Catalog:

# SHINI PRODUCTS&MAINTENANCE MANUAL

Data: 2014-08

Version: V1.1

Catalog:

# Content

Catalog:

Catalog:

Catalog:

Catalog:

# 1. Introduction

This guide exists as reference files for products maintenance, its main content includes various common faults of search, analysis, clearing, and other knowledge of performance debugging.

## Purpose

In order to help the maintenance staff, technical support, domestic and foreign agents to provide customers with excellent after-sales service, help them know more about the product of the common faults and its clearing method, improve their service level.

## Applicable

This manual is mainly exposed to SHINI's after-sales service, technical support, domestic and foreign agents, and the personnel who provide customers with excellent maintenance service directly or indirectly.

## Cautions

The analysis and process should be based on actual fault, refers to the manual for the corresponding problem.

Texts and data referenced in this manual don’t represent SHINI’s views.

If you wish to learn more about related products, you can use the following three methods to contact us:

China service hotline:800-999-3222
SHINI group website:www.shini.com
Fax:(886)769-83313589

Catalog:

# 2. Heating Pipe

## 2.1 Applicable Models

SHD

SDL

SHD-U

SDL-U

SD-H

SCD

SDD

## 2.2 Working Principle

Because of resistance, alloy resistance wire inside the heating pipe will heat after energization. Heating is achieved by tightly compressed magnesium oxide powder filled in the heating pipe conducts heat to the heating pipe body.

## 2.3 Inspection

According to the following principle, you can use a multimeter to test the resistance of heating pipe when you check whether the heating pipe is damaged, if the tested value is infinite or much larger than the actual resistance, heating wire in the middle of heating pipe has been disconnected, unable to achieve heating, needs to be replaced.

You can get the actual resistance of heating pipe according to its power, the calculation method is:

$R=U^2/P$

R: Resistance, unit is Ω.
U: Voltage of heating pipe, unit is V.
P: Power of heating pipe, unit is W.
For example, the voltage of a heating pipe is 380V, and the power of heating pipe is 12kw, we can get the actual resistance is:
380v*380v/12000w≈12Ω

## 2.4 Replacing

Heating pipe must be replaced with the same specifications, adaptable voltage and power in order to achieve the original heating effect. If not, it will cause heating pipe

heat abnormally and premature failure.

For example, a heating pipe is designed as 380v and 12kw, its actual resistance is 12Ω. If the heating pipe is used for 230V (the same wiring), its actual power is about 4.4kw,much lower than the nominal value of 12kw. If the heating pipe is used for 460v(the same wiring),its actual power is about 17.6kw,much higher than the nominal value of 12kw.

# 3. Dewpoint Detection Device

Pic 3-1

## 3.1 Applicable Models

SD-H
SCD
SDD
SMD

## 3.2 Products Information

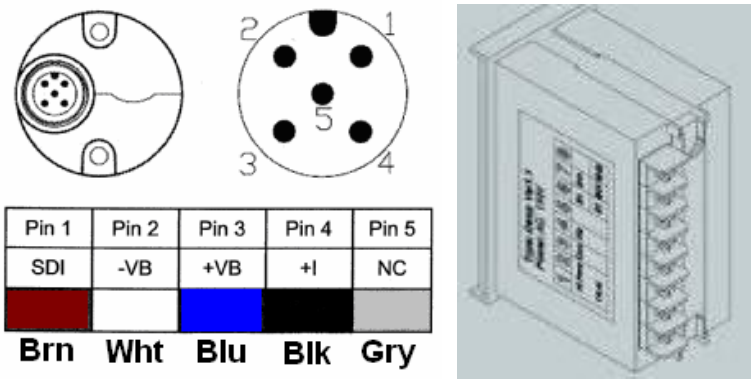
The dewpoint transmitters are manufactured by CS instruments, model is FA411-OEM. Dewpoint meters are manufactured by Cosmosonics.

## 3.3 Working Principle

Its work depends on the water vapor absorption of the absorbent layer of the ceramic substrate carrier between the two conductive layers, transform the physical quantity into analog quantity, its output type is current output, the range is 4~20mA, dewpoint meter transform analog signal into digital signal through reading the current value which can be displayed in digital form.

## 3.4 Installation and Commissioning

Dewpoint sensor includes a transmitter body and a M12 connector, Its definition of each pin and wiring as follows:




Pic 3-2 Dewpoint transmitter pin

Dewpoint transmitter connector has been pre-wired and used different colors to distinguish before they go out. Dewpoint transmitter and dewpoint monitor need only three lines can be connected, dewpoint monitor ①② pin connected to the 220VAC source. Other line wiring as follows:

Wiring between dewpoint transmitter and dewpoint monitor

PIN2--------⑧(GND)

PIN3--------⑦(IN+)

PIN4--------⑥(IN)

You can power after the wiring is complete, and then set the parameters of the dewpoint monitor.

How to set the parameters? (Reference 3.6.2)

## 3.5 Alarm Exclusion

Input abnormal alarm E1,E2

Normally, dewpoint transmitter output to monitor 4~20mA current. If transmitter output current is less than 4mA, there will be an alarm E1. If transmitter output current is more than 20mA, there will be an alarm E2.

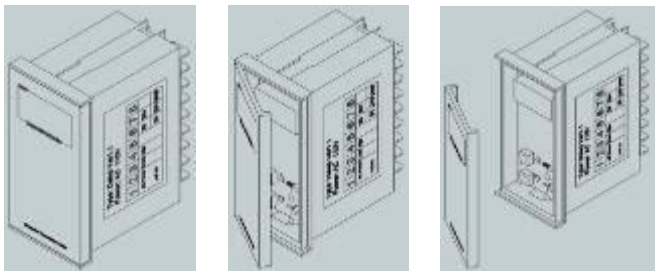
If dewpoint monitor shows the alarm above, please first check whether the parameters are the same as listed in the Table 3-1, if different, you need to change the parameters are consistent with the Table 3-1. How to set the parameters? (Reference 3.6)

If the parameter is no exception, you need to make sure the line is connected properly. How to check the line? (Reference to 3.4)

## 3.6 Dewpoint Monitor Parameter Settings

### 3.6.1 Remove Dewpoint Monitor Lid

Dewpoint monitor lid connect with body through hidden discount. When the lid is removed, just pull the side of lid to the outside, you can remove the lid.



Pic 3-3 Remove Dewpoint monitor lid

### 3.6.2 How to Set Parameters

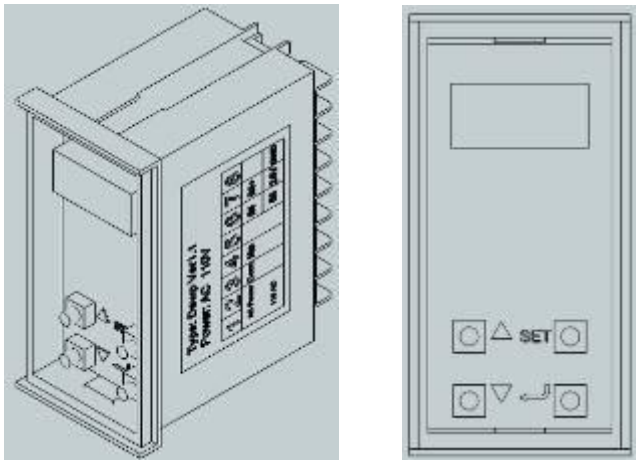
After opening the lid, you can see four buttons, which are up, down, set and enter key.

Press the up and down keys for 5 seconds, you can enter the dewpoint monitor parameter setting interface.

Use the up and down keys to change parameters.

Use the enter key to view and save parameters.

Use the set key to return to the first layer parameters.




Pic 3-4 Dewpoint monitor buttons distribution

Dewpoint monitor factory parameters value

List 3-1 Dewpoint monitor factory parameters value

| No. | parameters | set value | Meaning of the parameters |
|---|---|---|---|
| 1 | F-01 | 30 | Average filter value |
| 2 | F-02 | 5 | Sampling time |
| 3 | F-03 | ℃ | Unit selection |
| 4 | F-04 | -5 | Offset compensation |
| 5 | F-05 | 20 | 20mA input value |
| 6 | F-06 | -60 | 4mA input value |
| 7 | F-07 | -10 | Maximum display |
| 8 | F-08 | -45 | Minimum display |

Catalog:

# 4. Temperature Controller TU-01

## 4.1 Applicable Models

SHD-U

SDL-U

SD-H

SCD

SDD

## 4.2 Products Information

Temperature controller TU-01 is manufactured by Cosmosonics, Thermocouples are manufactured by SHINI.(For our products after 2013)

## 4.3 Working Principle

Working principle of thermocouples:

Two different conductors(named thermocouple wire and hot electrode) are connected to the circuit, when the temperature is not same at engagement point, an electromotive force is generated in the circuit, which is called thermoelectric effects, and the electromotive force is called thermoelectric force. Thermocouple measure temperature through the principle, among them, direct used to measure medium temperature end is called working end(also called measuring end), the other end is called cold end(also called compensating end);cold end connects with monitor and associated instruments.

Working principle of microcomputer board:

The temperature signal which are measured by thermocouple transforms into analog signal, transfers to a microcomputer chip through input circuit, after the process, into a digital signal, the executive module is controlled by the output circuit to obtain accurate temperature control performance.

## 4.4 Alarm Exclusion

### 4.4.1 E-01/Temperature Line Breaking Alarm E-01

When the alarm occurs, corresponding thermocouple wire breaking alarm indicator of control panel lights, LED digital display area shows the fault code.

After the alarm occurs, you need to check whether temperature line is disconnected first, if not the controller can be judged abnormal.

### 4.4.2 Anti-phase Alarm E-02

The machines are designed to be with anti-phase protector in the factory in order to ensure it can work well. When the alarm occurs, corresponding anti-phase alarm indicator lights, LED digital display area shows the fault code.

The alarm indicates the fault has two possible reasons: power anti-phase and lack-phase.

In general, you can eliminate the anti-phase fault through exchanging any two main power cord of three-phase source. You can't eliminate the anti-phase fault through changing three-phase source phase sequence of anti-phase protector. Because the latter simply exclude alarm, but the actual direction of rotation of each blower inside the machine has not changed, it will lead to machine's abnormal work.

If alarm is not excluded after changing three-phase source, you need to use multimeter to check source lack-phase and find reason to solve it.

### 4.4.3 Input Overload Alarm E-03

When the alarm occurs, corresponding overload alarm indicator of control panel lights, LED digital display area shows the fault code.

The alarm indicates current of blower inside the machine is excessive which leads to overload.

The fault is usually caused by following areas problem:

Thermal overload relay setting value is too small. Check the thermal overload relay setting, confirm its value is reasonable.

Blower is lack-phase running. Blower source lack-phase, causing current loaded on a phase too large, thus lead to blower overload. You need to check whether the electromagnetic contactor is working properly and electromagnetic contactor inputs to output three-phase current is balance. In the case you usually need to replace electromagnetic contactor.

Internal mechanical fault of blower. The case generally caused by motor bearing of blower damage lead to motor get stuck, the motor current would exceed the rated current in a short time. The other case, there are large and hard debris enter the inside of the blower, lead stuck between the fan and the casing, resulting in motor stall, causing an overload fault. In the case you need to replace blower bearing or clean up debris inside the blower.

Blower air inlet filter is clogged serious. Seriously clogged filter will result in reduced air flow into the high-pressure blower, the corresponding increase in its

load, resulting in fan overload. In the case, you only need clean the filter to eliminate the fault.

When check the fault, you must pay attention may there be a number of motors' overload signals are connected to a overload signal input, so you need to check the operating state of each motor.

### 4.4.4 Actual temperature exceeds EGO setpoint—Over heat alarm E-04

When the alarm occurs, corresponding alarm indicator of control panel lights, LED digital display area shows the fault code.

The alarm indicates temperature control system broke down, causing the heat system run abnormally.

According to the following steps to eliminate fault:

Check whether the contactor is working properly. In non-energized case, check the electromagnetic contactor moving contact parts are normal action, if action is not available, it is recognized contactor damage, if you can operate normally, you need to energize the machine, when the actual temperature reaches the setpoint, observe whether contactor movable contact is separate from stationary contact, if separated the contactor is working properly, if there is no separation, can be confirmed contactor is working properly by measuring contactor contact voltage, if electromagnetic contactor contact is still measured the same voltage and control voltage when actual temperature reaches the setpoint, you can confirm the microcomputer fault, if not, you can confirm the mechanical part of contactor fault.

Check whether EGO settings are appropriate. EGO setpoint has been adjusted well when the factory. In general, EGO setpoint is 20℃ higher than the maximum temperature which can be set. If the setpoint of EGO is changed, leading to setpoint is less than the heating temperature requirements, it will trigger this alarm. You just need to reset the EGO in the case.

Check whether blower is working properly. As actual temperature is measured by measuring air temperature, thermocouple will measure a stable low temperature value if the blower is not running, lead to temperature controller has an output signal to heating pipe to heat all the time, resulting in over-temperature alarm.

Confirm microcomputer panel internal parameters are correct. Microcomputer panel internal save the PID parameters for controlling temperature heat method, if the parameters are not correct, will cause heating system heat abnormally.

### 4.4.5 Actual temperature exceeds the maximum temperature—Over heat alarm E-05

When the alarm occurs, corresponding alarm indicator of control panel lights, LED digital display area shows the fault code.

When the factory, the maximum temperature protection value is set to 230℃, the value corresponds to the parameter F-18.

When the alarm occurs, you can confirm that the first layer of over-temperature protection (EGO) disabled, the fault can be resolved in accordance with the E-04 alarm elimination methods.

### 4.4.6 Actual temperature is higher than the sum of set temperature and alarm temperature—Over-temperature alarm E-07

When the alarm occurs, corresponding alarm indicator of control panel lights, LED digital display area shows the fault code.

When the factory, the temperature protection value is set to 15℃, the value corresponds to the parameter F-05.

The significance of the protection is real-time temperature protection, the protection temperature is a relative value (relative to set temperature), for example, the current set temperature is 100℃, protection temperature is 15℃, the alarm occurs when the actual temperature is higher than 135℃.

According to the following steps to eliminate fault:

Check whether the contactor is working properly. In non-energized case, check the electromagnetic contactor moving contact parts are normal action, if action is not available, it is recognized contactor damage, if you can operate normally, you need to energize the machine, when the actual temperature reaches the setpoint, observe whether contactor movable contact is separate from stationary contact, if separated the contactor is working properly, if there is no separation, can be confirmed contactor is working properly by measuring contactor contact voltage, if electromagnetic contactor contact is still measured the same voltage and control voltage when actual temperature reaches the setpoint, you can confirm the microcomputer fault, if not, you can confirm the mechanical part of contactor fault.

Check whether blower is working properly. As actual temperature is measured by measuring air temperature, thermocouple will measure a stable low temperature value if the blower is not running, lead to temperature controller has an output signal to heating pipe to heat all the time, resulting in over-temperature alarm.

Confirm microcomputer panel internal parameters are correct. Microcomputer panel internal save the PID parameters for controlling temperature heat method, if the parameters are not correct, will cause heating system heat abnormally. To

Catalog:

learn how to set the default parameter, please refer to corresponding manual.

### 4.4.7 Memory Error E-08

When the alarm occurs, corresponding alarm indicator of control panel lights, LED digital display area shows the fault code.

Try restarting to eliminate the fault, if you can not eliminate it, you need to replace the controller.

### 4.4.8 Honeycomb-rotor Fault Alarm

When the alarm occurs, corresponding alarm indicator of control panel lights, LED digital display area shows the fault code.

The fault indicates the rotating section or detection section is abnormal when the honeycomb rotation.

### 4.4.9 Actual temperature exceeds EGO setpoint—Over-temperature alarm E-10

E-04 and E-10 are the same alarm mechanism, but their tasks are different. They monitor drying and heating regeneration process respectively. When the alarm occurs, corresponding alarm indicator of control panel lights, LED digital display area shows the fault code.

Please refer to 4.4.4.

### 4.4.10 Thermocouple Polarity False Alarm E-11

When the alarm occurs, corresponding alarm indicator of control panel lights, LED digital display area shows the fault code.

In the controller above marked with thermocouple correct polarity, if positive and negative pole is wrong, the fault occurs. You can adjust the polarity of the thermocouple access to exclude alarm.

### 4.4.11 PID Self-tuning Wrong E-12

When the alarm occurs, corresponding alarm indicator of control panel lights, LED digital display area shows the fault code.

The alarm does not occur when working properly. Only when the PID self-tuning function is activated, unpredictable problems occur in the auto-tuning process, will cause the fault. Now you can reboot and start PID auto-tuning, or manually enter the PID parameters to exclude fault.

Catalog:

# 5. Honeycomb-rotor Maintenance

## 5.1 Applicable Models

SD-H

SCD

SDD

SMD

## 5.2 Products Information

Currently used honeycombs are produced by SAT company, raw materials are produced by Sweden proflute company.

## 5.3 Working Principle

In dehumidification process, honeycomb-rotor is divided into dehumidifying zone, regeneration zone and cooling zone, in order to ensure that work is a continuous dehumidification process. When the wet air to be treated into the dehumidifying zone of rotor, water molecules in the air are absorbed by the hygroscopic material inside the rotor, and dehumidifying zone of rotor is saturated because of absorbing some water. Now, wet air changes into low dewpoint dry air because of moisture reduction, and dry air is sent out through drying blower. In the same time, another air changes into high temperature air (generally 150℃) in regeneration zone and crosses over the rotor, absorbed moisture is evaporated in rotor, thus recovers dehumidifying ability of rotor. Wet air is sent out through regeneration blower after generation air changes into wet air because of absorbing moisture of rotor.

Honeycomb-rotor includes rotor body, rotor fixed mount, honeycomb upper and lower lids, seals, center bearing, gears (chainwheels and belt pulley), sensor, motor and so on. Honeycomb-rotor body consists of nextel-made and organo-additive-made ceramic honeycomb, molecular sieve and silica as the basic material is sintered at high temperature, make it surface hard and strongly adsorbed to honeycomb interior, the inner surface of the ceramic fiber evenly distributed many small holes, this greatly increases the area of contact with the air, improve the moisture absorption efficiency of the rotor, the moisture absorption capacity increases.

## 5.4 Honeycomb-rotor Maintenance

The honeycomb-rotor body consists of nextel, it has not falling, no powdered, not aging characteristics, so using honeycomb-rotor avoid the disadvantage due to powder blow into the work area to be dried with dry wind after aging and cause the secondary pollution. Long life honeycomb-rotor, can be cleaned repeatedly, easy

maintenance and repair; however, due to the long-term repeated adsorption, recycling, honeycomb-rotor zeolite and silica deterioration phenomenon still exists.

Pic 5-1 Honeycomb-rotor

### 5.4.1 Daily Maintenance

Usually using honeycomb dehumidifier will also be required to note the following:

Using compressed air to blow dust in rotor inner channel once a week, in bad air quality cases, if the effect of dehumidified air and expectation has large difference, you need to use compressed air to blow dust in rotor inner channel too.

Dehumidifier outlet must not have obstacles blocking, the filter should be cleaned.

Dehumidifier should be placed on a flat surface in order to avoid the machine placed unsteadily when work.

Coolers should be cleaned regularly and kept clean.

Must not dig rotor with thin sticks, iron wire and so on, in order to avoid fault and danger

Regularly check the honeycomb-rotor motors, sensors, speed adjuster, adjuster pulley, belt tensioner, sprocket gear transmission parts and other components are in proper working condition.

Regularly check and replace the seals.

Ensure that the various parts of the rotor firmly to avoid loosening.

### 5.4.2 Honeycomb-rotor Cleaning Method

Cleaning methods and steps are as follows:

When not using regeneration dry, blowing air humidity exceeds 60%RH to make the rotor moisture saturation. If the air humidity below standard, you can close regeneration electric heating, keep dry blower and drive motor continuous operation, to make rotor moisture saturation effect. If the air is too dry, try using humidistat to increase humidity, the step requires 1 hour.

Catalog:

According to the stain composition, the rotor is immersed in water or solvent, for example xylene. If the grease dirt, the rotor can be placed in the detergent PH value of less than 7. PH value is too high will destroy silicone, shaking up and down the rotor to clean the dirt for about four hours.

Remove the rotor from the solvent and placed vertically for five minutes so that the outflow of inner solvent.

Use compressed air to blow out residual solvent in the pipe, soaked with water for 1 hour, then dry naturally for 12 hours.

Replace the rotor to machine, and running regeneration action (temperature of 150℃) for at least 1 hour.

You must pay attention to the smell of the air will remain for some time if use solvent cleaning. Some thin grease and other viscous dirt, is almost impossible to clean, it must be replaced honeycomb. After cleaning the honeycomb, some dehumidification effect will recover as ever, but usually the effect will be weakened.

Honeycomb-rotor absorption efficiency can be maintained for a long time in the case of good maintenance, but in order to you can still play a SD-H full function after a few years, in permitting the replacement of Honeycomb effect is optimal.

## 5.5 Honeycomb-rotor Deterioration Phenomenon

Because of repeated adsorption and regeneration of adsorbent molecular sieve and silicone, the phenomenon which adsorption capacity of the adsorbent gradually drop is called adsorbent deterioration phenomenon.

Adsorbent deterioration phenomenon is mainly caused by hysteresis and adsorbent regeneration.

Adsorbent thin tube holes and pore shape is complex, solid adsorbed humidification is complex, sometimes chemical reaction, makes some adsorbed material remain in absorbent after regeneration and gradual accumulation with the increase in the number of cycles, these residues will cover the surface of the adsorbent, resulting in decreasing the adsorption capacity.

When adsorbent regenerate, such as a heated regeneration, the adsorbent would be the semi-molten state at high temperature, so that part of the pore blockage or disappear, causing reduction of adsorption surface area.

Chemical reaction will destroy the adsorbent pores crystals such as dilute acid or alkali gases will cause silica and zeolites crystalline and amorphous material damage.

# 6. 24hr timer（Panasonic 24Hr A-TB-72-D 230V/50HZ/60HZ）

## 6.1 Applicable Models

SHD-XX-T

SDL-XX-T

CD

## 6.2 Timing Setting

1. Under the premise that all switches are open, open the timer setting switch  .
2. Remove the outer transparent cover of timer, turn the timer upper left corner of the small gray switch to Auto state. Turn the upper right corner of voltage frequency to the voltage frequency which user is currently using.
3. Set the current time. As shown in following figure, set the current time in the middle of the timer "TIME SET DIAL" knob by clockwise rotation. By the white circle in the middle of a 12-hour dial, dial on the outer circle is 24-hour format, please note the distinction. As shown, the current time is set for 4:30.


Pic 6-1

4. Set the required drying time. The timer outer tooth is pressed, the pressure range is from the beginning to the end of the drying time range. As shown in above figure, the machine began to work at 8:00 until 16:00, the machine stops, and every day cycle.

# 7. Temperature-controlled Meter SHINI(0-199℃)

## 7.1 Applicable Models

SHD

SDL

## 7.2 Products Information

The temperature-controlled meter for the ARICO production deviations temperature-controlled meter, temperature range is 0~199℃.

## 7.3 Panel Description


Pic 7-1

As shown above each figure:

1. Temperature difference display area. For displaying the difference between the actual temperature and the set temperature; if the actual temperature is lower than the set temperature, the pointer to the left (negative direction) deflect, and on the contrary to the right (positive direction) deflect.
2. Temperature setting area. Setting values range is 0~199℃.
3. Over-temperature alarm values setting knob. When actual temperature ≥ setting temperature + alarm values, there is a alarm output, factory setting is 15℃.

Temperature control panel lights instruction follows

ON/OFF: ON state is bright green, OFF state is bright red;

AL: Lights indicates over-temperature alarm output;

TC B: Lights indicates thermocouple break.

# 8. Cleaning Coolers

## 8.1 Applicable Models

SD-H

SDD

SCD

## 8.2 Cleaning Steps

Pic 8-1

1. Remove the cooler pipe and screws between the cooler and the main machine, take the cooler out of machine body;
2. Loosen the screws of cooler above and below cover plate, remove the above and below cover plate;
3. Remove dust and debris on the cooler fins and brass with brush, high-pressure air gun and low-pressure water, note dry the water on the fins and brass with high-pressure air gun after water cleaning.
4. Paint the cooler junction of above and below cover plate with silicone after clean, then lock the above and below cover plate with screws;
5. Place cooler in a cool and dry place for 4 hours, until the silicone dry, replace the cooler and connect the machine to pipe.

Catalog:

# 9. Dewpoint Temperature Exceeds

## 9.1 Applicable Models

SD-H/SDD/SCD

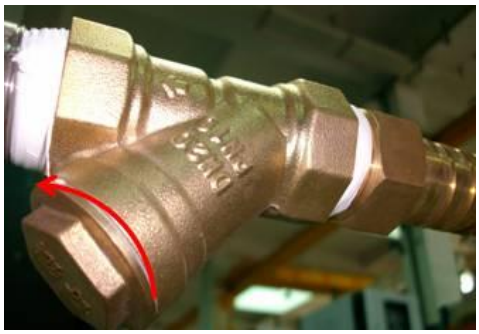
## 9.2 Summary

SD-H,SDD and SCD models, which provide dehumidified air dewpoint temperature is -40℃, the purpose is to achieve a better drying effect, but the dewpoint is higher than -40℃ for some reason when use.

## 9.3 Causes and Solutions

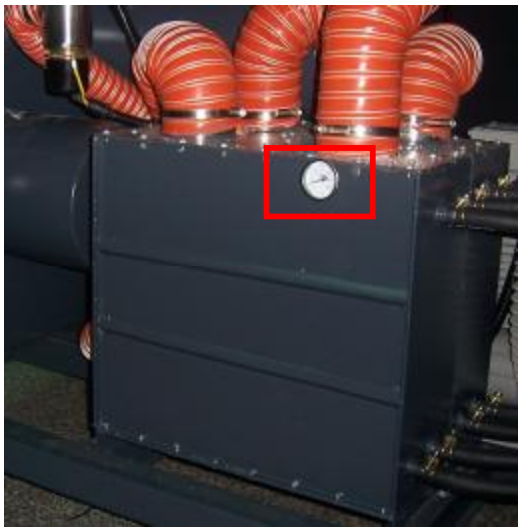
### 9.3.1 Return air temperature is too high

Check whether Y-type valve behind the machine is blocked, loosen the nut as the direction shown by the arrow, clean the debris inside the valve if blockage serious, ensure that cooling water can into the cooler smoothly.



Pic 9-1

View the thermometer value on cooler, if it is higher than 35 ℃, the cooler must be connected to a lower temperature cooling water;



Pic 9-2

### 9.3.2 Regeneration temperature is set incorrectly

If the honeycomb material is silicone, the regeneration temperature is set to 150 ℃; If honeycomb material is molecular sieve, regeneration temperature should be set to 180℃.


Pic 9-3

### 9.3.3 Honeycomb-rotor Blocking

Remove the honeycomb, take honey comb toward the light source, check the light transmission of upper and lower ends. Normally, holes on the honeycomb end have a good light transmission, light can penetrate two ends. If blocking, please clean it according to the book 5.4.2.


Pic 9-4

### 9.3.4 Filter Blocking

Based on actual usage, regular cleaning filters:

Remove the filter;

Use compressed air to clean the lid and filter;

Use a rag to air filter barrel wall;

After cleaning, install filter in reverse order.



Pic 9-5

## 9.3.5 Drying capacity insufficient

When insufficient dehumidification capacity of the machine, the dewpoint will be high, you need to replace a larger dehumidifier; you can calculate to test whether machine dehumidification capacity is inadequate according to the following formula:

Barrel volume (L)= Plastic consumption (kg/hr) X Drying time (hr) X 1.2 ÷ Plastic bulk density (kg/L)

Dehumidified air volume ($m^3$/hr)= Plastic consumption (kg/hr) X Drying air volume of plastic($m^3$/kg.hr)

Note: Barrel volume and dehumidified air volume of machine must match the above two conditions at the same time.

9-1 Raw material parameter table

| Raw material | Drying Temp (℃) | Bulk Density (kg/L) | Drying time (hr) | Drying air volume ($Nm^3$/kg-hr) | Specific heat (kcal/kg-℃) |
|---|---|---|---|---|---|
| ABS | 80 | 0.6 | 2~3 | 1.8~2.4 | 0.34 |
| CA | 75 | 0.5 | 2~3 | 2.5~3.5 | 0.5 |
| CAB | 75 | 0.5 | 2~3 | 3.0~3.5 | 0.5 |
| CP | 75 | 0.6 | 2~3 | 2.9~3.5 | 0.6 |
| LCP | 150 | 0.6 | 4 | 1.8 | 0.6 |
| PA | 70~80 | 0.65 | 3~6 | 2.4~3.0 | 0.4 |
| PBT | 120~140 | 0.7 | 4 | 1.8~2.4 | 0.5 |
| PC | 120 | 0.7 | 2~3 | 1.8 | 0.28 |
| PE | 90 | 0.6 | 1 | 1.8~2.4 | 0.55 |
| PEEK | 150 | 0.6 | 3~4 | 1.8 | |
| PEI | 150 | 0.6 | 3~4 | 1.8 | 0.6 |
| PEN | 170 | 0.85 | 5 | 2.4 ~3.5 | 0.85 |
| PES | 150~180 | 0.7 | 4 | 1.56~2.4 | 0.7 |
| PET | 160~180 | 0.85 | 4~6 | 2.4~3.5 | 0.5 |
| PETG | 60~70 | 0.6 | 4~6 | 2.4 | 0.6 |
| PI | 120~140 | 0.6 | 3 | 1.5~1.8 | 0.27 |
| PMMA | 70~100 | 0.65 | 3 | 2.0 ~2.4 | 0.65 |
| POM | 95~110 | 0.6 | 3 | 1.7~2.4 | 0.35 |
| PP | 90 | 0.5 | 1 | 1.8 ~2.4 | 0.46 |
| PPO | 110~125 | 0.5 | 2 | 1.8~2.1 | 0.4 |
| PPS | 140~150 | 0.6 | 3~4 | 1.8 | 0.6 |
| PS | 80 | 0.5 | 1 | 1.5~1.8 | 0.28 |
| PSU | 120~170 | 0.65 | 4 | 1.8~2.0 | 0.31 |
| PUR | 80~90 | 0.7 | 3 | 2.5~2.8 | |
| PVC | 70 | 0.5 | 1 | 1.7~2.1 | 0.2 |
| SAN | 80 | 0.5 | 2~3 | 1.7~2.1 | 0.32 |
| SB | 80 | 0.6 | 2 | 1.7~2.1 | |

Catalog:

| | | | | | |
|---|---|---|---|---|---|
| PE | 105 | 0.7 | 3 | 2.9 | 0.7 |

Note:

1、Drying air volume has considered equipment air volume margin:

2、The above data is only for reference when equipment select, in practical application, please refer to the parameter which is provided by raw material suppliers.

### 9.3.6 Heat duct leak

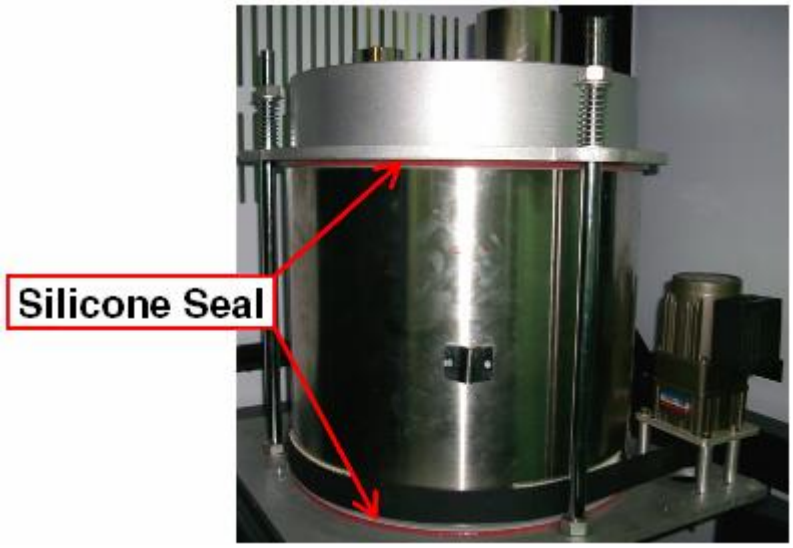
Check and eliminate leak points of the heat duct and joints.

### 9.3.7 Start-up time is too short

View dewpoint temperature after an hour.

### 9.3.8 Honeycomb upper and lower lid leak

Hand to feel if honeycomb upper and lower lid silicone seal around the obvious leak, if so, you need to replace the silicone seals.




Pic 9-6

Catalog:

# 10. Capacitive Proximity Switch Adjustment

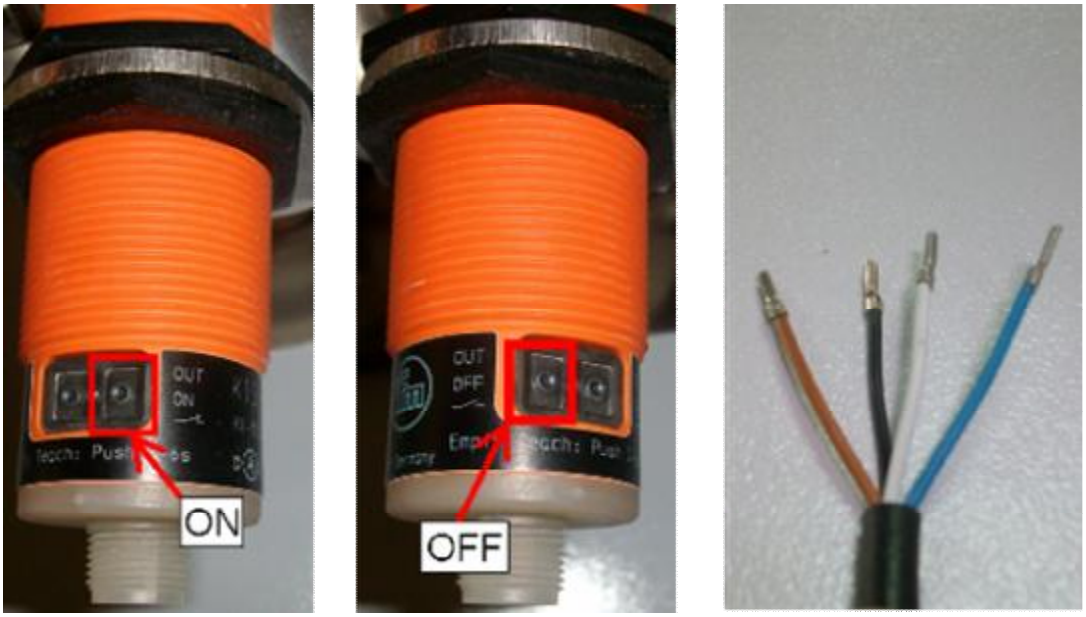
## 10.1 Products Information

Our company is currently using proximity switches are IFM brand, there are two models: KI5082-BVKG, KI0020-BBOA; KI5082-BVKG is mainly used for SGB, and KI0020-BBOA is mainly used for VL.

## 10.2 Working Principle

Capacitance becomes larger because of the smaller distance between object and probe after object close to probe, it changes the internal circuit state.

## 10.3 KI5082-BVKG Adjustment




Pic 10-1

1. When material position is below the proximity switch, check whether the proximity switch tail lights, normally the light is off, if it is on, indicating that the sensor is not adjusted correctly, then press OFF button for 6 seconds to complete adjustment.

2. When material position is above the proximity switch, check whether the proximity switch tail lights, normally the light is on, if it is off, indicating that the sensor is not adjusted correctly, the press ON button for 6 seconds to complete adjustment.

3. If the above-mentioned state can not be adjusted, please check whether the wire is connected securely, or replace with a new proximity switch.(note: black wire—signal wire; white wire—no connection; blue wire—connect to 24V-; brown wire—24V+)

4. The gap between the proximity switch and the barrel wall should be adjusted in 3 ~ 6mm, no more than 8mm.

## 10.4 KI0020-BBOA adjustment


Pic 10-2

1. When material position is below the proximity switch, check whether the proximity switch tail LED lights, normally the LED is ON.
2. When material position is above the proximity switch, check whether the proximity switch tail LED lights, normally the LED is OFF.
3. Adjusting the yellow button behind it to adjust the sensitivity of sensor, the maximum adjustable range is about 15mm.
4. Wiring connection: Acceptable power supply of sensor is 20~250VAC/DC, if power supply is DC, it is needed to follow below method, blue wire—connect to V-, brown wire—connect to V+)
5. The gap between the proximity switch and the barrel wall should be adjusted in 3 ~ 6mm, no more than 8mm.

# 11. SCR Crystallization and Unloading Abnormal


Pic 11-1

1-air inlet temperature-controlled meter

2-air outlet temperature-controlled meter

3-crystallization actual temperature

4-crystallization set temperature

5-mode 6-menu 7-up 8-down

1. set air inlet temperature-controlled meter
   After energize controller, air inlet temperature is set to 160℃ through button 7 and 8.

2. set air outlet temperature-controlled meter

   a) Set alarm 1 type(ALT1) and alarm 2 type(ALT2) : Controller enters the run menu after energize, press button 6 for at least 3 seconds, controller enter initial menu, press button 5 to switch to ALT1 and ALT2, ALT1 and ALT2 value are both set to 2(alarm type is upper limit alarm), press button 6 for at least 1 seconds to return run menu.

   b) set alarm 1 value(AL1) and alarm 2 value(AL2) : In run menu, press button 5 to switch to AL-1, set the value to 0; press button 5 to switch to AL-2, set the value to -22, press button 6 for at least 1 seconds to return run menu.

c) Set air outlet temperature: In run menu, set air outlet temperature to 93℃ through button 7 and button 8, If air outlet temperature of crystallization barrel reach 93℃, automatically output crystalline material.

Catalog:

# 12. AC Contactor

## 12.1 Working Principle

AC contactor is an intermediate control element, the advantage is frequently turned on and off line, a small current to control a large current. When the contact is energized, generating electromagnetic force overcome the reaction force of spring, lead contact contacts to switch on the main circuit. When the contact power is cut off, the reaction force of spring make contact separation to cut off main circuit.

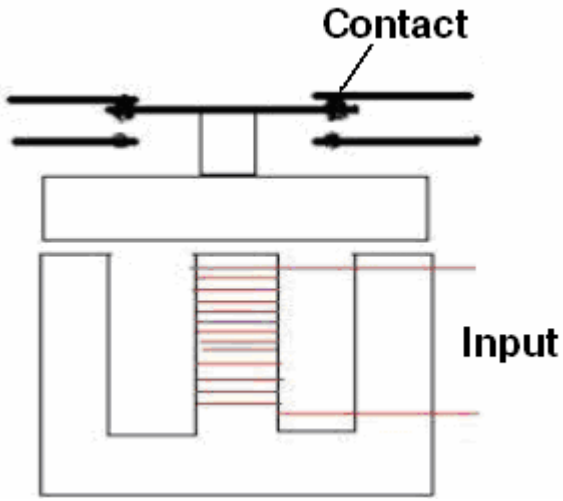
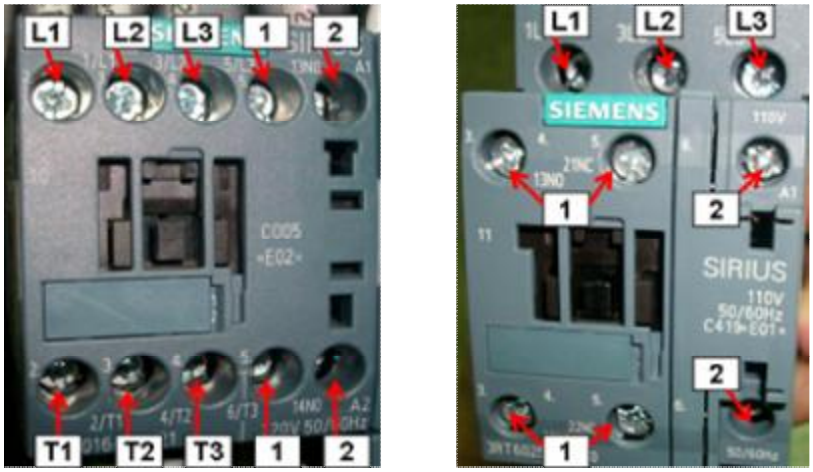



图 12-1

## 12.2 Check for Damage




Pic 12-2

L1、L2、L3-Power fire wire　　1-Auxiliary contact

2-Contact of voltage input

1. Check the resistance between L1 and T1, L2 and T2, L3 and T3 through multimeter before energized, the resistance should be infinite because the contactor is in a off state; if resistance value is 0, indicating that a short circuit in the contactor, the contactor needs to be replaced.

2. Energize point 2 according to the voltage labeling requirements in contactor:

   a) The contactor is actuation state , if not indicating that internal contact damage, need to replace contactor.

   b) After contactor actuates, check T1, T2 and T3 voltage between any two through multimeter, normally should be equal to the voltage L1, L2 and L3 between any two.

3. There are auxiliary contacts in some contactor to play the role of logical control and circuit interlock. Auxiliary contacts marked as “NO” means normally open, auxiliary contacts marked as “NC” means normally close.

   You can check the auxiliary contacts through measuring the resistance between two points:
   After contactor actuates, resistance value is 0 between two points of auxiliary contacts marked as “NO”, resistance is infinite between two points of auxiliary contacts marked as “NC”, and vice versa.

Catalog:

# 13. Check Microswitch

## 13.1 Products Information

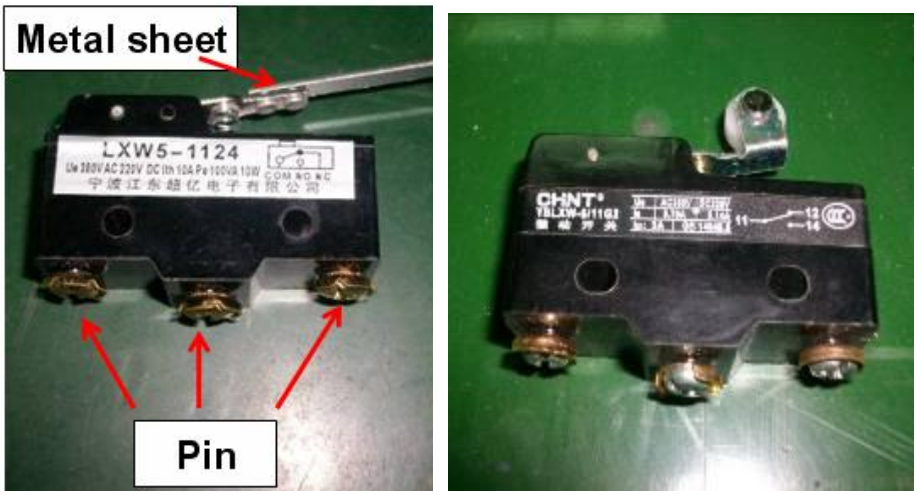
There are two types of microswitch our company is currently using, models are: J LXW5-1124 and CHNT YBLXW-5/11G2.

## 13.2 Applicable Models

LXW5-1124 fit for: STM、SD-H、SDD、SCD。

CHNT YBLXW-5/11G2 fit for: SAL、SMH。

## 13.3 Check for Damage




Pic 13-1

1. Microswitch has three wiring pins which corresponding “COM” “NO” and “NC” ports, among them, “COM” is common port, “NO” is normally open port, “NC” is normally close port.

2. Use a multimeter to measure the resistance between “COM” pin and “NO” pin, normally resistance is infinite, if it is 0, indicating microswitch is broken and need to replace a new one; the resistance should be 0 when press metal sheet, if it is infinite, indicating microswitch is broken and need to replace a new one.

3. Use a multimeter to measure the resistance between “COM” and “NC” pin, normally the resistance is 0, if it is infinite, indicating microswitch is broken and need to replace a new one; resistance should be infinite when press sheetmetal, if it is 0, indicating microswitch is broken and need to replace a new one.

Catalog:

# 14. Check Magic Eye Switch

## 14.1 Products Information

Our company is currently using T18-3MNB-PE (FOTEK) magic eye switch.

## 14.2 Applicable Models

SVH、SHR-U-E（S）

## 14.3 Check for Damage

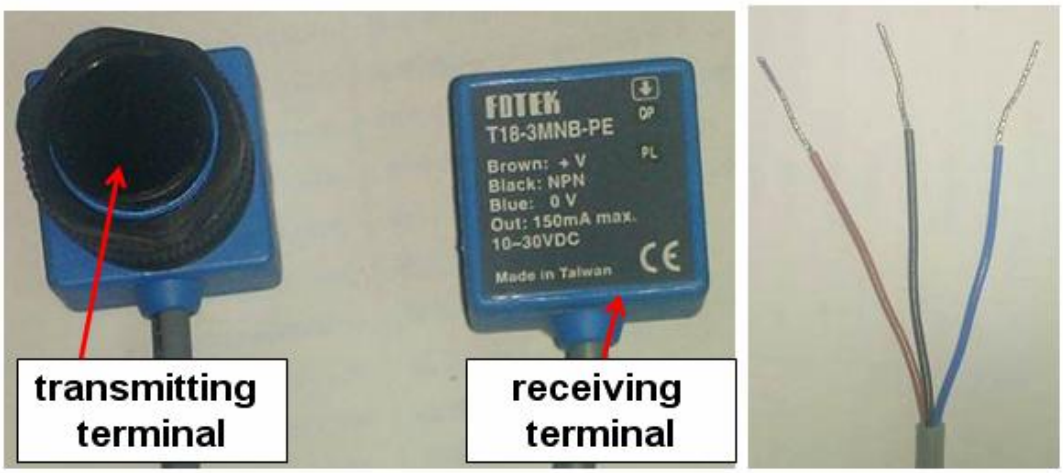



图 14-1

1. DC power (10~30V) is turned on between brown line and blue line, the brown one is positive electrode, the blue one is negative electrode, the black one is output.
2. Make sure the infrared transmitter and receiver of magic eye switch are aligned, measure the resistance between black line and blue line through multimeter.
3. When no foreign body between transmitter and receiver cut off infrared, the resistance should be 0, if it is infinite, indicating magic eye switch has been damaged and need to replace a new one.
4. When foreign body between transmitter and receiver cut off infrared, the resistance should be infinite, if it is 0, indicating magic eye switch has been damaged and need to replace a new one.

# 15. Check Magnetic Reed Switch

## 15.1 Products Information

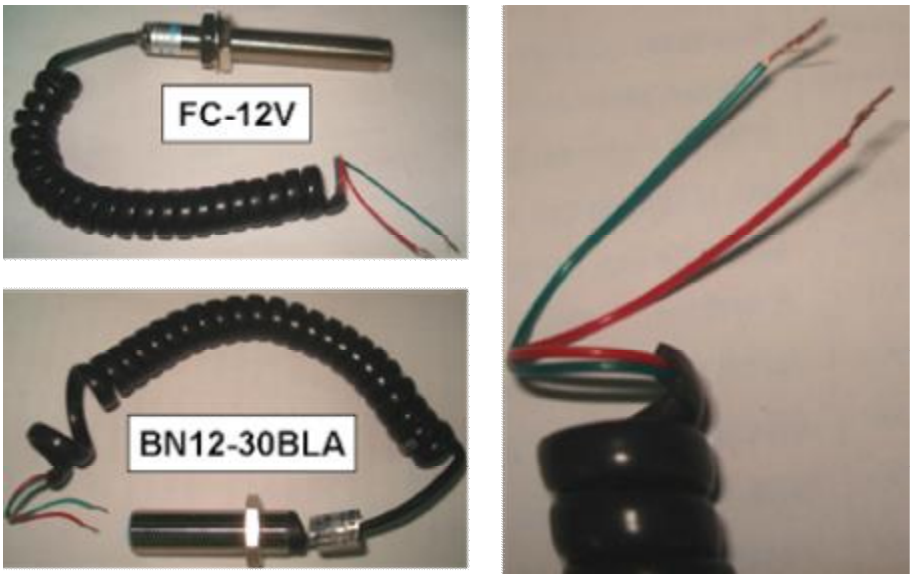
There are two types of magnetic reed switch our company is currently using, models are FC-12V (FOTEK）and BN12-30BLA (SONON).

## 15.2 Applicable Models

BN12-30BLA (SONON) applicable models: SAL-1U、SHR-3U、SSM-U.

FC-12V (FOTEK）applicable models: Europeanize hopper series except SAL-1U and SHR-3U.

## 15.3 Check for Damage




Pic 15-1

1. Use multimeter to measure the resistance between red line and green line, normally the magnetic reed switch is “NC” status, so the resistance between two lines is 0, if it is infinite, you need to replace a new one.

2. Take a magnet close to the magnetic reed switch probe, use multimeter to measure the resistance between red line and green line, the resistance between two lines should be infinite, if it is 0, you need to replace a new one.

Catalog:

# 16. Replace Carbon Brush

## 16.1 Products Information

There are three types of brush motor our company is currently using, supplier is AMETEK, and models are 119625-00, 119656-00 and 122255-00.

## 16.2 Applicable Models

119625-00 fit for: SAL-700G。

119656-00 fit for: SAL-3U/6U/12U。

122255-00 fit for: SAL-1U。

## 16.3 Replace Carbon Brush

### 16.3.1 Brush Motor 119625-00

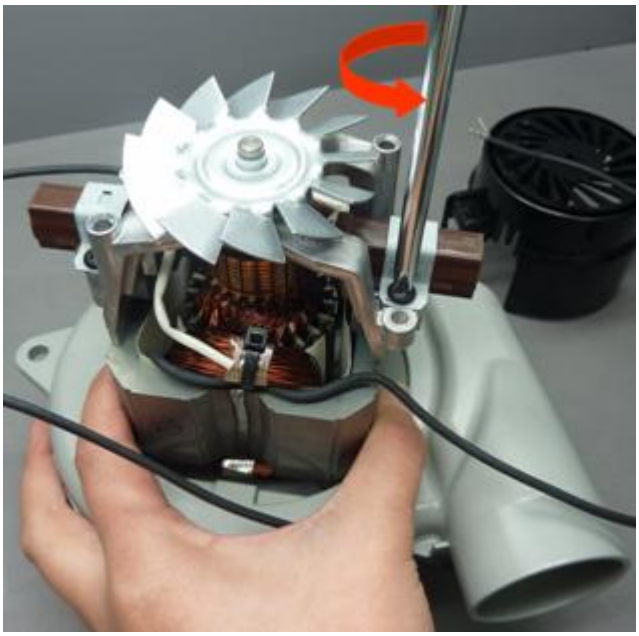
1. Remember to unplug the power to ensure that the motor is insulated.
2. The flathead screwdriver inserted into the reed slot, screwdriver force in the direction of the arrow to release the reed.

Pic 16-1

3. Motor protection cover is fixed to the four fixed buckle, use a screwdriver to pry open the sides of the fixed deduction, (Be careful not to overexert prevent deformation fracture upside down), then remove the protective cover up. As shown in the figure below.

Pic 16-2

4. After removing the protective cover, as shown below, loosen the screws, remove the carbon brush plate.

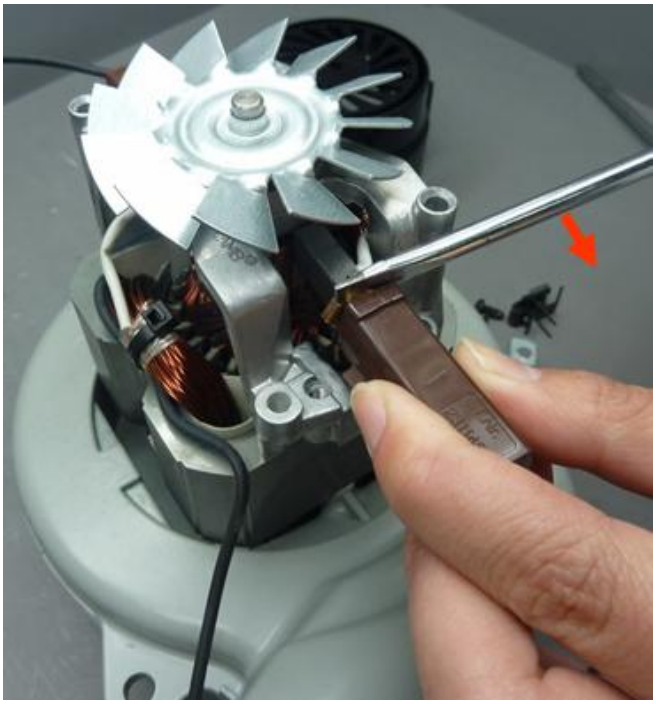


Pic 16-3

5. As shown, use a screwdriver to pry the insert some gaps.

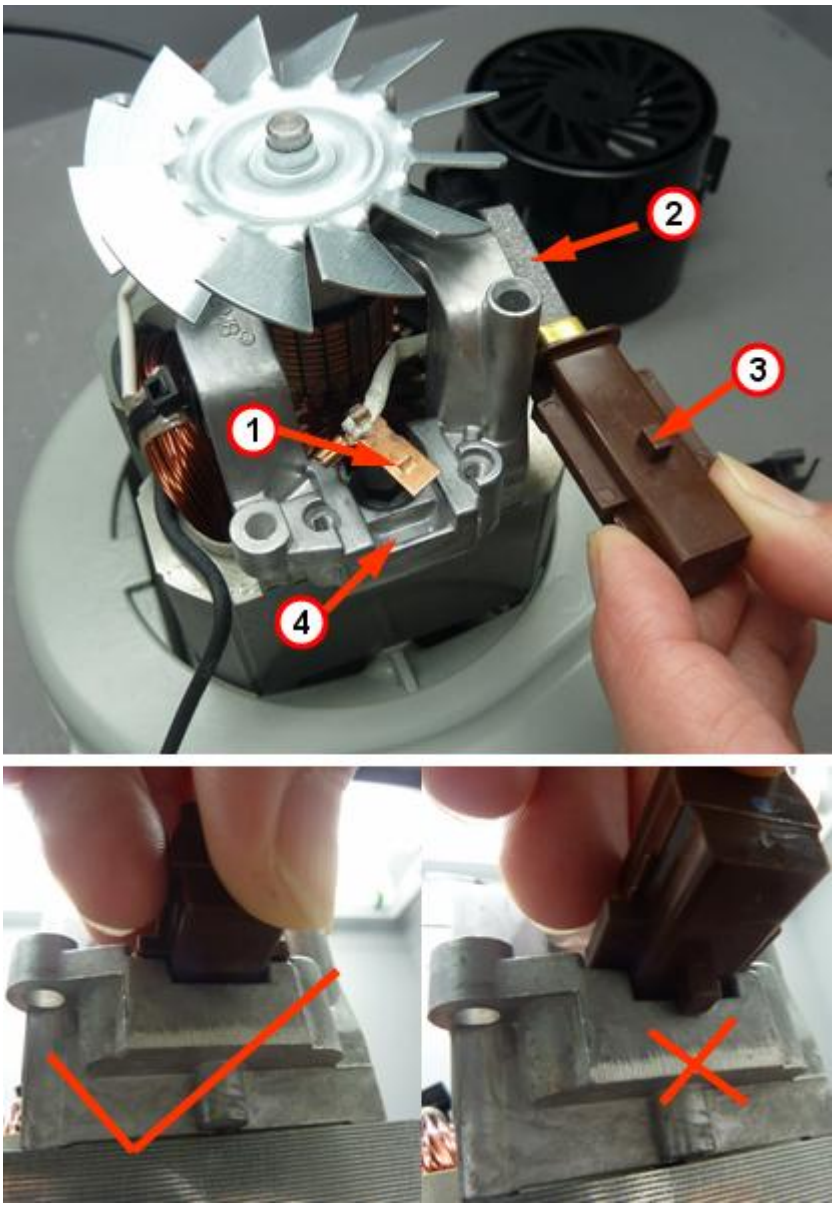
Pic 16-4

6. Use a screwdriver to block the gaps which is pried, screwdriver rotate in the direction of the arrow, Loosen the inserts.



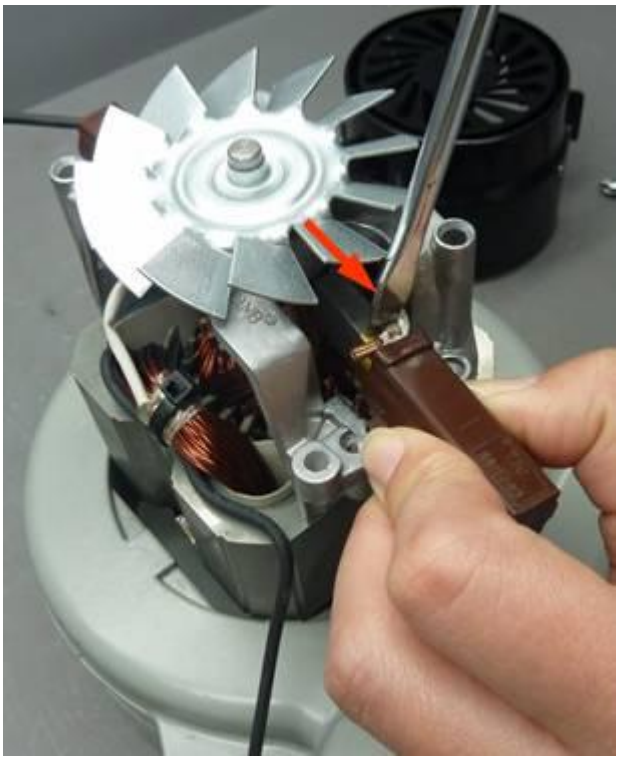
Pic 16-5

7. Loosen the inserts (Arrow 1 in figure), remove the carbon brush (Arrow 2 in figure), and replace a new one. Note the small bump (Arrow 3) in the bottom of brush must block bracket recess (Arrow 4).



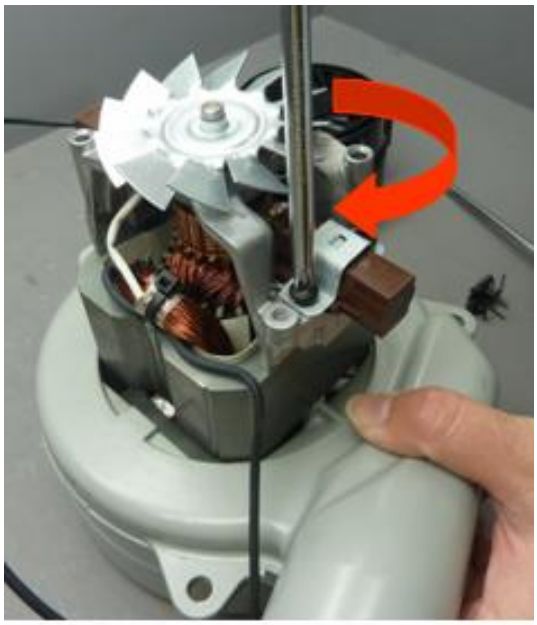

Pic 16-6

8. Insert male tab into carbon brush.



Pic 16-7

9. Put plate, tighten the screws.



Pic 16-8

10. Lead wire pull up (to prevent wire block), and press down with two thumbs in the same time, four buckle must have fastened.

Pic 16-9

11. Use a screwdriver to push the ends of the reed in place.

Pic 16-10

## 16.3.2 Carbon Brush Motor Model 119656-00

1. Remember to unplug the power to ensure that the motor is insulated.

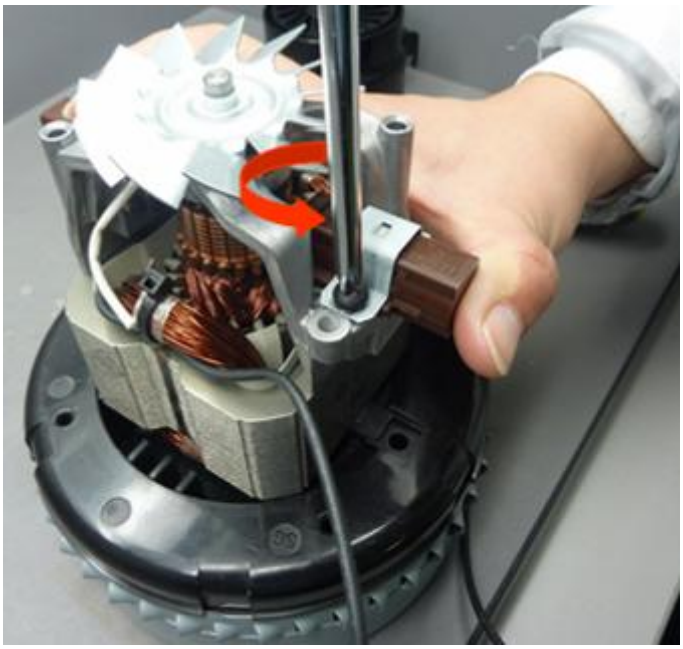
2. The flathead screwdriver inserted into the reed slot, screwdriver force in the direction of the arrow to release the reed. As shown in the figure below.

Pic 16-11

3. Motor protection cover is fixed to the four fixed buckle, use a screwdriver to pry open the sides buckle fixed, (be careful not to use too much force to prevent buckle deformation fracture), then remove the protective cover up. As shown in the figure below.

Pic 16-12

4. After remove the protective cover, as shown in the figure below, loosen the screws and remove the brush plate.

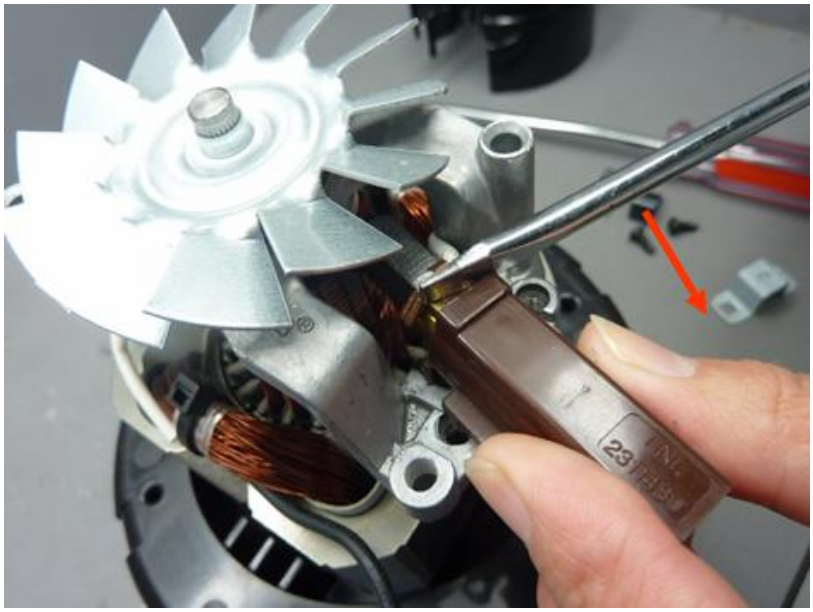


Pic 16-13

5. As shown, use a screwdriver to pry the insert some gaps

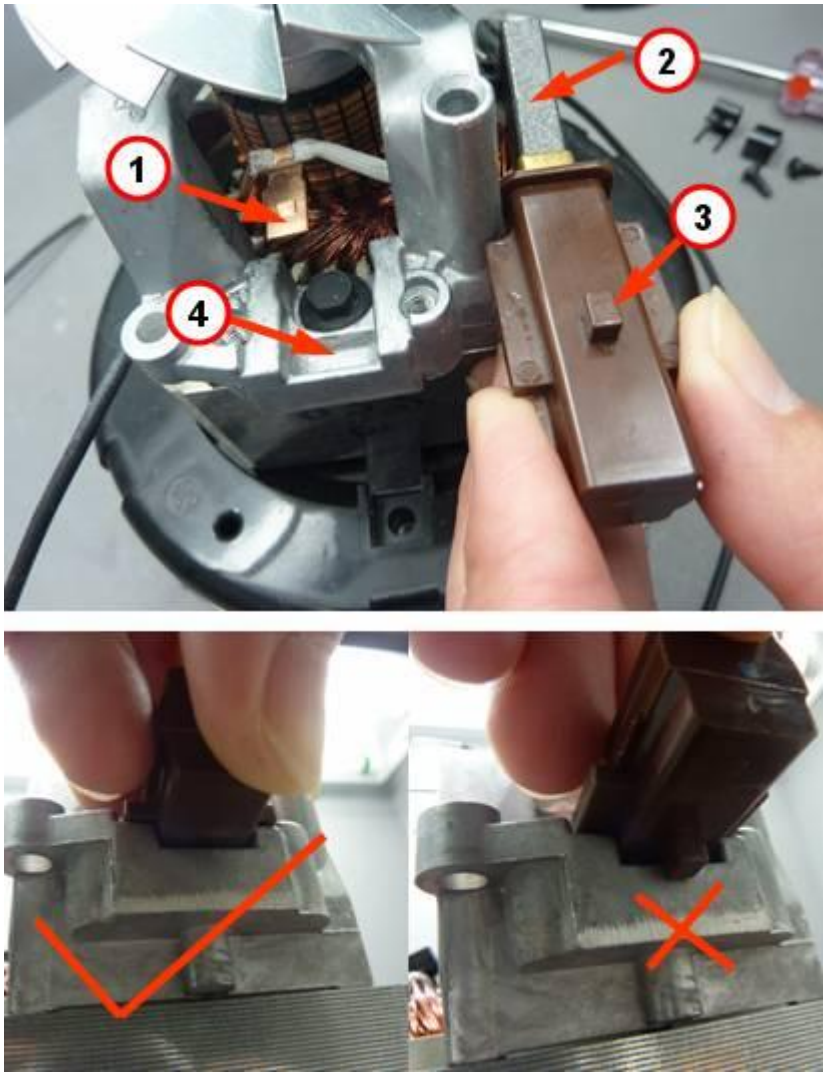
Pic 16-14

6. Use a screwdriver to block the gaps which is pried, screwdriver rotate in the direction of the arrow, Loosen the inserts.



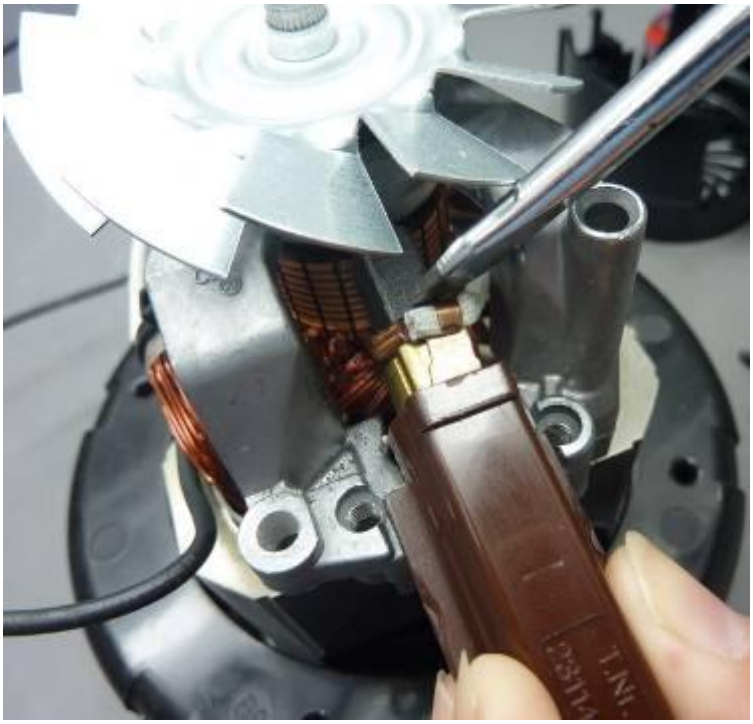
Pic 16-15

7. Loosen the inserts (Arrow 1 in figure), remove the carbon brush (Arrow 2 in figure), and replace a new one. Note the small bump (Arrow 3) in the bottom of brush must block bracket recess (Arrow 4).



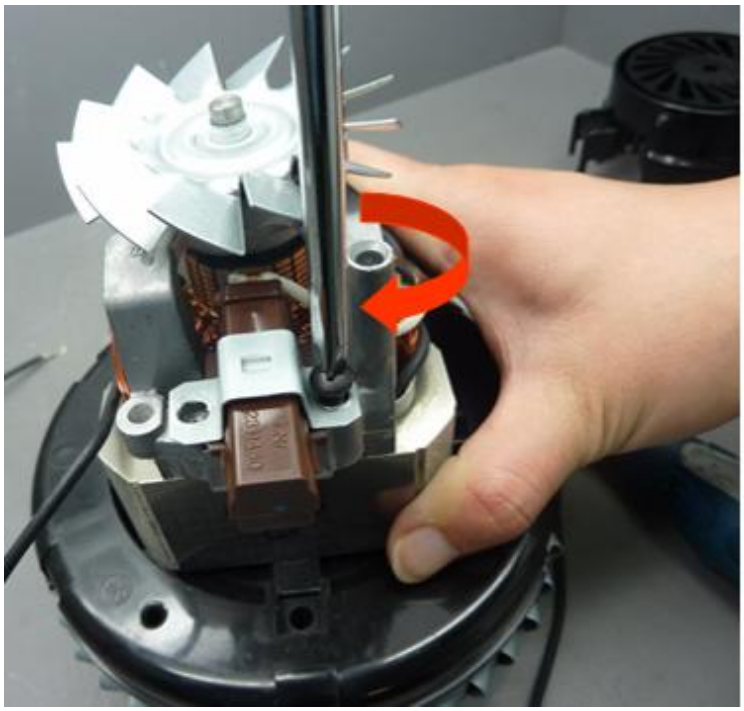

Pic 16-16

8. Insert male tab into carbon brush.



Pic 16-17

9. Put plate, tighten the screws.



Pic 16-18

10. Lead wire pull up (to prevent wire block), and press down with two thumbs in the same time, four buckle must have fastened.

Pic 16-19

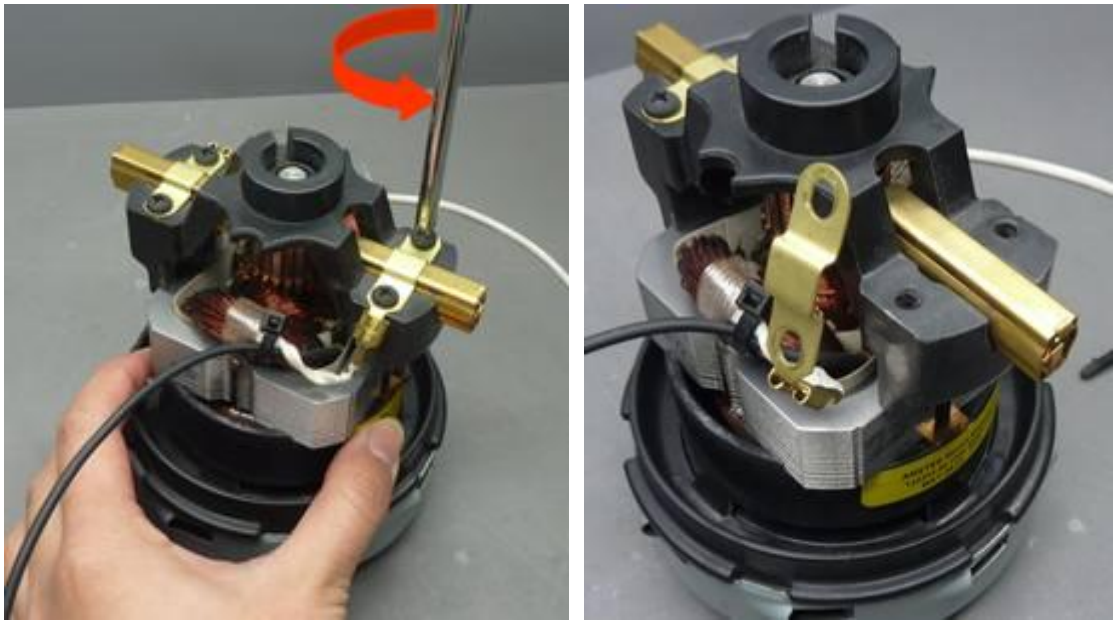
11. Use a screwdriver to push the ends of the reed in place.

Pic 16-20

### 16.3.3 Carbon Brush Motor Model 122255-00

1. Remember to unplug the power to ensure that the motor is insulated.

2. Loosen and remove the screws, remove the plate.



Pic 16-21

3. Remove the carbon brush (Arrow 1 in figure), and replace a new one. Note the small bump (Arrow 2) in the bottom of brush must block bracket recess (Arrow 3).


Pic 16-22

4. Tighten the screws, replace complete.

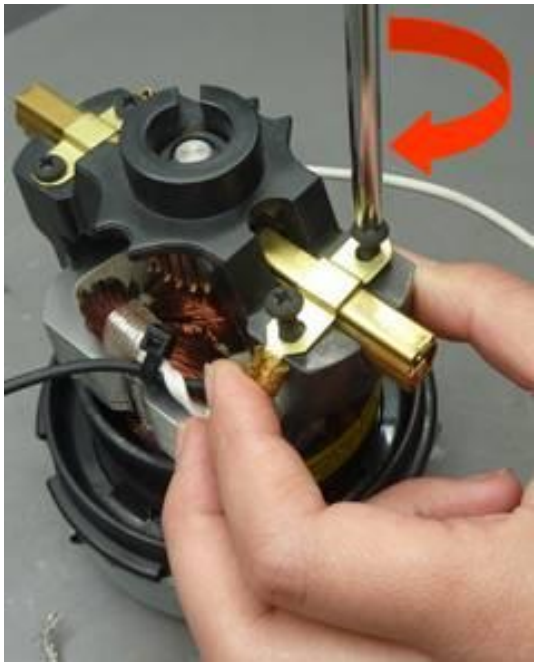


图 16-23

Catalog:

# 17. SCM

## 17.1 Plastic Color Deviation

If out of the plastic molding color deviation can be corrected by the following two methods:

1) Adjust the proportion of masterbatch F-03. If the plastic color darker, the value of F-03 can be adjusted to small “properly”; if the plastic color lighter, the value of F-03 can be adjusted to large “properly”.

2) Adjust the output volume correction F-09. If the plastic color darker, the value of F-09 can be adjusted to large “properly”; if the plastic color lighter, the value of F-09 can be adjusted to small “properly”.

Note: The two methods above are empirical methods, it can only be “properly” adjusted according to the actual situation, and there is no specific adjustment value or adjustment range.

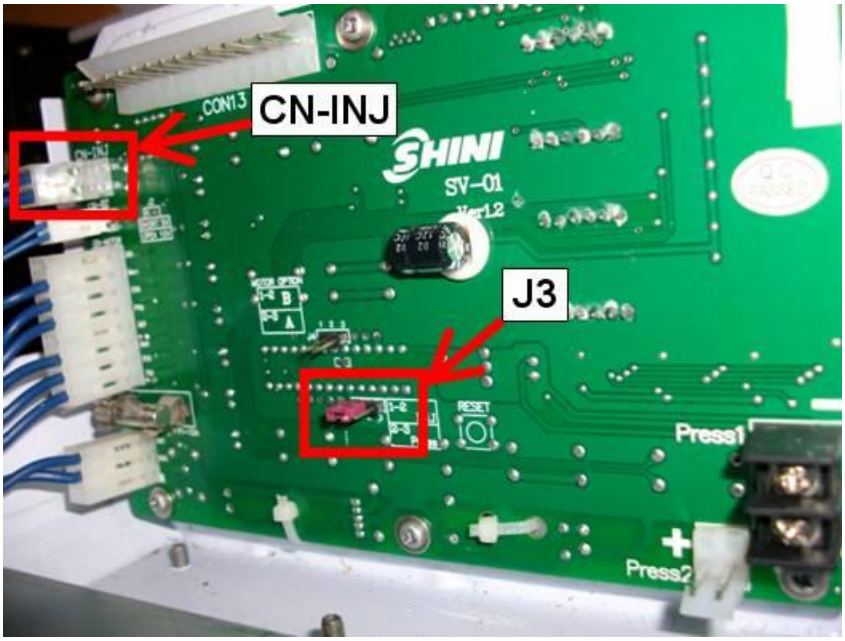
## 17.2 Injection/ Extruder Mode Wiring Changing

SCM can be used for injection mode (the factory has connected) and extruder mode, but PCB board wiring is slightly different, to be confirmed before use, specific wiring as follows:

Injection mode wiring

1) CN-INJ pin 1 is connected to the negative of injection machines melt signal (0 ~ 24VDC), and CN-INJ pin 2 is connected to the positive of injection machines melt signal.

2) Shorten pin 1 and pin 2 of J3.




Pic 17-1

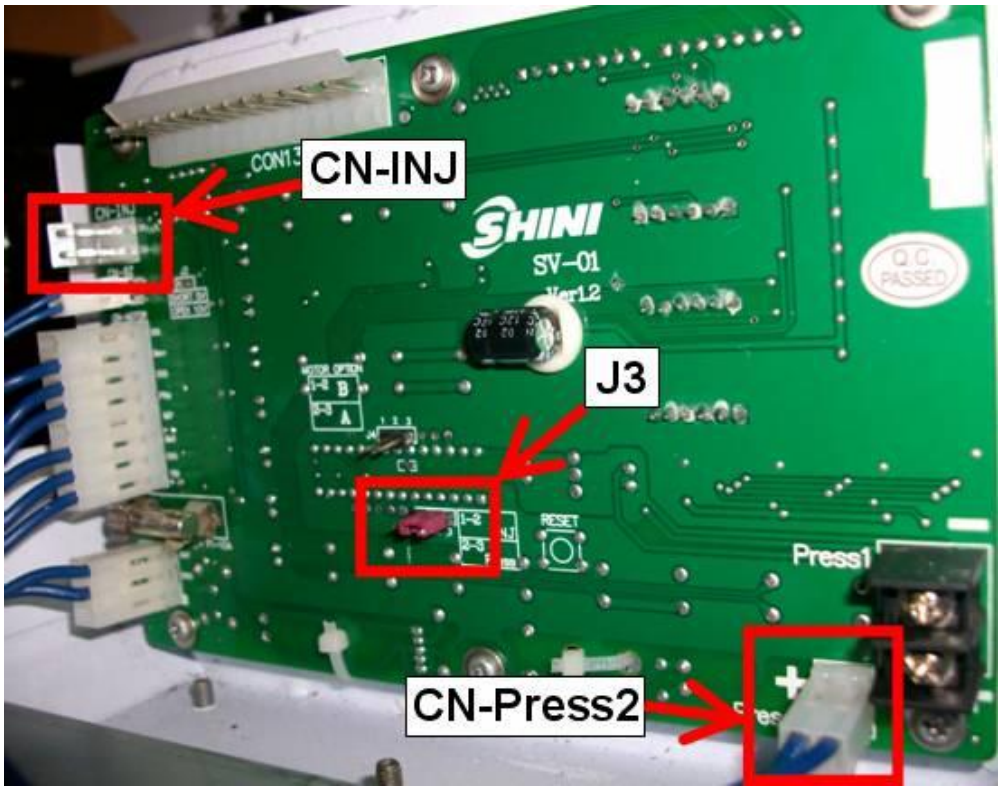
Catalog:

Extruder mode wiring

1) CN-INJ no connection.

2) Shorten pin 2 and pin 3 of J3.

3) CN-Press2 pin 1 is connected to the negative of extruder speed signal (0~10VDC), and CN-INJ pin 2 is connected to the positive of extruder speed signal.



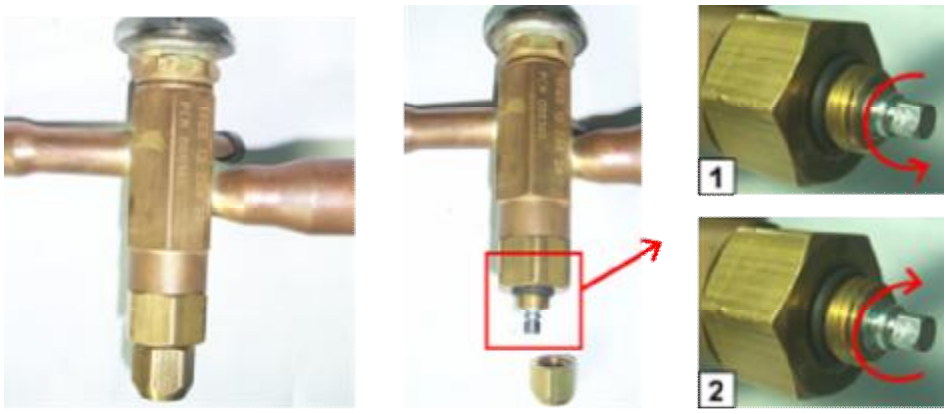

Pic 17-2

# 18. Thermal Expansion Valve Opening Adjustment

## 18.1 Applicable models

SIC-A-R2、SIC-W-R2、SICC-A-R2、SICC-W、SIIC-A-R2

## 18.2 Adjustment method




Pic 18-1

1. Loosen the nut in the button of thermal expansion valve, seen a knob, as shown in the figure above.
2. To increase the degree of opening of the expansion valve, rotate the knob counterclockwise, as shown in the figure 1 above; to reduce the degree of opening of the expansion valve, rotate the knob clockwise, as shown in the figure 2 above.

Catalog:

# 19. Pressure Controller

## 19.1 Products Information

There are 7 types of pressure controller our company is currently using, and models are HLP110, HLP520, HLP830HME, P1245LE, HLP830 and HLP830HLME. Among them, HLP110 and HLP520 are single contact, the rest are double contact.

## 19.2 Applicable Models

HLP110 fit for: STM-PW, STM-HPW.

HLP520 fit for: STM-HPW.

HLP830HME fit for: STM-W, STM-WF.

P1245LE fit for: SIC-A-R2, SIC-W-R2, SICC-A-R2, SIIC-A-R2.

HLP830 fit for: SIC-3W/5W, SICC-60A/90A/120A.

HLP830HLME fit for: SIC-8W~50W, SIC-3A~50A.

## 19.3 Adjustment Method


Pic 19-1

1- High-pressure adjustment screw 2- Low-pressure adjustment screw

3- Differential pressure adjustment screw (Valid only for low-pressure, some models do not have the screw, and our company does not use the function of screw)

Adjustment method: Use cross-screwdriver to rotate adjustment screw to desired scale value. Clockwise to get smaller scale value, counter-clockwise to get larger scale value.

Pressure settings for each model refer to the table below:

| Models | Pressure(bar) | |
|---|---|---|
| | Low pressure | High pressure |
| STM-PW | 2 | 8 |
| STM-HPW | 2 | 13 |
| STM-W | 2 | 8 |
| STM-WF | 2 | 8 |
| SIC-A-R2 | 4 | 37 |
| SIC-A | 2 | 25 |
| SIC-W-R2 | 4 | 30 |
| SIC-W | 2 | 20 |
| SICC-A-R2 | 4 | 37 |
| SICC-A | 2 | 25 |
| SICC-W | 2 | 20 |

Note:

1. If the controller labeled "AUTO RESET", the controller has an automatic reset function; if the controller labeled “PRESS TO RESET”, the controller has a manual reset function.

2. An example to illustrate the use of differential pressure adjustment screw (our company does not use the function of screw)

   Example: Pressure adjustment is 5bar, differential pressure adjustment is 1bar. When the pressure drops to 5-1=4bar, pressure controller contacts switch; when the pressure rises to 5bar, pressure controller contacts switch. How to switch depends on the connection is normally open or normally closed contacts.

Catalog:

# 20. TP Series Turbopump

## 20.1 Applicable Models

STM

STM-E

STM-W

## 20.2 Products Information

TP series turbopump are produced by SHINI.

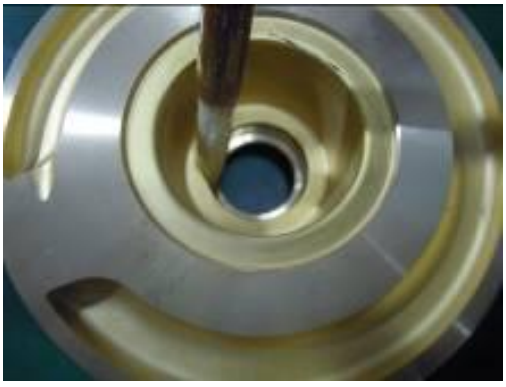
## 20.3 Working principle

Rely on the high-speed rotation of the impeller, the liquid get pressure under the inertial centrifugal force. Pump and inlet pipe must be filled with water to prevent the occurrence of cavitation before working, when the impeller fast-moving, blades promote water fast rotating, rotating water fly out from impeller under the action of centrifugal force, after the water in the pump was thrown, central part of impeller formed vacuum region. Water entered to the inlet pipe through pipe network under atmospheric pressure or water pressure, this Cycle Continues, you can achieve continuous pumping.

## 20.4 Replacing Shaft Seal

Remove the TP pump; remove the damaged shaft seal, according to the following steps to install the new shaft seal:

1) Use a brush to apply clean lubricant to bearing seal position, as shown in the figure below.

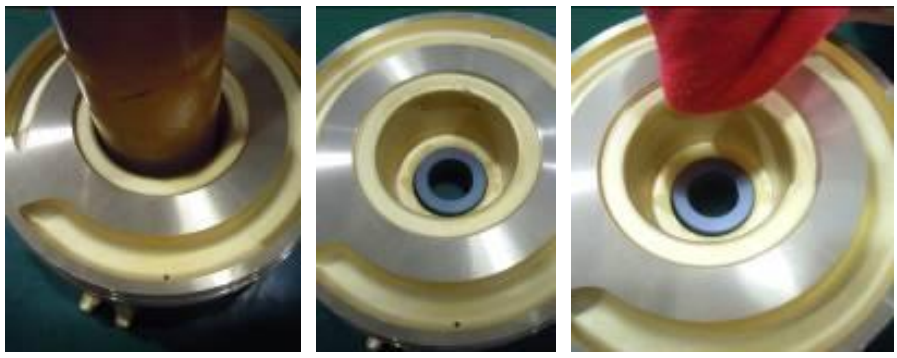


Pic 20-1

2) Remove the front seal, check for damage and other problem, and mount the bearing on seal position, as shown in the figure below.

Pic 20-2

3) Flatten into place with tooling, use tina water moistened cloth clean the seal surface, as shown in the figure below.

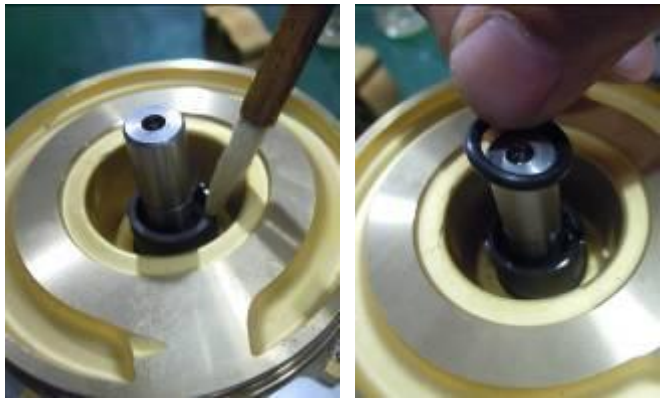


Pic 20-3

4) Mount the bearing on the motor straightly (note: When installing bearing four foot hole aligned with the motor 4 screw holes, installation direction must be consistent with the direction of the figure below), use rubber hammer to knock bearing four feet above properly to make sure bearing in place; remove the seal central section (Check for damage and other problem) and use tina water moistened cloth clean the seal surface; then mount the seal central section on the motor, as shown in the figure below.

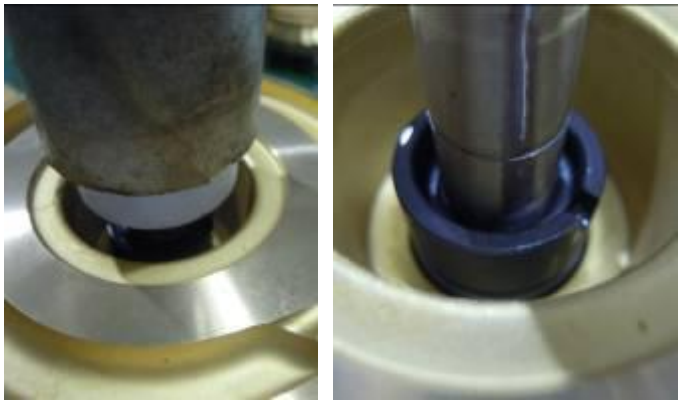
Pic 20-4

5) Use a brush to apply clean lubricant to seal edge, mount pump shaft seal ring, and check for damage and other problem, as shown in the figure below.



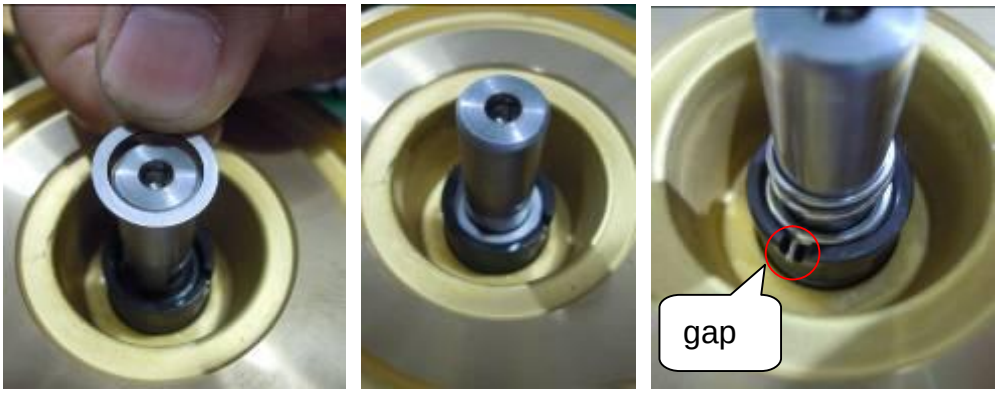
Pic 20-5

6) Use special tooling to flatten ring into seal groove, check weather the seal assembly in place, as shown in the figure below.



Pic 20-6

7) Remove the O-ring of pump seal, check whether there are burrs and other problem, the O-ring place into seal with the smooth side down and check whether the assembly in place, remove spring of pump seal and mount it on seal (note: Protruding end of the spring must be installed into the seal gaps in the alignment), as shown in the figure below.




Pic 20-7

8) Take out a flat washer to check burrs and other problem, then place the flat washer into shaft, as shown in the figure below.

Pic 20-8

9) Take out a A type shaft circlip, check for burrs and other problem; then use shaft circlip pliers to mount it on motor circlip groove, and check A type shaft circlip is fully engaged into motor circlip groove, as shown in the figure below.

Pic 20-9