

# **SDL-U-(HD) Series**

**Drying Loader**

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Version: Ver.A (English)





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## 1. General Description



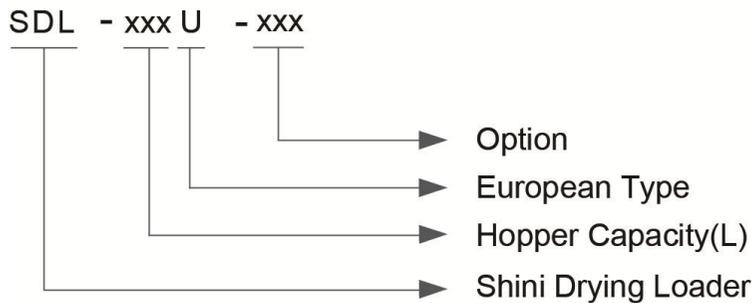
Read this manual carefully before operation to prevent damage of the machine or personal injuries.

SDL-U series of drying loader combine conventional hot air drying and two-stage conveying functions into a compact unit. It is particularly suitable for using with the big tonnage moulding machines when height restriction is concerned at the workshop. The SDL-U series has a unique function of two-stage conveying that can transport both raw material to its own drying hopper and dried material to the moulding machine.



Picture 1-1: Drying Loader SDL-300U

## 1.1 Coding Principle



## 1.2 Feature

- SDL -U integrates two-stage conveying and drying into one unit.
- Microcomputer and P.I.D. control system can accurately control the drying temperature.
- Portable design with standard footprint.
- Material contacted surfaces are made of stainless steel to ensure that materials are free from contamination.
- Full-function alarm system that can immediately respond to error.
- Standard hot air recycler reduces energy consumption without hot air and dust being discharged for cooler and cleaner working space.
- Standard material shut-off suction box formed hermetic cycle loop, to avoid material moisture regain due to ambient air, and ensure that there is no material residue in the pipe.
- Double-layer heat insulation hopper ensures uniform temperature and less heat loss.
- Weekly timer function
- Highest drying temperature of 160°C.
- Touchable HMI that for easy operation and study.
- Optional heatless regenerative air dryer, which could offer low dew point air at room temperature and speed up the drying of material, add "HD" at the end of the mode code.
- For models with hopper polished inside, add "P" at the end of the mode code.

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.

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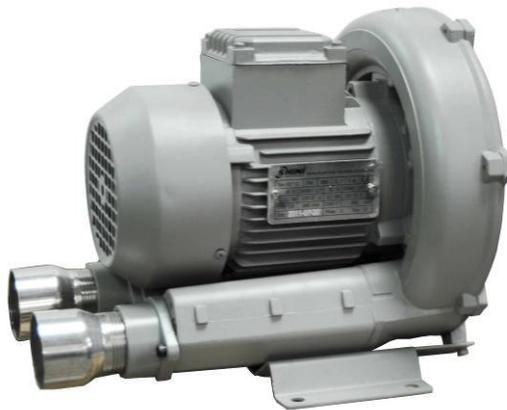
Shinden Precision Machinery (Chongqing), Inc.:

+86 (0)23 6431 0898

## 1.3 Safety Regulations

### 1.3.1 The Attentions for Using the Blower

- 1) The blower cover will be heated up during operation. Keep hands away high temperature blower cover to avoid hands burning.
- 2) Motor under load current will be varied with air pressure of the blower. Overload relay should be used and keep motor working current within full-load current to avoid motor burning out.
- 3) Air filter is used to keep off dirt, particles, fibres, and water drops. Clean the filter about once a week.
- 4) Clear up inside and outside of the blower regularly. If there are too much dirt accumulated on the blower, the function of the blower will be affected, such as temperature rising, reduced air volume and higher noise level due to vibration. All the above factors are liable to cause mechanical problems.
- 5) The bearing, seal ring and silencer are all consumable parts. They should be replaced after a period of time. And also the fans, covers, and metal grids need to be changed when necessary.
- 6) If the blower can not work properly or makes loud noises, please turn off the power supply to have a check.



Picture 1-2: Blower

### 1.3.2 Safety Signs and Labels



Danger!

High Voltage!

It is attached to the control box.



Attention!

This mark reminds you to be more careful.



Warning!

High temperature surface may burn hands!

It is attached on the cover of pipe heater.



Attention!

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



Attention!

To prevent over-temperature alarm from causing machine shutdown, don't randomly adjust EGO setting temp.

### 1.3.3 Transportation and Storage of the Machine

#### Transportation

- 1) SDL-U 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  $-25^{\circ}\text{C}$  to  $+55^{\circ}\text{C}$  for long distance transportation and for a short distance, it can be transported with temperature under  $+70^{\circ}\text{C}$ .

## Storage

- 1) SDL-U series should be stored indoors with temperature kept from 5°C to 40°C 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 max. temperature +45°C 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<sub>2</sub> dry powder fire extinguisher should be applied.

## 1.4 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:

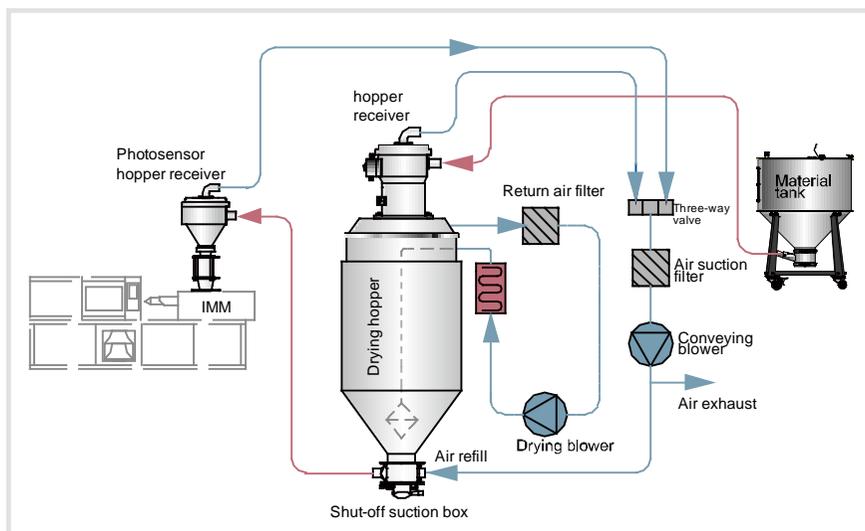
- 1) Any careless or man-made installations, operation and maintenances upon machines without referring to the Manual prior to machine using.
- 2) Any incidents beyond human reasonable controls, which include man-made vicious or deliberate damages or abnormal power, and machine faults caused by irresistible 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

Drying: based on the principle of water high temperature gasification, moisture of material would be blown away by high pressure air from blower after being high temperature gasified. A part of air with moisture discharges through filter of moisture outlet; most part of air are recyclable after being filtered through return air pipe.

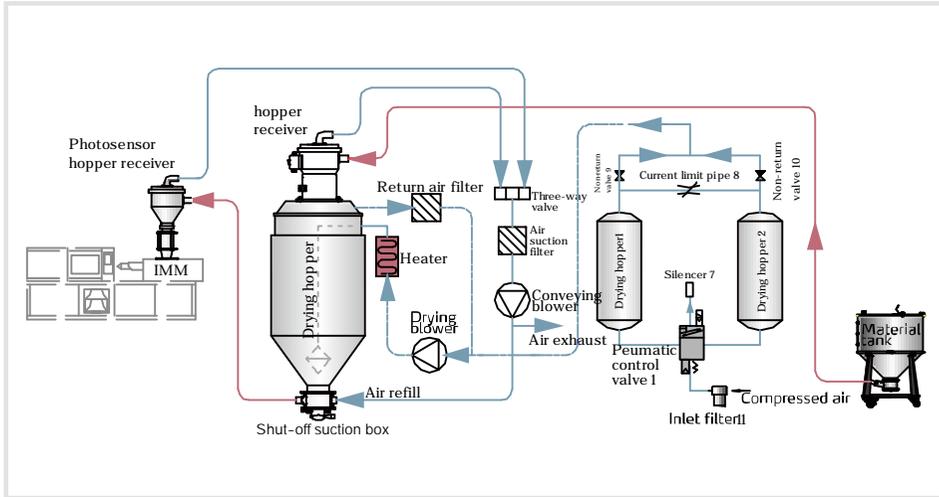
Conveying: suction force of high pressure blower makes a vacuum inside hopper also produces differential pressure between hopper and outer space. With the common force of differential pressure and continuous suction, materials and air mixture will be sucked into hopper. Due to the filter block of hopper, materials will be accumulated in hopper and the air is expelled from air outlet. Double-stage conveying is mainly accomplished by shifting three way valve of suction machine to control suction return circuit.



Picture 2-1: SDL-U Working Principle

Heatless regeneration: The compressed air after passing through inlet filter 11 enters into dry barrel 1 (or dried barrels 2) through pneumatic control valve 1. Then it make absorption dry with desiccant bed layer, and later exist from non-return valve 9 (or 10) , finally exhaust from the outlet to dry and purify air. A part of dry air (about 15%) enters dry barrel 2 (or dried barrel 1) through current

limitation pipe 8 to blow and regenerate desiccants with saturated water, then air passes through pneumatic control valves 1 to exist out of muffler 7. Drying barrel 1, 2 work alternately to regenerate.



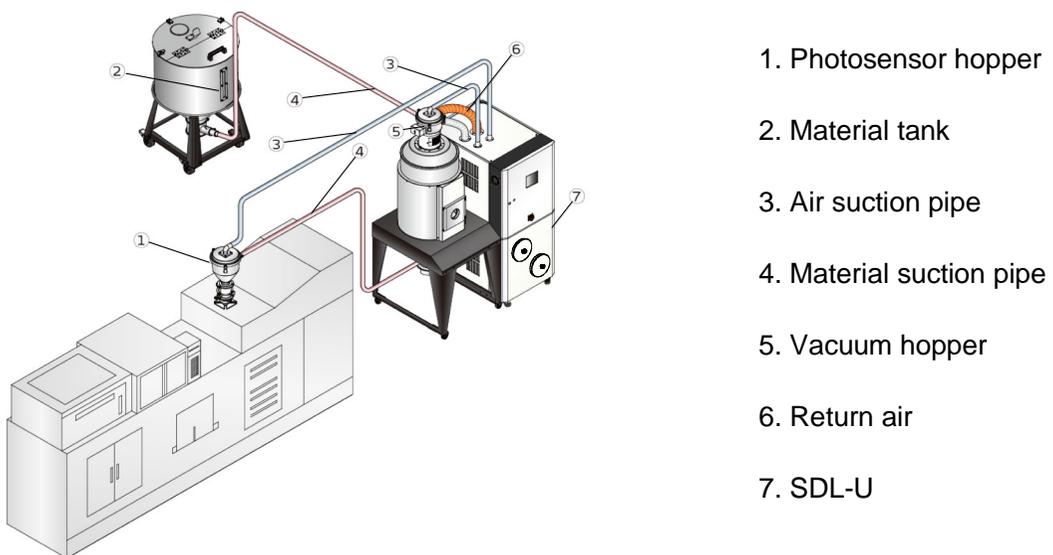
Picture 2-2: SDL-U-HD Working Principle

### 3. Installation and Debugging

#### 3.1 General Safety Regulations

- 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:  $\pm 5\%$   
Main power frequency:  $\pm 2\%$
- 7) Refer to the pipe connection diagram to complete the installation.
- 8) Refer to the electrical wiring diagram to complete to electrical installation.

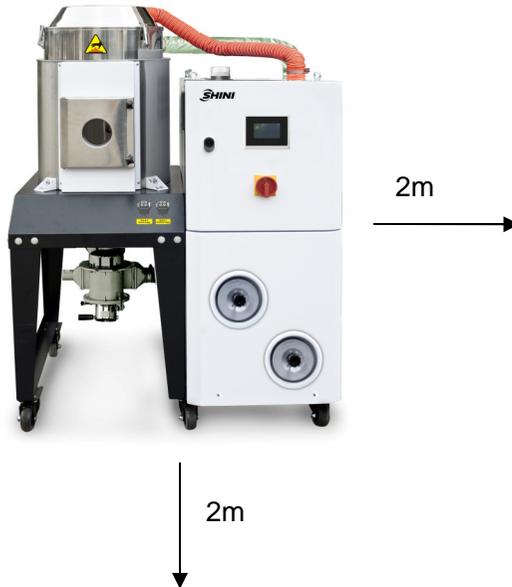
#### 3.2 Installation diagram



Picture 3-1: Installation Diagram

### 3.3 Machine Location

Make sure that the power supply conforms with required specifications before installation. SDL-U are generally set to be used with 3Φ400V 50Hz power supply or other specifications if required.

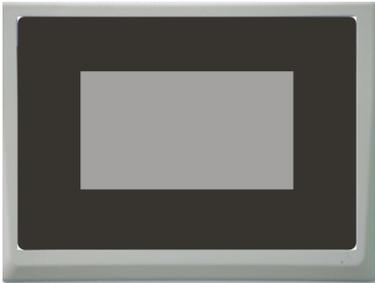


Picture 3-2: Machine location

***Notes: Keep the machine 2M from the combustibile distance.***

## 4. Application and Operation

### 4.1 Operation Procedure for HMI



Picture 4-1: Description of Touch Panel

#### Operation Notice:

- 1) Avoid violent collision of the touch screen when operating it.
- 2) In dry environment, static electricity may be produced on the touch screen, so a metal wire is needed to discharge it before operating.
- 3) Use alcohol or eleoptene to clean the touch screen, because other solvents may fade it.
- 4) Do not tear down the touch screen or take away any PCB from it. Otherwise, the component will be damaged.

#### 4.1.1 System Initialization screen

After the system is powered on, the touch penal displays initial page. As below figure:



Picture 4-2: System Initialization Screen

#### 4.1.2 Dehumidification and Drying Monitor Page

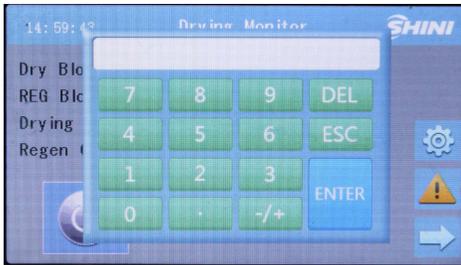
After a few seconds of countdown, the system initialization interface will enter the dehumidification and drying monitoring screen, as below figure:



Picture 4-3: Drying Monitoring Screen

#### 4.1.3 Drying Temperature Modification

Directly click the <SV> of drying temperature, and the numerical keypad will pop up. Input the requested drying temperature and then press <ENTER> to confirm.



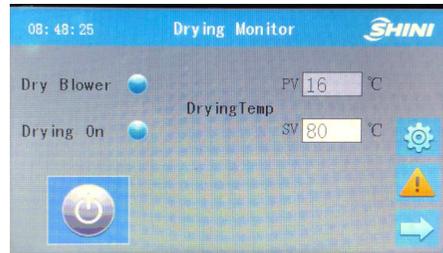
Picture 4-4: Drying Temp. Modification Screen

**Note: The lower limit and upper limit of drying temperature have been set. Please don't rest the temperature randomly!**

#### 4.1.3.1 Start-up and Shutdown

Press once the <Button of Switch> on Drying Monitoring screen to start machine, and press once again the <Button of Switch> to stop the machine. Then, click <Button of Switch> to make it turn grey, the system stops operation.

**Note: Don't shut down the machine directly through the main power switch! Click <ON/OFF button > to shutdown; After the delay time has been reached, it can turn off the main power switch. The default delay time is 3 mins.**



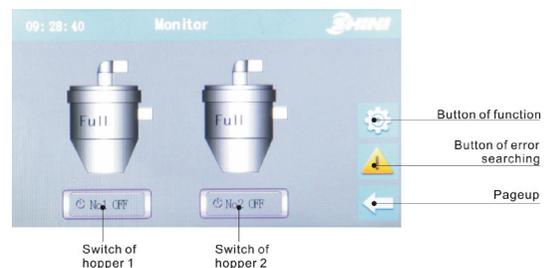
Picture 4-5: Start-up and Shutdown Screen

#### 4.1.3.2 Main Screen Switch

There are two main screens: Drying Monitor Screen and Monitor Screen to cope with different functional operations. It displays drying monitor screen directly after initialization screen, which can switch to conveying monitor screen by pressing <Next page> button.

#### 4.1.3.3 Conveying Monitor Screen

It is possible to switch the working state (ON/OFF) of each hopper through pressing the <hopper switch> below each hopper icon.



Picture 4-6: Conveying Process Screen

#### 4.1.4 Menu Screen

Enter Menu Screen by pressing the <Button of function> on Drying Monitor Screen or Conveying

Monitor Screen. It has three functional options: time setting, parameter setting and multi-language.



Picture 4-7: Meun Screen

#### 4.1.4.1 Timer Setting

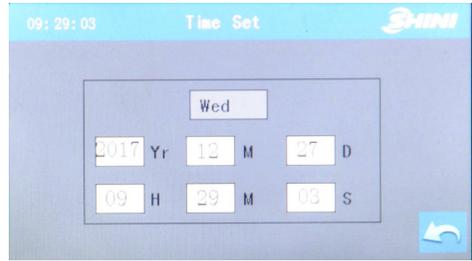
Enter into the Timer Screen by pressing the <Time Set> once on Menu screen. There are two options in this page, Time Set and WSET.



Picture 4-8: Timer Screen

#### 1. System Time Setting

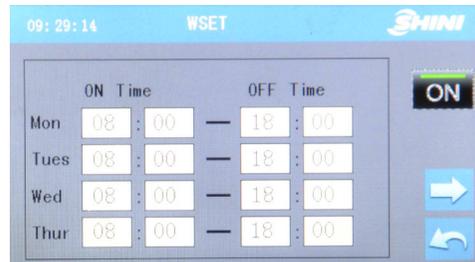
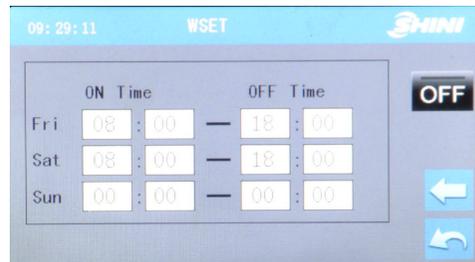
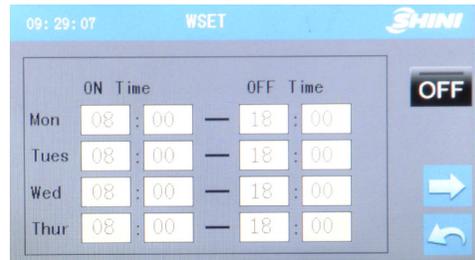
Enter timer screen by pressing <Time Set> on this screen, which can set current date and time of this system.

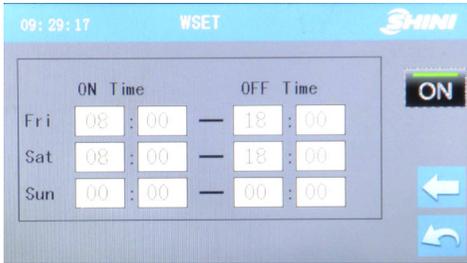


Picture 4-9: System Time Setting

#### 2. Weekly Timer Setting

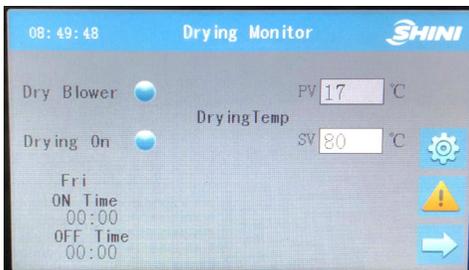
Enter into this page by pressing <WSET> once on Timer Screen. It is possible to set the starting and stopping time for each day in one week, and press <OFF> to activate weekly timing function after setting.





Picture 4-10: WSET Screen

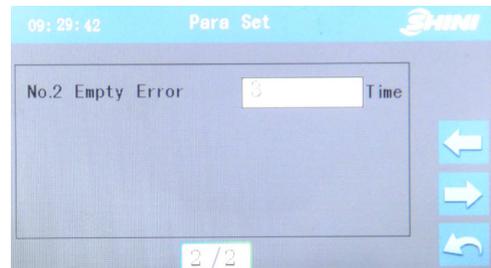
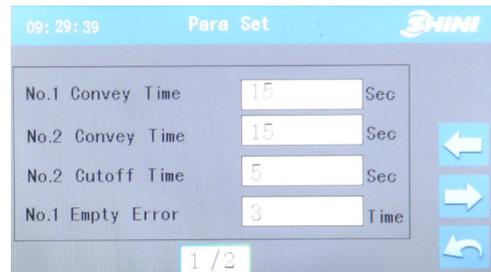
***Note: As to ensure normal working for weekly timing function, it is necessary to set the current time and date of system correctly before activating the weekly timing function.***



Picture 4-11: Drying Monitor Screen of One-week Time

#### 4.1.4.2 Para. Set Screen (Conveying parameters)

Enter into this page by pressing the <Para Set> once on Menu screen. Enter the parameter setting screen (parameters related to conveying function). According to practical experience, three kinds of parameters can be set respectively: suction time, shut-off time and shortage alarm times.



Picture 4-9: Para. Set Screen

Table 4-1: Conveying Parameter's Category

Parameters	Unit	Description
Material feeding time	Second	When system detects material shortage, it will count down for 3 seconds. After that, PLC will send out signals to start the suction motor for feeding the molding machine. At the same time, it will time the loading. When it's up to the set loading time, loading stops and material loading times will increase.
Times of material shortage		When feeding of the molding machine is going on, the material loading times is limited if there is a material shortage signal. When it's up to the set loading times, the system will stop feeding the machine. Furthermore, it will sound an alarm of material loading error to remind users to check whether the storage tank is lack of material or whether there is any other error resulting in loading failure.
Shut-off time	Second	Shut-off time refers to opening time of relative shut-off valve. The longer the shut-off time, the more material will be discharged.

**Note: All parameter default value has been set before delivery. Therefore, please DO NOT reset the values under normal condition, especially the conveying time, so as not to block up the pipeline.**

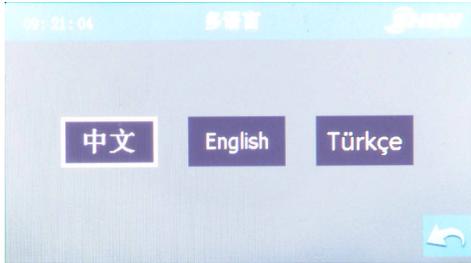
**Note: Shut-off time should not be set for too long. Otherwise, some materials will remain in the material line, which will affect the material drying effect.**

Table 4-2: Feeding Parameter Table

Parameters	Factory Default and Setting Range	Remark
NO.1 Suction time	15s (0~999s)	One stage conveying (by main hopper)
NO.2 Suction time	15s (0~999s)	NO.2 Conveying time of the convey blower
NO.3 Suction time	15s (0~999s)	NO.3 Conveying time of the convey blower
NO.2 Shut-off time	5s (0~99s)	No. 2 Direction of secondary conveying (to the forming machine 1).
NO.3 Shut-off time	5s (0~99s)	No. 3 Direction of secondary conveying (to the forming machine 2).
No.1 Times of material shortage alarm	3 times (0~999 times)	Error of No.1 conveying occurs if there is no signal of full material when suction times reach the peak. The function is invalid when it is set as 0.
No.2 Times of material shortage alarm	3 times (0~999 times)	Error of No.2 conveying occurs if there is no signal of full material when suction times reach the peak. The function is invalid when it is set as 0.
No.3 Times of material shortage alarm (Optional)	3 times (0~999 times)	Error of No.3 conveying occurs if there is no signal of full material when suction times reach the peak. The function is invalid when it is set as 0.

#### 4.1.4.3 Multilingual Setting

Chinese, English or Turkish can be switched at any time.



Picture 4-12: Multilingual Setting Screen

#### 4.1.5 Alarm Message Checking

Enter into this page by pressing <Button of Error Searching> once in Drying Monitor Screen or Conveying Monitor Screen. It is possible to check alarm history, reset alarm or mute alarm.



Picture 4-10: Alarm Message Screen



Picture 4-11: Alarm History Screen

#### 4.1.6 Project Setting

Quickly and continuously click the top-left corner four times on Drying Monitor Screen, and a password input window will appear. Input the correct password (Default password: 3588) to enter into this page, which consists of Nor. Setting, Out Time and Password Setting.

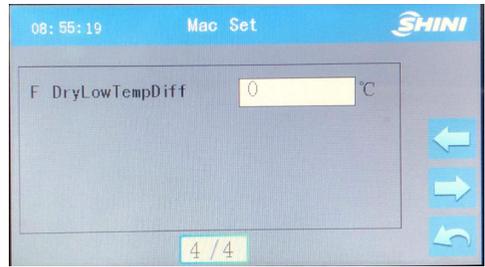


Picture 4-13: Password Input Interface

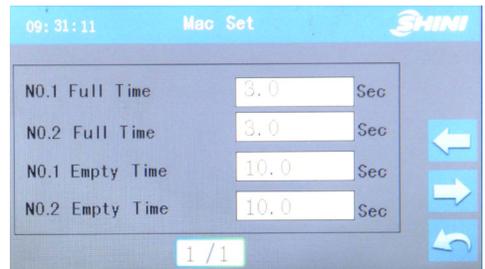
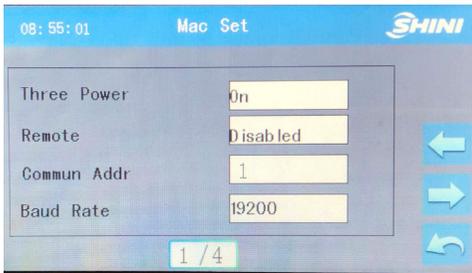
**Note: Please keep this password securely and safely. If the password is missing, then the operator won't be able to log into this page. It is better to let this password known only by system administrator or senior operator.**



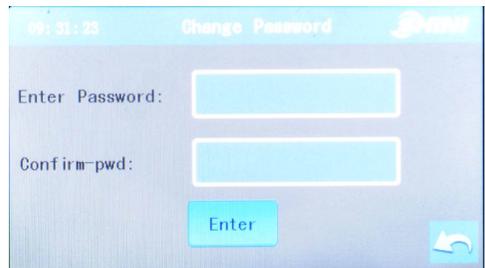
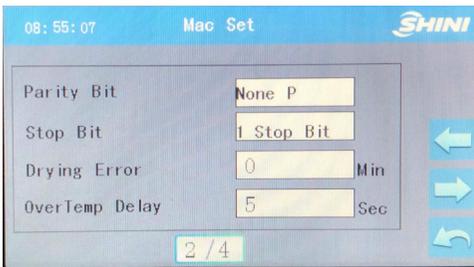
Picture 4-14: Project Setting Screen



Picture 4-15: Project General Setting Screen



Picture 4-16: Detection Time Setting Screen



Picture 4-17: Password Modification Setting Screen

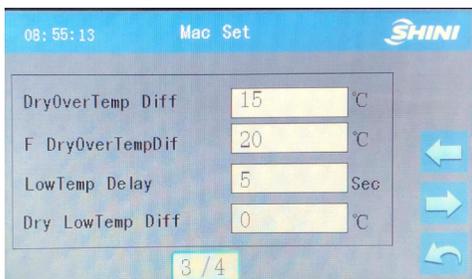


Table 4-3: Project Parameter Setting

Catalog	Parameter	Setting Range	Remark	
Nor. Set (Normal parameters setting)	Three-phase detection	Use (use~forbidden)	Open or close the onboard three-phase detection	
	External startup	Forbidden (use~forbidden)	Use: The dehumidification and drying system works when remote signal is given Forbidden: external startup is forbidden. [J3-10 input definition] Visible only when the definition is "external startup and shutdown".	
	Communication address	0 (0~32)	Address of communication devices	
	Baud rate	19200 (4800/9600/19200)	Communication Baud rate	
	Parity Bit	No parity (no parity, odd parity and even parity)	Setting of parity bit	
	Stop bit	One stop bit (one stop bit, two stop bits)	Setting of stop bit	
	Monitoring of drying heating error	0m (0~999min)	Drying heating disconnection	
	Monitoring of regenerative heating error	0m (0~999min)	Regenerative heating disconnection	
	Delayed overheat alarm	5s (0~999s)	Delayed time of overheat alarm	
	Drying overheat deviation	10.0℃ (0.0~40.0℃)	Drying overheat deviation	
	First drying overheat deviation	20.0℃ (0.0~60.0℃)	First drying overheat deviation	
	Regenerative overheat deviation	10.0℃ (0.0~40.0℃)	Regenerative overheat deviation	
	First regenerative overheat deviation	20.0℃ (0.0~60.0℃)	First regenerative overheat deviation	
	Delayed low temp alarm	5s (0~999s)	Delayed low temp alarm	
	Drying low temp. deviation	10.0℃ (0.0~40.0℃)	Drying low temp deviation	
	First drying low temp. deviation	20.0℃ (0.0~60.0℃)	First drying low temp deviation	
	Regenerative low temp deviation	10.0℃ (0.0~40.0℃)	Regenerative low temp. deviation	
	First regenerative low temp deviation	20.0℃ (0.0~60.0℃)	First regenerative low temp. deviation	
	Out Time (Detecting time for each hopper)	NO.1 Full material detection time	3.0s (0.1~99.9s)	NO.1 Delayed time of full material detection
		NO.2 Full material detection time	3.0s (0.1~99.9s)	NO.2 Delayed time of full material detection
NO.3 Full material detection time(Optional)		3.0s (0.1~99.9s)	NO.3 Delayed time of full material detection	
NO.1 Material shortage detection time		10.0s (0.1~99.9s)	NO.1 Delayed time of material shortage detection	
NO.2 Material shortage detection time		10.0s (0.1~99.9s)	NO.2 Delayed time of material shortage detection	
NO.3 Material shortage detection time (Optional)		10.0s (0.1~99.9s)	NO.3 Delayed time of material shortage detection	

## 5. Trouble-shooting

Symptom	Possible causes	Solution
EPROM Error	<ol style="list-style-type: none"> <li>1. The machine halts when alarm rings, and it is manually reset after faults are removed.</li> <li>2. The ROM will be detected after being electrified, and error occurs when ROM can't read right datum.</li> </ol>	<p>Re-power on. If the alarm rings again, there is something wrong with the controller. Please replace the controller or contact us.</p>
Three-phase power source error	<ol style="list-style-type: none"> <li>1. The machine halts when alarm rings, and it is manually reset after faults are removed.</li> <li>2. The part will be detected after being electrified, and error occurs when power line has reversed-phase connection or suffers default phase.</li> <li>3. The machine will be detected after being electrified. If the [J3-10 input definition] is three-phase electrical detection, alarm rings 2 secs. after effective J3-2 input. Alarm will ring when either 2 or 3 is met.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn off the power switch, change the three-phase AC power cord connection and set a positive phase. After re-powering on, observe whether the fault prompt has disappeared or not.</li> <li>2. If the [J3-10 input definition] is three-phase electric power detection, check whether the setting of "always on" and "always off" of the [external/three-phase power] is correct or not.</li> </ol>
Regenerative Blower Overload	<ol style="list-style-type: none"> <li>1. When alarm rings, drying blower/regenerative blower (rotor motor) close and heating stops. And they are automatically reset after faults are removed.</li> <li>2. The blower will be detected after being electrified, and error occurs when the regenerative blower overload input signal proves to be effective and delays for 2 secs.</li> </ol>	<p>Open the electronic control box and press the reset button on the thermorelay.</p> <p>Check the machine if problem arises again.</p>
Drying Blower Overload	<ol style="list-style-type: none"> <li>1. When alarm rings, drying blower/regenerative blower (rotor motor) close and heating stops. And they are automatically reset after faults are removed.</li> <li>2. The blower will be detected after being electrified, and error occurs when the drying blower overload input signal proves to be effective and delays for 2 secs.</li> </ol>	<p>Open the electronic control box and press the reset button on the thermorelay.</p> <p>Check the machine if problem arises again.</p>
Regenerative EGO Overheat	<ol style="list-style-type: none"> <li>1. Regenerative heating and overheat alarm output close when alarm rings, and they are automatically reset after faults are removed.</li> <li>2. The part will be detected after being electrified, and error occurs when the regenerative EGO overheat input signal proves to be effective and delays for 2 secs.</li> </ol>	<p>Check whether the setting of [regenerative EGO overheat] and that of "normally open" and "normally close" of overheat signal are correct or not.</p> <p>Examine the regenerative blower, filter, air pipes and air damper.</p>

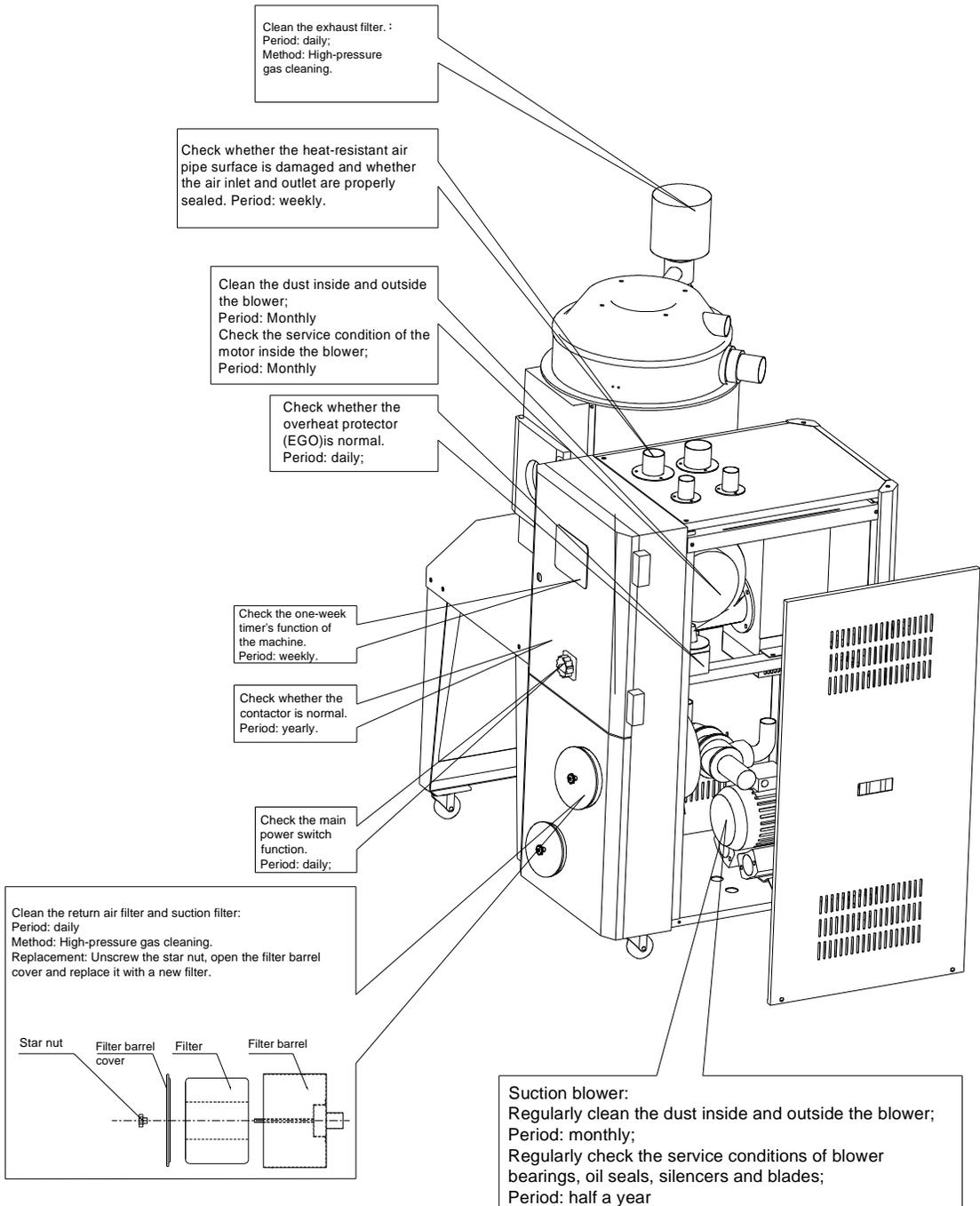
Symptom	Possible causes	Solution
Drying EGO Overheat	<ol style="list-style-type: none"> <li>1. Drying heating and overheat alarm output close when alarm rings, and they are automatically reset after faults are removed.</li> <li>2. The part will be detected after being electrified, and error occurs when the drying EGO overheat input signal proves to be effective and delays for 2 secs.</li> </ol>	<p>Check whether the setting of [regenerative EGO overheat] and that of “normally open” and “normally close” of overheat signal are correct or not.</p> <p>Examine the drying blower, filter, air pipes and air damper.</p>
Return Air EGO Overheat	<ol style="list-style-type: none"> <li>1. Drying heating closes when alarm rings, and it is automatically reset after faults are removed.</li> <li>2. The part is detected after being electrified, and error occurs when the return air EGO overheat input signal proves to be effective and delays for 2 secs.</li> </ol>	<p>Check whether the setting of [regenerative EGO overheat] and that of “normally open” and “normally close” of overheat signal are correct or not.</p> <p>Examine the drying blower, regenerative blower, filter, air pipes and air damper.</p> <p>After addressing the problem, press the key of “reset” or reset by re-powering on.</p>
Rotor Error	<ol style="list-style-type: none"> <li>1. The rotor automatically gets into the state of “timed cooling” when alarm rings, and it is manually reset after faults are removed.</li> <li>2. Error occurs when the rotor can’t be detected in the [rotor monitoring time] and the valid time of its input signal exceeds 10 secs.</li> </ol>	<p>Set the parameters according to the rotor conditions: time for the rotor to run a cycle [rotor monitoring time], and set aside a certain volume.</p> <p>If you want to disable this alarm, you can set the parameter [rotor monitoring time] as 0.</p> <p>After addressing the problem, press the key of “reset” or reset by re-powering on.</p>
Regenerative Heating Pipe Disconnection	<ol style="list-style-type: none"> <li>1. Regenerative heating closes when alarm rings, and it is manually reset after faults are removed.</li> <li>2. The error occurs when the regenerative heater is turned on and its temp can not reach the set temp during the period of [regerative heating error monitoring].</li> </ol>	<p>Examine the regenerative heating pipe and its control circuit as well as heating contactor;</p> <p>If you do not use the alarm function, you can set the detection time of disconnection [regerative heating error monitoring] as 0.</p> <p>After addressing the problem, press the key of “reset” or reset by re-powering on.</p>
Drying Heating Pipe Disconnection	<ol style="list-style-type: none"> <li>1. Drying heating closes when alarm rings, and it is manually reset after faults are removed.</li> <li>2. The error occurs when the drying heater is turned on and its temp can not reach the set temp during the period of [drying heating error monitoring].</li> </ol>	<p>Examine the drying heating pipe and its control circuit as well as heating contactor;</p> <p>If you do not use the alarm function, you can set the detection time of disconnection [drying heating error monitoring] as 0.</p> <p>After addressing the problem, press the key of “reset” or reset by re-powering on.</p>

Symptom	Possible causes	Solution
Regenerative Probe Error	1. Regenerative heating closes when alarm rings, and it is automatically reset after faults are removed. 2. The part is detected after being electrified, and error occurs when there is something wrong with the probe.	Examine the wire and check whether the probe matches with the controller.
Drying Probe Error	1. Drying heating closes when alarm rings, and it is automatically reset after faults are removed. 2. The part is detected after being electrified, and error occurs when there is something wrong with the probe.	Examine the wire and check whether the probe matches with the controller.
Return Air Probe Error	1. Drying heating closes when alarm rings, and it is automatically reset after faults are removed. 2. The part is detected after being electrified, and error occurs when there is something wrong with the probe.	Examine the wire and check whether the probe matches with the controller. Examine the machine and press the key of “reset” after faults are removed.
Regenerative Temp. Overheat	1. When alarm rings, regenerative heating and overheat alarm output close. They are automatically reset when the regenerative temp < (regenerative set temp+ [regenerative overheat deviation]-1℃). 2. Detection when the machine is running: A. Error occurs when regenerative temp–regenerative set temp > [regenerative overheat deviation] and [overheat alarm] is delayed. B. If the temp difference exceeds the [regenerative ceiling deviation] in modification of the set temp or when the unit just starts running, the alarm would not be given. The alarm rings only when the conditions listed in (1) are met even after the current temp goes up and down for several times at the set temp point.	Check whether the setting of parameter [regenerative ceiling deviation] is reasonable. If you want to disable it, set the [regenerative ceiling deviation] as 0.
First Regenerative Overheat	1. When alarm rings, regenerative heating and overheat alarm output close. They are automatically reset when the regenerative temp < (regenerative set temp+ [regenerative overheat deviation]-1℃). 2. Inspect when the machine is running: (1) Error occurs when regenerative temp–regenerative set temp > [first regenerative overheat deviation] and [overheat alarm] is delayed.	Check whether the setting of parameter [first regenerative overheat deviation] is reasonable. If you want to disable it, set the [first regenerative overheat deviation] as 0.

Symptom	Possible causes	Solution
Too-low Regenerative Temp	<p>1. When alarm rings, the machine keeps running. It is automatically reset when the regenerative temp &gt; (regenerative set temp- [regenerative low temp deviation]+1℃).</p> <p>2. Inspect when the machine is running:</p> <p>A. Error occurs when regenerative set temp- regenerative temp &gt; [regenerative low temp deviation] and [low temp alarm] is delayed.</p> <p>B. If the temp difference exceeds the [regenerative low temp difference] in modification of the set temp or when the unit just starts running, the alarm would not be given. The alarm rings only when the conditions listed in (1) are met even after the current temp goes up and down for several times at the set temp point.</p>	<p>Check whether the setting of parameter [regenerative low temp deviation] is reasonable.</p> <p>If you want to disable it, set the [regenerative low temp deviation] as 0.</p>
First Too-low Regenerative Temp	<p>1. When alarm rings, the machine keeps running. It is automatically reset when the regenerative temp &gt; (regenerative set temp- [first regenerative low temp deviation]+1℃).</p> <p>2. Inspect when the machine is running:</p> <p>(1) Error occurs when regenerative set temp- regenerative temp &gt; [first regenerative low temp deviation] and [low temp alarm] is delayed.</p>	<p>Check whether the setting of parameter [first regenerative low temp deviation] is reasonable.</p> <p>If you want to disable it, set the [first regenerative low temp deviation] as 0.</p>
Drying Temp. Overheat	<p>1. When alarm rings, drying heating and overheat alarm output close. They are automatically reset when the drying temp &lt; (drying set temp+ [drying overheat deviation]-1℃).</p> <p>2. Detection when the machine is running:</p> <p>A. Error occurs when drying temp- drying set temp &gt; [drying overheat deviation] and [overheat alarm] is delayed.</p> <p>B. If the temp difference exceeds the [drying overheat difference] in modification of the set temp or when the unit just starts running, the alarm would not be given. The alarm rings only when the conditions listed in (1) are met even after the current temp goes up and down for several times at the set temp point.</p>	<p>Check whether the setting of parameter [drying overheat deviation] is reasonable.</p> <p>If you want to disable it, set the [drying overheat deviation] as 0.</p>
First Drying Temp. Overheat	<p>1. When alarm rings, drying heating and overheat alarm output close. They are automatically reset when the drying temp &lt; (drying set temp+ [first drying overheat deviation]-1℃).</p> <p>2. Inspect when the machine is running:</p> <p>(1) Error occurs when drying temp- drying set temp &gt; [first drying overheat deviation] and [overheat alarm] is delayed.</p>	<p>Check whether the setting of parameter [first drying overheat deviation] is reasonable.</p> <p>If you want to disable it, set the [first drying overheat deviation] as 0.</p>

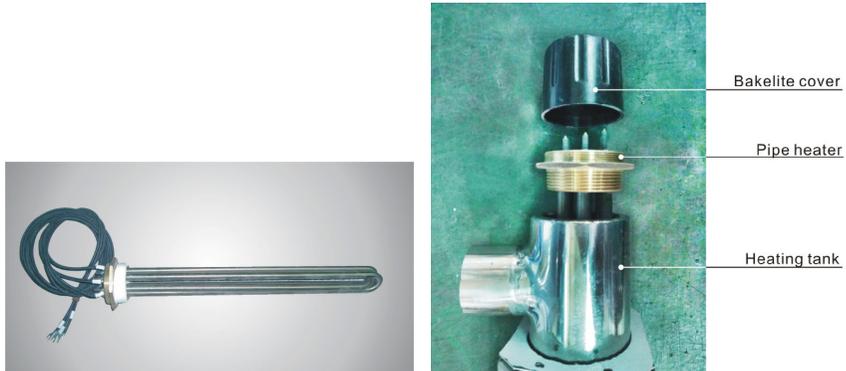
Symptom	Possible causes	Solution
Too-low Drying Temp.	1. When alarm rings, the machine keeps running. It is automatically reset when the drying temp > (drying set temp- [drying low temp deviation]+1℃). 2. Inspect when the machine is running: A. Error occurs when drying set temp– drying temp > [drying overheat deviation] and [low temp alarm] is delayed. B. If the temp difference exceeds the [drying low temp difference] in modification of the set temp or when the unit just starts running, the alarm would not be given. The alarm rings only when the conditions listed in (1) are met even after the current temp goes up and down for several times at the set temp point.	Check whether the setting of parameter [drying low temp deviation] is reasonable. If you want to disable it, set the [drying low temp deviation] as 0.
First Too-low Drying Temp	1. When alarm rings, drying heating and overheat alarm output close. They are automatically reset when the drying temp > (drying set temp- [first drying low temp deviation]+1℃). 2. Inspect when the machine is running: (1) Error occurs when drying temp– drying set temp > [first drying low temp deviation] and [low temp alarm] is delayed.	Check whether the setting of parameter [first drying low temp deviation] is reasonable. If you want to disable it, set the [first drying low temp deviation] as 0.
Dew-point Meter Error	There is something wrong with the dew point transducer, and the machine keeps running after error occurs	Check whether the connection of dew point transducer is right, and whether the range is from 4 to 20 mA.
Rotor 2 Error	1. The rotor automatically gets into the state of “timed cooling” when alarm rings, and it is manually reset after faults are removed. 2. Running detection: error occurs when the rotor can’t be detected in the [rotor monitoring time] and the valid time of its input signal exceeds 10 seconds.	Set the parameters according to the rotor conditions: time for the rotor to run a cycle [rotor monitoring time], and set aside a certain volume. If you want to disable this alarm, you can set the parameter [rotor monitoring time] as 0 or define the [J3-10 input] to be forbidden. After addressing the problem, press the key of “reset” or reset by re-powering on.
Too-high Dewpoint Temperature	1. When alarm rings, the machine keeps running. It is automatically reset when dewpoint temp. < [dew point alarm temp.]. 2. Inspect when the machine is running: A) Press [dewpoint temp alarm delay] and start detecting; B) Dewpoint temp> [dew point alarm temp] and the condition lasts for 10 seconds. C) The parameter of [delayed detection of dewpoint alarm] is not 0. Alarm will be given when A), B) and C) are all met.	If you want to disable it, set the parameter [delayed detection of dewpoint alarm] as 0

## 6. Maintenance and Repair



## 6.1 Pipe Heaters

- 1) Install the pipe heater from the bottom of the heating tank, tighten and fix the bakelite cover.
- 2) Fix the heater assembly on the rack.



Picture 6-1: Pipe Heaters

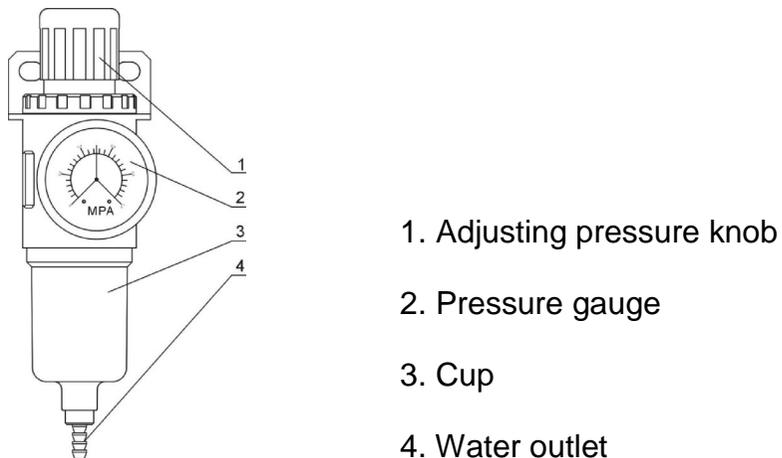
### ***Warning!***

***High temperature, take care of hands!***

***This label is attached on the surface of heating pipes.***

## 6.2 Filter & Pressure Regulating Valve

### 6.2.1 Filter & Pressure Regulating Valve Drawing



Picture 6-2: Filter & Pressure Regulating Valve Drawing

## 6.2.2 Filter & Pressure Regulating Valve Operation steps

- 1) Switch on the air source.
- 2) Pull up the air pressure adjustment button, and then rotate the direction to observe the pointer change of the pressure gauge 2, which is generally adjusted to 0.5 Mpa or so.
- 3) After adjustment, press the back pressure adjustment button down.

## 6.2.3 How to drain water?

Remove the water in the cup by gently pulling the drainage outlet.

## 6.3 Air Filters

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 rag.
- 4) After cleaning, place all parts in reversed order carefully.

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

## 6.4 Blower Motors

- 1) To clean blower both internal and external parts (especially the fan cooling path), by removing surface dust. If more dusts are accumulated, it will cause deficiency for ventilation, temperature rising up, blower power reduced, vibration increased and so it will cause machine broke down.
- 2) Ball bearing, oil seal and sound-proof are belonging to consumable parts and so it has a life period and requires regular replacement.



Picture 6-3: Blower Motors

## 6.5 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	≥5 years
Process heater	≥1 years
Contactor	≥10,000 act

## 6.6 Maintenance Schedule

### 6.6.1 About the Machine

Model \_\_\_\_\_ SN \_\_\_\_\_ Manufacture date \_\_\_\_\_

Voltage \_\_\_\_\_  $\Phi$  \_\_\_\_\_ V Frequency \_\_\_\_\_ Hz Power \_\_\_\_\_ kW

### 6.6.2 Installation & Inspection

- Check if the pipe joint is tightly locked by clips or not.
- Check that the material clearance door is firmly closed.

#### Electrical Installation

- Voltage: \_\_\_\_\_ V \_\_\_\_\_ Hz
- Fuse melt current: 1 Phase \_\_\_\_\_ A 3 Phase \_\_\_\_\_ A
- Check phase sequence of the power supply.

### 6.6.3 Daily Checking

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

### 6.6.4 Weekly Checking

- Check all the electrical cables.
- Check if there are loose connections of electrical components.
- Check and clean air filter.
- Check the function of solenoid valve.
- Check motor overload relay and anti-phase function.

### 6.6.5 Monthly Checking

- Check whether the material inlet pipe leaks air.
- Check whether the motor works normally.
- Check whether the process heater works normally.

### 6.6.6 Half-yearly Checking

- Check if there are damages of heat-resistant hoses.
- Check the pipe heaters.
- Check process blower and blower fans.