# SDD Series

## Dehumidifying Dryer

Date: Nov. 2014

Version: Ver.D (English)

## Contents


**1. General Description ..... 9**

1.1 Coding Principle ..... 10

1.2 Feature ..... 10

1.3 Technical Specifications ..... 12

1.3.1 Specifications ..... 12

1.3.2 Outline Drawing ..... 13

1.3.3 Drying Capacity ..... 14

1.4 Safety Regulations ..... 16

1.4.1 Safety Regulations for the Blowers ..... 16

1.4.2 Safety Signs and Labels ..... 17

1.4.3 Signs and Labels ..... 18

1.4.4 Transportation and Storage of the Machine ..... 18

1.5 Exemption Clause ..... 19

**2. Structure Characteristics and Working Principle ..... 20**

2.1 Working Principle ..... 20

2.2 Relative Humidity and Dew-point ..... 21

2.3 Why Choose SDD ..... 21

2.4 Comparison of Air Dew-point ..... 22

2.5 Drawing and Parts List ..... 23

2.5.1 Structural Drawing ..... 23

2.5.2 Assembly Drawing (SDD-20U/40H~80U/40H) ..... 24

2.5.3 Parts List (SDD-20U/40H~80U/40H) ..... 25

2.5.4 Assembly Drawing (SDD-120U/80H~230U/120H) ..... 27

2.5.5 Parts List (SDD-120U/80H~230U/120H) ..... 28

2.5.6 Assembly Drawing (SDD-300U/200H~1200U/700H) ..... 30

2.5.7 Parts List (SDD-300U/200H~1200U/700H) ..... 31

2.5.8 Pipe Heaters ..... 35

2.5.9 Honeycomb (SDD-20U/40H~80U/40H) ..... 36

2.5.10 Honeycomb (SDD-900U/700H 1200U/700H) ..... 38

2.5.11 Heater (SDD-20U/40H~80U/40H) ..... 40

2.6 Main Electrical Components Description ..... 41

2.7 Operation Procedures ..... 42
2.7.1 Operation Regulations ..... 42
2.7.2 Description of Touch Screen ..... 43
2.7.3 Touch Panel Appear Error ..... 43
2.7.4 Dew-point Monitor ..... 54

**3. Installation Testing ..... 55**
3.1 Attention ..... 55
3.2 Honeycomb-rotor ..... 56
3.2.1 What is Honeycomb-rotor ..... 56
3.2.2 Installation of the Rotor ..... 56
3.3 Heater Assemblies ..... 57
3.4 EGO ..... 58
3.5 Cyclone Dust Collector ..... 59
3.6 Oil Filter ..... 59
3.7 Plate Heat Exchanger ..... 60

**4. Operating ..... 61**
4.1 Control Panel ..... 61
4.2 Panel Operation ..... 62
4.3 Temperature Setup ..... 62
4.4 PID Auto-tuning Setting ..... 62
4.5 Intermittent Running Setup ..... 62
4.6 Weekly Time Start Setup ..... 63
4.7 Present Time Modification ..... 66
4.8 Weekly Time Start ..... 66
4.9 Lock Setup Way ..... 66
4.10 The second level of Advanced Setting ..... 66
4.11 Wrong Codes Remark ..... 67
4.12 Installation for Dewpoint Monitor ..... 68

**5. Trouble-shooting ..... 72**

**6. Maintenance and Repair ..... 74**
6.1 Filter ..... 75
6.1.1 The Useful Life of the Key Parts of the Product ..... 76
6.2 Cooler Clear Step ..... 76

6.3 Maintenance Schedule ..... 77
6.3.1 General Machine Information ..... 77
6.3.2 Check After Installation ..... 77
6.3.3 Daily Checking ..... 77
6.3.4 Weekly Checking ..... 78
6.3.5 Monthly Checking ..... 78
6.3.6 Half-yearly Checking ..... 78
6.3.7 Yearly Checking ..... 78
6.3.8 3 year Checking ..... 78

## Table Index

Table 1-1: Specifications ..... 12
Table 1-2: Drying Capacity 1 ..... 14
Table 1-3: Drying Capacity 2 ..... 15
Table 2-1: Parts List (SDD-20U/40H~80U/40H) ..... 25
Table 2-2: Parts List (SDD-120U/80H~230U/120H) ..... 28
Table 2-3: Parts List (SDD-300U/200H~600U/400H) ..... 31
Table 2-4: Parts List (SDD-900U/700H~1200U/700H) ..... 33
Table 2-5: Parts List (SDD-20U/40H~80U/40H) ..... 37
Table 2-6: Parts List (SDD-900U/700H 1200U/700H) ..... 39
Table 2-7: Heater Assembly Parts List (SDD-20U/40H~80U/40H) ..... 40
Table 2-8: Touch panel information ..... 43
Table 2-9: Adjustment of Proportion (P) ..... 48
Table 2-10: Adjustment of Integral Time (I) ..... 49
Table 2-11: Adjustment of Differential Time (D) ..... 49
Table 2-12: System Alarm Information List ..... 51
Table 4-1: Control Panel Table ..... 61
Table 4-2: Wrong Codes Remark ..... 67
Table 6-1: The Useful Life of the Key Parts of the Product ..... 76

## Picture Index

Picture 1-1: Outline Drawing ..... 13

Picture 1-2: Safety Regulations for the Blowers ..... 17
Picture 1-3: Safety Signs and Labels ..... 17
Picture 2-1: Working Principle ..... 21
Picture 2-2: Comparison of Air Dew-point ..... 22
Picture 2-3: Structural Drawing ..... 23
Picture 2-4: Assembly Drawing (SDD-20U/40H~80U/40H) ..... 24
Picture 2-5: Assembly Drawing (SDD-120U/80H~230U/120H) ..... 27
Picture 2-6: Assembly Drawing (SDD-300U/200H~1200U/700H) ..... 30
Picture 2-7: Pipe Heaters ..... 35
Picture 2-8: Honeycomb Parts Drawing (SDD-20U/40H~80U/40H) ..... 36
Picture 2-9: Honeycomb Parts Drawing (SDD-900U/700H 1200U/700H) ..... 38
Picture 2-10: Heater Assembly (SDD-20U/40H~80U/40H) ..... 40
Picture 2-11: Overload Relay ..... 41
Picture 2-12: Operation Regulations ..... 42
Picture 2-13: Description of Touch Screen ..... 43
Picture 2-14: Screen Operation Flow Table ..... 44
Picture 2-15: System Default System ..... 44
Picture 2-16: Drying Process Screen ..... 45
Picture 2-17: Temperature Parameters Setting 1 ..... 47
Picture 2-18: Temperature Parameters Setting 2 ..... 47
Picture 2-19: Drying & Regeneration Temperature Control Parameters ..... 48
Picture 2-20: Time Setting 1 ..... 49
Picture 2-21: Time Setting 2 ..... 50
Picture 2-22: Alarm Fault Records ..... 50
Picture 2-23: Help Menu ..... 51
Picture 2-24: Help menu ..... 53
Picture 2-25: Embedded Dew-point Monitor ..... 54
Picture 2-26: Portable Dew-point Monitor ..... 54
Picture 3-1: Installation Drawing ..... 55
Picture 3-2: Honeycomb Rotor ..... 56
Picture 3-3: Installation of the Rotor ..... 57
Picture 3-4: Heater Assemblies ..... 58
Picture 3-5: EGO ..... 58
Picture 3-6: Installation Diagram of Cyclone Dust Collector ..... 59

Picture 3-7: Installation Diagram of Oil Filter ..... 59
Picture 3-8: Plate Heat Exchanger over Figure ..... 60
Picture 4-1: Control Panel ..... 61
Picture 4-2: Intermittent running setup 1 ..... 62
Picture 4-3: Intermittent running setup 2 ..... 63
Picture 4-4: Intermittent running setup 3 ..... 63
Picture 4-5: Weekly Time Start Setup 1 ..... 64
Picture 4-6: Weekly Time Start Setup 2 ..... 64
Picture 4-7: Weekly Time Start Setup 3 ..... 64
Picture 4-8: Weekly Time Start Setup 4 ..... 65
Picture 4-9: Weekly Time Start Setup 5 ..... 65
Picture 4-10: Hole Site ..... 68
Picture 4-11: Parts of Dew-point Monitor ..... 68
Picture 4-12: Copper Joint Assembly of Original Machine ..... 69
Picture 4-13: Installation Seat ..... 69
Picture 4-14: Installation for Transmitter ..... 69
Picture 4-15: Connection of Signal Wire ..... 70
Picture 4-16: Installation for Dew-point Monitor ..... 70
Picture 4-17: Connection of Dew-point Monitor ..... 71
Picture 6-1: Filter ..... 76

# 1. General Description

Please read through this operation manual before using the machine to prevent damages of the machine or personal injuries.

SDD series dehumidifying dryer combine dehumidifying and drying systems into a single unit. They have many applications in processing plastic materials, such as PA, PC, PBT, PET etc. All models feature SD-H honeycomb dehumidifiers with built-in process heater and insulated drying hopper. Under ideal conditions, it can provide dehumidified dry air with a dew-point lower than -40℃.

SDD-160U/120H-LC-D

SDD-80U/50H

## 1.1 Coding Principle

SDD – xxxU – xxxH – xxx

- xxx → Option*
- xxxH → Dehumidifying Air Quantity ($m^3$/hr)
  H: Honeycomb Rotor
- xxxU → Hopper Capacity (L)
  U: European Type
- SDD → Shini Dehumidifying Dryer

Notes: *

LC=PLC+HMI D=Dew-point Monitor

P=For Polished Hopper Inside CE=CE Conformity

## 1.2 Feature

1) Standard configuration

- The SDD dehumidifying dryer use honeycomb dehumidifiers with an eye-catching semi-integral appearance.
- Each model combines dehumidifying and drying functions into a single unit.
- Insulated drying hopper features dry air down-blowing and cyclone exhaust design. This improves drying efficiency and reduces energy consumption while maintain a steady drying effect.
- The dehumidifying section of the SDD series features two coolers to ensure a low return air temperature and low dew-point.
- Compact in size for ease of movement and space saving.
- Microprocessor is the standard equipment.

2) Accessory option

- Dew-point monitor is available as option.
- Suction box and hopper loader are optional for conveying material conveniently.
- PLC control plus LCD touch screen is optional for convenient centralized control.
- SDD-ES equips with regenerative plate heat exchanger

Plate Heat Exchanger

which can save 3~6% of total power consumption.

- Optional drying plate heat exchanger can save 0~19% of total power consumption.
- For SDD-ES , dew-point value is settable between -40 to +10℃ according to actual need of plastics material. 0~10% of total power consumption could be saved.
- SDD-ES equips with the function of drying capacity controllable. Once setting the name of dried plastics material and used volume of per hour, system would adjust air volume and consumption automatically. Volume used per hour can be set 40~100% as drying capacity to save the totally power consumption of 35~0%, achieving maximum of resources collocation and avoiding over-drying which affects physical and mechanical capacity of plastics material.

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 Technical Specifications

## 1.3.1 Specifications

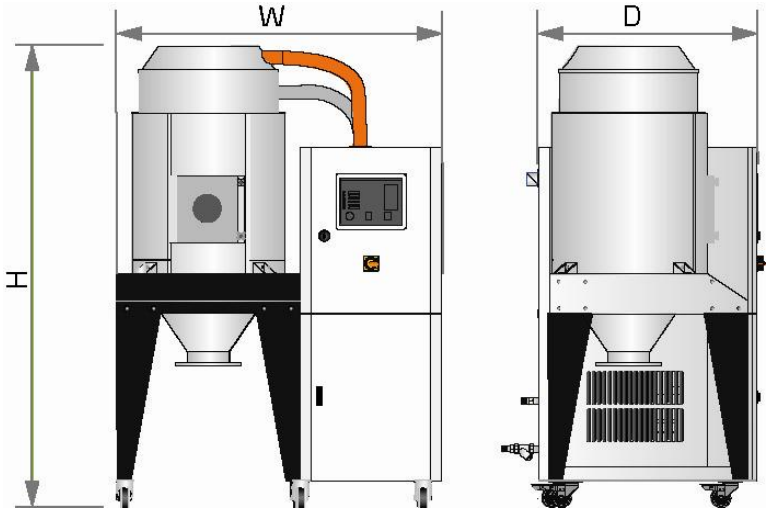
Table 1-1: Specifications

| Model | Regen. Heater (kW) | Regen. Blower (kW)(50/60Hz) | Drying Heater (kW) | Drying Blower (kW) (50/60Hz) | Dry Air Volume ($m^3$/hr)(50/60Hz) | Insulated Hopper (L) | Dimension (mm) H×W×D | Weight (kg) |
|---|---|---|---|---|---|---|---|---|
| 20U/40H | 4 | 0.2 / 0.3 | 4 | 0.12 / 0.12 | 40 / 45 | 20 | 1260×960×860 | 150 |
| 40U/40H | 4 | 0.2 / 0.3 | 4 | 0.12 / 0.12 | 40 / 45 | 40 | 1260×960×860 | 165 |
| 80U/40H | 4 | 0.2 / 0.3 | 4 | 0.12 / 0.12 | 40 / 45 | 80 | 1650×1060×860 | 190 |
| 120U/80H | 3 | 0.2 | 6 | 0.75 | 80 | 120 | 1780×1075×855 | 250 |
| 160U/80H | 3 | 0.2 | 6 | 0.75 | 80 | 160 | 1740×1220×855 | 255 |
| 160U/120H | 3 | 0.2 | 6 | 0.75 | 120 | 160 | 1740×1220×855 | 265 |
| 230U/120H | 3 | 0.2 | 6 | 0.75 | 120 | 230 | 2010×1220×855 | 295 |
| 300U/200H | 4 | 0.4 | 12 | 1.5 | 200 | 300 | 2040×1450×1050 | 420 |
| 450U/200H | 4 | 0.4 | 12 | 1.5 | 200 | 450 | 2440×1450×1050 | 550 |
| 600U/400H | 7.2 | 0.75 | 18 | 3.75 | 400 | 600 | 2380×1745×1255 | 620 |
| 750U/400H | 7.2 | 0.75 | 18 | 3.75 | 400 | 750 | 2610×1745×1255 | 650 |
| 900U/700H | 10 | 1.5 | 24 | 5.5 | 700 | 900 | 2640×2140×1380 | 830 |
| 1200U/700H | 10 | 1.5 | 24 | 5.5 | 700 | 1200 | 3070×2140×1380 | 870 |

Note: Power supply: 3Φ, 230 / 400 / 460 / 575VAC, 50 / 60Hz.

We reserve the right to change specifications without prior notice.

## 1.3.2 Outline Drawing




Picture 1-1: Outline Drawing

## 1.3.3 Drying Capacity

Table 1-2: Drying Capacity 1

| 原料 | 干燥温度℃ | 干燥时间 (hr) | 干燥能力(kg/hr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 20U /40H | 40U /40H | 80U /40H | 120U /80H | 160U /80H | 160U /120H | 230U /120H | 300U /200H | 450U /200H |
| ABS | 80 | 2-3 | 11 | 16 | 18 | 27 | | 35 | | 105 | |
| CA | 75 | 2-3 | 9 | 12 | 15 | 22 | | 29 | | 90 | |
| CAB | 75 | 2-3 | 9 | 12 | 15 | 22 | | 29 | | 90 | |
| CP | 75 | 2-3 | 11 | 16 | 18 | 27 | | 35 | | 106 | |
| LCP | 150 | 4 | 8 | 11 | 13 | 40 | | 27 | | 80 | |
| POM | 100 | 2 | 16 | 24 | 27 | 40 | | 53 | | 160 | |
| PMMA | 80 | 3 | 11 | 17 | 19 | 29 | | 38 | | 115 | |
| IONOMER | 90 | 3-4 | 7 | 10 | 11 | 17 | | 22 | | 66 | |
| PA6/6.6/6.10 | 75 | 4-6 | 6 | 9 | 10 | 14 | | 19 | | 58 | |
| PA11 | 75 | 4-5 | 7 | 10 | 11 | 17 | | 23 | | 69 | |
| PA12 | 75 | 4-5 | 7 | 10 | 12 | 17 | | 23 | | 69 | |
| PC | 120 | 2-3 | 14 | 18 | 21 | 31 | | 41 | | 124 | |
| PU | 90 | 2-3 | 12 | 17 | 19 | 29 | | 38 | | 115 | |
| PBT | 130 | 3-4 | 9 | 13 | 15 | 23 | | 31 | | 93 | |
| PE | 90 | 1 | 32 | 47 | 53 | 80 | | 106 | | 318 | |
| PEI | 150 | 3-4 | 8 | 11 | 13 | 20 | | 27 | | 80 | |
| PET | 160 | 4-6 | 8 | 11 | 13 | 19 | | 25 | | 75 | |
| PETG | 70 | 3-4 | 8 | 11 | 13 | 20 | | 27 | | 80 | |
| PEN | 170 | 5 | 9 | 13 | 15 | 23 | | 30 | | 90 | |
| PES | 150 | 4 | 9 | 13 | 15 | 23 | | 30 | | 90 | |
| PPO | 110 | 1-2 | 13 | 19 | 22 | 33 | | 44 | | 133 | |
| PPS | 150 | 3-4 | 8 | 11 | 13 | 20 | | 27 | | 80 | |
| PI | 120 | 2 | 16 | 24 | 27 | 40 | | 53 | | 160 | |
| PP | 90 | 1 | 24 | 39 | 44 | 66 | | 88 | | 265 | |
| PS(GP) | 80 | 1 | 26 | 39 | 44 | 66 | | 88 | | 265 | |
| PSU | 120 | 3-4 | 8 | 12 | 14 | 22 | | 29 | | 86 | |
| PVC | 70 | 1-2 | 13 | 19 | 22 | 33 | | 44 | | 133 | |
| SAN(AS) | 80 | 1-2 | 13 | 19 | 22 | 33 | | 44 | | 133 | |
| TPE | 110 | 3 | 13 | 18 | 21 | 31 | | 41 | | 124 | |

Note: 1. Please refer to above drying capacity of SCD machine, select the right model according to material usage of processing machine.

2. Specific model selection, please consult the letter easy service personnel.

# Table 1-3: Drying Capacity 2

| Material | Drying Temp. (℃) | Drying Time (hr) | Drying Capacity (kg/hr) | | | |
|---|---|---|---|---|---|---|
| | | | 600U /400H | 750U /400H | 900U /700H | 1200U /700H |
| ABS | 80 | 2-3 | 210 | | 355 | |
| CA | 75 | 2-3 | 180 | | 295 | |
| CAB | 75 | 2-3 | 180 | | 295 | |
| CP | 75 | 2-3 | 210 | | 355 | |
| LCP | 150 | 4 | 160 | | 365 | |
| POM | 100 | 2 | 320 | | 530 | |
| PMMA | 80 | 3 | 230 | | 383 | |
| IONOMER | 90 | 3-4 | 133 | | 220 | |
| PA6/6.6/6.10 | 75 | 4-6 | 115 | | 192 | |
| PA11 | 75 | 4-5 | 138 | | 230 | |
| PA12 | 75 | 4-5 | 138 | | 230 | |
| PC | 120 | 2-3 | 250 | | 413 | |
| PU | 90 | 2-3 | 230 | | 383 | |
| PBT | 130 | 3-4 | 186 | | 310 | |
| PE | 90 | 1 | 637 | | 1062 | |
| PEI | 150 | 3-4 | 160 | | 265 | |
| PET | 160 | 4-6 | 150 | | 250 | |
| PETG | 70 | 3-4 | 160 | | 265 | |
| PEN | 170 | 5 | 180 | | 300 | |
| PES | 150 | 4 | 180 | | 300 | |
| PPO | 110 | 1-2 | 265 | | 440 | |
| PPS | 150 | 3-4 | 160 | | 265 | |
| PI | 120 | 2 | 320 | | 530 | |
| PP | 90 | 1 | 530 | | 885 | |
| PS(GP) | 80 | 1 | 531 | | 885 | |
| PSU | 120 | 3-4 | 173 | | 290 | |
| PVC | 70 | 1-2 | 265 | | 442 | |
| SAN(AS) | 80 | 1-2 | 265 | | 442 | |
| TPE | 110 | 3 | 250 | | 413 | |

Note: 1. Please refer to above drying capacity of SCD machine, select the right model according to material usage of processing machine.

2. Specific model selection, please consult the letter easy service personnel.

## 1.4 Safety Regulations

Warning!

Electrical installation should be done by qualified technician only.

Before connecting to AC Power Source, turn power switch to OFF position.

While AC power source is connected, make sure specifications and overload protection rating of the power switch are suitable and reliable.

When the machine is under care or maintenance status, turn both power switch and automatic operation switch to off.

### 1.4.1 Safety Regulations for the Blowers

1) Under normal operation, the blowers will generate high temperature. Do not touch blower's case to avoid any physical injury.
2) Under normal operation, the blower motor's current loading will increase or reduce according to air pressure's change accordingly. While installation, an adequate motor overload protection switch should be installed with full loading test, to ensure operating safely under full-loading to avoid motor's damage.
3) To avoid any block materials, dust, powder, fiber particles and water drops entering the blower, and hence cause the deficiency of its performance. This machine is well designed with air filters, so please clean up the filter with any foreign particles (recommended to clean up this filter weekly).
4) Clean the blowers both internal and external parts (especially for the fan cooling path), and remove surface dust if necessary. If more dusts are accumulated, it will cause deficiency for ventilation, temperature rising, vacuum power reduced, vibration increased and so it will cause machine broke down.
5) Ball bearing, oil seal and soundproof are belonging to consumable parts and so it has a life period and requires regular replacement. Meanwhile, blade, external case, and metallic screen etc. should be replaced regularly for best performance.
6) Under normal operation, if the blowers are not running smoothly or abnormal noise appeared. Please immediately shut down the machine for repair.

Picture 1-2: Safety Regulations for the Blowers

### 1.4.2 Safety Signs and Labels

Danger!

High voltage danger!

This label is stuck on the electrical boxes.

Attention!

This label means that this area should be taken care!

Warning!

High temperature, take care of hands!

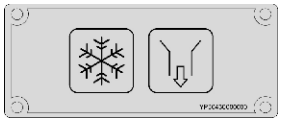
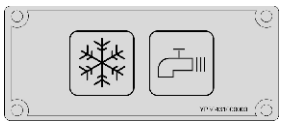
This label should be stick to the shell of heater.

Attention!

No need for regular inspection because all the electrical parts in the control unit are fixed tightly!

Picture 1-3: Safety Signs and Labels

### 1.4.3 Signs and Labels

| | |
|---|---|
|  | Water inlet: inlet for replenishing water and cooling water. |
|  | Water outlet: drainage outlet. |
| | Push-and-pull switch for shut-off plate:<br>I: Means "Pull"<br>O: Means "Push" |

### 1.4.4 Transportation and Storage of the Machine

Transportation

1) SDD series dehumidifying dryer 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) SDD series dehumidifying dryer 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

Indoors in a dry environment with max. temperature +45℃ and humidity no 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.

## 1.5 Exemption Clause

The following statements clarify the responsibilities and regulations born by any buyer or user who purchases products and accessories from Shini (including employees and agents).

Shini is exempted from liability for any costs, fees, claims and losses caused by reasons below:

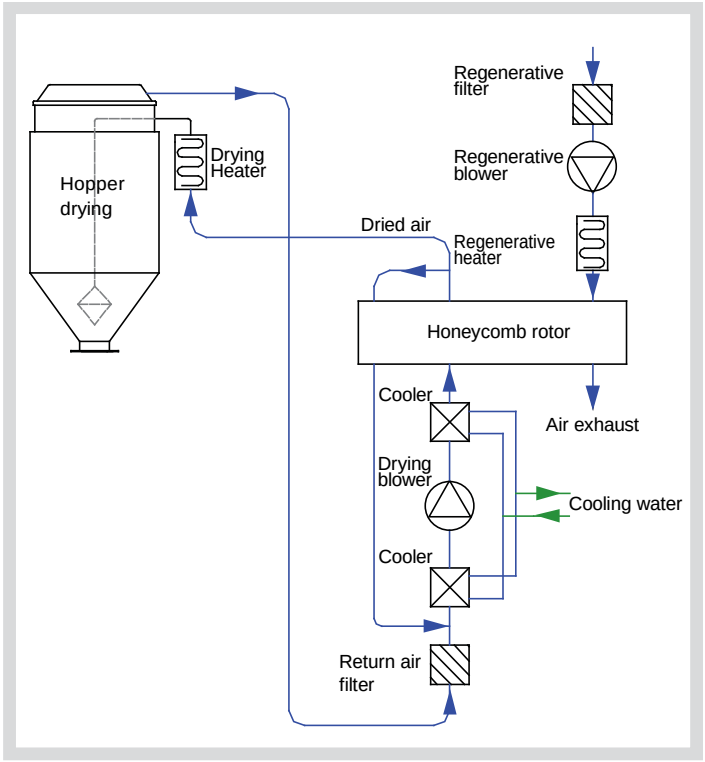
1. Any careless or man-made installations, operation and maintenances upon machines without referring to the Manual prior to machine using.
2. Any incidents beyond human reasonable controls, which include man-made vicious or deliberate damages or abnormal power, and machine faults caused by irresistible natural disasters including fire, flood, storm and earthquake.
3. Any operational actions that are not authorized by Shini upon machine, including adding or replacing accessories, dismantling, delivering or repairing.
4. Employing consumables or oil media that are not appointed by Shini.

# 2. Structure Characteristics and Working Principle

## 2.1 Working Principle

Dehumidifying: damp and hot air from dry material barrel is blown into rotor after cooled. Moisture from the air is absorbed by rotor and is then adsorbed by regeneration heating air. Two strands of airflow function on the rotor. And with the rotation, moisture from the air is absorbed and expelled after absorbed regeneration air to form stable low dew-point air, which is dried to the drying temperature and then is blown into material barrel to closed circle to dry material.

Suction: material is absorbed into barrel from storage barrel or other storage containers. When the magnetic reed switch detects no material, suction motor runs to produce vacuum inside vacuum hopper. Raw material in storage barrels is absorbed into suction hopper due to air pressure difference. When the time is completed, suction motor stops. Raw materials drop into drying hopper barrel due to gravity. The dried raw material after dried from is taken out to the hopper with photosensor installed on moulding machine or other hopper form drying hopper barrel.




Picture 2-1: Working Principle

## 2.2 Relative Humidity and Dew-point

Relative humidity: Relative air humidity means real vapor content to saturated vapor at the same temperature in percentage.

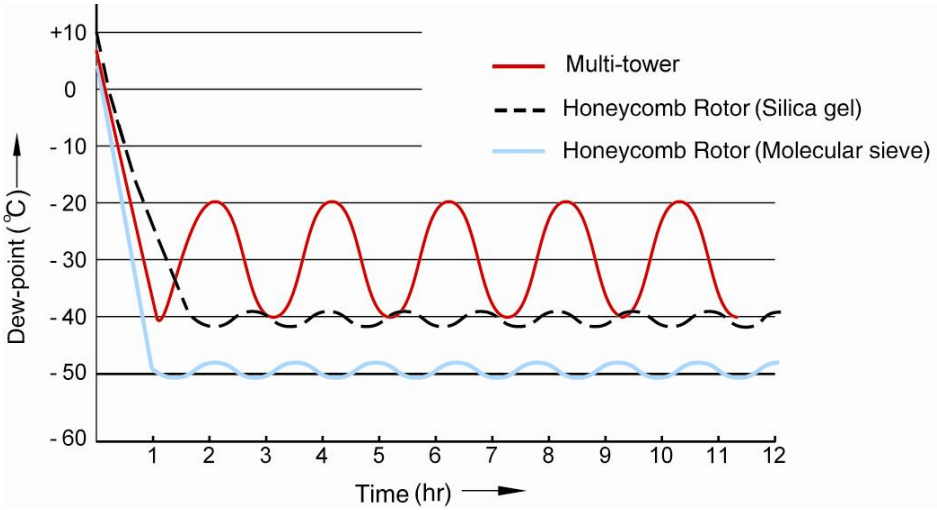
Dew point: it means that temperature when the saturation vapor begins to dew. When the relative humidity is 100%, the ambient temperature is the dew point temperature. The more lower of dew point temperature (than the ambient temperature) is, the more less possible to dew, that also means the more drier the air is. The dew point will not be influenced by temperature, but influenced by pressure.

## 2.3 Why Choose SDD

It is proved that the hygroscopic materials used in the plastics industry such as: PC, PA, PBT, PET, Nylon and etc. cannot be dried effectively by conventional hot air drying systems because those systems depend on ambient conditions and are relatively inefficient in reducing moisture contents. These materials demand steady low dew point dry air and a constant drying temperature, which

guarantee final moisture content of 0.02% or even less. The SDD provides a closed-loop system with the dew-point of the dry air being down to -40℃ or even lower which accelerates the moisture transferring from the plastic granules to the dry air.

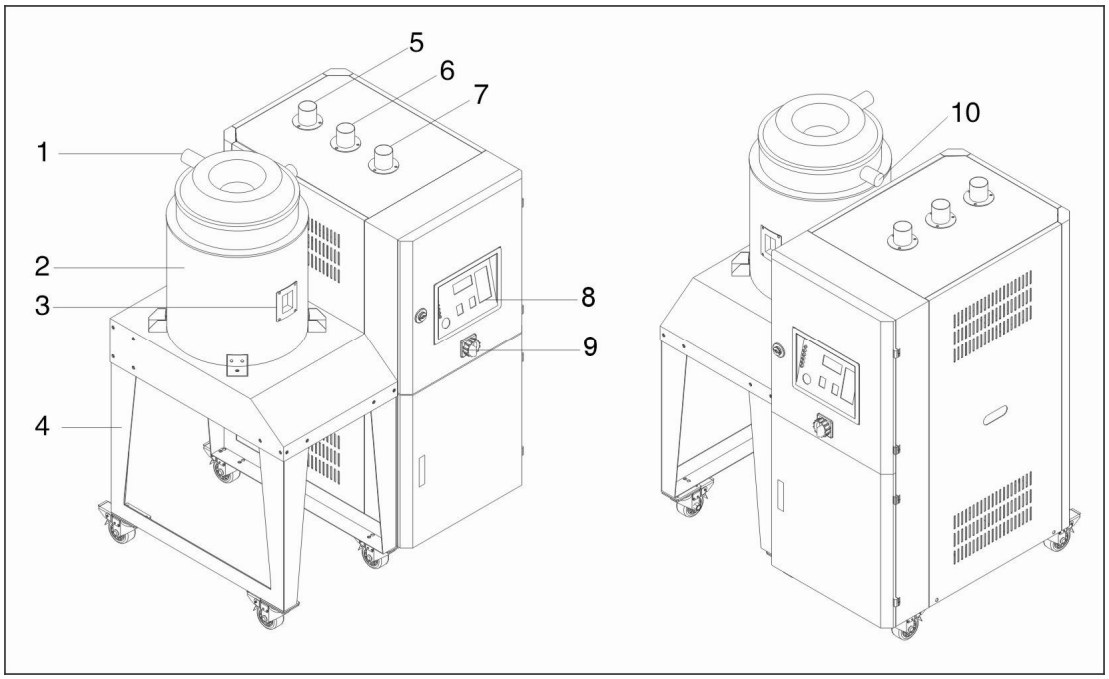
## 2.4 Comparison of Air Dew-point




Picture 2-2: Comparison of Air Dew-point

## 2.5 Drawing and Parts List

### 2.5.1 Structural Drawing

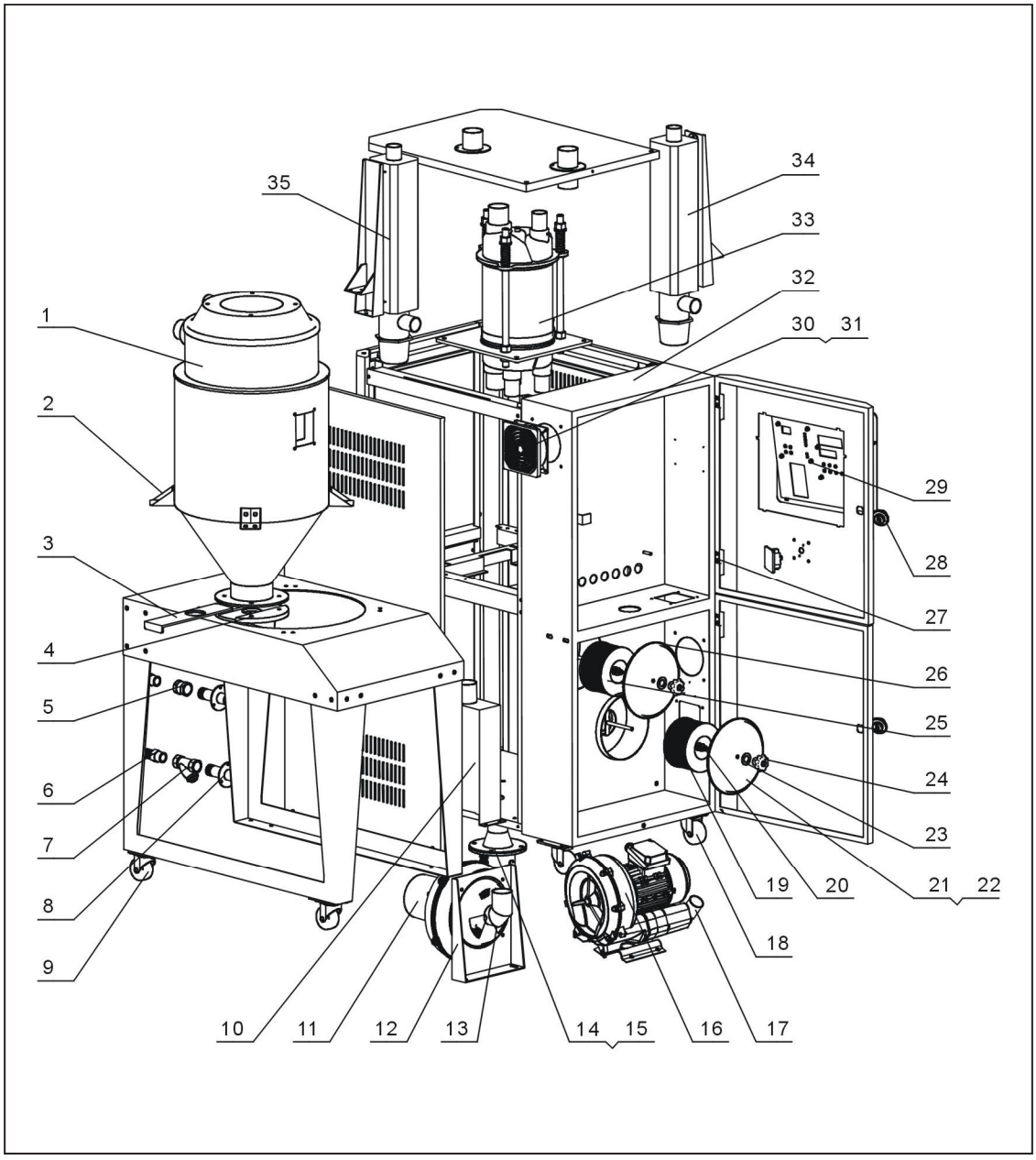



Parts name:

1. Return air outlet 2. Insulated hopper
3. Sight-glass window (or material clearance door for hopper capacity more than 80U)
4. Floor stand 5. Dry air outlet 6. Return air inlet 7. Moisture outlet
8. Control panel 9. Main power switch 10. Dry air inlet

Picture 2-3: Structural Drawing

## 2.5.2 Assembly Drawing (SDD-20U/40H~80U/40H)




Remarks: Please refer to material list 2.5.3 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-4: Assembly Drawing (SDD-20U/40H~80U/40H)

## 2.5.3 Parts List (SDD-20U/40H~80U/40H)

Table 2-1: Parts List (SDD-20U/40H~80U/40H)

| No. | Description | Part No. | | |
|---|---|---|---|---|
| | | 20U/40H | 40U/40H | 80U/40H |
| 1 | European heat insulation hopper | BY10002000150 | BY10004000150 | BY10008000150 |
| 2 | Fixing reinforcement rib | - | - | - |
| 3 | Big shut-off plate SHD-12 | YW07001200000 | YW07001200000 | YW07001200000 |
| 4 | Shut-off plate flange | BA20002000210 | BA20002000210 | BA20002000210 |
| 5 | Zinc plated water pipe direct connection 3/4" | YW51003400000 | YW51003400000 | YW51003400000 |
| 6 | Copper insert core M23×3/4"PT | BH12223400010 | BH12223400010 | BH12223400010 |
| 7 | Y type water strainer 3/4" | YW57003400000 | YW57003400000 | YW57003400000 |
| 8 | Water flow regulator | - | - | - |
| 9 | Brake rubber castor 3"* | YW03000300000 | YW03000300000 | YW03000300000 |
| 10 | Cooler | BW88080000020 | BW88080000020 | BW88080000020 |
| 11 | 3" Blower * | BM40338000150 | BM40338000150 | BM40338000150 |
| 12 | Blower fixing plate | - | - | - |
| 13 | Blower air inlet flange | - | - | - |
| 14 | Blower air outlet flange | - | - | - |
| 15 | Blower air outlet flange fastener | - | - | - |
| 16 | High pressure blower RB-125* | BM30012500050 | BM30012500050 | BM30012500050 |
| 17 | 1.5" Motor flange | - | - | - |
| 18 | Black castor 3"/ fixed direction | YW03000301100 | YW03000301100 | YW03000301100 |
| 19 | Filter ADC18** | YR50128300100 | YR50128300100 | YR50128300100 |
| 20 | Butterfly nut 5/16" | YW69000800000 | YW69000800000 | YW69000800000 |
| 21 | Filter barrel lid | - | - | - |
| 22 | Fastener for filtering barrel ⌀170* | YR10017000000 | YR10017000000 | YR10017000000 |
| 23 | Flat gasket 8×18 | YW66081800000 | YW66081800000 | YW66081800000 |
| 24 | Star nut 5/16" | YW09675100000 | YW09675100000 | YW09675100000 |
| 25 | Filter ADC18** | YR50128300000 | YR50128300000 | YR50128300000 |
| 26 | Fastener for filtering barrel ⌀170 | YR10017000100 | YR10017000100 | YR10017000100 |
| 27 | big hinge CL203-1(right) | YW06203100200 | YW06203100200 | YW06203100200 |
| 28 | Door lock ( MS816-1 with key) | YW00816100000 | YW00816100000 | YW00816100000 |
| 29 | Plastic panel | YR40000400400 | YR40000400400 | YR40000400400 |
| 30 | Exhaust fan ** | YM60121200100 | YM60121200100 | YM60121200100 |

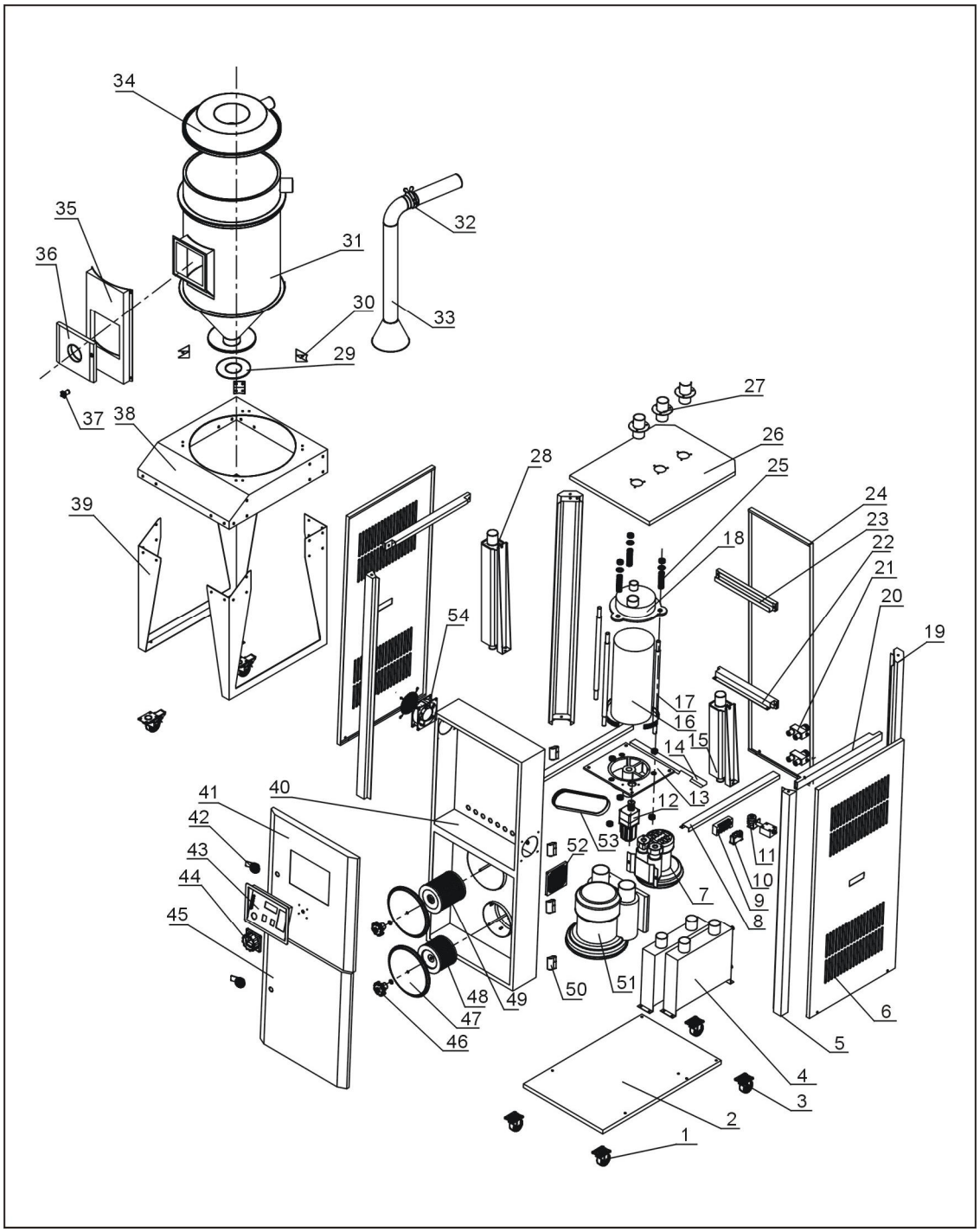
| No. | Description | Part No. | | |
|---|---|---|---|---|
| | | 20U/40H | 40U/40H | 80U/40H |
| 31 | Anti-dust screen ** | YR40120300000 | YR40120300000 | YR40120300000 |
| 32 | Rack metal plate | - | - | - |
| 33 | Honeycomb-rotor | Refer to Picture 2-8 | Refer to Picture 2-8 | Refer to Picture 2-8 |
| 34 | Regeneration heater | Refer to Picture 2-10 | Refer to Picture 2-10 | Refer to Picture 2-10 |
| 35 | Drying heater | Refer to Picture 2-10 | Refer to Picture 2-10 | Refer to Picture 2-10 |

* 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.

## 2.5.4 Assembly Drawing (SDD-120U/80H~230U/120H)




Remarks: Please refer to material list 2.5.5 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-5: Assembly Drawing (SDD-120U/80H~230U/120H)

## 2.5.5 Parts List (SDD-120U/80H~230U/120H)

Table 2-2: Parts List (SDD-120U/80H~230U/120H)

| No. | Description | Part No. | | | |
|---|---|---|---|---|---|
| | | 120U/80H | 160U/80H | 160U/120H | 230U/120H |
| 1 | Castor (red) | YW03000300200 | YW03000300200 | YW03000300200 | YW03000300200 |
| 2 | Bottom plate | - | - | - | - |
| 3 | Castor brake | YW03000300000 | YW03000300000 | YW03000300000 | YW03000300000 |
| 4 | Condenser | BW88080000020 | BW88080000020 | BW88008000020 | BW88008000020 |
| 5 | Front pole | - | - | - | - |
| 6 | Side plate | - | - | - | - |
| 7 | Blower * | BM30031000150 | BM30031000150 | BM30031000150 | BM30012500050 |
| 8 | Side middle beam | - | - | - | - |
| 9 | Terminal board | YE61250000000 | YE61250000000 | YE61250000000 | YE61250000000 |
| 10 | Capacitor | YE25001500000 | YE25001500000 | YE25001500000 | YE25001500000 |
| 11 | Belt regulator | BH10005000040 | BH10005000040 | BH10005000040 | BH10005000040 |
| 12 | Gear motor | YM50102600000 | YM50102600000 | YM50102600000 | YM50102600000 |
| 13 | Honeycomb bottom cover | BA40508000010 | BA40508000010 | BA40508000010 | BA40508000010 |
| 14 | Rear middle beam | - | - | - | - |
| 15 | Regen. heater* | BH70800300050 | BH70800300050 | BH70800300050 | BH70800300050 |
| 16 | Honeycomb | YW71183000100 | YW71183000100 | YW71184000100 | YW71184000100 |
| 17 | Two-head screw | BH10543000010 | BH10543000010 | BH10554500010 | BH10554500010 |
| 18 | Honeycomb upper cover | BA40508000110 | BA40508000110 | BA40508000110 | BA40508000110 |
| 19 | Rear pole | - | - | - | - |
| 20 | Side beam | - | - | - | - |
| 21 | Water distributor | - | - | - | - |
| 22 | Rear middle beam | - | - | - | - |
| 23 | Rear fixing beam | - | - | - | - |
| 24 | Rear plate | - | - | - | - |
| 25 | Spring | YW01201800000 | YW01201800000 | YW01201800000 | YW01201800000 |
| 26 | Top cover | - | - | - | - |
| 27 | Flange | - | - | - | - |
| 28 | Process heater* | BH70120600150 | BH70160600150 | BH70230600150 | BH70230600150 |
| 29 | Shut-off plate flange | - | - | - | - |
| 30 | Fixed stiffener | - | - | - | - |
| 31 | Drying hopper | - | - | - | - |
| 32 | Stainless steel clamp | YW07002500600 | YW07000300000 | YW07000300000 | YW07000300000 |
| 33 | Down-blowing pipe | - | - | - | - |
| 34 | Hopper top | - | - | - | - |

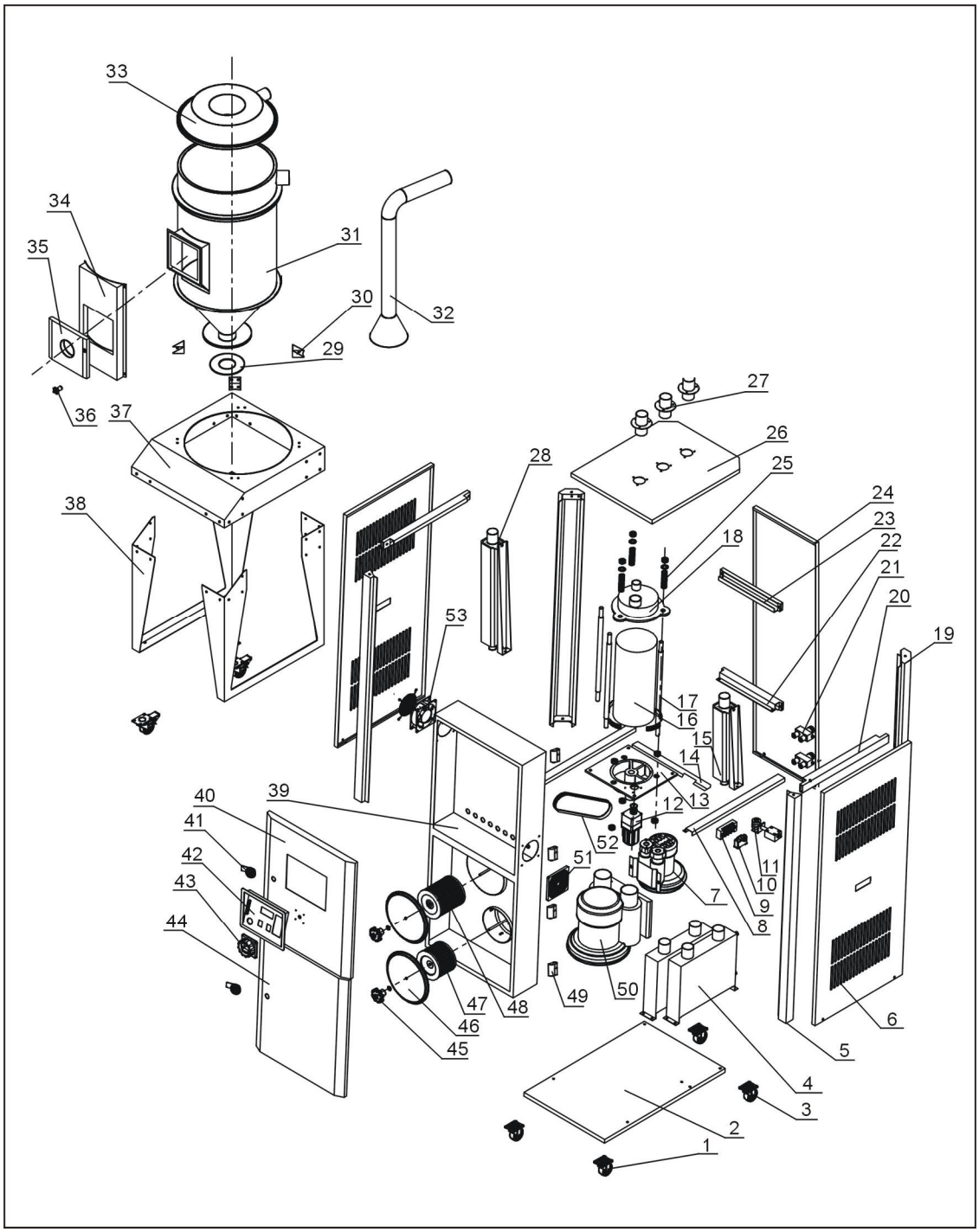
| No. | Description | Part No. | | | |
|---|---|---|---|---|---|
| | | 120U/80H | 160U/80H | 160U/120H | 230U/120H |
| 35 | Door frame | - | - | - | - |
| 36 | Sight glass window | - | - | - | - |
| 37 | Butterfly nut | YW09675100000 | YW09675100000 | YW09675100000 | YW09675100000 |
| 38 | Stand plate | - | - | - | - |
| 39 | Stand fixer | - | - | - | - |
| 40 | Control box | BH34012000450 | BH34168000350 | BH34016000350 | BH34231200250 |
| 41 | Upper door plate | - | - | - | - |
| 42 | Door lock | YW00000600000 | YW00000600000 | YW00000600000 | YW00000600000 |
| 43 | Control panel | YR01003000200 | YR01003000200 | YR01003000200 | YR01003000200 |
| 44 | Main power supply switch* | YE10210300000 | YE10210300000 | YE10210300000 | YE10210300000 |
| 45 | Lower door plate | - | - | - | - |
| 46 | Butterfly nut | YW09675100000 | YW09675100000 | YW09675100000 | YW09675100000 |
| 47 | Filter cover | - | - | - | - |
| 48 | ADC18 filter** | YR50128300000 | YR50128300000 | YR50128300000 | YR50708000100 |
| 49 | Filter** | YR50708000100 | YR50708000100 | YR50708000100 | YR50708000100 |
| 50 | Hinge | YW06203100200 | YW06203100200 | YW06203100200 | YW06203100200 |
| 51 | Motor * | BM30012500050 | BM30012500050 | BM30012500050 | BM30031000150 |
| 52 | Anti-dust net | YR40120300000 | YR40120300000 | YR40120300000 | YR40120300000 |
| 53 | Transmission belt** | YR00202500000 | YR00202500000 | YR00202500000 | YR00203400000 |
| 54 | Cooling fan** | YM60121200400 | YM60121200400 | YM60121200400 | YM60121200400 |

* 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.

## 2.5.6 Assembly Drawing (SDD-300U/200H~1200U/700H)




Remarks: Please refer to material list 2.5.7 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-6: Assembly Drawing (SDD-300U/200H~1200U/700H)

## 2.5.7 Parts List (SDD-300U/200H~1200U/700H)

### Table 2-3: Parts List (SDD-300U/200H~600U/400H)

| No. | Description | Part No. | | | |
|---|---|---|---|---|---|
| | | 300U/200H | 450U/200H | 600U/400H | 750U/400H |
| 1 | Castor (red) | YW03000300200 | YW03000300200 | YW03000400000 | YW03000400000 |
| 2 | Bottom plate | - | - | - | - |
| 3 | Castor brake | YW03000300000 | YW03000300000 | YW03000400000 | YW03000400000 |
| 4 | Condenser | BW88152000020 | BL03154040120 | BW88030300020 | BW88030300020 |
| 5 | Front pole | - | - | - | - |
| 6 | Side plate | - | - | - | - |
| 7 | Blower * | BM30020500050 | BM30020500050 | BM30031000150 | BM30031000150 |
| 8 | Side middle beam | - | - | - | - |
| 9 | Terminal board | YE61250000000 | YE61250000000 | YE61250000000 | YE61250000000 |
| 10 | Capacitor | YE25001500000 | YE25001500000 | YE25001500000 | YE25001500000 |
| 11 | Belt regulator | BH10005000040 | BH10005000040 | BH10005000040 | BH10005000040 |
| 12 | Gear motor | YM50102600000 | YM50102600000 | YM50512600000 | YM50512600000 |
| 13 | Honeycomb bottom cover | BA40152000010 | BA40152000010 | BA40304000110 | BA40304000110 |
| 14 | Rear middle beam | - | - | - | - |
| 15 | Regen. heater* | BH70200400050 | BH70200400050 | BH70100000050 | BH70100000050 |
| 16 | Honeycomb | YW71254000100 | YW71254000100 | YW71354000100 | YW71354000100 |
| 17 | Two-head screw | BH10554500010 | BH10554500010 | BH10554500010 | BH10554500010 |
| 18 | Honeycomb upper cover | BA40152000110 | BA40152000110 | BA40304000010 | BA40304000010 |
| 19 | Rear pole | - | - | - | - |
| 20 | Side beam | - | - | - | - |
| 21 | Water distributor | - | - | - | - |
| 22 | Rear middle beam | - | - | - | - |
| 23 | Rear fixing beam | - | - | - | - |
| 24 | Rear plate | - | - | - | - |
| 25 | Spring | YW01201800000 | YW01201800000 | YW01180300000 | YW01180300000 |
| 26 | Top cover | - | - | - | - |
| 27 | Flange | - | - | - | - |
| 28 | Process heater* | BH70124000550 | BH70124000550 | BH70184000550 | BH70184000550 |
| 29 | Shut-off plate flange | - | - | - | - |
| 30 | Fixed stiffener | - | - | - | - |
| 31 | Drying hopper | - | - | - | - |
| 32 | Down-blowing pipe | - | - | - | - |
| 33 | Hopper top | - | - | - | - |
| 34 | Door frame | - | - | - | - |

| No. | Description | Part No. | | | |
|---|---|---|---|---|---|
| | | 300U/200H | 450U/200H | 600U/400H | 750U/400H |
| 35 | Sight glass window | - | - | - | - |
| 36 | Butterfly nut | YW09675100000 | YW09675100000 | YW09675100000 | YW09675100000 |
| 37 | Stand plate | - | - | - | - |
| 38 | Stand fixer | - | - | - | - |
| 39 | Control box | BH34302000250 | BH34452000350 | BH34604000150 | BH34754000150 |
| 40 | Upper door plate | - | - | - | - |
| 41 | Door lock | YW00000600000 | YW00000600000 | YW00000600000 | YW00000600000 |
| 42 | Control panel | YR01003000200 | YR01003000200 | YR01003000200 | YR01003000200 |
| 43 | Main power supply switch* | YE10250400000 | YE10250400000 | YE40606000000 | YE40606000000 |
| 44 | Lower door plate | - | - | - | - |
| 45 | Butterfly nut | YW09675100000 | YW09675100000 | YW09675100000 | YW09675100000 |
| 46 | Filter cover | - | - | - | - |
| 47 | ADC18 filter** | YR50708000100 | YR50708000100 | YR50708000100 | YR50708000100 |
| 48 | Filter** | YR50203000000 | YR50181100000 | YR50241400000 | YR50241400000 |
| 49 | Hinge | YW06203100200 | YW06203100200 | YW06203100200 | YW06203100200 |
| 50 | Motor * | BM30042000050 | BM30042000050 | YM30062900000 | YM30062900000 |
| 51 | Anti-dust net | YR40120300000 | YR40120300000 | YR40120300000 | YR40120300000 |
| 52 | Transmission belt** | YR00203400000 | YR00203400000 | YR00204700000 | YR00204700000 |
| 53 | Cooling fan** | YM60121200400 | YM60121200400 | YM60121200400 | YM60121200400 |

* 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.

# Table 2-4: Parts List (SDD-900U/700H~1200U/700H)

| No. | Description | Part No. | |
|---|---|---|---|
| | | 900U/700H | 1200U/700H |
| 1 | Castor (red) | YW03000400000 | YW03000400000 |
| 2 | Bottom plate | - | - |
| 3 | Castor brake | YW03000400000 | YW03000400000 |
| 4 | Condenser | BW88507000020 | BL03507045020 |
| 5 | Front pole | - | - |
| 6 | Side plate | - | - |
| 7 | Blower * | BM30042000050 | BM30042000050 |
| 8 | Side middle beam | - | - |
| 9 | Terminal board | YE61250000000 | YE61250000000 |
| 10 | Capacitor | YE25001500000 | YE25001500000 |
| 11 | Belt regulator | BH10005000040 | BH10005000040 |
| 12 | Gear motor | YM50512600000 | YM50512600000 |
| 13 | Honeycomb bottom cover | BA40507000010 | BA40507000010 |
| 14 | Rear middle beam | - | - |
| 15 | Regen. heater* | BH70501000050 | BH70501000050 |
| 16 | Honeycomb | YW71444000100 | YW71444000100 |
| 17 | Two-head screw | BH10554500010 | BH10554500010 |
| 18 | Honeycomb upper cover | BA40507000110 | BA40507000110 |
| 19 | Rear pole | - | - |
| 20 | Side beam | - | - |
| 21 | Water distributor | - | - |
| 22 | Rear middle beam | - | - |
| 23 | Rear fixing beam | - | - |
| 24 | Rear plate | - | - |
| 25 | Spring | YW01180300000 | YW01180300000 |
| 26 | Top cover | - | - |
| 27 | Flange | - | - |
| 28 | Process heater* | BH70244000850 | BH70244000850 |
| 29 | Shut-off plate flange | - | - |
| 30 | Fixed stiffener | - | - |
| 31 | Drying hopper | - | - |
| 32 | Down-blowing pipe | - | - |
| 33 | Hopper top | - | - |
| 34 | Door frame | - | - |
| 35 | Sight glass window | - | - |
| 36 | Butterfly nut | YW09675100000 | YW09675100000 |
| 37 | Stand plate | - | - |

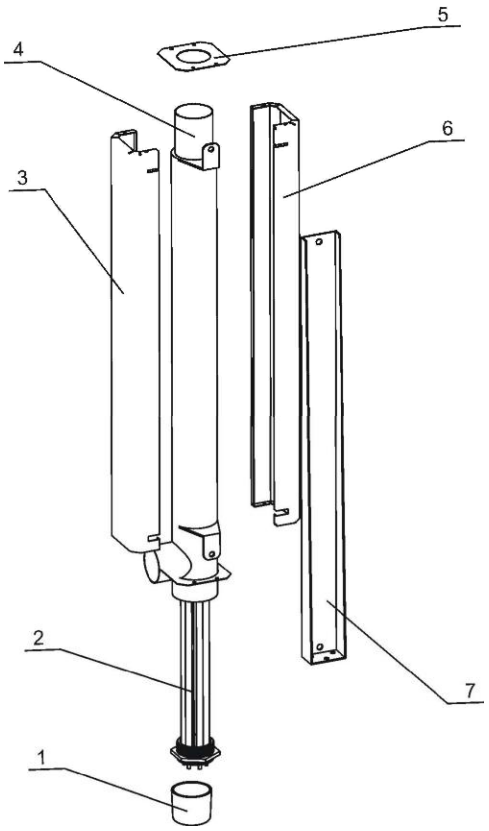
| No. | Description | Part No. | |
|---|---|---|---|
| | | 900U/700H | 1200U/700H |
| 38 | Stand fixer | - | - |
| 39 | Control box | BH34907000150 | BH34120000150 |
| 40 | Upper door plate | - | - |
| 41 | Door lock | YW00000600000 | YW00000600000 |
| 42 | Control panel | YR01003000200 | YR01003000200 |
| 43 | Main power supply switch* | YE40601500000 | YE40601500000 |
| 44 | Lower door plate | - | - |
| 45 | Butterfly nut | YW09675100000 | YW09675100000 |
| 46 | Filter cover | - | - |
| 47 | ADC18 filter** | YW03000200000 | YW03000200000 |
| 48 | Filter** | YR50241400000 | YR50241400000 |
| 49 | Hinge | YW06203400000 | YW06203400000 |
| 50 | Motor * | YM30072900000 | YM30072900000 |
| 51 | Anti-dust net | YR40120300000 | YR40120300000 |
| 52 | Transmission belt** | YR00205800000 | YR00205800000 |
| 53 | Cooling fan** | YM60121200400 | YM60121200400 |

* 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.

## 2.5.8 Pipe Heaters

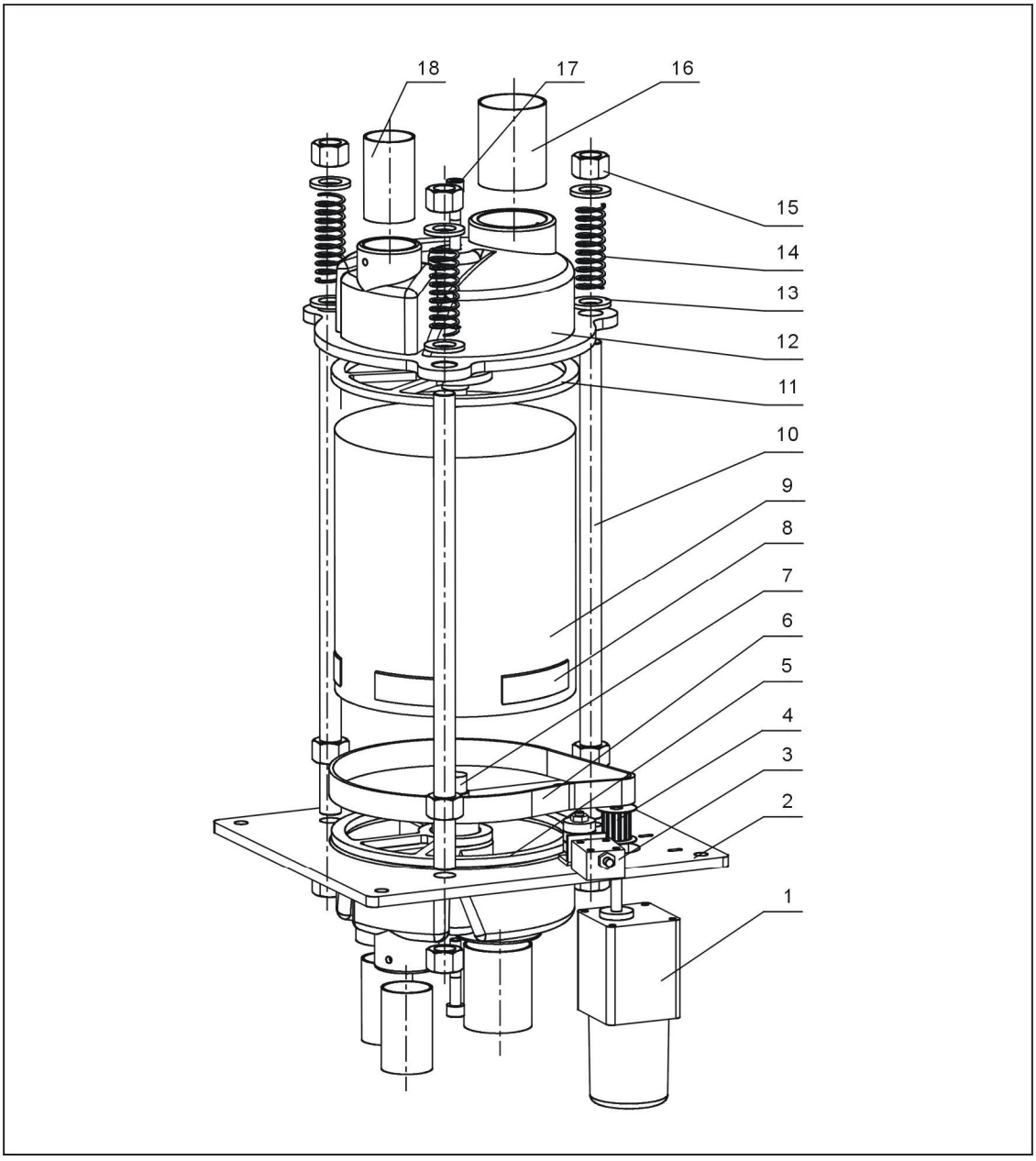



Parts name:

| | | |
|---|---|---|
| 1. Electric wood cover | 2. Pipe heater | 3. Heater wrapper sheet 1 |
| 4. Heating tank | 5. Heater cover plate | 6. Heater wrapper sheet 2 |
| 7. Heater fixed seat | | |

Picture 2-7: Pipe Heaters

## 2.5.9 Honeycomb (SDD-20U/40H~80U/40H)




Picture 2-8: Honeycomb Parts Drawing (SDD-20U/40H~80U/40H)

Table 2-5: Parts List (SDD-20U/40H~80U/40H)

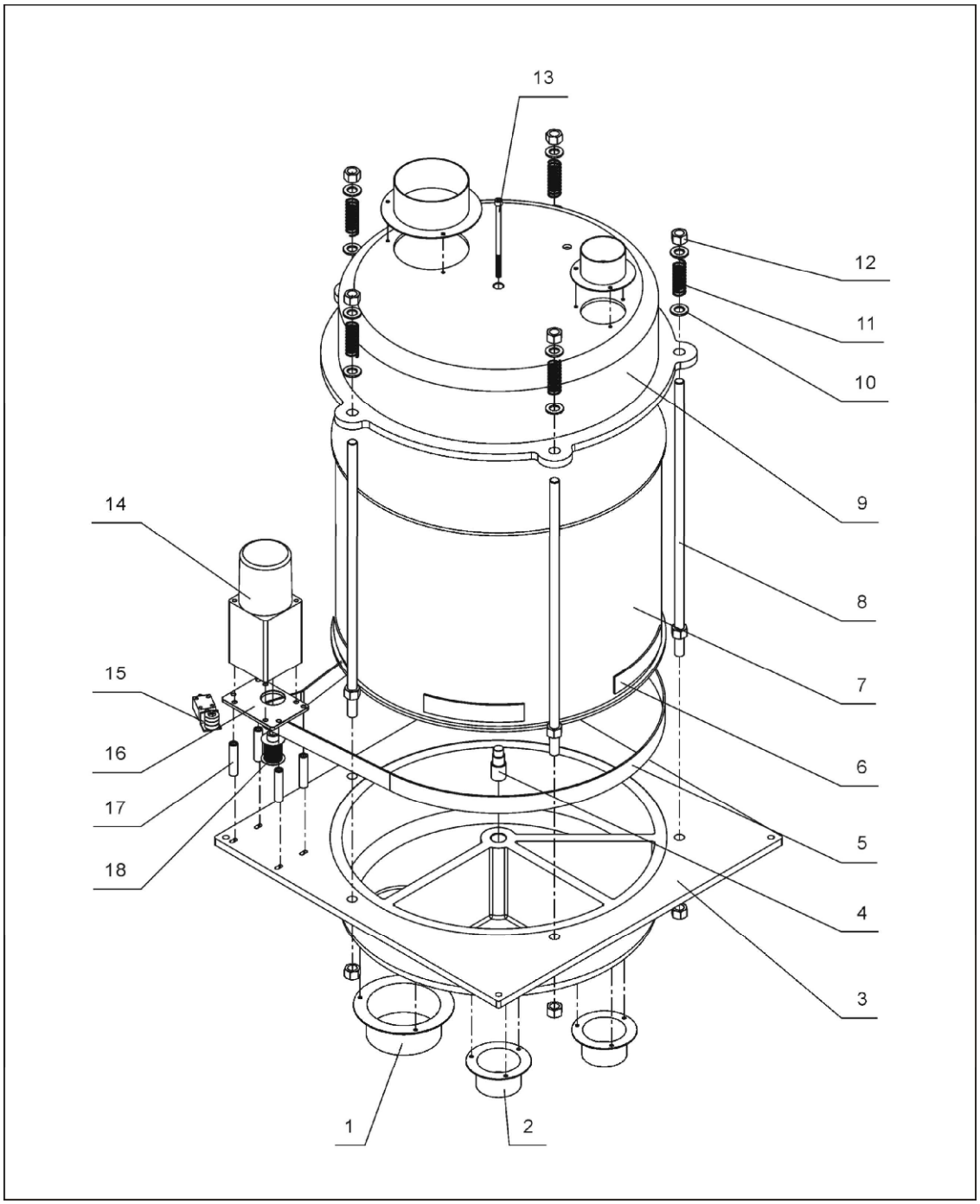
| No. | Description | Part No. | No. | Description | Part No. |
|---|---|---|---|---|---|
| 1 | Gearmotor * | YM50102600000 | 10 | Double-thread screw | - |
| 2 | Rotor bottom cover | BA40508000010 | 11 | Silica gel Teflon pad ( top) * | YR10081200200 |
| 3 | Belt tension regulator | BH10005000040 | 12 | Rotor top cover | BA40508000110 |
| 4 | Synchronous wheel | YW08001400100 | 13 | Flat gasket 16 | YW66163000000 |
| 5 | Silica gel Teflon pad ( bottom) * | YR10081200000 | 14 | Spring | YW01201800000 |
| 6 | Synchronous belt ** | YR00202500000 | 15 | Hexagon nut M16 | YW64001600000 |
| 7 | Honeycomb installation shaft | BH10005003110 | 16 | Drying air flange | - |
| 8 | Synchronous gear belt** | YR00003000000 | 17 | Inner hexagon cylindrical screw M8×45 | YW61084500000 |
| 9 | Honeycomb | YW71182000000 | 18 | Regeneration flange | - |

* 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.

## 2.5.10 Honeycomb (SDD-900U/700H 1200U/700H)



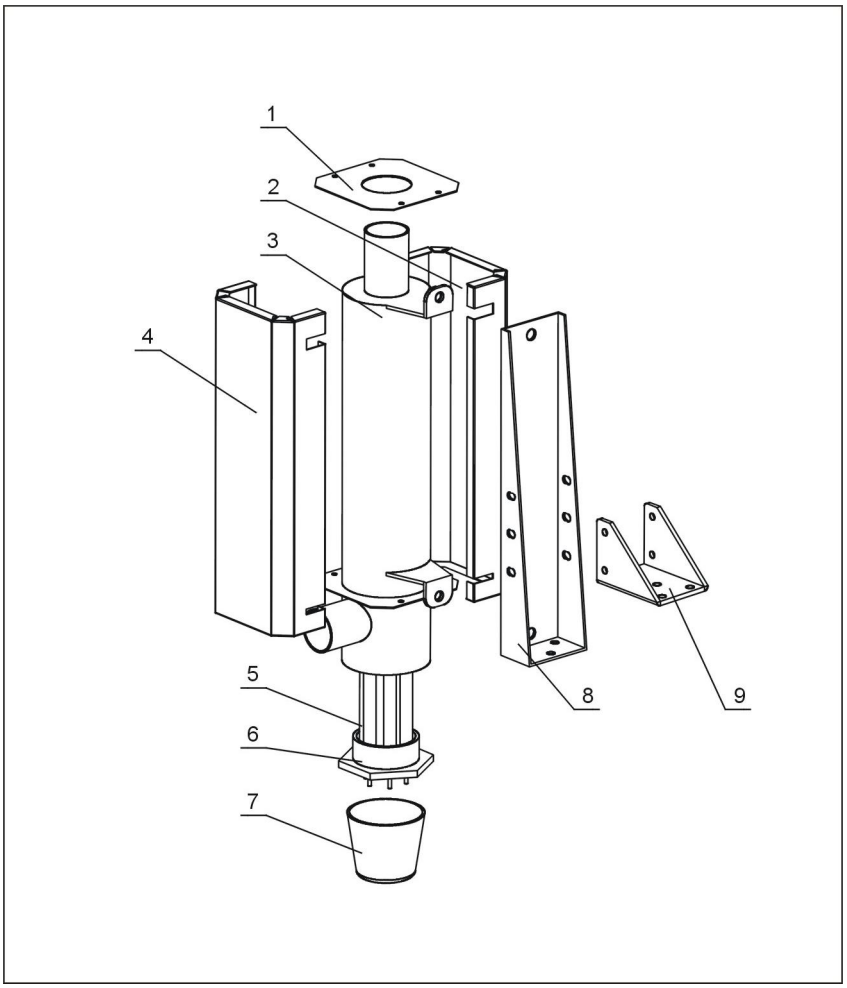

Picture 2-9: Honeycomb Parts Drawing (SDD-900U/700H 1200U/700H)

Table 2-6: Parts List (SDD-900U/700H 1200U/700H)

| No. | Description | Part No. | No. | Description | Part No. |
|---|---|---|---|---|---|
| 1 | 4” Honeycom flange | - | 10 | Flat washer 16 | - |
| 2 | 2.5” honeycomb flange | - | 11 | Spring | YW01201800000 |
| 3 | Lower cover | - | 12 | Hex nut M16 | - |
| 4 | Honeycomb shaft | - | 13 | Hexgon socket head cap screw M8 | - |
| 5 | Sychronous belt | YR00305800000 | 14 | Gear motor | YM50512600000 |
| 6 | Synchronous pulley | YR00003000000 | 15 | Belt adjustor | - |
| 7 | Honeycomb | YW71440400000 | 16 | Mounting plate of gear motor | - |
| 8 | Double-end screw | BH10554500040 | 17 | Locating tube | - |
| 9 | Upper cover | - | 18 | Synchronous pulley | - |

* 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.

## 2.5.11 Heater (SDD-20U/40H~80U/40H)




Picture 2-10: Heater Assembly (SDD-20U/40H~80U/40H)

Table 2-7: Heater Assembly Parts List (SDD-20U/40H~80U/40H)

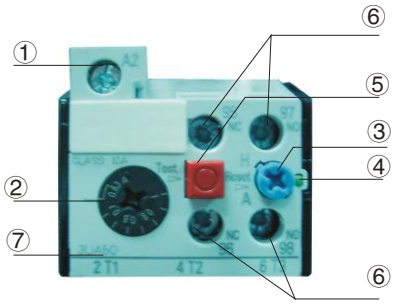
| No. | Description | Part No. | No. | Description | Part No. |
|---|---|---|---|---|---|
| 1 | Heater cover plate | - | 6 | Heater copper head | BH12200500310 |
| 2 | Heater cover plate 1 | - | 7 | Bakelite cover | YR90200600000 |
| 3 | Heating tank | - | 8 | Heater fixed frame | - |
| 4 | Heater cover plate 2 | - | 9 | Heater fixed corner | - |
| 5 | Pipe heater * | BH70434600000 | | | |

* 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.

## 2.6 Main Electrical Components Description

Overload Relay

At delivery, the overload relay is set for manual reset. (the reset button pointing to H). Manually reset the relay at the tripping of the switch. When motor overload occurs, stop the machine, then check and solve the problem. After that open the door of control box, press down the reset button of overload relay (if you can not press down the reset button, wait for one minute.)




Picture 2-11: Overload Relay

1) Terminal for contact coil A2.
2) Setting current adjusting scale.
3) Reset (blue)

H: manual reset

A: automatic reset

4) Switch position indication (green).
   Tripping of a manual-resetting is indicated by a pin projecting from the front plate.
5) Test button (red).
6) Auxiliary contact terminals shown in 95.96.97.98. NC and NO contacts are shown in position 95.96. and 97.98. respectively.
7) Main circuit connection No. must be correspond with terminal Number of contactor.

## 2.7 Operation Procedures

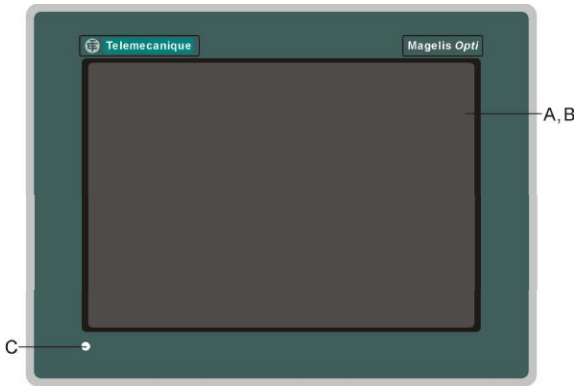
Before connecting electrical power source, the main power switch must be turned to OFF position. After the machine connected with power source, turn the main power switch to ON position. According to your applications, operate drying and loading system respectively.

### 2.7.1 Operation Regulations

Picture 2-12: Operation Regulations

1) Do not use keen-edged object instead of hands to operate the touch screen, and prevent violent collision of it.
2) In a dry environment, static electricity may accumulated on the touch screen. Use a metal wire to discharge it before operating.
3) Use alcohol or eleoptene to wipe off the pollutants on the screen. Other solvant may cause the color of the screen to fade out.
4) Do not tear down any parts of the touch screen or take away any PCBs attached to it.

### 2.7.2 Description of Touch Screen




Picture 2-13: Description of Touch Screen

A: Display
B: Touch panel
C: LED status indicator

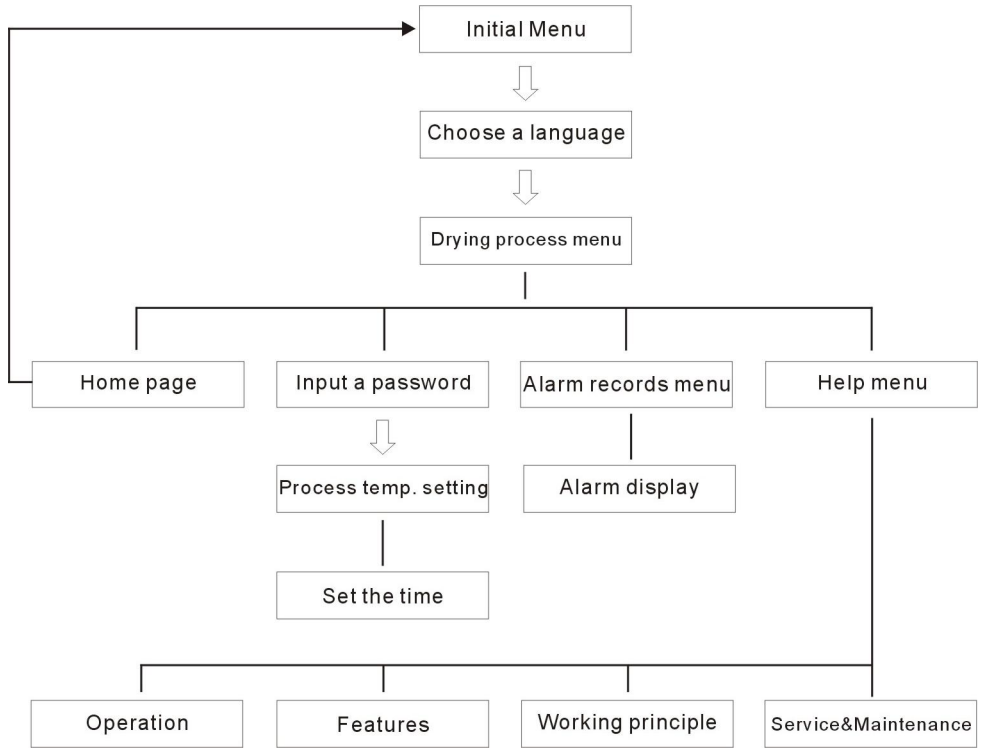
### 2.7.3 Touch Panel Appear Error

Table 2-8: Touch panel information

| LED indicator light | XBT GT State |
|---|---|
| Green (light) | Work welled |
| Orange (light) | Backlight lamp burning |
| Orange (shine) | During software startup |
| Red (light) | Power status |
| No shine | Power break off |

## 3. Operation of the Menus

The system consists of five main menus. They are: drying process, temperature parameters, time setting, alarm records and help menu. Please refer to the following flow Table for operation.




Picture 2-14: Screen Operation Flow Table

4. Explanation of the Menus

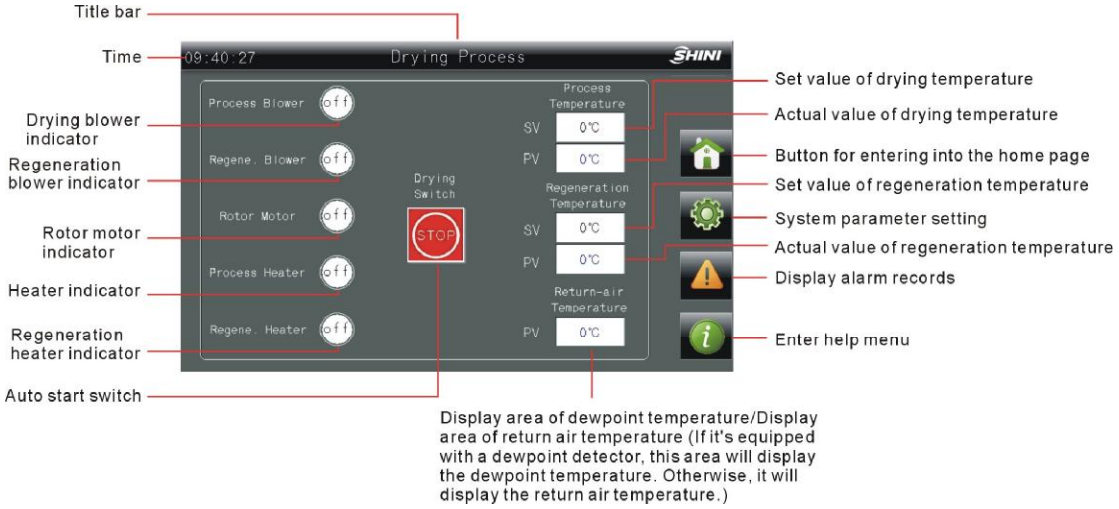
1) Initial menu

When the system is connected with power source, the initial default screen will display as shown below. Touch the button of "English" or "Chinese" to select either English or Chinese languages to login "Drying Process" screen.

Picture 2-15: System Default System

2) Drying process menu.

Drying process menu as shown below:




Picture 2-16: Drying Process Screen

A. Operation of the menu

Start the system:

Touch the start switch to make it show ON, then the system starts.

Stop the system:

Touch the start switch again to make it show OFF, then the system stops running.

(Attention: In order to prolong the life of honeycomb-rotor, it's necessary to delay the stop time of the rotor for cooling. Set the delayed time at about 2~3 minutes. Please see more details of setting on the time parameter setting screen.)

Set drying temp.

Touch the preset value of process temp. A numerical keypad will appear. Use the keypad to input temperature values.

If it's the system above model "one-to-two" (consists of a dehumidifier and more than two drying tanks), the drying temperature is independently controlled by each temperature controller under the drying tank. By then, the drying temperature for each drying tank is set via corresponding temperature controller. In addition, turn on the switch besides the temperature controller first. These parameters only take effect when it's equipped with drying heater.

Touch the preset value of regenerating temp. A keypad will appear.
Use the keypad to input temperature values.

Note!

Drying temp. and regenerating temp. value are set within certain limits. Drying temp. should be set between 0℃~200℃ and regenerating temp.should be set between 130~180℃! The regenerating temp. value is already set to be 130℃ or 180℃ when produced. Please don't reset it if no special occasion.

B. Four functional keys

Home page:

Press this button to enter into the initial screen.

Parameter setting:

Press this button to enter into "Parameters Setting" screen. (Input correct password to log-in.)

Alarm Display:

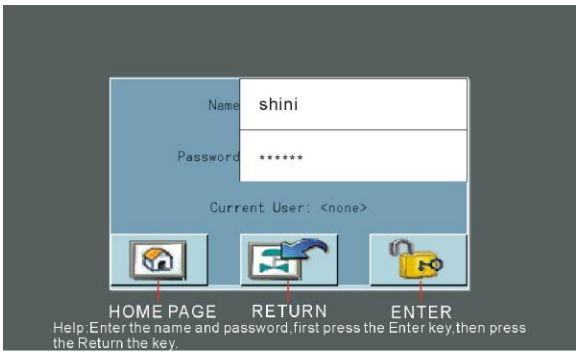
When system appears warning message, press this button to check the details and related help message.

Help:

Press this button to enter into “Help Menu” screen.

3) Temperature parameters menu

Touch parameter setting button at the right side of Conveying Proccess Screen. Then, the system will pop out a password window for inputing user name: Shini, and passwords 3588. Press "ENTER" button to confirm. By then, the numeric keypad will turn off and return to the password window. After that, press “Sure” and "Return" key by turn to go back to the drying process or conveying process screen. By pressing the "parameter setting" button again, you can log in and change parameters.

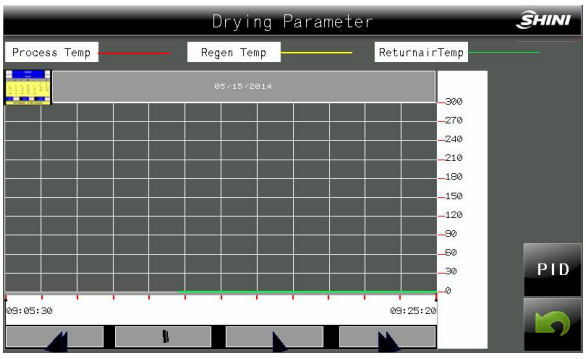



Picture 2-17: Temperature Parameters Setting 1

Note!

Please keep this password securely and safely. If the password is missing, then the operator won't be able to log into the system parameter setup screen. It is better to preserve this password either by system administrator or senior operator.

After input correct password, the screen will show the following "temperature parameter setting" screen. Shown as below:

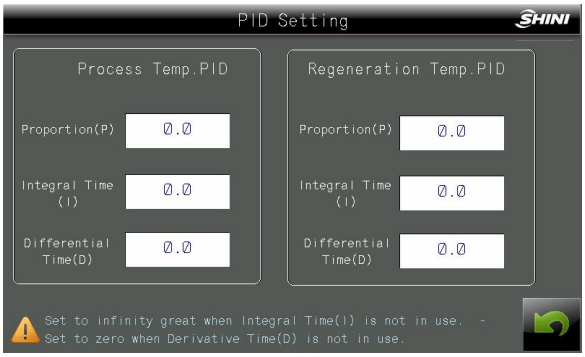



Picture 2-18: Temperature Parameters Setting 2

Drying and Regeneration Temperature Parameter Setting:

By touching "PID" button, the system will pop up the temperature control PID screen in which three parameters can be set, such as:

Proportion, Integral Time and Differential Time.




Picture 2-19: Drying & Regeneration Temperature Control Parameters

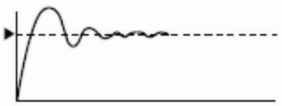
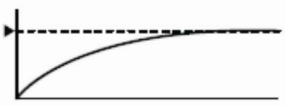
If to change any parameters, it's only need to touch the corresponding "input area" and then a numeric keypad will pop up. Input a new parameter and press "ENTER" to confirm the new parameter.

The max. and min. display area of the numeric keypad shows the present max. and min. setting value. If the setting value exceeds the limits, it would be invalid to press "ENTER".

P.I.D. control: When temperature control is inaccurate, users can manually adjust temp. control parameters to achieve the best temperature control effect.

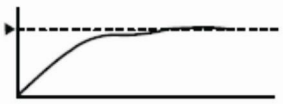
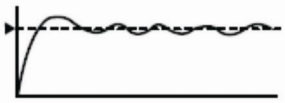
Adjustment of Proportion (P)

Table 2-9: Adjustment of Proportion (P)

| | | |
|---|---|---|
| **P** increases |  | After the oscillation, the curve will be settled and back to setup point. |
| **P** decrease |  | The curve increases gradually in order to maintain a long reliable period against over oscillation. |

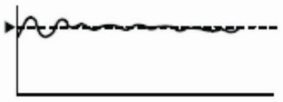
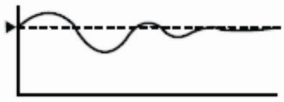
Adjustment of Integral Time (I)

Table 2-10: Adjustment of Integral Time (I)

| | | |
|---|---|---|
| I increases |  | For default value requires a longer time for steady status. But, it still has over pulse/under pulse and oscillation occurs. |
| **I** decrease |  | After the occurrence of over pulse/under pulse and oscillation, but the curve tends to rise rapidly. |

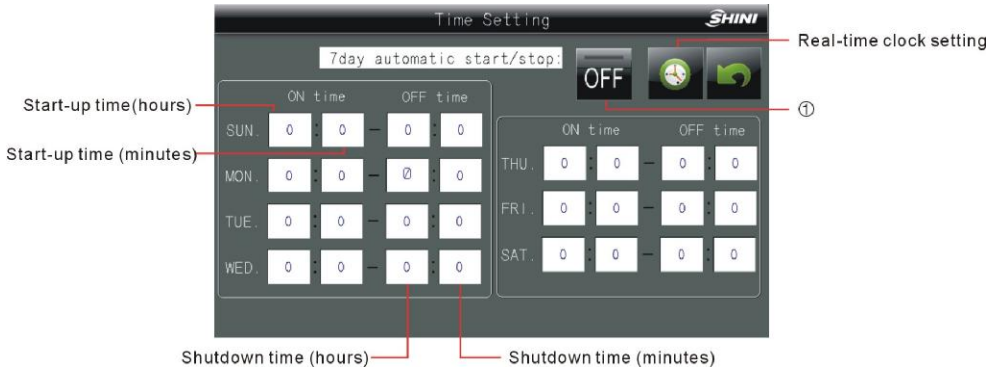
Adjustment of Differential Time (D)

Table 2-11: Adjustment of Differential Time (D)

| | | |
|---|---|---|
| D increases |  | Over pulse/under pulse and steady time become less, but the curve has small oscillation. |
| **D** decrease |  | Over pulse/under pulse increases, the duration for setup value requires certain time. |

4) Time Setting

A. Touch the "Time Setting" button to enter into Time Setting screen as shown below:

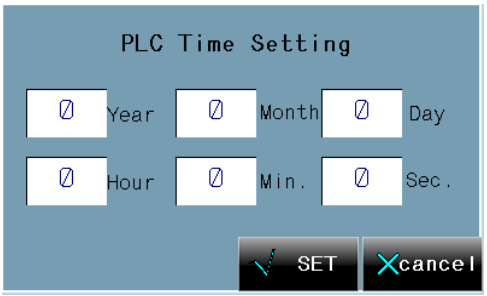



Picture 2-20: Time Setting 1

Note!

After setting the auto-start time, the button ① will be on. By then, the machine will run according to the set time.

B. If there are some deviations with the system date and time, touch the "Real-time clock setting" to enter into the time setting interface to modify the system time. The screen is as below:

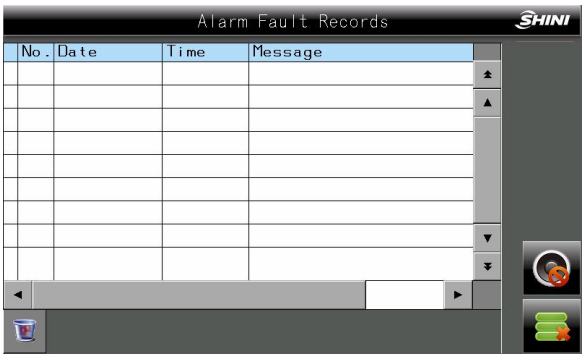



Picture 2-21: Time Setting 2

After touching any parameter setting menu, a numeric keypad will appear. Input each parameter and then press "SET". Then, the new setting comes into effect. The setting can be cancelled by pressing "cancel".

5) Alarm Fault Records

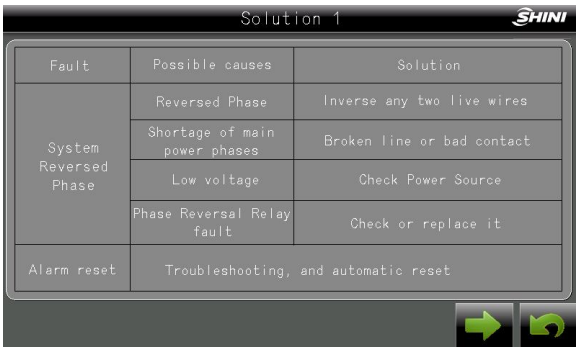
Touch "Alarm Display" button at the right side of "Drying Process" screen or "Conveying Process" screen to enter into Alarm Fault Records screen. The screen is shown as below:




Picture 2-22: Alarm Fault Records

Touch the alarm fault records to enter into the help menu. The screen is as

below:




Picture 2-23: Help Menu

1. When alarm fault records cover more than displaying space, touch "Up" or "Down" keys to read more records.
2. According to the alarm information, the operator could get the troubleshooting information from the instruction book.
3. Press "EXIT" button to exit from this screen.
4. System Alarm Information List.

Table 2-12: System Alarm Information List

| Alarm message | Results | Possible reasons |
|---|---|---|
| System reversed phase | The system can not be started, and flickering of red alarm light. | Voltage of power supply is too low, or phase shortage, or mistakes of phase sequence. |
| Process blower overload | Dryer and dehumidifier stop working, and flickering of red alarm light. | Voltage of power supply is too low, or blower problems, or mistakes of setting current. |
| Regenerating blower overload | Dryer and dehumidifier stop working, and flickering of red alarm light. | Voltage of power supply is too low, or blower problems, or mistakes of setting current. |
| Process over-heat | Dryer and dehumidifier stop working, and flickering of red alarm light. | Temp. control parameters mistakes, or contactor failures, or regenerating thermocouple problems. |
| Regenerating over-heat | Dryer and dehumidifier stop working, and flickering of red alarm light. | Temp. control parameters mistakes, or contactor failures, or regenerating thermocouple problems. |
| Return air over-heat | Dryer and dehumidifier stop working, and flickering of red alarm light. | Cooling water circulation problems. |

| Alarm message | Results | Possible reasons |
|---|---|---|
| Drying thermocouple break | Dryer and dehumidifier stop working, and flickering of red alarm light. | Thermocouple is not connected or poor connection or wrongly connected. |
| Regeneration thermocouple break | Dryer and dehumidifier stop working, and flickering of red alarm light. | Thermocouple is not connected or poor connection or wrongly connected. |
| Return air thermocouple break | Dryer and dehumidifier stop working, and flickering of red alarm light. | Thermocouple is not connected or poor connection or wrongly connected. |
| Rotor has no action. | Dryer and dehumidifier stop working, and flickering of red alarm light. | Motor is halted or burned out. Belt broken or damage of speed controller or parameter mistakes or rotor. |
| PLC is not in running mode. | The system can not work. | PLC was not set to RUN mode. |

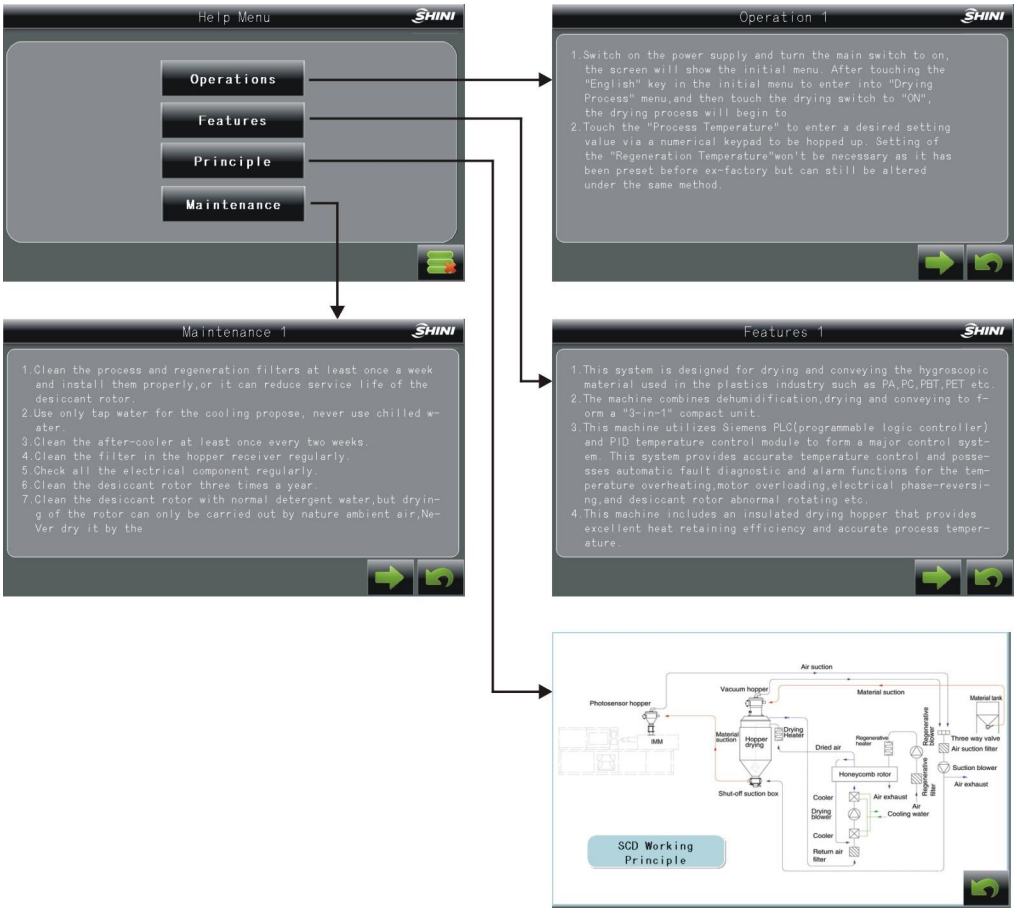
Note: 1) Overload Relay reset: Open control box, press "RESET" button on the corresponding overload relay.

2) Rotor Failure Alarm reset: Turn off the Drying Switch and then turn it "ON" again.

3) Over Temperature Alarm reset: Turn off the Drying Switch and then turn it "ON" again after the temperature drops down.

6) Help menu

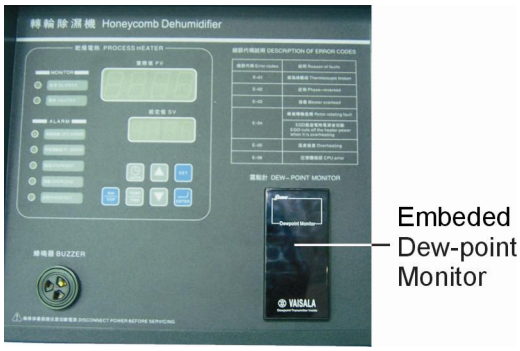
Touch the help button to enter help menu. Press relative button to display details of each item.




Picture 2-24: Help menu

## 2.7.4 Dew-point Monitor

1. Embedded Dew-point Monitor




Picture 2-25: Embedded Dew-point Monitor

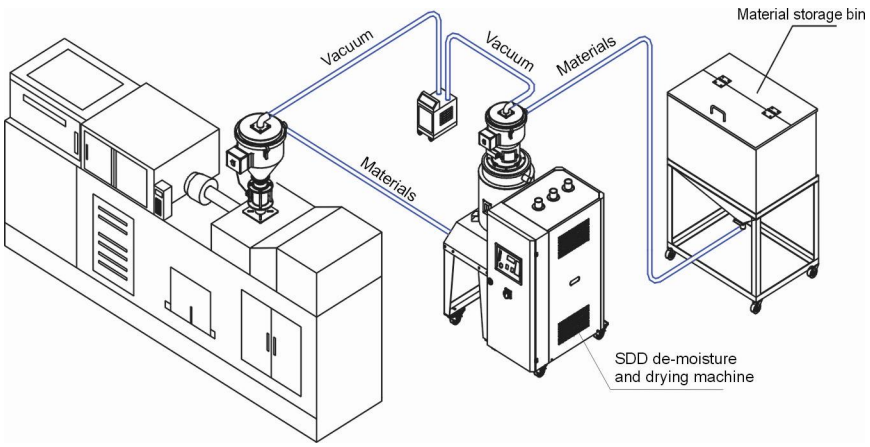
2. Portable Dew-point Monitor

Picture 2-26: Portable Dew-point Monitor

# 3. Installation Testing

## 3.1 Attention

1) Make sure voltage and frequency of the power source comply with those indicated on the manufacturer nameplate, which is attached to the machine.
2) Power cable and earth connections should conform to your local regulations.
3) Use independent power cable and ON/OFF switch. The cable's size should not smaller than those wired in the electrical requirement of control panel.
4) The power cable connection terminals should be tightened securely.
5) The machine requires a 3-phase 4-wire power source, connect the power lead (L1, L2, L3) to the live wires, and the earth (PE) to the ground.
6) Power supply requirements:
   Main power voltage: ± 5%
   Main power frequency: ± 5%
7) The cooling water pressure is 3~5 kgf/cm$^2$, the pressure gap between the inlet water and the outlet water is 3~5 kgf/cm$^2$, and the cooling water temperature is 10~30℃.
8) Refer to the electrical wiring diagram to complete the electrical installation.




Picture 3-1: Installation Drawing

Notes!
Keep the machine 2m from the combustible distance.

## 3.2 Honeycomb-rotor

### 3.2.1 What is Honeycomb-rotor

The main body of the honeycomb-rotor is a honeycomb, made by ceramic fibre and organic additives, sintered under high temperature with molecular sieve and silica gel, to be strongly bonded together and form a solid and hard surface. Not like common molecular sieve, which will produce dusts and fines to pollute raw materials when aging or become saturated requiring regular replacement, honeycomb-rotor offer unlimited long life and can be cleaned when it is polluted. The moisture of return air is quickly absorbed by numerous tunnels before coming out of the rotor to form low dew-point air. At the same time, regenerating blower takes dry air into the honeycomb-rotor from an opposite direction to regenerate the rotor.

Picture 3-2: Honeycomb Rotor

### 3.2.2 Installation of the Rotor

1) The upper and lower lid of honey-comb should install Teflon gasket (Fig. 1).
2) Use 4 screws to fix the rotor base on the machine frame firmly, and then install the shaft accordingly (Fig. 2).
3) Install the gearmotor and transmission gear (Fig. 4).
4) Install and fix the main support screws (Fig. 3).
5) Fit the transmission belt in proper position (Fig. 6).
6) Install the honeycomb-rotor (Fig. 9) and transmission belt (Fig. 12).
7) Fix the rotor top cover (Fig. 8).
8) Fit all springs and tighten the screws (Fig. 7).

9) Install both the transmission belt (Fig. 13) and belt tension regulator (Fig. 14).

10) Install micro-switch and fixed board firmly (Fig. 10).

Picture 3-3: Installation of the Rotor

## 3.3 Heater Assemblies

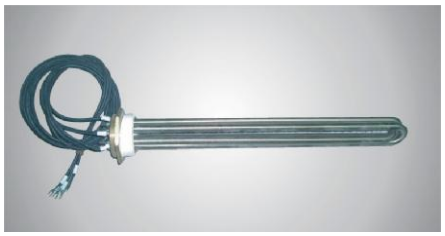
1) Install the heating pipe in the heater.

2) Fix the heater into the housing. (See right picture)

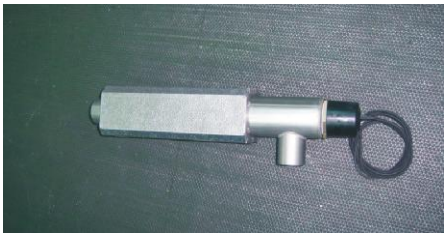
Warning!

Hot surfaces could burn hands. Take care of high temperature!

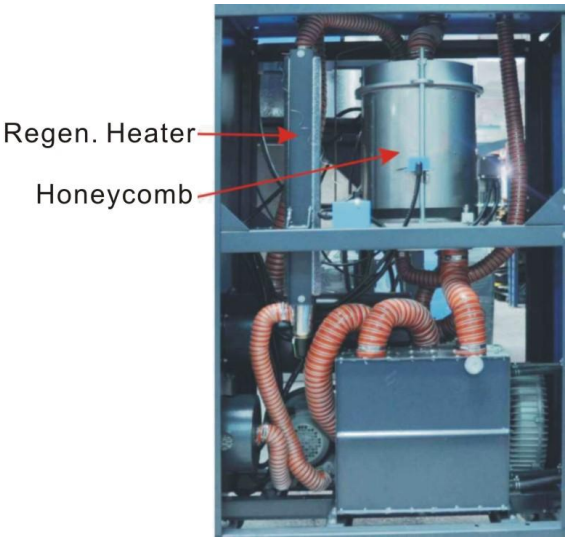
This label should be stick to the shell of heater.



1



2



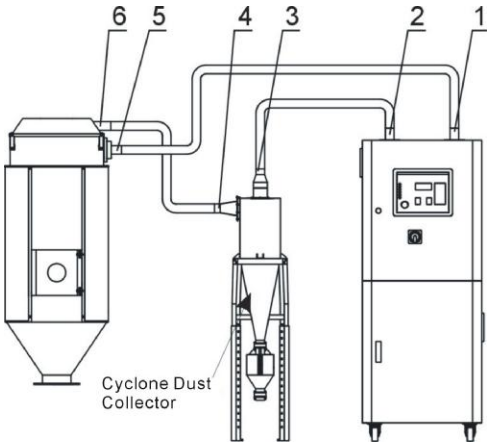

Picture 3-4: Heater Assemblies

## 3.4 EGO

The EGO value has been setting before out factory, Don't modify it.

Picture 3-5: EGO

## 3.5 Cyclone Dust Collector

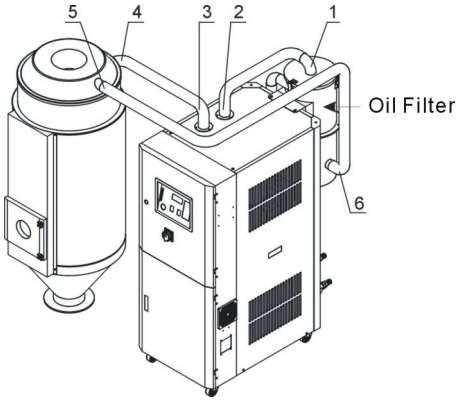



Picture 3-6: Installation Diagram of Cyclone Dust Collector

Cyclone Dust Collector Installation steps:

1. Connect 1 and 5 with a heat-resistant duct and fixed both the ends with stainless steel tube.
2. Connect 2 and 3 with a heat-resistant duct and fixed both the ends with stainless steel tube.
3. Connect 4 and 6 with a heat-resistant duct and fixed both the ends with stainless steel tube.

## 3.6 Oil Filter

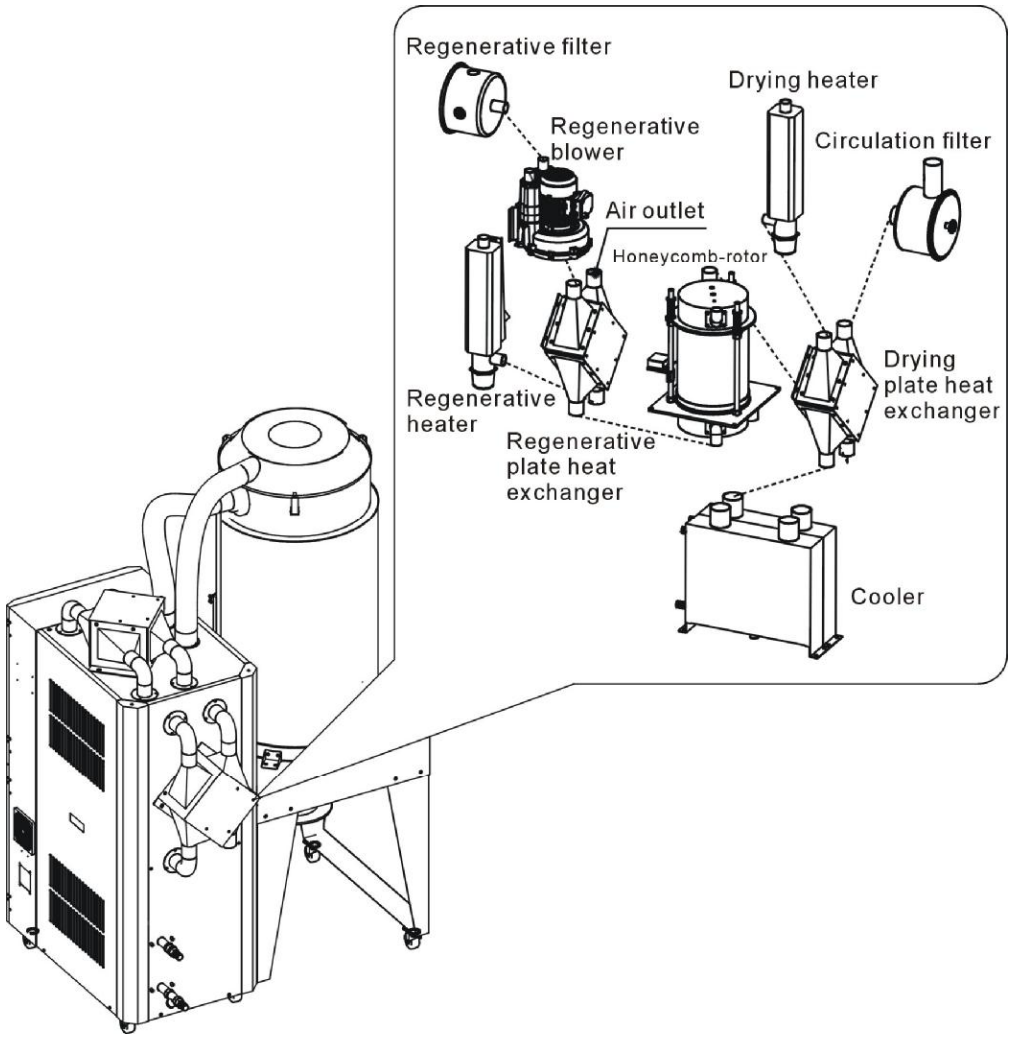



Picture 3-7: Installation Diagram of Oil Filter

Oil filter installation steps:

1. Screw the oil filter on the top plate of the honeycomb dehumidifier.
2. Connect 1 and 2 with a heat-resistant duct and fixed both the ends with stainless steel tube.
3. Connect 3 and 4 with a heat-resistant duct and fixed both the ends with stainless steel tube.
4. Connect 5 and 6 with a heat-resistant duct and fixed both the ends with stainless steel tube.

## 3.7 Plate Heat Exchanger

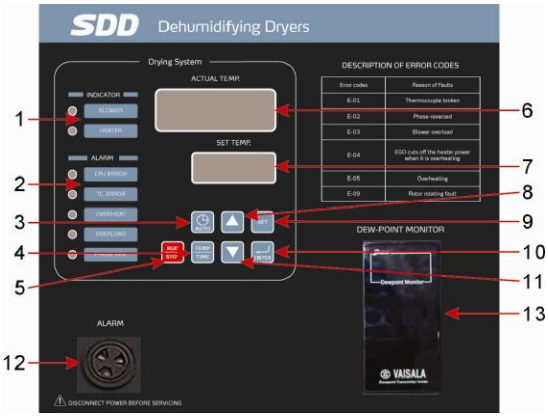



Picture 3-8: Plate Heat Exchanger over Figure

Each part is connected by heat-resistant air pipes and fixed by stainless steel pipes as shown in the diagram.

# 4. Operating

## 4.1 Control Panel




Picture 4-1: Control Panel

Table 4-1: Control Panel Table

| No. | Name | Function description | Remarks |
|---|---|---|---|
| 1 | Running indicating | Indicates the working status of blower and heater | Green light on indicates working status<br>Green light off indicates stop status |
| 2 | Fault indicating | Indicates current alarm message | Red light on indicates fault occurs |
| 3 | Time start | Set weekly start or intermittent start/stop | When time has been set, press this key to set time start mode |
| 4 | Temp/time shift key | Display alternatively in between temp. And time for temp or time set up | |
| 5 | Start/stop key | Control the start and stop of the machine | Press to start at stop status.<br>Press to stop at working status. |
| 6 | Real value indicated by LED | Display real drying temperature or parameter code | |
| 7 | Set value indicated by LED | Display the set drying temperature | |
| 8 | Increase set value | Increase set value | |
| 9 | Set key | Enter or exit value setting | |
| 10 | Confirm key | Confirm the input of data | |
| 11 | Decrease set value | Decrease the set value | |
| 12 | Buzzer | Buzzer keeps on when fault exists. | Buzzer only silence after trouble shooting |
| 13 | Dew-point | Dewpoint display | Display real timely the moisture content within the material |

## 4.2 Panel Operation

1) Open the main switch.

2) Press "RUN/STOP" key to start loading.

## 4.3 Temperature Setup

1) The setup number will flicker after pressing "SET" key, add or decrease temperature by pressing ▲▼ key.
2) Press "ENTER" key to confirm the input value.

## 4.4 PID Auto-tuning Setting

1) Press “SET” and the digits flash. At this time press “SET” and ”Enter” meanwhile for 1.5 seconds to enter auto-tuning mode. Then two values of “At” and “Present temperature” will display alternatively in PV and the set temperature value displays in SV till auto-tuning is finished. After that, system goes back to the normal operation directly.
2) If auto-tuning setting could not be finished within 1 hour, the parameters will not be altered and system goes back to normal operation.
3) Pressing “ON/OFF” to go back normal operation amid automatic calculation would not alter the original parameters.

## 4.5 Intermittent Running Setup

Drying periods(0-ON) ⇄ Stop periods(0-OFF)

1) Press "SET" key to change temp. setup value into time setup value，press "TEMP/TIMER" key to enter into setup mode, at this time "SV/setup value" flickers，"PV/setup value"displays"0-ON".

Picture 4-2：Intermittent running setup 1

2) PV displays "0-ON" to stand for drying periods. "0-OFF" stands for machine

stop time. Press ▲▼ key to add or decrease time value of "SV/setup value". Each press of ▲▼ can add or decrease 15 mins set time.

3) Press "ENTER" to confirm the input time value and enter into "0-OFF" time setup items, then repeat step 2.

Picture 4-3: Intermittent running setup 2

Note: If set 0-ON as 04:00, 0-OFF as 05:00, which means drying periods is 4 hours stop time is 5 hours，then working for 4 hours and being stopped for 5 hours and repeat this so long.

4) Cancel intermittent running by entering 00.00 at "0-ON" or "0-OFF" press "ENTER" to confirm input value after time setup and enter into time setup items from "1-ON" "week-ON".

Picture 4-4: Intermittent running setup 3

## 4.6 Weekly Time Start Setup

1) After setting intermittent operation type, here comes Weekly Time. Press ▲▼ key to add or decrease the time value in "SV/setup value " from "1-ON". Press "ENTER" to confirm the input value and comes into the time setup items of "1-OFF" "MON-OFF".

Picture 4-5: Weekly Time Start Setup 1

2) Press ▲▼ key to add or decrease the time value in "SV/setup value " from "1-OFF" . Press "ENTER" to confirm the input value and comes into the time setup items of "2-ON""TUE-ON".

Picture 4-6: Weekly Time Start Setup 2

3) Do the same setup again and again to setup the ON/OFF time from Monday to Sunday.

Picture 4-7: Weekly Time Start Setup 3

4) Press "SET" key to back to normal status, after finish all the setup.
5) Setup all the "ON" to 00:00 if it is not for weekly time start/stop.

Note:

1. F-20 functions as an password lock，hold on"SET"till the"PV"displays F-20.

2. Press▲▼ key and only after input 0021 in the SV，can you press "ENTER"to come into F-03 and other settings，so F-20 functions as an passwordlock for entering into next parameters setup, which prevents the modification from unprofessionals.

Picture 4-8: Weekly Time Start Setup 4

3. F-03 stands for the selection of temperature unit. Press ▲▼ to shift between ℃/℉ then press “ENTER” to confirm.

4. F-04 is data lockup function, press ▲▼ key to shift between OFF / LOCK，LOCK is for locking up information，not able to input or change any data: OFF is for lockup cancellation.

Picture 4-9: Weekly Time Start Setup 5

5. F-05 stands for the function of temperature protection. Alarm will be launched if actual temperature were equal to or higher than the addition of setting temperature value and setting value. This temperature range is between 0 to 50, and default value is 15.

## 4.7 Present Time Modification

1) Repeat the above steps until PV displays "TIME" to stand for present time.
2) Press ▲▼ key to add or decrease time.
3) Press "ENTER" key and PV displays "DAY" to stand for week days.
4) Press ▲▼ key to add or decrease days.
5) Press "SET" key to back to normal status after finish all the setup.

## 4.8 Weekly Time Start

1) Activate the weekly time start after finish the time setup and the present time setup.
2) Press "AUTO" key at working or stop status to preset the time start/stop, the "PV" will display the time and temp. alternatively.
3) Press "AUTO" again if want to cancel that weekly time setup.

## 4.9 Lock Setup Way

1) Press "SET" key down and release it till "PV" displays F-20.
2) Press ▲▼ key to make "SV" to 0021, then press "ENTER" key，the "PV" will display F-04.
3) F-04 are for LOCK function selection，press ▲▼ key to select LOCK or OFF.
4) Press ENTER or "SET" key after setup.
5) If select LOCK，the "SV" will display "LOCK" when pressing "SET" key, which means the parameters have been setup and not accessible to any change.

## 4.10 The second level of Advanced Setting

1) Enter the first level of advanced setting and press “SET” and ”Enter” meanwhile for 3 seconds till F-06 displays in PV..
2) Press ▲▼ to set SV into 0003 and press “Enter”, at this time F-06 displays in PV.
3) Now pressing ▲▼ can alter value, press “Enter” to input after confirming then jump to F-07.
4) If you want to leave the function setting, just press “SET”.

1. F-06 stands for the passwords of second level.
2. F-07 stands for proportional band of heating side (P); it is a preset value before delivery.

3. F-08 stands for integration time of heating side (I); it is a preset value before delivery.
4. F-09 stands for differential time of heating side (D); it is a preset value before delivery.
5. F-10 stands for switch cycle of heating side; its preset value is 15 sec.
6. F-16 stands for power deliver delay time of heater, it is adjustable, the unit is Sec.. (Heating begins after blower activates Delay Setup Time)
7. F-17 stands for blower power-off delay time, it is adjustable, the unit is Sec.. (Press “ON/OFF” and heating stops. After blower starts delay setup time, machine stops running to avoid high-temp..)
8. F-18 stands for the protection of maximum temperature. Its setting range is 140~250. (If drying temp. exceeds set value, machine halts and alarm sounds to avoid overheat caused by faults.)
9. F-19 stands for microswitch timeset of honeycomb rotor. “OFF” functions as shut-off and “ON” functions as open. The setting range is 0~9999 with the unit is Sec.. (Rotor starts running to monitor time and set time should be less than that of rotor rotation of one circle. Microswitch can be reset periodically to monitor if honeycomb runs normally.)

## 4.11 Wrong Codes Remark

Table 4-2: Wrong Codes Remark

| Wrong codes | Remark |
|---|---|
| E-01 | Break line of thermocouple |
| E-02 | Power reverse phase, default phase |
| E-03 | Overload of blower |
| E-04 | Drying temp. exceeds EGO set value |
| E-05 | Drying temp. exceeds max. set value |
| E-07 | Overheat protection （PV⩾SV plus set value, alarm sounds） |
| E-08 | Memory errors |
| E-09 | Running fault of honeycomb-rotor |
| E-10 | Regenerative temp. exceeds EGO set value |
| E-11 | Insert errors of thermocouple “+, -” |
| E-12 | PID auto-tuning errors |

## 4.12 Installation for Dewpoint Monitor

1) Use blade to cut off the film and outline the reserved hole site on the SCD control panel.

Picture 4-10: Hole Site

2) Check if there are complete parts for dewpoint monitor including:

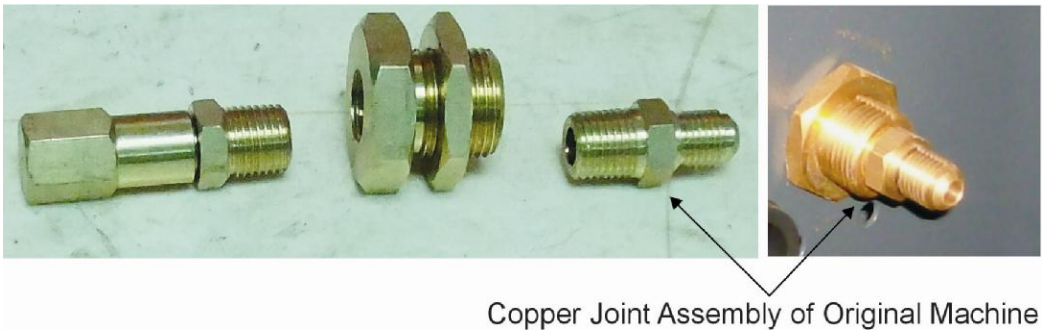
Dew-point monitor

Dew-point transmitter assembly (dew-point detector, detection cable, washer and installation guide)

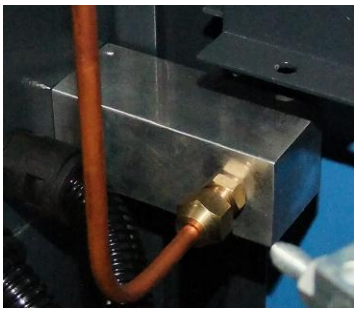
Copper joint, installation seat for dew-point monitor

Picture 4-11: Parts of Dew-point Monitor

3) Dismantle the copper joint of original machine and replace it with installation seat for dew-point monitor. Then dismantle straight form bushing from copper joint of original machine and install it on the installation seat, and connect copper pipe with straight form bushing.




Picture 4-12: Copper Joint Assembly of Original Machine



Picture 4-13: Installation Seat

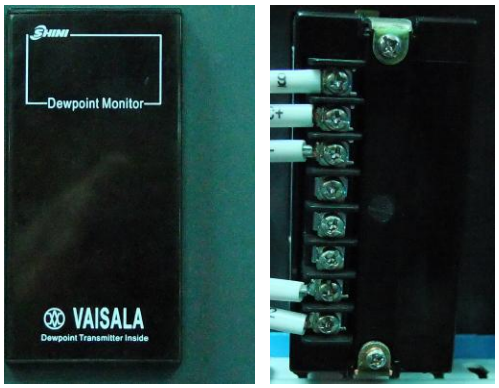
4) Install dew-point transmitter assembly to copper joint.

Picture 4-14: Installation for Transmitter

5) Connect signal wire. Particular shape of signal wire joint would avoid the wrong insert and connection.

Picture 4-15: Connection of Signal Wire

6) Match dew-point monitor with holes on the panel and fix the installation.




Picture 4-16: Installation for Dew-point Monitor

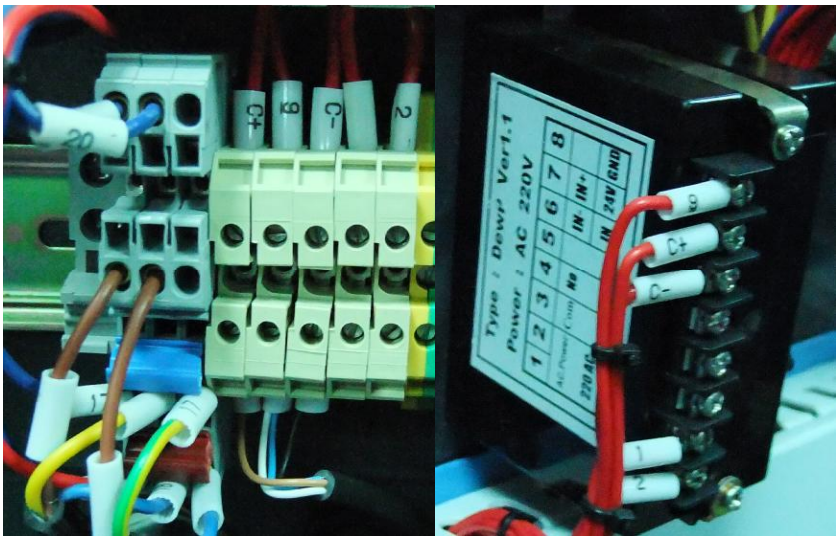
7) Connect signal wires of the transmitter and power lines of dew-point monitor with the according terminals.

Connet contact No.1 and No.2 with power, supply is 220VAC.

Contact No.3, No.4 and No.5 are idle.

Connect contact No.6, No.7 and No.8 with the signal of transmitter. (C- Connects contact No.6, C+ connects contact No.7 and wire No.9 connects contact No.8.

Transmitter conection (White and blue wire connect wire No9, black wire connect C- and gray wire connect C+)



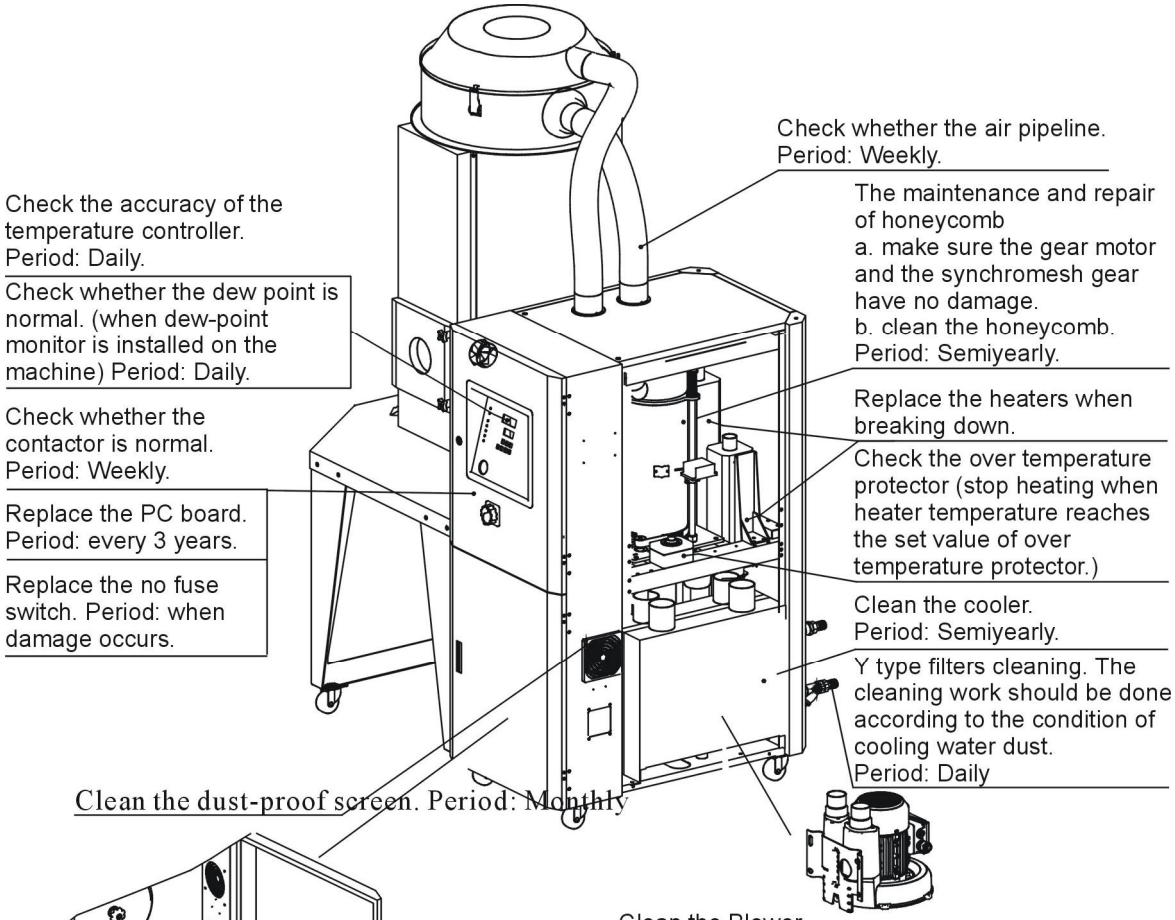

Picture 4-17: Connection of Dew-point Monitor

# 5. Trouble-shooting

| Troubles | Possible causes | Solutions |
|---|---|---|
| Main power indicator does not light after turn on main power switch. | 1. Does not connect through power supply. | 1. Connect through power supply. |
| | 2. Main power switch breakdown. | 2. Replace main power switch. |
| | 3. Problems of electrical wires. | 3. Check electrical wires. |
| | 4. Fuse of control circuit melted. | 4. Check electrical wires and replace fuse. |
| | 5. Transformer problems. | 5. Replace the transformer. |
| E-02 is shown at PV, buzzer sounds and machine stops. | 1. Voltage of power supply is too low. | 1. Check the power supply. |
| | 2. Phase shortage. | 2. Check the power supply. |
| | 3. Phase frequency mistakes. | 3. Exchange the connection of two of the electrical wires. |
| Overload alarm of blower lit up, buzzer sounds and machine stops. | 1. Abnormal fluctuation of voltage. | 1. Check power supply. |
| | 2. Blower being stalled. | 2. Check the blower. |
| | 3. Failures of blower motor. | 3. Check the motor. |
| | 4. Setting current of overload relay (F1) is too low. | 4. Set the current of overload relay 1.1 times of rated current of the motor.<br>Reset overload relay:<br>Press down the blue button on the relay after 1 minutes. |
| Pipe heater overheat alarm is lit up, and the buzzer sounds and machine stops working. | 1. Temperature setting mistakes. | 1. Correctly set the parameters of temp.controller. |
| | 2. Temp. measuring mistakes. | 2. Replace thermocouple. |
| | 3. Overheat relay of pipe heater failures. | 3. Replace the contactor. |
| E-04 is shown at PV, buzzer sounds and machine stops | 1. Heater contactor seized up. | 1. Check or replace the heater contactor. |
| | 2. EGO parameter setting wrong. | 2. Set EGO parameter correctly. |
| | 3. EGO fault. | 3. Replace EGO. |
| | 4. Circuit fault. | 4. Check circuit. |

| Troubles | Possible causes | Solutions |
|---|---|---|
| E-09 is shown at PV, buzzer sounds and machine stops | 1. Problems of rotor motor. | 1. Check or replace the motor. |
| | 2. Rotor belt broken. | 2. Replace the belt. |
| | 3. Problems of electrical circuit. | 3. Check the electrical circuit. |
| | 4. Micro switch of the rotor failures. | 4. Replace. |
| | 5. Parameter mistakes of timer for control of rotor. | 5. Reset the timer. (Set time should be bigger than rotor rotating time in one turn and plus 1 minute.) |
| Abnormal temp. fluctuations. | 1. Too short of time since start of the machine. | 1. Wait for a while. |
| | 2. Improper parameters for temp. controller. | 2. Check the parameters of temp. Controller. |
| Heater temp. can not rise up. | 1. Temp. Setting is too high. | 1. Set heater temp. under 180℃. |
| | 2. Contactor of heater is bad. | 2. Replace contactor. |
| | 3. Pipe heater is damaged. | 3. Replace pipe heater. |
| | 4. Problems of thermocouple. | 4. Replace thermocouple. |
| | 5. Parameter of temp. controller is set to STOP. | 5. Set temp. controller under working mode. |
| | 6. Temp. controller output problems. | 6. Replace or repair temp. controller. |
| Breaker tripping off when connects with power supply. | 1. Short circuits of main circuit. | 1. Check the circuit. |
| | 2. Short circuit of transformer. | 2. Replace the breaker. |
| | 3. Problems of breaker. | 3. Replace the breaker. |
| Circuit breaker trips right after system switch on. | 1. Short circuit of pipe heater. | 4. Check the circuit. |
| | 2. Problems of the breaker. | 5. Replace the breaker. |

# 6. Maintenance and Repair




Honeycomb Rotor cleaning steps:

1) Use a vacuum-cleaner with brush to suck up the dust on rotor surface.

2) Blow off the dust in the rotor channels with compressed air.

3) If there is dirt sticking to the channel walls inside the rotor, cleaning steps are

as follows:

a. Saturate the rotor by blowing humid air (higher than 60%RH) through the rotor without having regeneration circuit on. This can be done by just turning the regeneration heater off and still have the process blower running if process air has high humidity. If the process air is too dry try to put a humidifier in the air stream. Do this for one hour.

b. According to the character of the dirt, sink the rotor into water with cleaning agent in it (PH value 3~2 liquid is applied to silica gel, PH value 7~10 applied to molecular valve). Greasy dirt should be put into a detergent solution with xylene. 15 minutes cleaning is suggested.

c. Take the rotor out of the liquid and let it rest with the channels vertically for 5 minutes so the liquid can run out.

d. Blow off the residual liquid in the channels with compressed air.

e. Put the rotor back into the dehumidifier and run the unit with regeneration circuit (the regeneration temperature between 50℃ and 60℃) on for at least one hour.

Note!

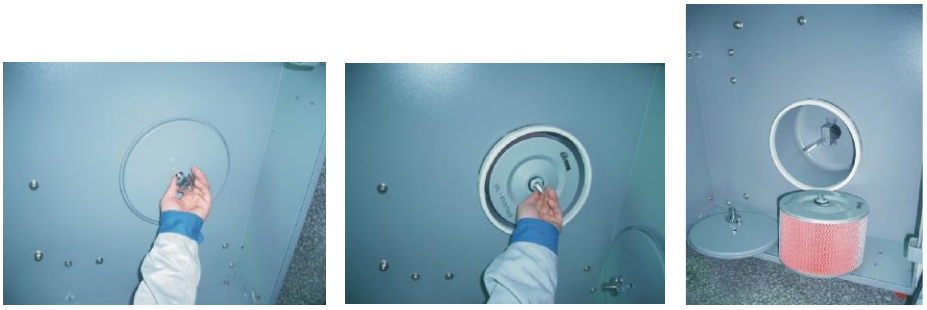
1. Note that in the dry air and wet air outlets, there will be high concentrations liquid out for some time. If a solvent has been used, there will be a residual smell for several days.
2. For some dirt which is greasy and sticky in the rotor, 100% elimination is impossible. The only one thing you can do is to replace the rotor for the cleaned rotor performance can only be recovered partly.

## 6.1 Filter

Please periodically clean the dust on the air filters, once per week.

Cleaning steps:

1) Take out the air filter carefully.
2) Blow off the dust on the air filter screen and the cover with pressure air.
3) Wipe off the barrel wall of air filter with dishcloth.
4) After cleaning, place all parts in reversed order carefully.



Picture 6-1: Filter

Note**!**

Don't make sundries fall into the barrel, when taking out the air filter.

### 6.1.1 The Useful Life of the Key Parts of the Product

Table 6-1: The Useful Life of the Key Parts of the Product

| Name of the parts | Useful life |
|---|---|
| Blower | Above 5 years |
| Process heater | Above 1 year |
| Regen. heater | Above 1 year |
| Contactor | Above 100,000 act |
| Honeycomb | 5~10 years |

## 6.2 Cooler Clear Step

1) Disassemble the cooler's pipe and screw, and remove the cooler out of the chiller.
2) Release the fixed screw on the upper and lower cover of cooler and disassemble the cover.
3) Use brushes, compress ed air or low pressure water to clean the dust and sundries on the cooler fan and copper pipe. Notes: water residue on the cooler fan and copper pipe should be dried with compressed air.
4) Make the cooler's upper and lower cover junction clean enough and smear the silica gel then fixed the covers with screws.
5) Put the cooler on the air at least 4 hours to make the silica gel drying enough then fix the cooler on the chiller and connect all pipes.

## 6.3 Maintenance Schedule

### 6.3.1 General Machine Information

Model _____ SN _____ Manufacture date _____

Voltage_____Φ_____V Frequency _____ Hz Power _____ kW

### 6.3.2 Check After Installation

☐Check that the conveying pipes are tightly locked.

☐Check that the material clearance door is firmly closed.

☐Check that the conveying pipes are correctly connected.

☐Check if there are damages of honeycomb-rotor.

#### Electrical Installatio

☐Voltage: _____ V _____ Hz

☐Fuse melt current: 1 Phase _____A 3 Phases _____ A

☐Check the phase frequency of power supply.

☐Check rotating direction of regenerating motor.

☐Check rotating direction of conveying blower fans.

#### Check air supply of compressor

☐Compressed air pressure _____ bar

☐Air flow _____ L/nun

☐Check if the compressed air purified or not.

### 6.3.3 Daily Checking

☐Check the switch of the machine.

☐Check auto start-up of the machine.

☐Check the temperature controller.

☐Clean the filter.

☐Check whether overheat protection is normal.

☐Check whether dew-point is normal.

☐Check whether cooling water circulation and Y-type fitter are normal[1].

### 6.3.4 Weekly Checking

- ☐ Check all the electrical wires.
- ☐ Check if there are loose electrical connections.
- ☐ Check and maintain compressed-air filter and regulator.
- ☐ Check solenoid valve.
- ☐ Check motor overload relay and anti-phase function.
- ☐ Check whether air pipe is shed, leaked and loose.

### 6.3.5 Monthly Checking

- ☐ Check if transmission belt is loose or not.
- ☐ Check the status of gear motor performance.
- ☐ Check if there is leakage in the rotor.

### 6.3.6 Half-yearly Checking

- ☐ Check if there are damages of conveying pipe.
- ☐ Check the pipe heater.
- ☐ Check regenerating/conveying blower and fans of the motor.
- ☐ Check whether honey-comb rotor belt is damaged.
- ☐ Clean the cooler.

### 6.3.7 Yearly Checking

- ☐ Check whether the contactor is normal [2].

### 6.3.8 3 year Checking

- ☐ PC board renewal.
- ☐ No fuse breaker renewal.

Note: 1. Y-type filter has the function of filling water cooling protection effect, be sure the waterway are clear to avoid cooling failure.

2. Manufacturer laboratory data for AC contactor is two million times in life. we suggest service life for one million four hundred thousand times, if work eight hours per day, recommended replacing frequency is 1.5 years, if work day and night, replacement is suggested to be done every six months.