 x 158
<b>Condenser coil</b>	face area x rows	196 sq.inch x 3r
	servo fan (r.p.m.)	2850
	number of fan x cfm (0.2 inH <sub>2</sub> O)	4 x 158
<b>Physical data</b>	approx.weight (kgs.)	42.6
	over all dimension (mm.)	W:388 L:608 H:403
	condensate drain	OD. 1/2 inch
	casing	electro-galvanize
<b>Air filter #1</b>	width x lenth (mm.)	488 x 185
<b>Air filter #2</b>	width x lenth (mm.)	340 x 185

# Internal Display



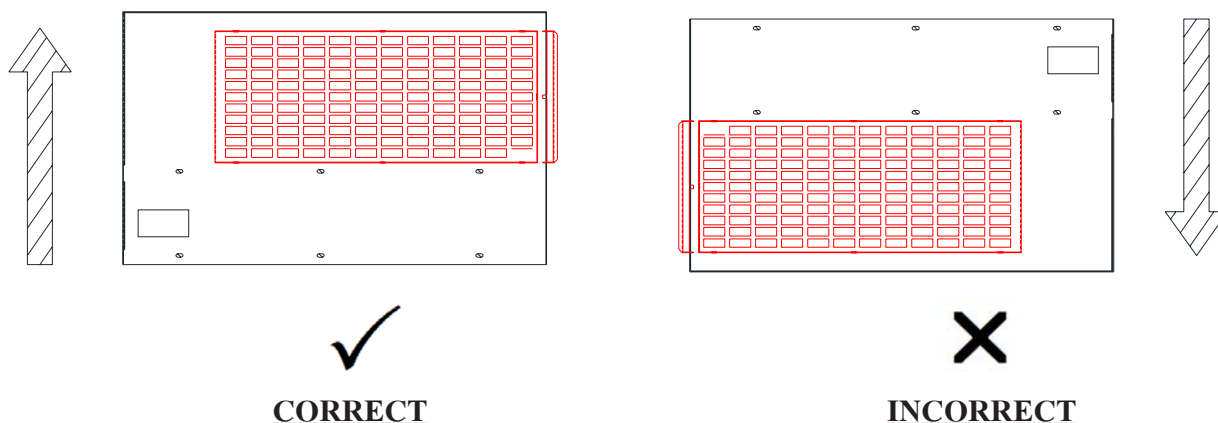


### 3. Notification

- 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 19)
- 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

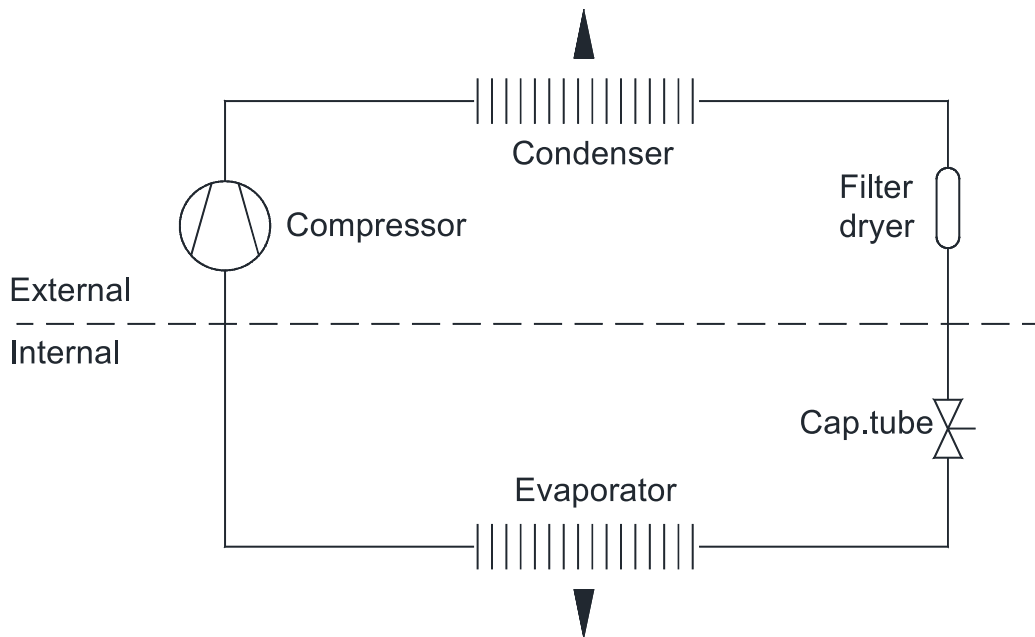
### Protective equipment

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

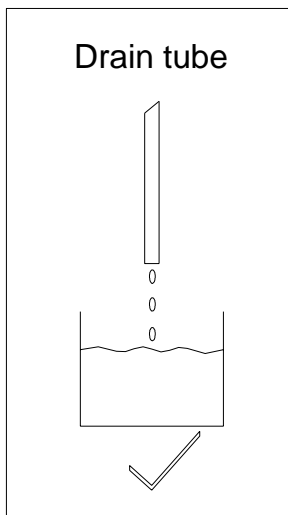
- LED light will display green colour (continuously) to indicate condition.
- Under any abnormal condition, please see pages 21.

## Refrigeration Cycle

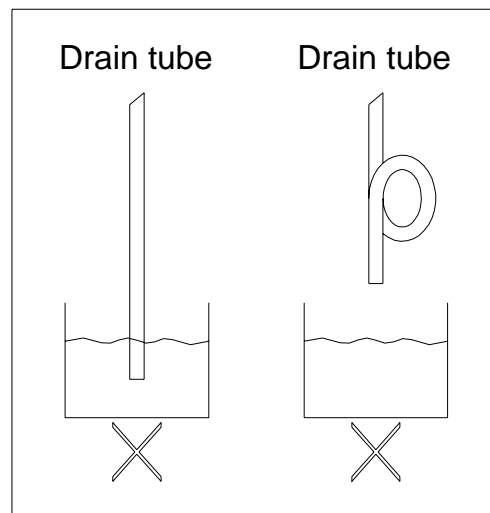


## Drainage

Drainage of condensed water from cooling system shall be done by inserting drain tube under drainpan (see page 19) 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**

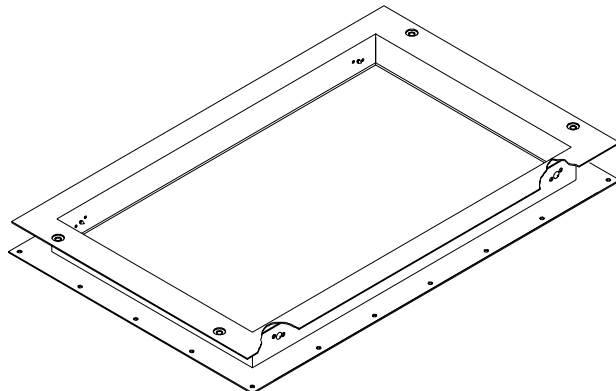
## 5. Installation

### Accessories for 40ACU/004-3

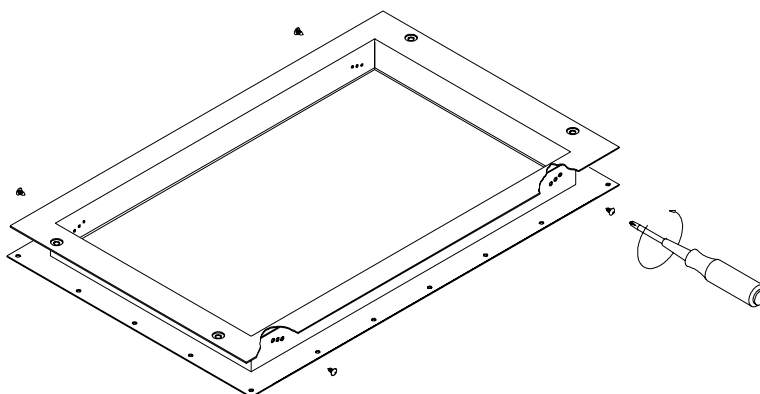
<u>Parts</u>	<u>Quantity</u>
Cooling unit	1
ADAPTER (installation base)	1
User's guide & Warranty card	1
Elbow 90°	2
Liquid gasket	1
Air filter 182x340 mm.	1
Air filter 182x488 mm.	1
1/2" drain tube 200 cm. (for secondary drain)	1
1/2" drain tube 250 cm. (for primary drain)	1
Self tapping screw 1/8" x 3/8" ( <i>for Installation base</i> )	30
Plain washer ( <i>for M6 x 20 mm. bolt</i> )	4
Spring washer ( <i>for M6 x 20 mm. bolt</i> )	4
M6 x 20 mm. bolt	4
Hose Clamp	2
Saddle tie mount	5
6" Cable tie	5

## Installation procedures

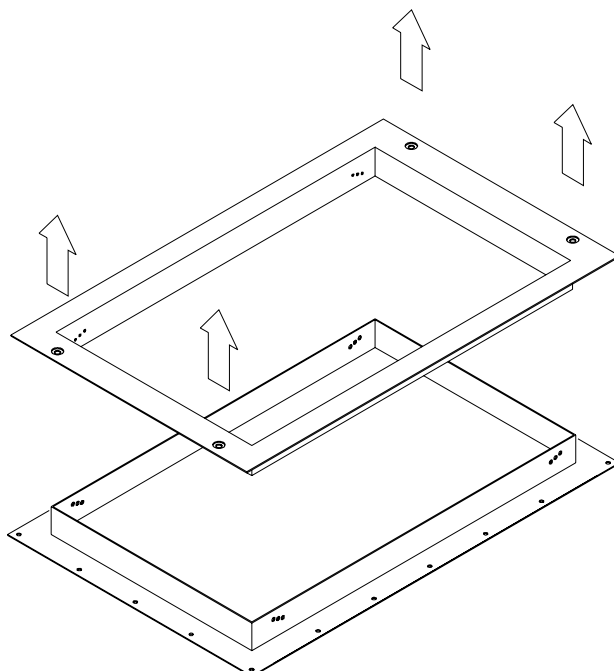
### 1. ADAPTER overview



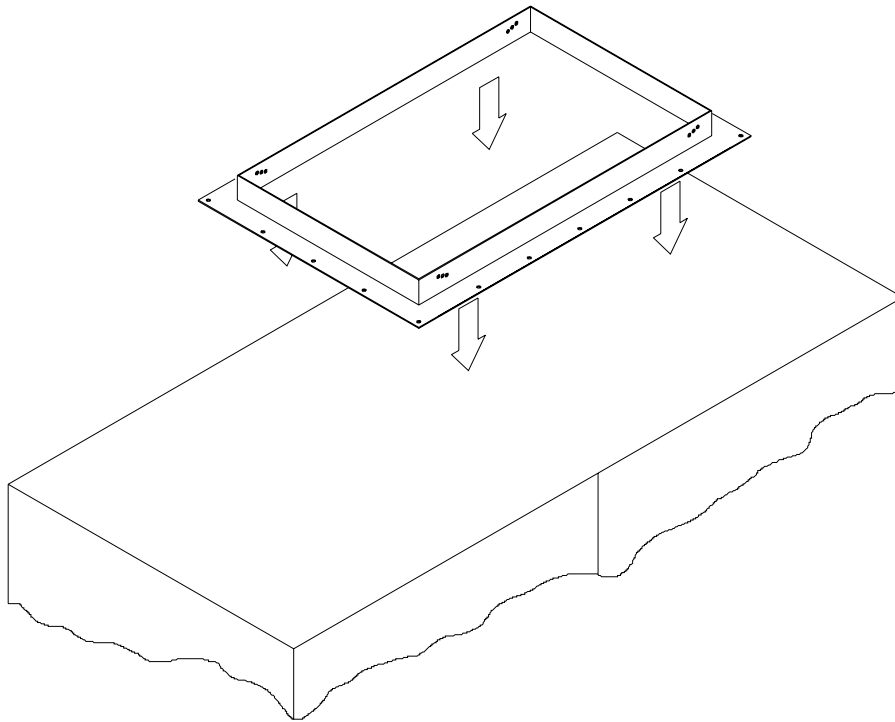
### 2. Loose 4 screws from each corners



### 3. Take off the upper part from the lower part

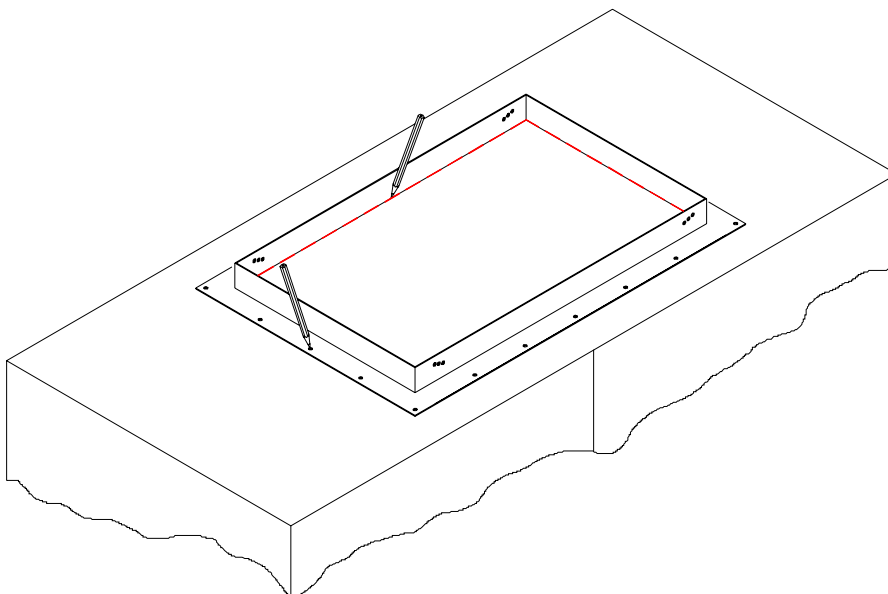


4. Locate the lower part (FRONT-LOWER) of ADAPTER on the position that you want to install the cooling unit

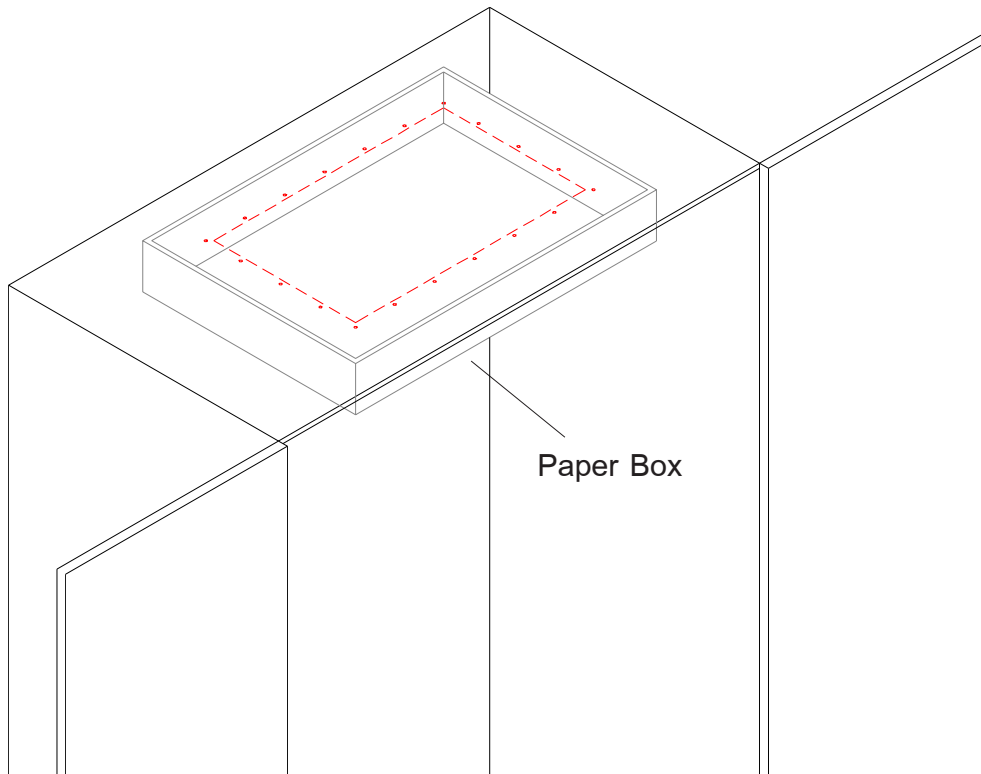


5. Layout as templet

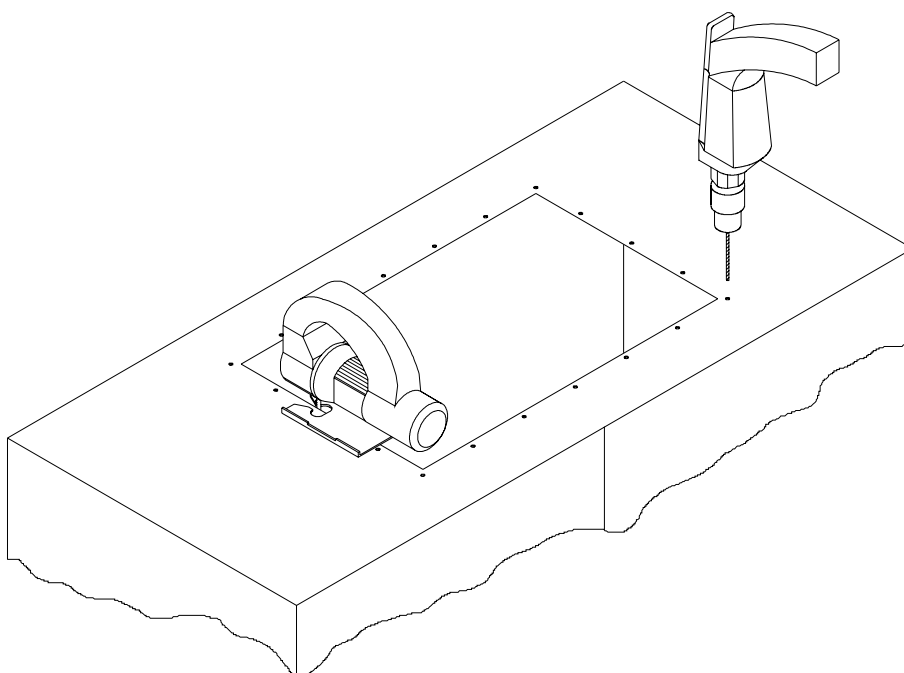
- for fix the lower part to the control cabinet (FRONT-LOWER) 20 drills (1/8" hole)
- for cooling air circulation port (inside rectangle)



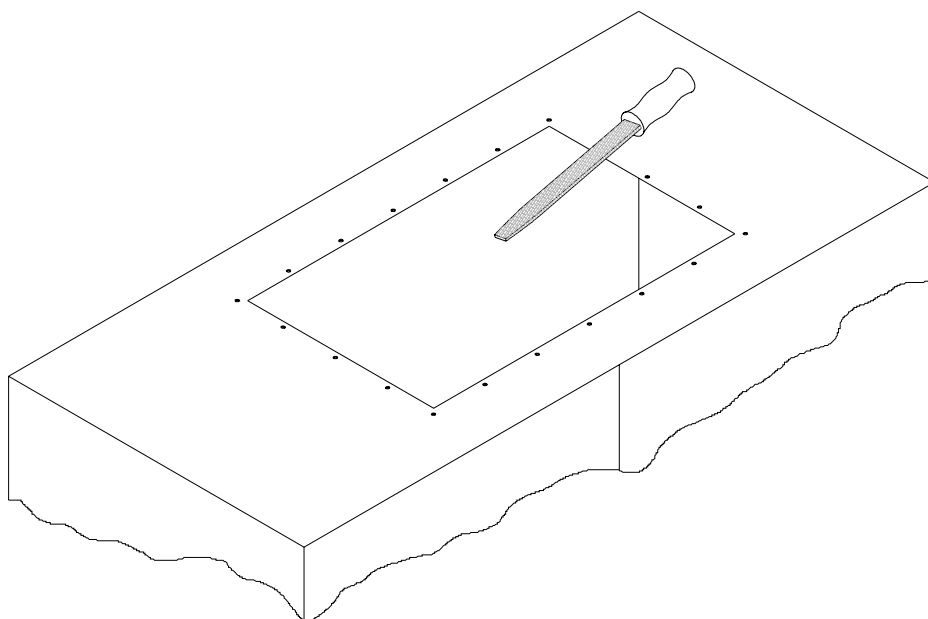
6. Cover equipment in cabinet with clean dry cloth, or the inventory doesn't lead the electricity, and cover with paper box at position will be drilling and cutting in order to prevent metal scrap falling in cabinet. (see figure below)



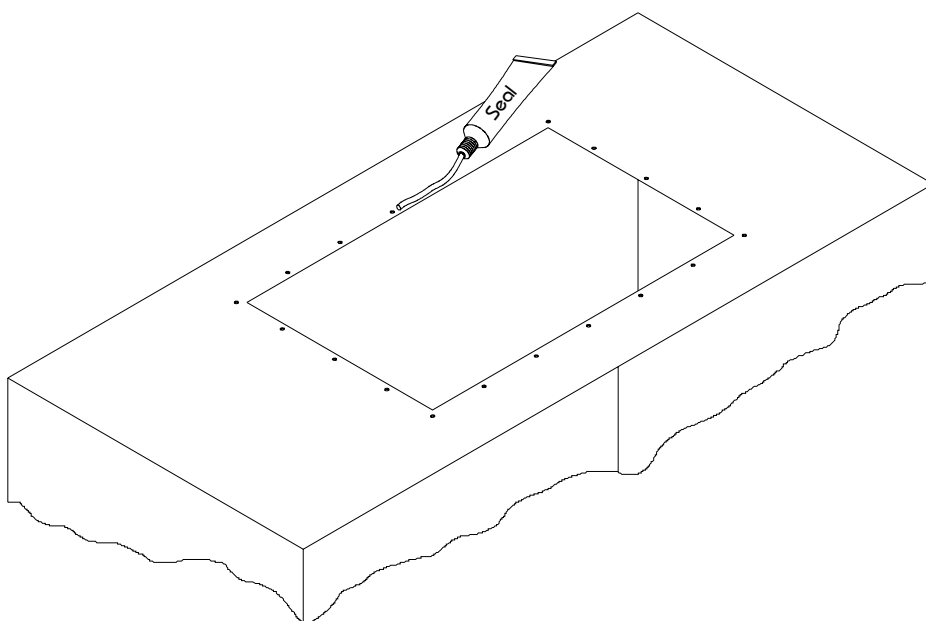
7. Drill and cutout these layouts



8. File to eliminate sharp edges

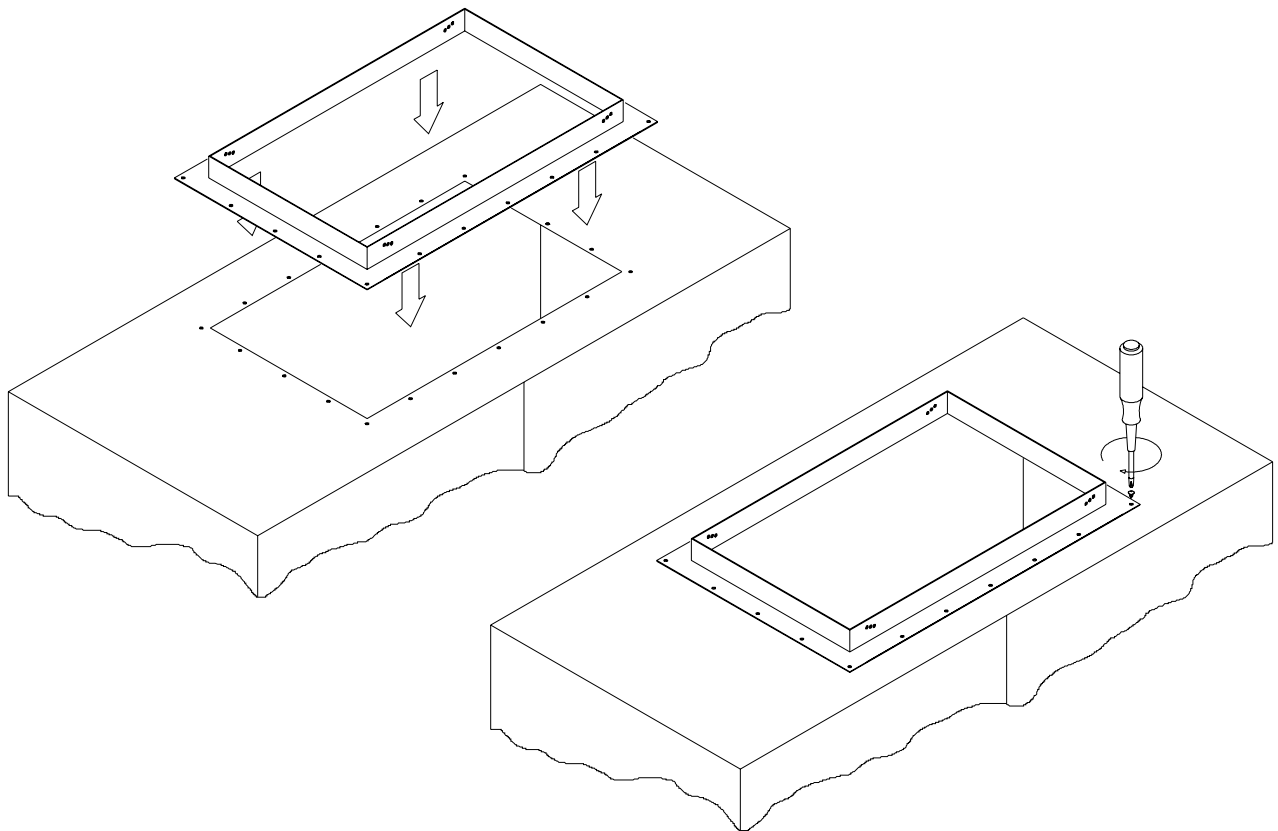


9. Apply the LIQUID GASKET round the air circulation port, in order to protect water into control cabinet

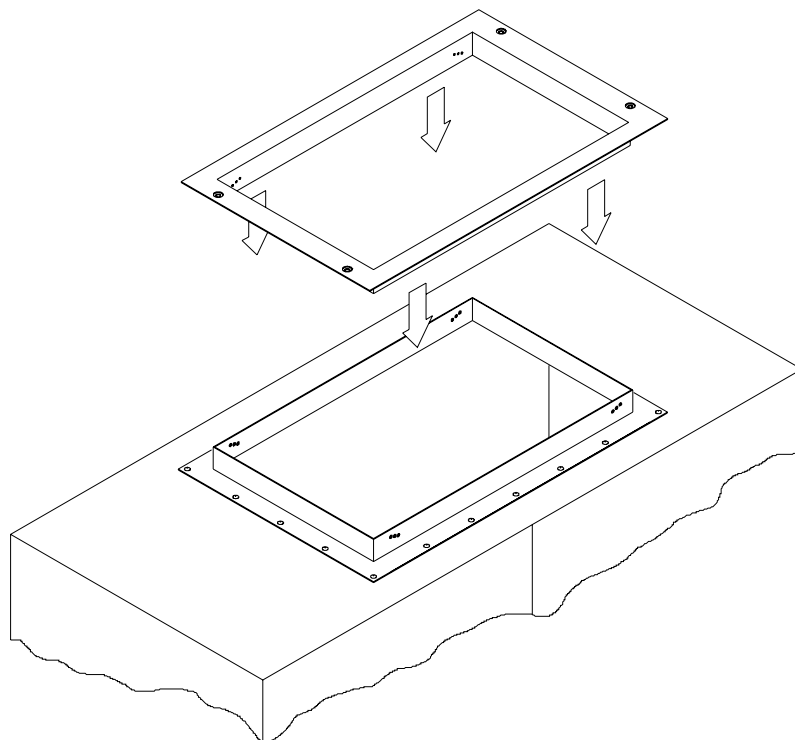




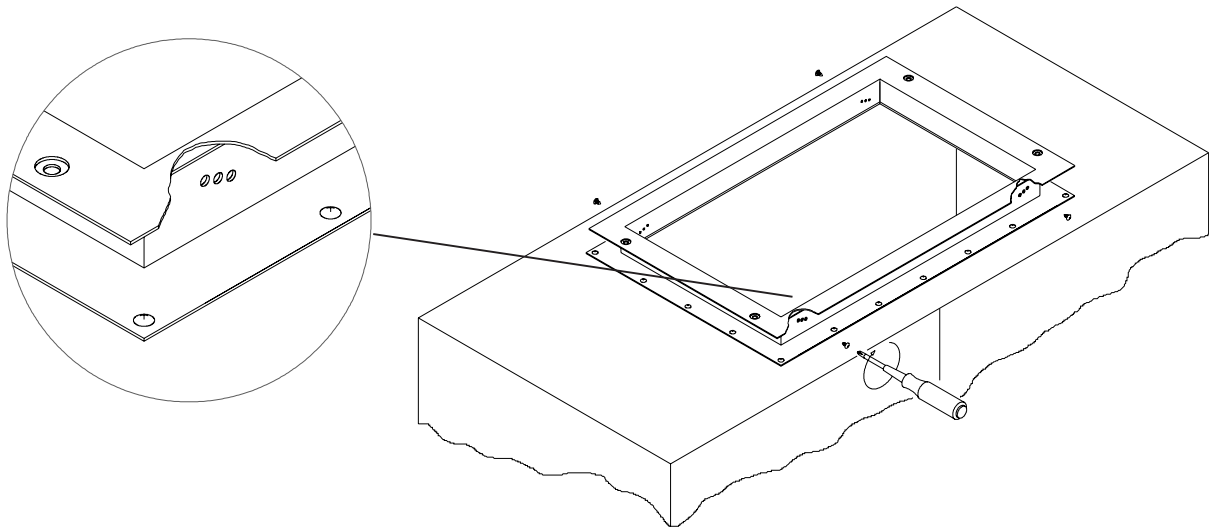
10. Carefully locate lower part(FRONT-LOWER) on the cooling air circulation port and tighten 20 screws until LIQUID GASKET appear to outside



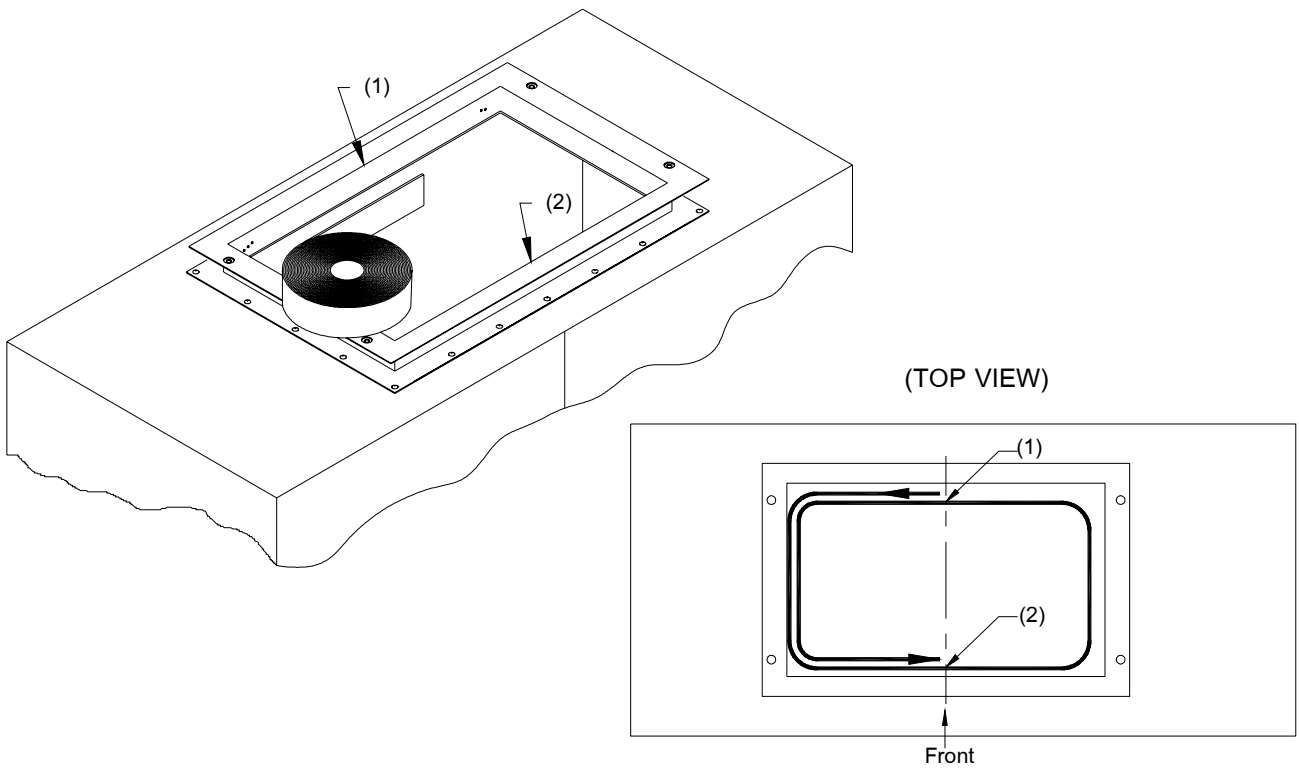
11. Place the upper part (FRONT-UPPER) on the lower part (FRONT-LOWER)



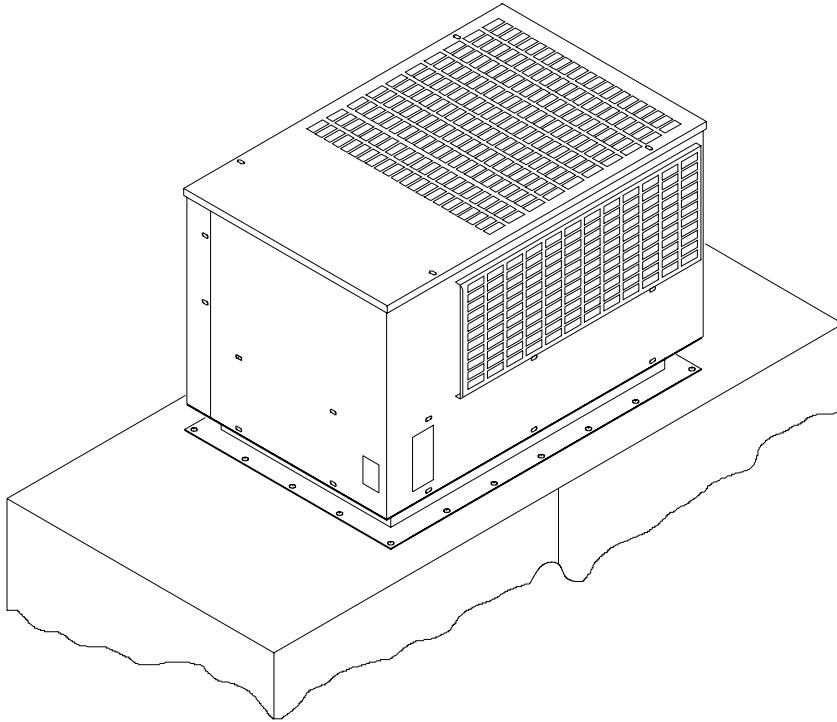
12. Very importance for this step, tighten 4 screws from (2), while adjust level and incline angle for appropriate water flow direction to water drain pipe



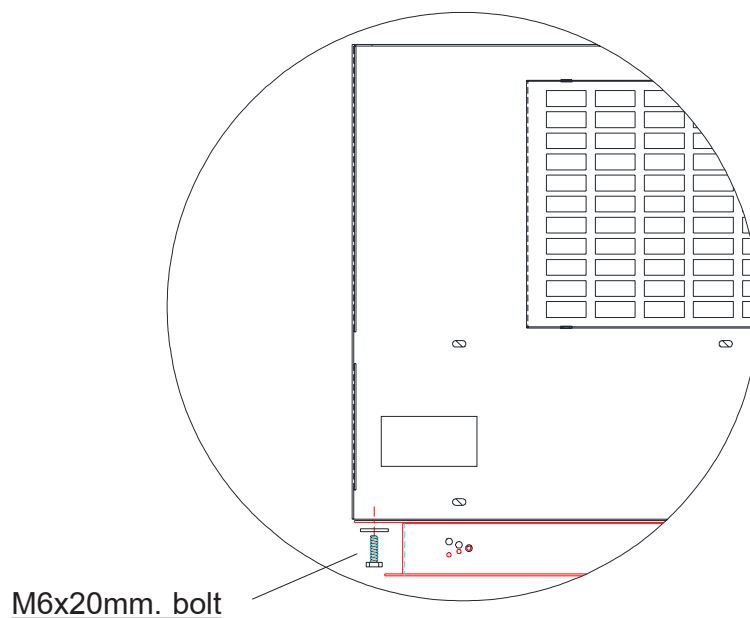
13. Stick foam tape, strat at position No.1 and end at position No. 2



15. Place the cooling unit on ADAPTER. be sure control panel on front and drainpipe on rear



14. Mounting 4 sets of screws, size M6 x 20 mm. with washer into the Rivet nuts, which are positioned under the cooling unit.

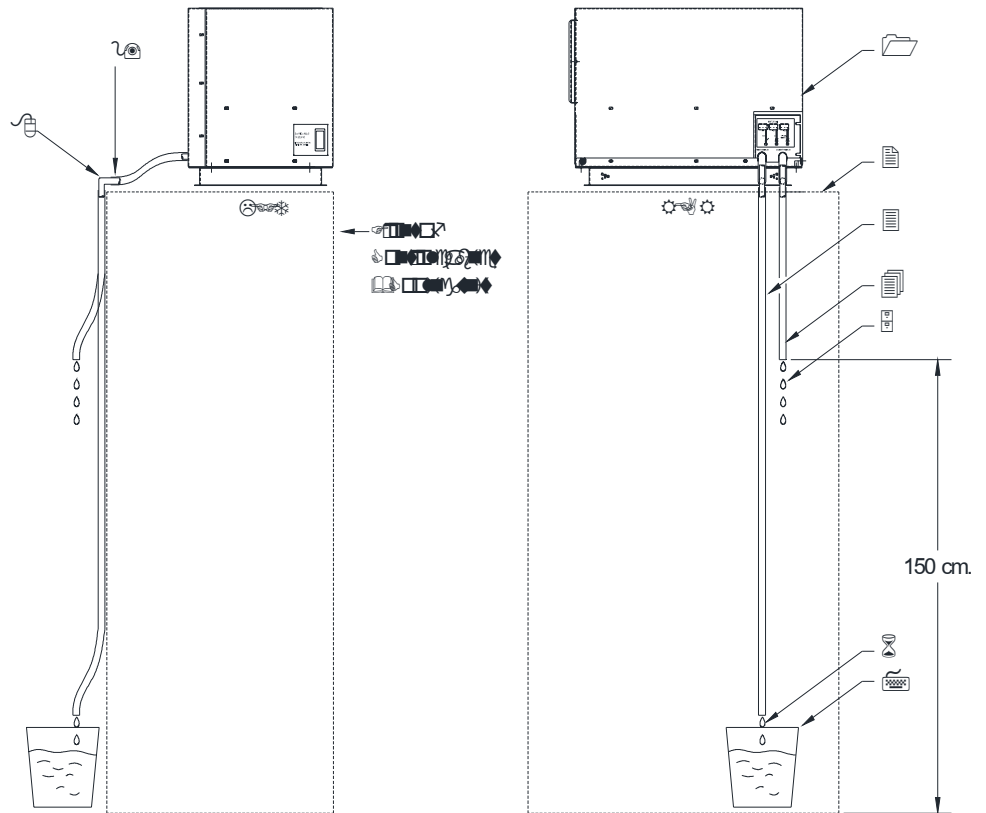


### Instruction

Please use the screws that are provided by the company. In case of using different screws, the length should not be too long. Do not screw into the cooling unit more than 20 mm., otherwise it might cause damage to the cooling unit or damage a tube of refrigerant.

## 16. Drainage system

Figure demonstrating installation of drain tube



### Note

- 1 cooling unit
- 2 control cabinet
- 3 primary drain hose
- 4 secondary drain hose
- 5 abnormal, water flow out of the secondary drain hose, please call service!
- 6 normal, water flow or not flow out of the primary drain hose depends on ambient humidity and air leakage into the control cabinet
- 7 condensate drain tank.
- 8 Elbow 90°
- 9 fix this position lower than the cooling unit, to protect flood back of condensate drain water

Caution : Avoid immerse drain tube under water level (see page 10)

## 17. Connecting electrical power supply to cooling unit

17.1 Install 3x1.5 sq.mm. VCT cable between power source 10A Breaker to Cooling Unit (supply 220Vac. 50/60Hz.)

Caution: 10 Amp. breaker of cooling unit should not be supplied to other equipments

## 18. Turn on breaker to supply power for cooling unit

## **6. Maintenance**

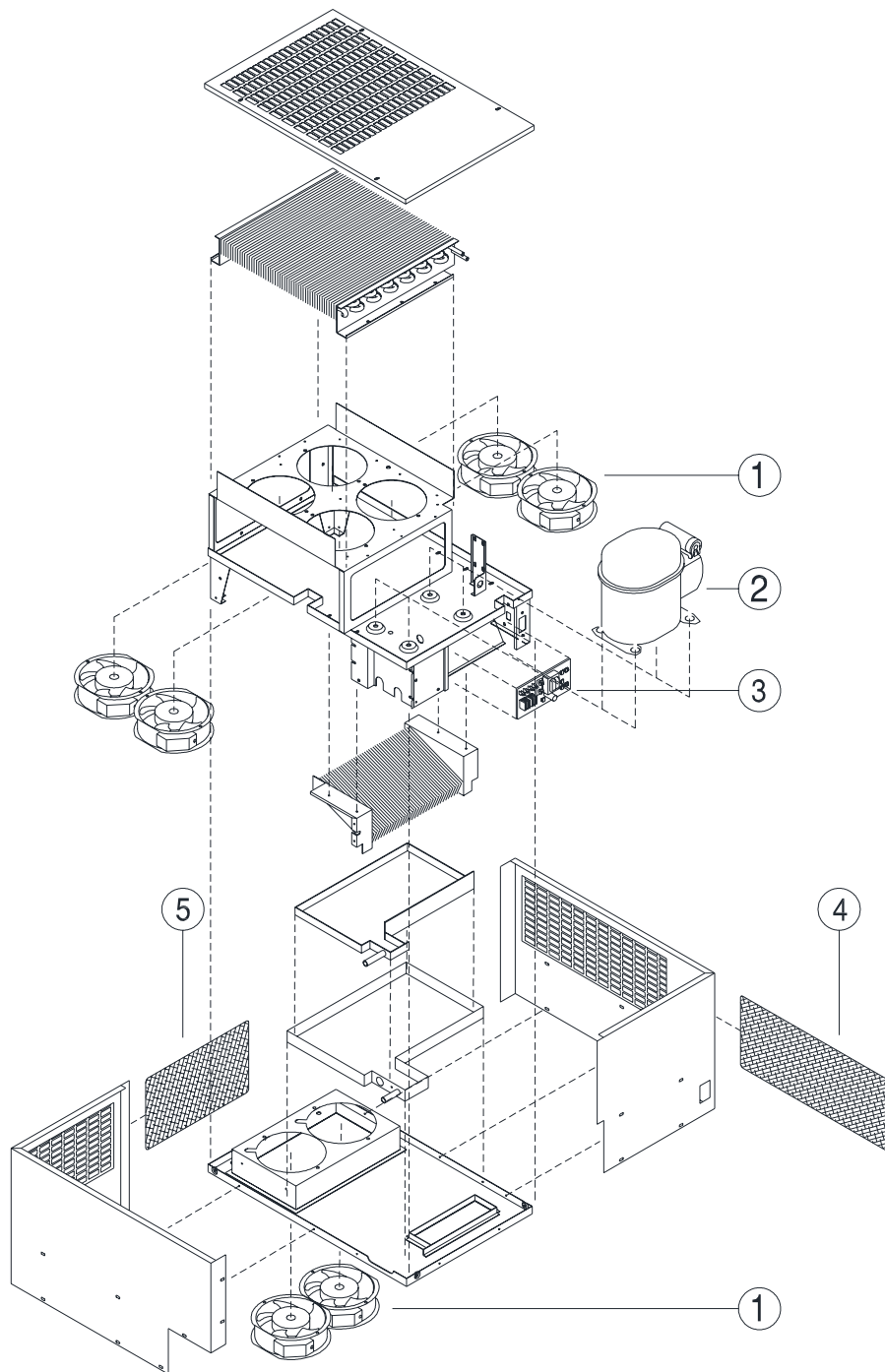
Maintenance of DINDAN cooling unit can be simply done by giving care to the air filter and condensor coil not to be clogged up. The cleaning interval for the air filter depends on how dirty it is of the area where it is installed.

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 21.

## 7. Fault indication & 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	Unit's specified range of application exceed Clean	The unit still operate
		Filter mat contaminated Condenser fan defective	Clean or replace Replace	
Red & Green alternately blink	Flood of water	Obstruction in condensate drain Unit is not fitted vertically	Clean or replace drain hose Adjust the enclosure level carefully	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 NUMMBER	Qty.
1	servo fan	EP-03-012	6
2	compressor	EP-04-008	1
3	control board	XEE-22-502	1
4	filter mat	CR-15-002	1
5	filter mat	CR-15-001	1