SACC

Air Cooling Chamber

Date: Feb, 2012

Version: Ver.B (English)

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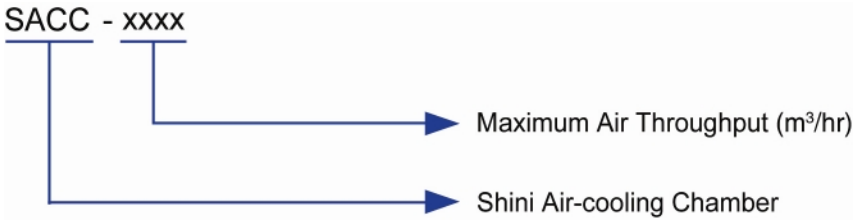
1. General Description

Read this manual carefully before operation to prevent damage of the machine or personal injuries.

SACC series utilize high-efficinet heat exchanger to fulfill interchange of heat between inlet air and cooling water, which lowers inlet air temperature and dew-point then output cold air with air throughput ranging from 1,000 to 4,000 m^3/hr. It is applicable for extrusion blow film line, cild air stereotype of bag blaster, molds dehumidification and preventing moisture condensation of molds.

Model: SACC-3000+Return air cover (option)

1.1 Coding Principle



1.2 Features

1) Standard configuration

- Equipped with reverse phase, default phase, overload and high temperature protection. Both buzzer and warning light would send alert of breakdown, making operation secure and reliable.
- Adjustable cool air temperature of 12~24℃, real time display of cool air temperature.
- Equipped with the pull-out air filter which has simple structure and it is convenient to clean filter screen.
- Equipped with negative pressure detector to monitor air suction channel to avoid blockage.

2) Accessory option

- Return air cover is optional to recycle the output cold air.

All service work should be carried out by a person with technical training or corresponding professional experience. The manual contains instructions for both handling and servicing. Chapter 6, which contains service instructions intended for service engineers. Other chapters contain instructions for the daily operator.

Any modifications of the machine must be approved by SHINI in order to avoid personal injury and damage to machine. We shall not be liable for any damage caused by unauthorized change of the machine.

Our company provides excellent after-sales service. Should you have any problem during using the machine, please contact the company or the local vendor.

Headquarter and Taipei factory:
Tel: (886) 2 2680 9119

Shini Plastics Technologies (Dongguan), Inc:
Tel: (86) 769 8111 6600

Shini Plastics Technologies India Pvt.Ltd.:
Tel: (91) 250 3021 166

1.3 Specifications

1.3.1 Models

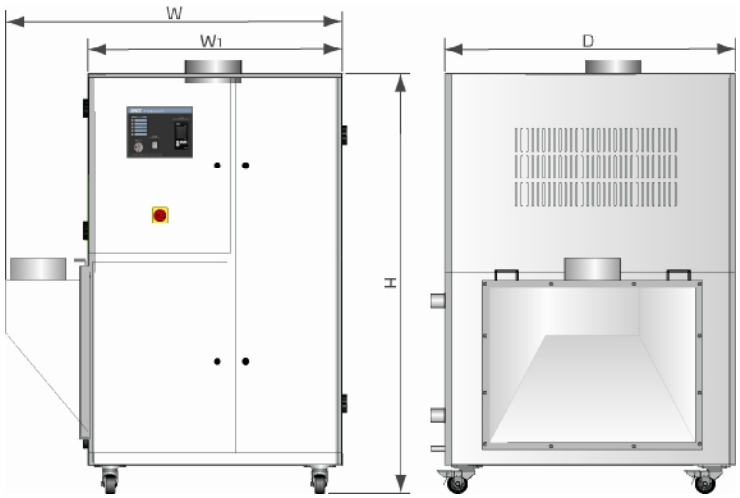
Table 1-1: Specifications

Model	Max. air throughput (m^3/h)	Cold air capacity (kW)	Blower (kW)	Works with chillers (HP)	Air out temp. (℃)	Cooling water caliber (inch)	Water drain caliber (inch)	Cold air caliber (inch)	Dimensions H×W×D(mm)	Weight (kg)
SACC-1000	1,000	13.5	0.55	8 / 5	11 / 13.5	1.5	1.5	8	1100×1000×960	240
SACC-2000	2,000	27.5	0.75	12.5 / 10	11 / 14	2	2	8	1420×1100×1000	280
SACC-3000	3,000	40	1.5	15 / 12.5	11 / 16	2	2	10	1650×1280×1100	310
SACC-4000	4,000	55	2.2	25 / 20	11 / 14	2	2	10	1720×1600×1430	380

Note: 1) Max. throughput above is based on testing without opting for return air cover.
2) Power: 3Φ, 400VAC, 50Hz

We reserve the right to change specifications without prior notice.

1.3.2 Dimensions



Picture 1-1: Dimensions

1.4 Safety Regulations

 Attention!

Electrical installation should be finished by professional electrician. Make sure whether specification of power switch and protection rated current are appropriate and secure before power connection. Turn main power switch off before power connection. During maintenance, both power switch and auto running switch should be turned off.

1.4.1 Safety Labels

 Warning! High voltage!

This label is tagged on the housing of control cabinet!

 Warning! Be careful!

It indicates “Please be more careful”!

 Attention!

All electric components inside cabinet have been screwed tightly thus it is no need to fulfill periodic inspection!

1.4.2 Notice for Using Blower

1) Blower will generate heat during running; do not touch blower outer skin to avoid being burnt.

2) Load current of motor varies as air pressure in motor changes. Make sure overload protection switch is suitable for the machine when wiring and switch is running under rated full-load current to avoid motor burndown.

3) Clean blower both in exterior and interior at regular intervals to eliminate dusts; accumulations of dusts will lower efficiency of heat dissipation, raise temp., reduce air quantity and escalate vibration thus mechanical faults may take place.

4) Bearing, oil seal and silencer are consumable and they need to be renewed periodically. Also vane, housing and matel screen are required to be replaced based on actual application.

5) For unsmooth runnings or abnormal nosies during operation, please switch

off power and complete an overhaul.

1.4.3 Transportation and Storage of the Machine

Transportation

1) SACC series are packed in crates or plywood cases with wooden pallet at the bottom, suitable for quick positioning by fork lift.

2) After unpacked, castors equipped on the machine can be used for ease of movement.

3) Do not rotate the machine and avoid collision with other objects during transportation to prevent improper functioning.

4) The structure of the machine is well-balanced, although it should also be handled with care when lifting the machine for fear of falling down.

5) The machine and its attached parts can be kept at a temperature from -25℃ to +55℃ for long distance transportation and for a short distance, it can be transported with temperature under +70℃.

Storage

1) SACC series should be stored indoors with temperature kept from 5℃ to 40℃ and humidity below 80%.

2) Disconnect all power supply and turn off main switch and control switch.

3) Keep the whole machine, especially the electrical components away from water to avoid potential troubles caused by the water.

4) Plastic film should be used to protect the machine from dust and rains.

Working environment

The machine should be operated:

1) Indoors in a dry environment with maximum temperature +45℃ and humidity not more than 80%.

Do not use the machine:

1) If it is with a damaged cord.

2) On a wet floor or when it is exposed to rain to avoid electrical shock.

3) If it has been dropped or damaged until it is checked or fixed by a qualified

serviceman.

4) This equipment works normally in the environment with altitude within 3000m.

5) At least a clearance of 1m surrounding the equipment is required during operation. Keep this equipment away from flammable sources at least two meters.

6) Avoid vibration, magnetic disturbance at the operation area.

Rejected parts disposal

When the equipment has run out its life time and can not be used any more, unplug the power supply and dispose of it properly according to local code.

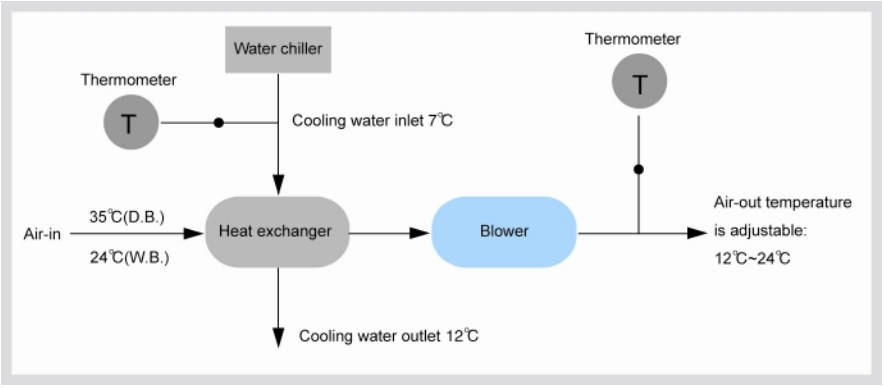
Fire Hazard

 In case of fire, Co_2 dry powder fire extinguisher should be applied.

2. Structure Characteristics and Working Principle

2.1 Working Principle

SACC need to work with water chillers or chilled water system and utilize heat exchange with cooling water to complete heat exchange and dehumidification to high temp. air. Conteifugal blow fan firstly absorbs inlet air, through fan outlet cooled air is discharged after the treatment. Cold water after heat exchange is sent back water chillers or cilled water system for cycle use thorugh cooling water outlet.

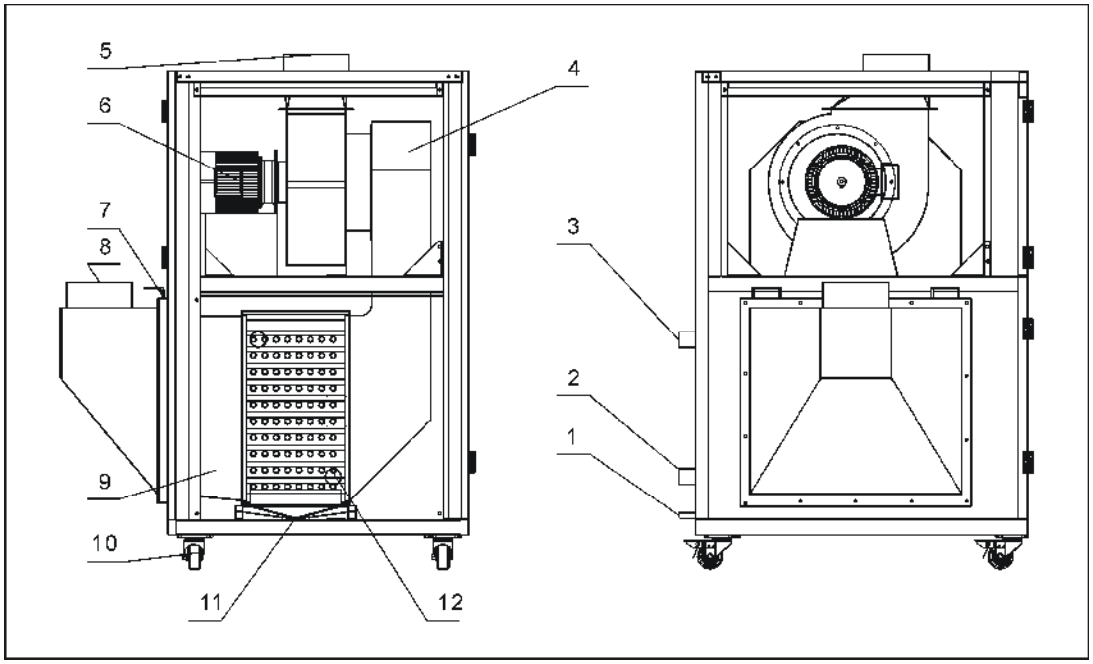


Picture 2-1: Working Principle

Before SACC start working, cooling water inlet should connect with and water chillers or chilled water outlet of chilled water system. And cooling water outlet should connect with water chillers or circulating water inlet of chilled water system, by adjusting the flow of intake cooling water and cold water temperature can get different air outlet temperatures; Switch on SACC, cooling water began to circulate in heat exchanger, and after operation, centrifugal blower form the closed channel by integrating air collecting cover, heat exchanger and air inlet joint. Then closed channel would absorb external high-temp. air into heat exchange to get through heat exchange and dehumidification. Intake air after treatment enters centrifugal blower through air collecting cover, then blower send cold air to cold air outlet. The temp. of exporting cold air can be detected by feeling temp. needle and be displayed via temp. controller. Return air cover is optional for recycling the exporting cold air.

2.2 Drawing and Parts List

2.2.1 System Structure

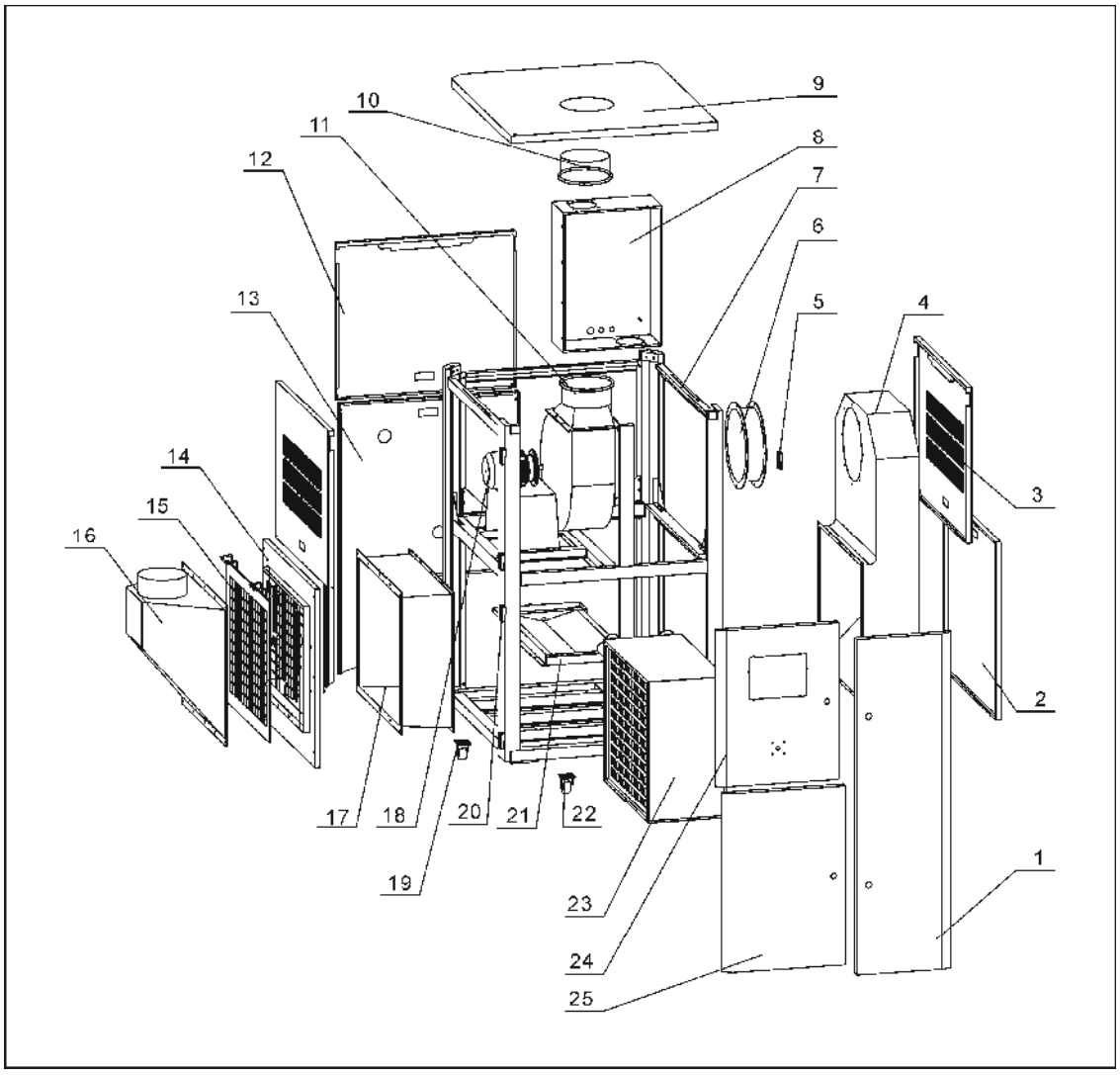


Parts Name:

1. Drainage outlet of dew channel
2. Cooling water inlet
3. Cooling water outlet
4. Air collecting cover
5. Air outlet
6. Centrifugal blower
7. Filter
8. Return air cover
9. Air-in connector of heat exchanger
10. Castor
11. Dew channel
12. Heat exchanger

Picture 2-2: SACC Structure

2.2.2 Assembly Drawing



Remarks: Please refer to material list 2.2.3 for specific explanation of Arabic numbers in parts drawing.

Picture 2-3: Assembly Drawing

2.2.3 Parts List

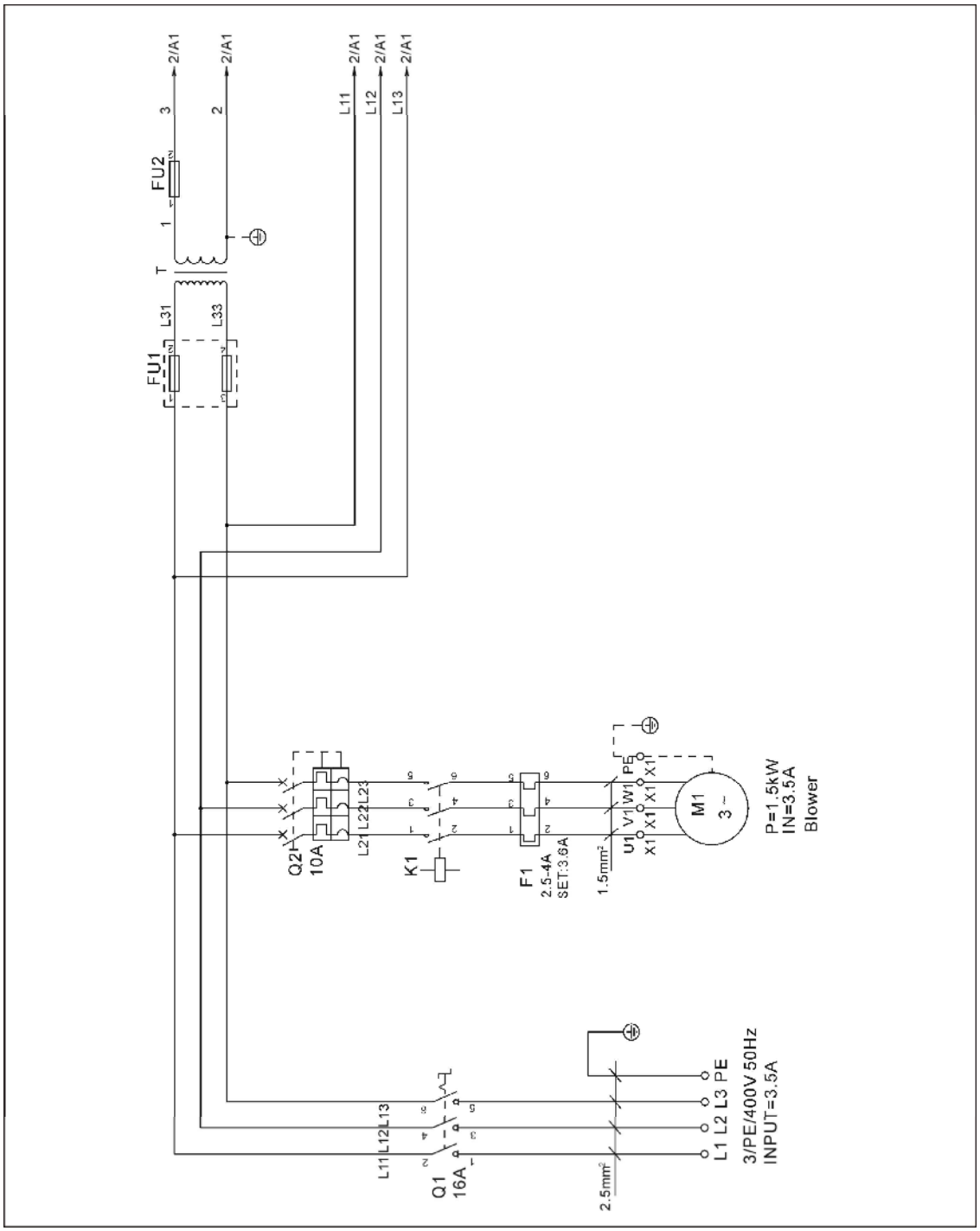
Table 2-1: Parts List

No.	Name	Part No.			
		SACC-1000	SACC-2000	SACC-3000	SACC-4000
1	Front right door plate	-	-	-	-
2	Lower right door plate	-	-	-	-
3	Upside door plate	-	-	-	-
4	Air collecting cover	-	-	-	-
5	Hinge right	YW06203100200	YW06203100200	YW06203100200	YW06203100200
6	Blower air-in flange	-	-	-	-
7	Stand assembly	-	-	-	-
8	Control cabinet	-	-	-	-
9	Top plate	-	-	-	-
10	Air outlet adapter	-	-	-	-
11	Air outlet pipe	-	-	-	-
12	Upper back door plate	-	-	-	-
13	Lower back door plate	-	-	-	-
14	Lower left door plate	-	-	-	-
15	Filter	-	-	-	-
16	Air collecting cover	-	-	-	-
17	Heat exchanger connector	-	-	-	-
18	Blower	-	-	-	-
19	Castor	YW03000400000	YW03000400000	YW03000400000	YW03000400000
20	Hinge left	YW06203100400	YW06203100400	YW06203100400	YW06203100400
21	Dew channel	-	-	-	-
22	Castor	YW03000400200	YW03000400200	YW03000400200	YW03000400200
23	Heat exchanger	-	-	-	-
24	Front upper door plate	-	-	-	-
25	Front lower door plate	-	-	-	-

* means possible broken parts.
** means easy broken part. and spare backup is suggested.
Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

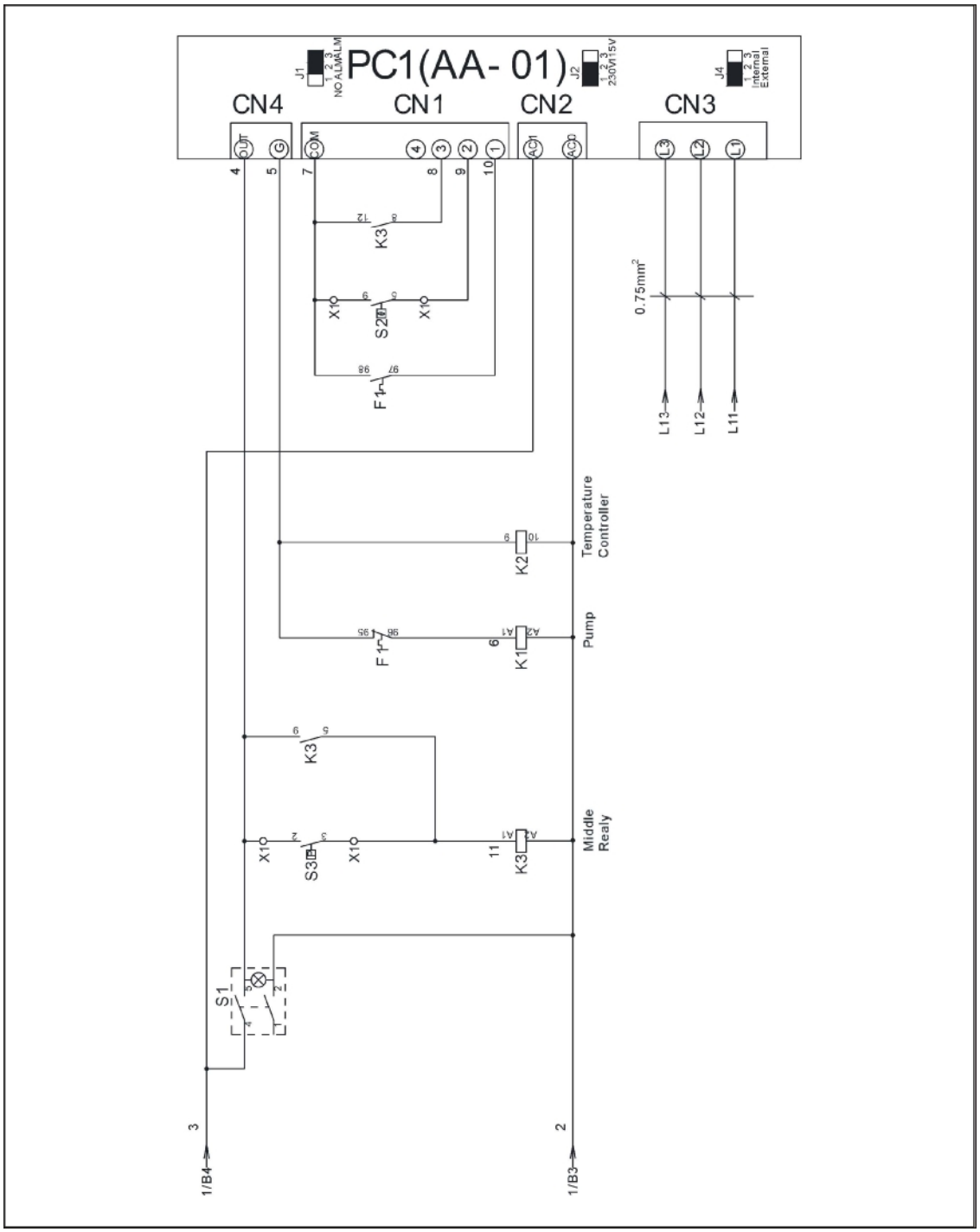
2.3 Electrical Diagram

2.3.1 Main Circuit (SACC-3000)



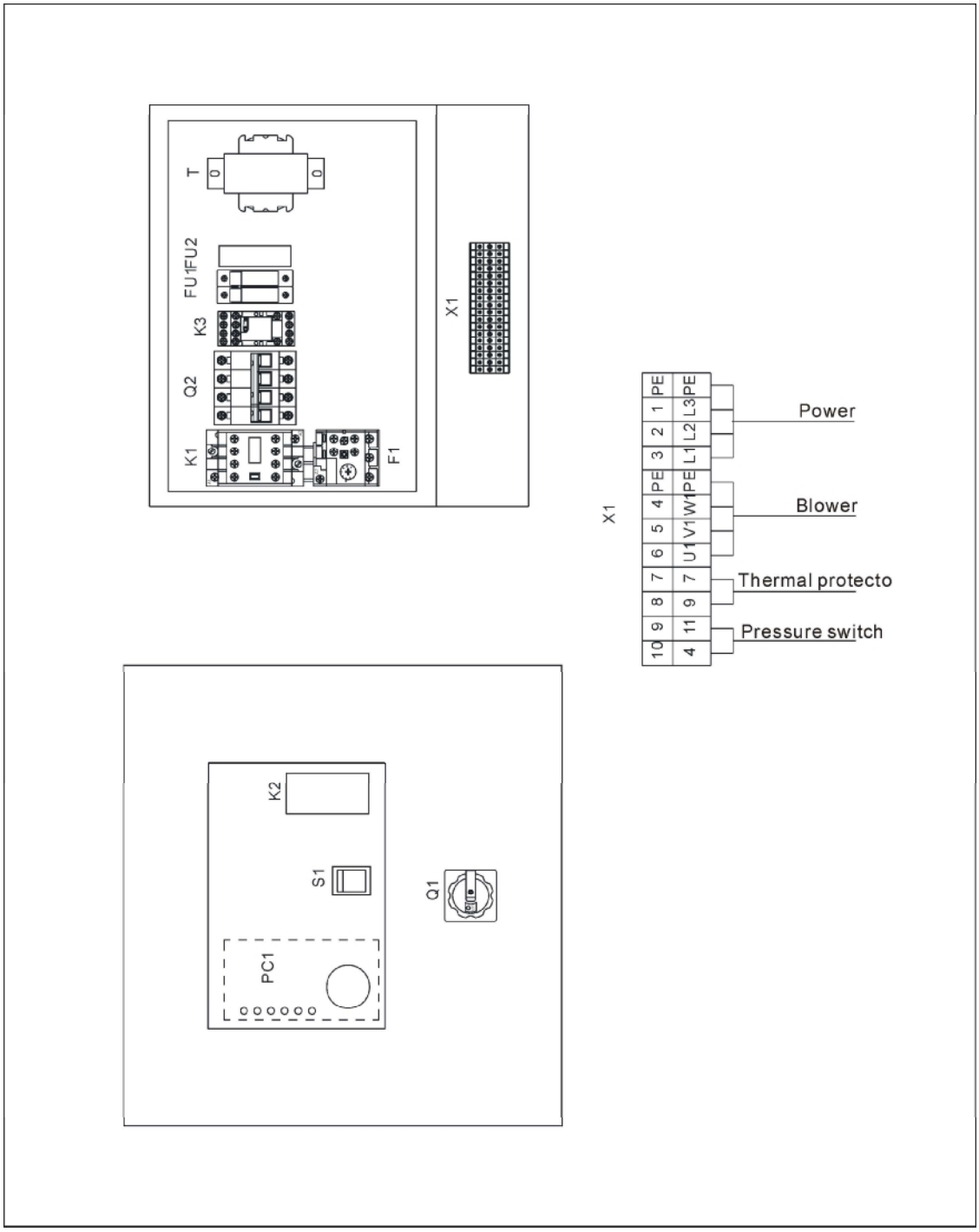
Picture 2-4: Main Circuit (SACC-3000)

2.3.2 Control Circuit (SACC-3000)



Picture 2-5: Control Circuit (SACC-3000)

2.3.3 Electric Components Layout (SACC-3000)



Picture 2-6: Electric Components Layout (SACC-3000)

2.3.4 Electrical Components List (SACC-3000)

Table 2-2: Electrical Components List (SACC-3000)

No.	Symbol	Name	Specification	Part No.
1	Q1	Main power switch*	20A	YE10021160000
2	Q2	Breaker*	10A	YE40600300000
3	K1	Contactor*	220V 50/60Hz	YE00401000100
4	F1	Thermal overload relay*	2.5~4A	YE01025400000
5	FU1	Fuse base**	32A 2P	YE41032200000
6	-	Fuse core**	1A	YE46001000100
7	FU2	Fuse base**	2A	YE41001000000
8	K2	Temp. controller	230V 50/60	YE85623000000
9	K3	Intermediate relay	230V 50/60	YE03270700000
10	T	Transformer*	300mA	YE70402300700
11	S1	Alternative switch*	4P (WH)	YE10210400000
12	S2	Overheat protector	250V 5(4)A	YE21503000000
13	S3	Pressure switch*	-	-
14	PC1	PCB*	230V 50/60Hz	YE80000100000
15	X1 X2	Terminal	-	YE61250040000
16	-	Grounding Terminal	-	YE61253500000
17	M1	Motor*	400V 50Hz 1.5kW	-

* means possible broken parts.
** means easy broken part. and spare backup is suggested.
Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

3. Installation and Debugging

3.1 Attentions during installation

1) Make sure that voltage of electricity matches with the nameplate.
2) Connect the electricity wire and earth wire according to local regulations.
3) Use independent electricity wire and power switch .The diameter of the wire should not be less than that of electric cabinet's wire.
4) The end of the electricity wire should be safe and firm.
5) Three-phase electricity and four wires are utilized. Connect the power (L1, L2 and L3) to live wire and to ground wire (PE).
6) Electric Power distribution demand.
   Main power voltage: ± 5%
   Main power frequency: ± 2%

Power

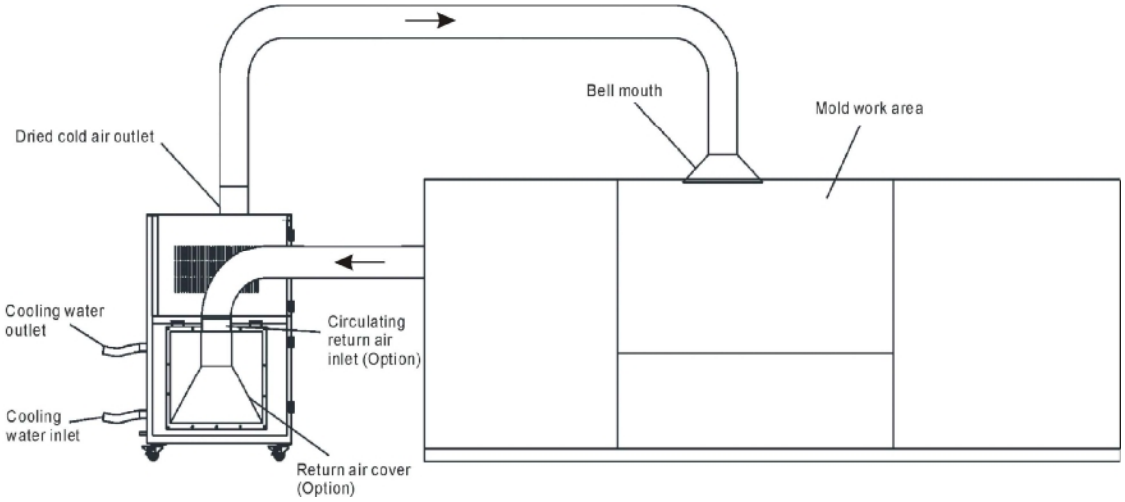
Before installation, please confirm power supply should be in accodance with required specifications. SACC normally works within 3Φ400V power. You may order other special specifications if necessary.

Picture 3-1: Notice for Installation

Notice!

Combustibles are not allowed to place within 1m around the machine.

3.2 Installation Drawing



Picture 3-2: Installation Drawing

3.3 Negative Pressure Switch

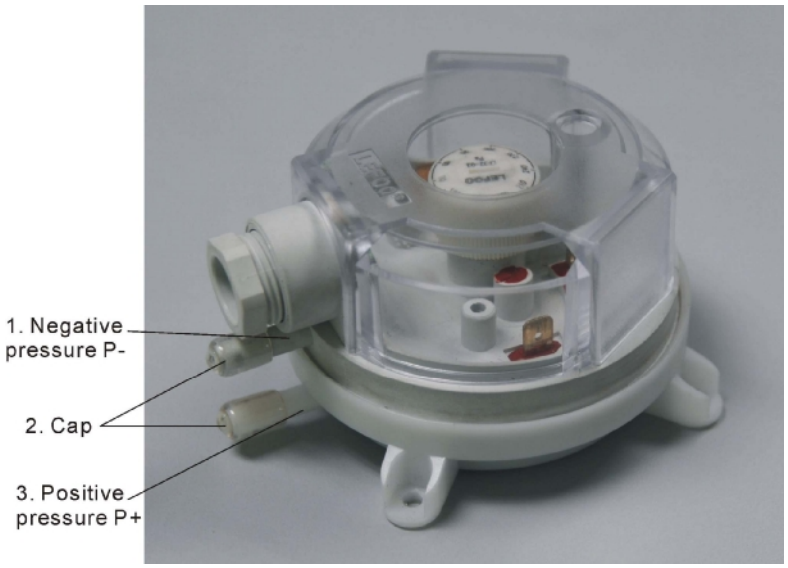
3.3.1 Function

It is necessary to clean filter cotton at regular intervals to ensure air throughput is sufficient and filtering effect is good; pressure switch is used for real-time detection of whether filter cotton has been blocked. The switch is adjustable so users can regulate its alarm scale based on environment. When filter cotton is under blockage, negative pressure will reach the setpoint and sound alarm for cleaning. Upon delivery, pressure switch has been set -560Pa based on air output quantity of 2,000m^3/hr.

Picture 3-3: Negative Pressure Switch

3.3.2 Notice for Mounting Pressure Switch

1) Make sure Hose connects with negative pressure port (indicate 1), which is labeled with “-”.
2) Make sure positive pressure port (indicate 3) is free of blockage, which should be not covered by lid (indicate 2) or plugged up.



Picture 3-4: Notice for Mounting Pressure Switch

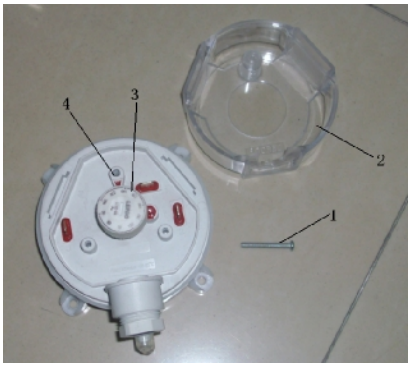
3.3.3 Regulating Steps for Switch

1) Unscrew bolts in the lid (indicate 1).

2) Take off the lid (indicate 2).

3) Rotate knob (indicate 3) to make red mark (indicate 4) align the pressure value in the scale.

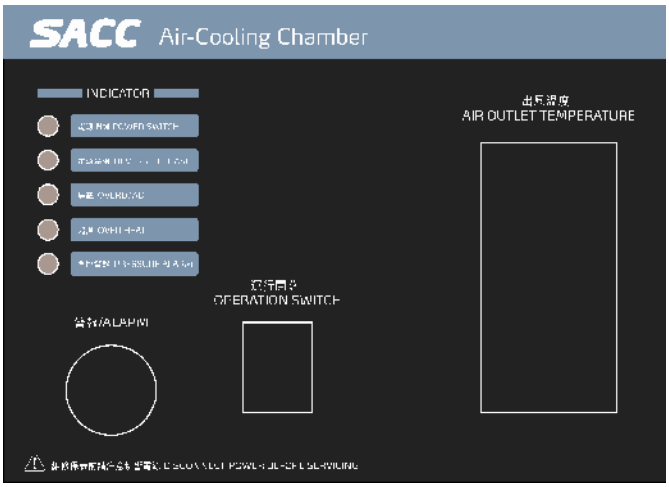
4) Put on the lid and fix bolts.



Picture 3-5: Regulating Switch

4. Application and Operation

4.1 Panel Instruction



Picture 4-1: Control Panel

Table 4-1: Control Panel Details

No.	Name	Function description	Remark
1	Operation display area	Display Power on and Faults of device	Green light ON means Runing Green light OFF means Paused
2	Faults display area	Current alarm information	Red light ON means Fault happens
3	Buzzer	Buzzer sounds continuously when faults happen	Buzzer stops sounding after troubleshooting
4	Run/Stop switches	Control machine startup and shutoff	Press it to start device when Pasued Press it to stop device when Runing
5	Temp. controller	Air-out temp. display	

4.2 Panel Operation

1) Turn on power switch;

2) Press “Operation switch” to start running.

4.3 Temperature Controller

The controller is used to display air-out temperature. No need to adjust parameters after machine leaves factory.

5. Trouble-shooting

Faults	Possible reason	Solution
Power indicator is OFF after turning on power switch	1. Power is offline	1. Connect to power supply
	2. Main power switch damaged	2. Replace power switch
	3. Power line faults	3. Check power line
	4. Blowout of control circuit fuse	4. Replace fuse after checking line
	5. Control transformer damaged	5. Replace transformer
Reverse indicator is ON, buzzer sounds alarm and system halts	1. Too low supply voltage	1. Check power supply
	2. Power lack-phase	2. Check power supply
	3. Phase sequence connection error	3. Exchange random two inlet wires position
Overload indicator is ON, buzzer sounds alarm and system halts	1. Abnormal voltage fluctuation	1. Check power supply
	2. Blower stuck	2. Check blower
	3. Blower motor faults	3. Check the motor
	4. Setting error of thermorelay (F1) setting current	4. Set the setting current value as 1.1 times of blower motor rated current. Reset overload alarm: wait for I minute and press blue button to reset.
Overheat indicator is ON and buzzer sounds alarm	1. Controller parameters setting error	1. Re-setting controller parameters
	2. Poor temp. measurement	2. Replace thermocouple
	3. Air-out temp. higher than setpoint	3. Check whether cold air inlet is blocked or air-in temp. is too high
Negative pressure indicator is ON, buzzer sounds alarm	1. Pressure switch damaged	1. Replace pressure switch
	2. Filter blockage	2. Cleanup filter
	3. Pressure reaches switch setpoint	3. Cleanup filter
Breaker tripping once turning on mian power	1. Short-circuit points in main circuit	1. Check and repair line
	2. Primray side of transformer shortcircuit or ground connection	2. Replace breaker
	3. Unhealthy breaker	3. Replace breaker
Breaker tripping once turning on mian power	1. Blower motor coil short circuit or contacting shell	1. Check blower motor
	2. Unhealthy breaker	2. Replace breaker

6. Maintainence and Repair

6.1 Cleanup Step of Filter

1) Loosen two bolts and pull out filter screen;
2) Take off filter cotton, spray-wash it with hi-pressure air;
3) Install filter cotton into screen;
4) Insert filter screen into device and tighted bolts.

6.2 Maintenance Schedule

6.2.1 About Machine

Model _____ Serial no._____ Manufactured date_____

Voltage_____ Φ_____V Frequency_____ Hz Power _____kW

6.2.2 Check after Installation

☐Check that the conveying pipes are tightly locked.
☐Check that material clearance door is firmly closed.
☐Check that conveying pipes are correctly connected.

Electrical Installation

☐Voltage _____ V _____ Hz
☐Fuse specification: 1Phase _____ A 3Phase _____ A
☐Check phase sequence of power supply.
☐Check blower rotation direction.

6.2.3 Daily Checking

☐Check power supply wires.
☐Check the start/stop function.

6.2.4 Weekly Checking

☐Check all the electric wires.
☐Check loose electric connections.
☐Check and clean air filter.
☐Check motor overload relay and phase-reversed prevention function.

6.2.5 Monthly Check

- ☐ Check alarm function.
- ☐ Check negative pressure switch.
- ☐ Check filter cotton.

6.2.6 Half-yearly Check

- ☐ Check if there is air leak in joints.
- ☐ Check blower motor/fan blade.
- ☐ Check heat exchanger.