

CD Series

Cabinet Dryer

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Version: Ver.B (English)



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1. General Description



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



Forbidden to process flammable or toxic material!

CD series of cabinet dryer are mostly used for simultaneous drying of different kinds of polymers in small quantities or for drying materials for trial moulding. They can also be applied in electronic engineering, electroplating, pharmacy, paint baking, printing industries, etc. for preheating or drying related products.

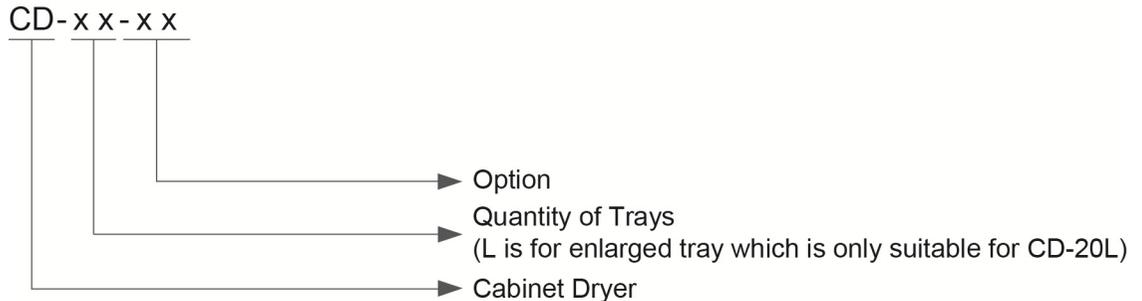


Model: CD-9



Model: CD-20-HT

1.1 Coding Principle



1.2 Feature

- Accurate P.I.D. temperature control to achieve an even drying effect.
- Air-proofed insulative door can maintain temperature constantly inside to reduce energy consumption.
- Stainless steel tray and liner bring no contamination to materials.
- Unique design of adjustable air inlet and exhaust.
- 24 hours timer, easy to operate.
- Overheat protector can prevent excessive drying.
- Motor overload relay.
- Visible alarm to indicate troubles immediately
- Power would be automatically cut off when drying temperature exceeds set deviation value to protect thermal fuse.

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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Shini Plastics Technologies (Dongguan), Inc.:

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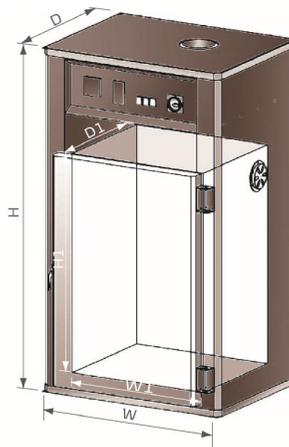
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1.3 Technical Specifications

1.3.1 Outline Drawing



Picture 1-1: Outline Drawing

1.3.2 Specifications

Table 1-1: Specifications

Model	CD-5	CD-9	CD-20	CD-20L	CD-5-HT	CD-9-HT	CD-20-HT	CD-20L-HT
Ver.	B	B	B	B	B	B	B	B
Heater(kW)	4	4.5	9	18	4	4.5	9	18
Blower (kW, 50/60 Hz)	0.37/0.55	0.37/0.55	1.5	1.5	0.37/0.55	0.55	1.5	1.5
Highest Temp.(°C)	200	200	200	200	250	250	250	250
Tray Quantity	5	9	20	20	5	9	20	20
Total Capacity (kg)	50	90	200	450	50	90	200	450
Outer Dimensions H×W×D (mm)								
-	1200×800 ×610	1440×800 ×610	1700×1210 ×760	1865×1800 ×1060	1380×860 ×731	1640×920 ×731	1887×1310 ×1032	2052×1900 ×1232
Inner Dimensions H1×W1×D1 (mm)								
-	660×600 ×550	900×600 ×550	1000×990 ×800	1200×1600 ×1000	660×600 ×550	900×600 ×550	1000×990 ×800	1200×1600 ×1000
Weight(kg)	150	180	415	550	200	252	587	778

- Notes: 1) "HT" stands for heat insulation model, the surface temperature of which will not be more than 80°C when setup temperature is 250°C. We reserve the right to change specifications without prior notice.
- 2) When drying temperature is below 150°C, "HT" models can keep internal temperature accuracy of ±5°C, when it is above 150°C, internal temperature accuracy is ±12°C.
- 3) Above loading capacity is based on pellet material of 0.65kg/L(5.4lb/gal) in bulk density and 3–5mm(0.12–0.2inch) in diameter.
- 4) Power: 3Φ,230/400/460/575VAC, 50/60Hz.

1.4 Safety Regulations

1.4.1 Safety Signs and Labels

Please abide by the safety guide when you operate the machine so as to prevent damage of the machine and personal injuries.



All electrical components should be installed by qualified electricians.

Turn off main switch and control switch during repair and maintenance.



Warning! High voltage!

This mark is attached on the cover of the control box.



Warning! Be careful!

Be more careful when this mark appears.



Attention!

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

1.4.2 Transportation and Storage of the Machine

Transportation and storage of the machine

- 1) CD 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°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) CD 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

- 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, CO₂ dry powder fire extinguisher should be applied.

1.5 Exemption Clause

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

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

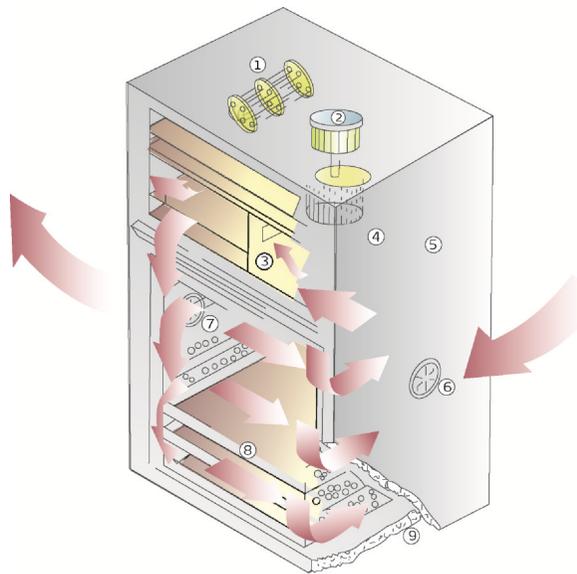
- 1) Any careless or man-made installations, operation and maintenances upon machines without referring to the Manual prior to machine using.
- 2) Any incidents beyond human reasonable controls, which include man-made vicious or deliberate damages or abnormal power, and machine faults caused by irresistible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

2. Structure Characteristics and Working Principle

2.1 Main Functions

For cabinet dryer, materials to be dried are placed on the stainless steel made moveable material trays. During operation, process air will flow to heating wire and be heated up to required temperature, then flow through a manifold with evenly scattered holes. Moisture air is sent out through air exhaust port. It is designed to achieve an even drying effect.

2.2 Working Principle Illustration



Names of Parts:

- | | | |
|------------------------|-------------------------|-------------------------|
| 1. Heating Coil | 2. Air Inlet Blower | 3. Air Chamber |
| 4. Multi-vane Impeller | 5. Paint-baked Cover | 6. Air Inlet |
| 7. Air Exhaust | 8. Stainless Steel Tray | 9. Heat-resistant Layer |

Picture 2-1: Working Principle Illustration

3. Installation and Debugging

Install the CD Cabinet Dryer at a proper place where is easy for service and maintenance.

3.1 Attentions During Installation

- 1) Make sure voltage and frequency of the power source comply with those indicated on the manufacture's plate, which is attached to the machine.
- 2) Power cable and earth connections should conform with local regulations.
- 3) Use independent power cable and ON/OFF switch. The cable's size should not smaller than those applied in the control box.
- 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) Please refer to electrical drawing of each model to get the detailed power supply specifications

3.2 Machine Ins Tallation Distance



Picture 3-1: Machine Ins Tallation Distance

Note: Keep the machine 2M from the combustibile distance.

3.3 Check the Rotation Direction of Blower

- 1) Check whether the wind direction of inlet and outlet on the two sides of oven is right.
- 2) If the rotation direction is not right:
 - a. Stop the machine.
 - b. Turn off the main switch.
 - c. Change any two lines of the main power supply 's three lines.
 - d. Stop the machine, and check it again.



Picture 3-2: Blower Inlet / Outlet

4. Application and Operation

Open the distribution box and connect the power source in accordance with wiring diagram. Make sure that the power voltage is in compliance with the required specifications.

Notes: Before connecting, the main switch and heat switch should be off.

4.1 Test

After all wires are connected, turn the main switch and the heater switch to “ON”, then the pilot lamp light, observe if the rotating direction of blower is consistent with the arrow. If not, exchange any two power cables.

4.2 Setting Temperature

Press **SET** first, then wait until the set temp. flashes, press **▲** **▼** buttons to adjust the temperature, and then press **SET** to confirm. Use temperature adjustor together with material dry thermometer to set the temperature. After heating for a period of time, the yellow light and red light will flash alternatively, which indicates that the setting temperature value has been reached, at that time the actual temperature of temperature controller and setting temperature are the same.



Picture 4-1: Temp. Controller

4.2.1 Description of key button operations

Mode button

- 1) In the running mode, press the button  one sec. to enter the simple parameter settings (alarm value, P.I.D value and HYS value).
- 2) In the running mode, press the button  one sec. to enter the whole parameter settings (It can set the whole menu parameters).
- 3) In the running mode, press the button  one sec. to enter basic parameter (input type, control method, control cycle, alarm type, comm., unlock etc.).
- 4) In parameter setting mode, press button  one sec. to move to the running mode.

Set button

- 1) In the running mode, press the button  to edit the SV value, and then press the button  to set the SV value.
- 2) In the setting mode, press the button  to set the program parameters, and then press the button  to save the value and move to the next item.
- 3) In the running mode, press the button  for three secs. to lock the buttons. After the buttons are locked, press the button  for three secs. to unlock the buttons.
- 4) In the running mode, press the button  for three secs. to switch between the manual and auto output mode.
- 5) In the running mode, press the button  for three secs. to achieve auto-tuning (AT) operation and dismissing.

Movement Button

- 1) In running mode or setting mode, the digit moves.
- 2) In running mode, press button  one sec. to achieve running or stop switching.

Up button

- 1) In running mode, increase the SV value.
- 2) In running mode, when system alarms, press button  once to dismiss the alarm.

- 3) In setting mode, move the setting item and the parameter increased/changed.

Down button 

- 1) In running mode, decrease the SV value.
- 2) In running mode, when system alarms, press button  to dismiss the alarm.
- 3) In setting mode, move the setting item and the parameter decreased or changed.

4.3 Adjustment of Air Rate

Adjustment of air rate is the most important factor for the drying result, should adjust the air outlet and inlet when drying different material.

For example:

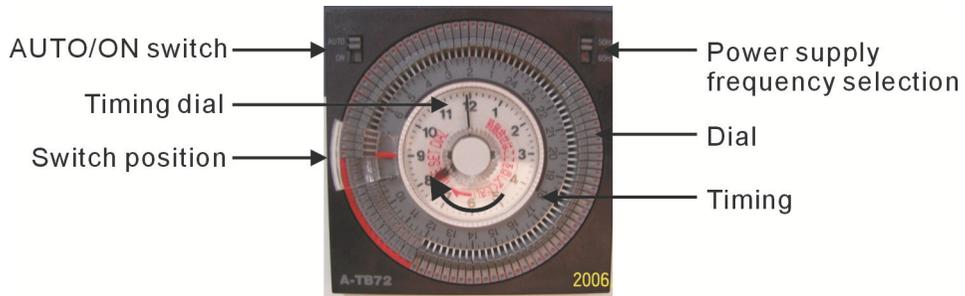
- 1) When heat and brake the electronic, galvanized and baked-finish products, the air-inlet and air-outlet should be closed completely.
- 2) When dry up the plastic materials and other products contained much moisture, the air-inlet and air-outlet should be opened properly.



Picture 4-2: Adjustment of Air Rate

4.4 Start-up Timer Setting

Turn on timer switch after all switch has been on, take down the glassy shield outside of the timer, then push the small black switch to "Auto". Set current time and drying time required, cover the glassy shield. Therefore the cabinet dryer will run automatically till drying time.



Picture 4-3: Start-up Timer Setting

Output setting

Open setting: Reverse the setting section of dial entad, at this time, red mark appears in the dial.(shown in the above picture)

Close setting: Reverse the setting section of dial to the outside, the red mark disappears, then rotate the timing dial to the switch position.

4.5 Setting the Over-thermal Protector

Over-thermal protector will be used when the actual heating temperature exceeds the setting temperature to protect the motor and heater. And it's setting temperature should be higher than that of thermometer.



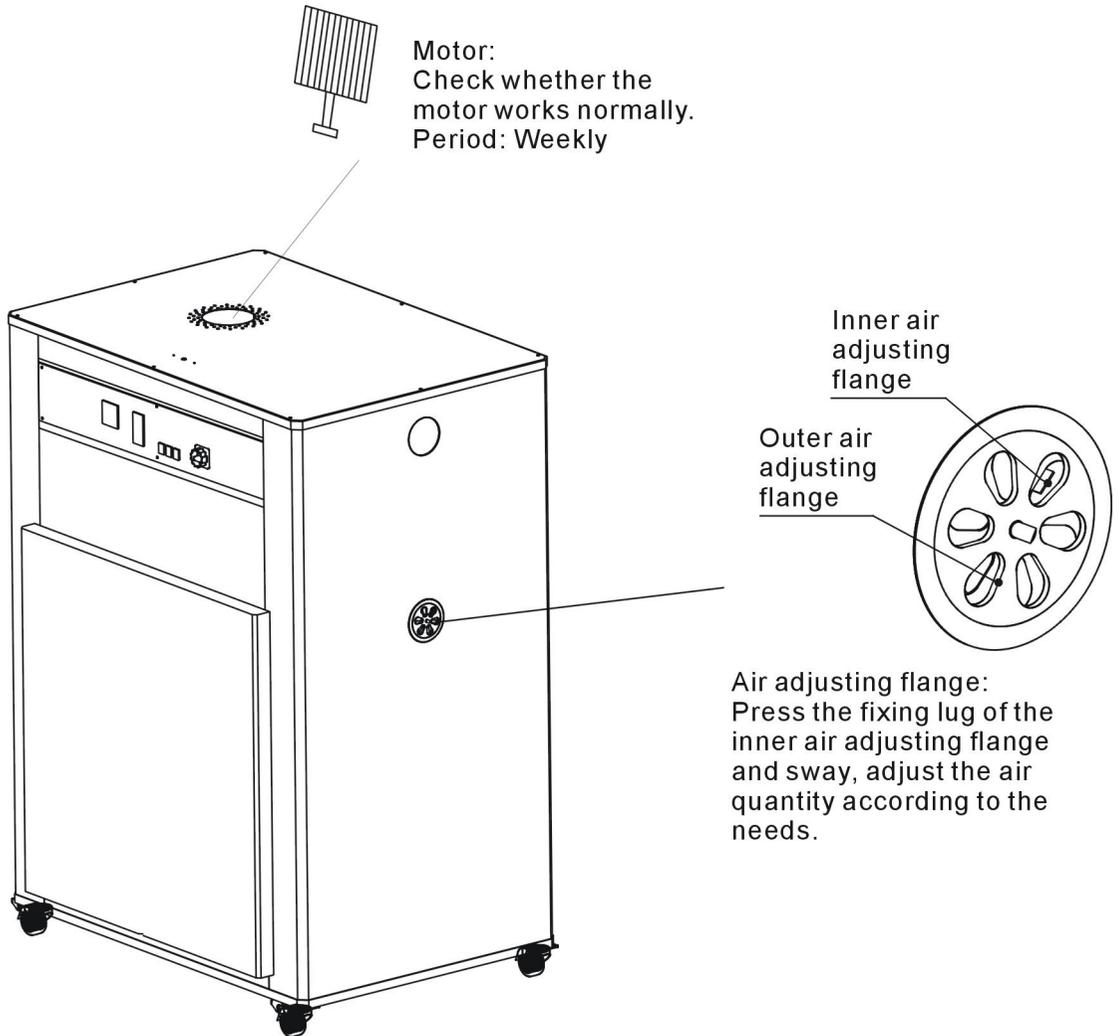
Picture 4-4: Setting the Over-thermal Protector

5. Trouble-shooting

Fault	Possible reasons	Solution
It doesn't start after turning on the main switch.	1. The motor switch isn't open.	1. Turn on the motor switch.
	2. The fuse is broken.	2. Replace a new fuse.
	3. The transformer is burnt out.	3. Replace a new transformer.
The motor doesn't run.	1. The motor switch isn't open.	1. Turn on the motor switch.
	2. The circuit breaker trips.	2. Press "RESET" key.
	3. The magnet contactor breakdowns.	3. Replace a new magnet contactor.
	4. The motor is burned out.	4. Replace a new motor.
The temperature is abnormal.	1. The temperature controller breakdowns.	1. Replace it.
	2. The temperature contactor breakdowns.	2. Replace it.
	3. The magnet contactor breakdowns.	3. Replace it.
	4. The heater breakdowns.	4. Replace it.

6. Maintenance and Repair

Clear off the dust on the motor fan periodically, avoid the damage to the blower.



6.1 Maintenance Schedule

6.1.1 About the Machine

Model _____ SN _____ Manufacture date _____

Voltage _____ Φ _____ V Frequency _____ Hz Power _____ kW

6.1.2 Electrical Installation

Voltage: _____ V _____ Hz

Fuse melt current: 1 Phase _____ A 3 Phase _____ A

Check phase sequence of the power supply.

6.1.3 Daily Checking

Check power supply wires.

Check the start/stop function.

6.1.4 Weekly Checking

Check the switches of the machine.

Check all the electrical wires.

Check the pipe heater.

Check motor overload relay.

6.1.5 Monthly Checking

Check the switches and automatism on-off of the machine.

Check the pipe heater.

Check if there are loose electrions.