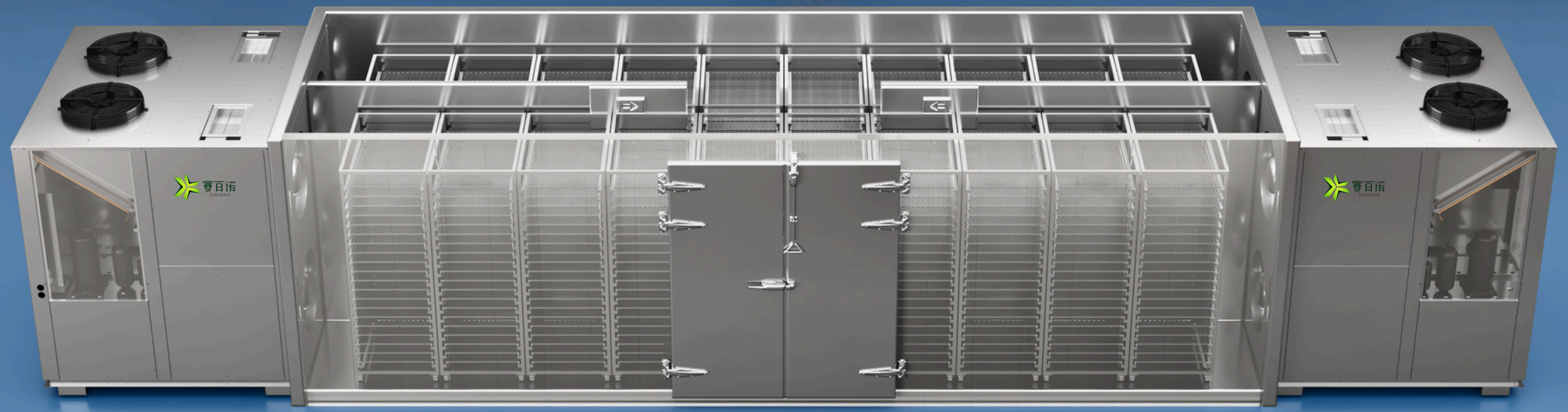
MODEL MH series

# Heat Pump Dryer



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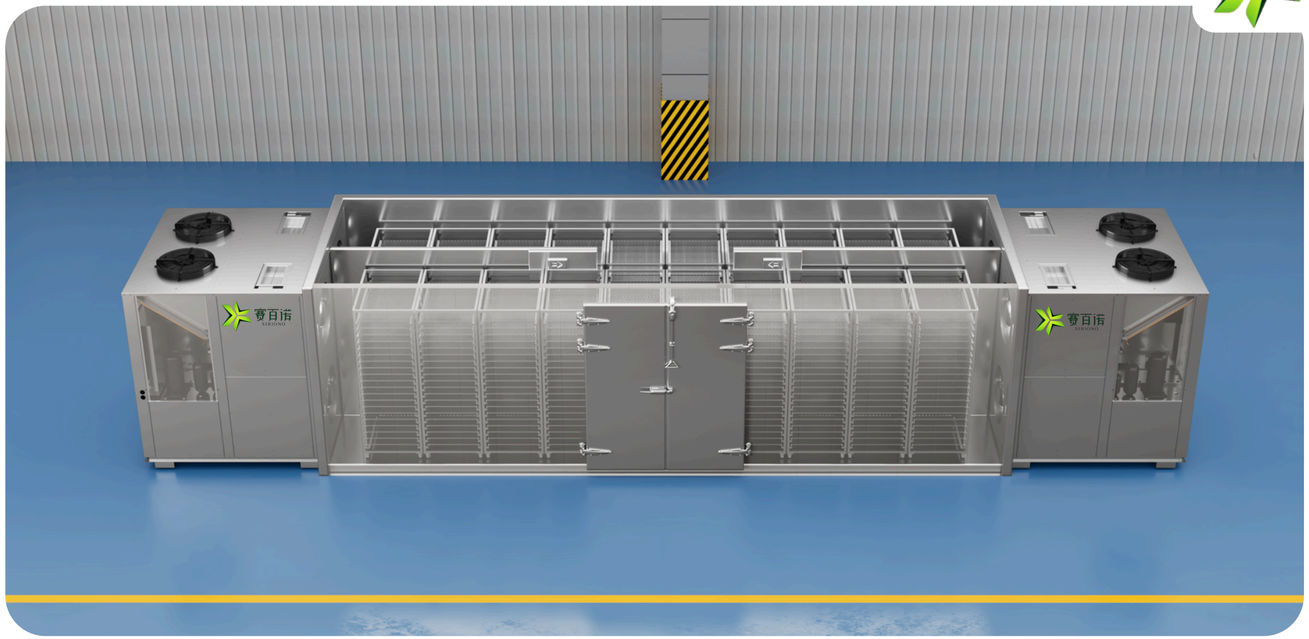
## INTRODUCTION TO HEAT PUMP DRYER PRODUCTS

Guangzhou SIBIONO Drying Equipment Co., Ltd

# Installation structure diagram of MH series heat pump dryer



# Reading Guide

## 01 Models

**Part 01:**
Parameters of 4 heat pump drying machines from the MH series of the SIBIONO brand.

## 02 Principle

**Part 02:**
Working principle and drying process principle of heat pump dryers.

## 03 Structure

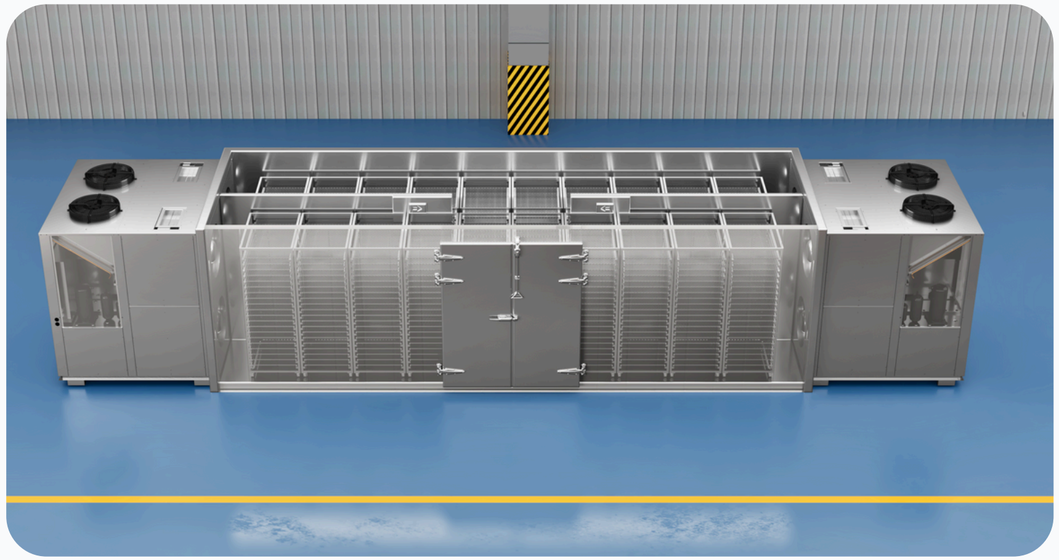
**Part 03:**
Components, materials, elements, control system, and remote control system of the dryer.

## 04 System

**Part 04:**
Functions of SIBIONO brand heat pump dryers, and compare SIBIONO brand heat pump dryers with those from other factories.

# MH series 4 models of heat pump dryers



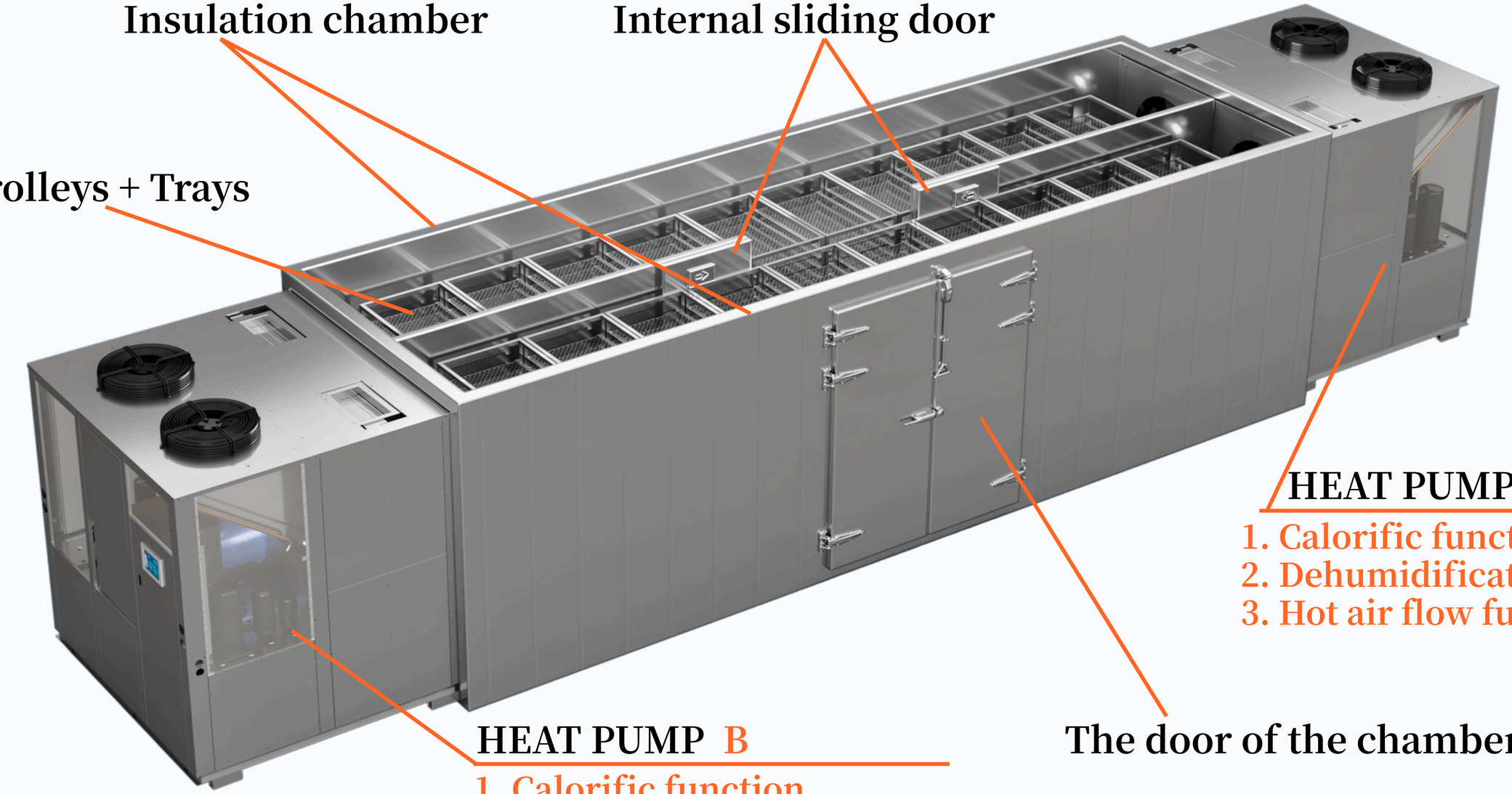


| Model No. | MH-15E | MH-15E-L | MH-30E | MH-30E-L |
|---|---|---|---|---|
| Power supply | 380V-3PH 50/60HZ | | | |
| Input power(kw) | 24.8 | 24.8 | 41.4 | 41.4 |
| Dimension(m) | 7.8*2.2*2.16 | 9*2.2*2.16 | 10.7*2.2*2.16 | 12.5*2.2*2.16 |
| Capacity(kg) | 1100 | 1500 | 1800-2000 | 2500-3000 |
| Heat pump material | SS304 | | | |
| Chamber material | Surface metal SS304 | | | |
| | Insulation material is polyurethane(Thk 100mm) | | | |
| Trolley material | SS304 | | | |
| Qty of trolleys | 12 | 16 | 20 | 26 |
| Tray material | SS304 | | | |
| Qty of trays | 288 | 384 | 480 | 624 |
| Refrigerant | R134a/9KG | | R134a/18KG | |
| Dehumidification | 80L/H | 80L/H | 160L/H | 160L/H |
| Hot air circulation | Regularly switch the direction of hot air circulation | | | |
| Application | Fruits / Vegetables / Pet food / Meat / Spices / Flowers / Charcoal / Fish / Shrimp / Nut / Incense / Cotton pad etc. | | | |

Insulation chamber

Internal sliding door

Trolleys + Trays



HEAT PUMP A

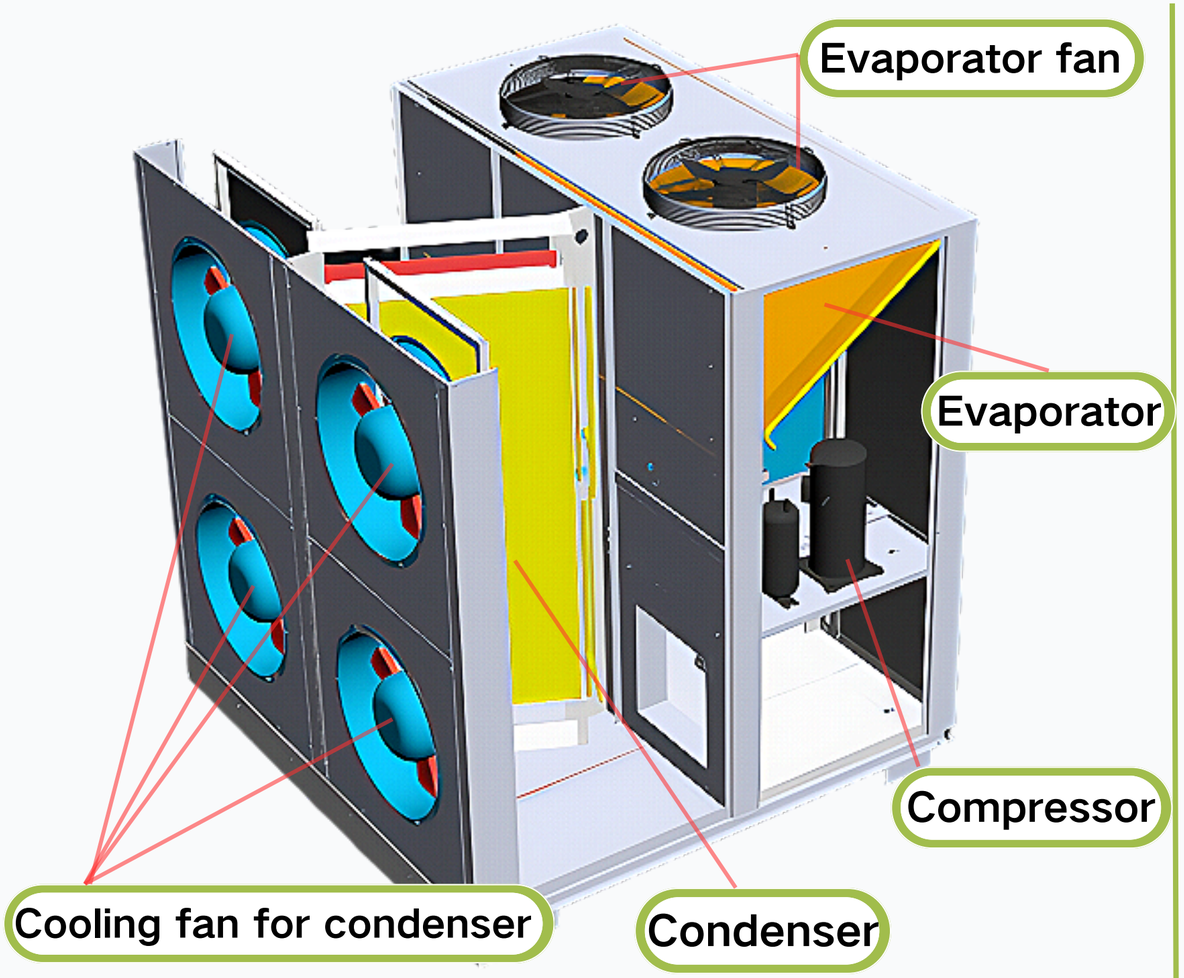
1. Calorific function
2. Dehumidification function
3. Hot air flow function

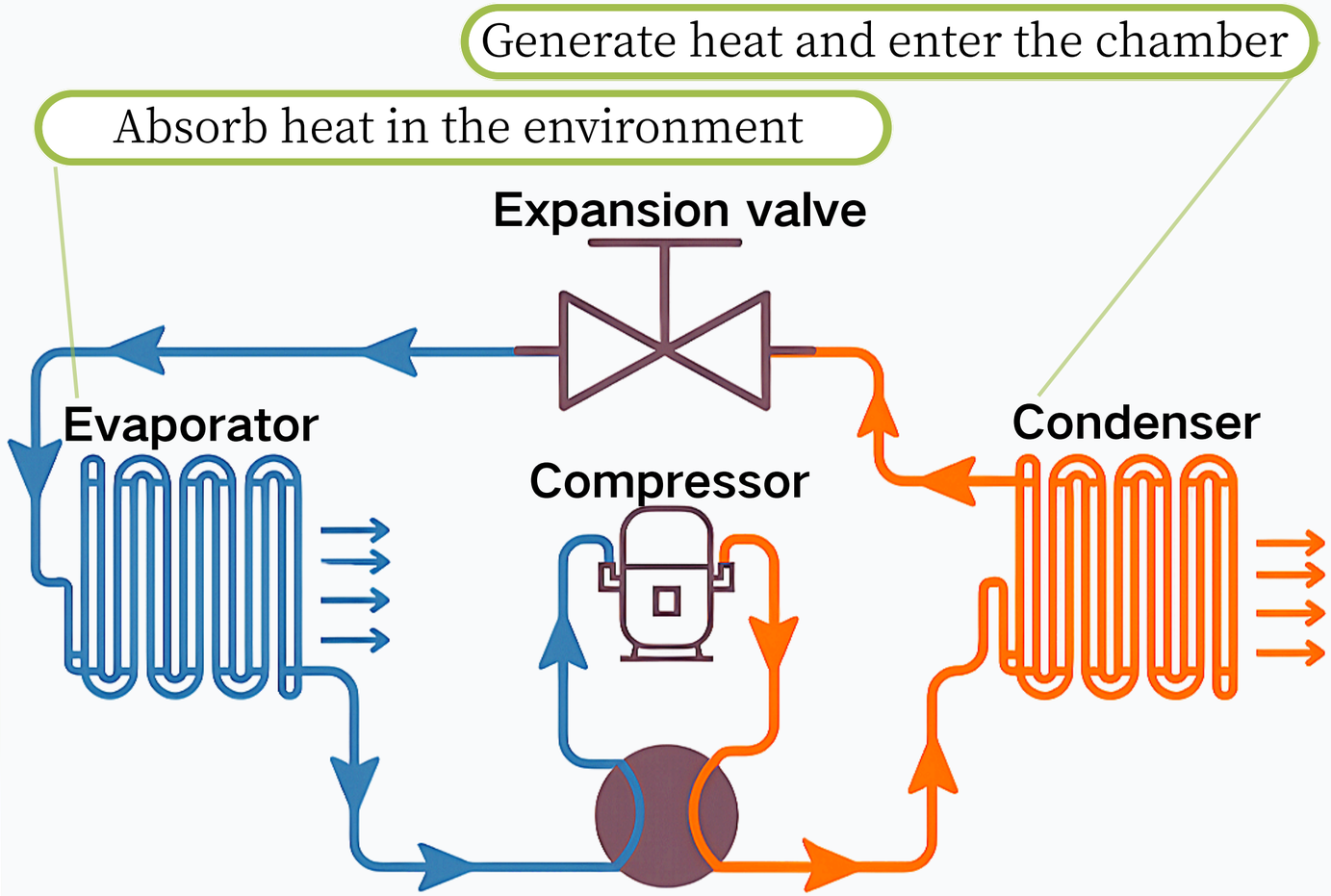
HEAT PUMP B

1. Calorific function
2. Dehumidification function
3. Hot air flow function

The door of the chamber

# Then, let's see how the heat pump heats up




The refrigerant absorbs heat in the evaporator, becomes a gaseous refrigerant, and then enters the compressor. The compressed gaseous refrigerant in the compressor becomes high temperature and is input into the condenser, dissipating heat into the chamber.

| Energy Consumption for Heating 100m3 from 20℃ to 75℃ in 30 mins | | |
|---|---|---|
| Heating Technology | Energy Consumption | Unit |
| Heat Pump | 0.576 | kWh |
| Electric Heater | 1.843 | kWh |
| Natural Gas | 0.203 | Cubic Meters ($m^3$) |
| Biomass Pellets | 0.466 | Kilograms (kg) |

**The four major advantages of heat pumps:**

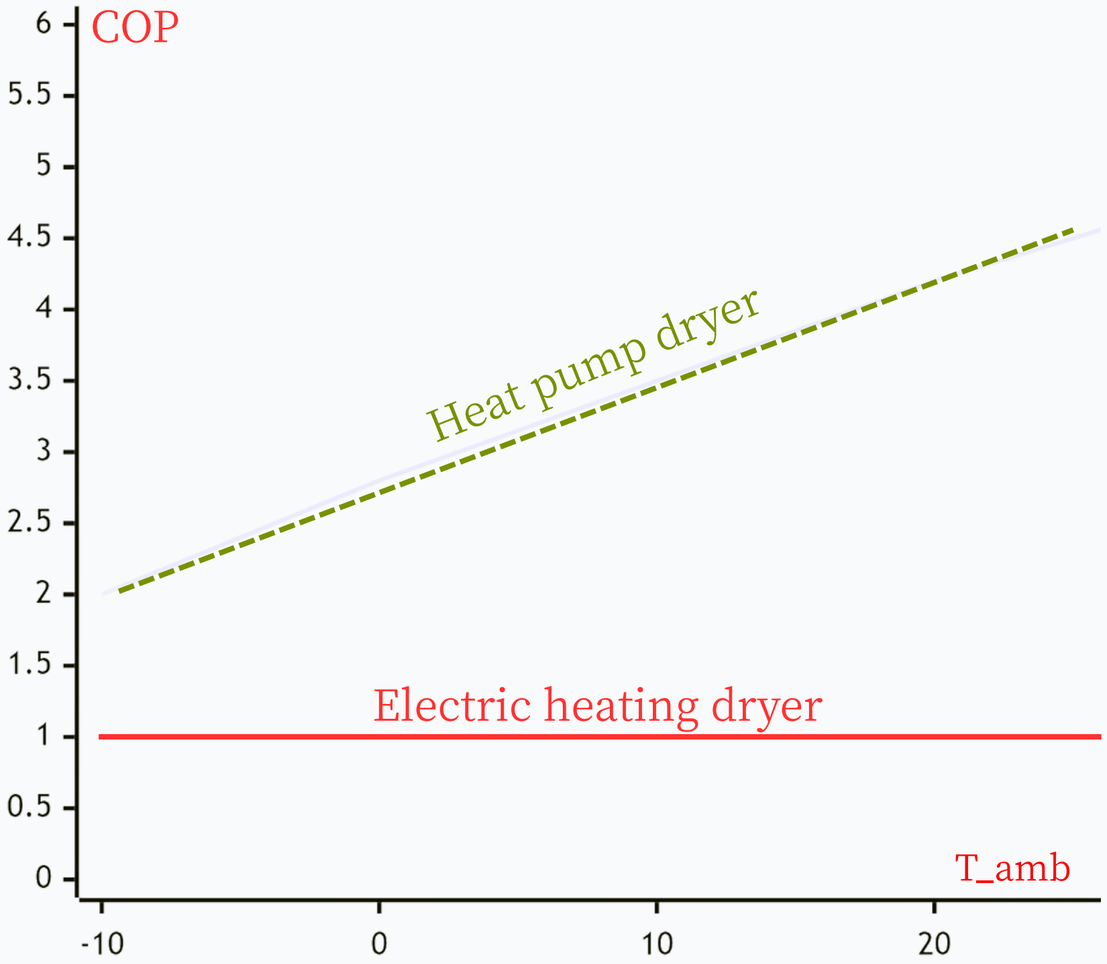
**1. High heating efficiency and low drying cost;**

**2. Clean energy (electricity) that meets environmental protection requirements;**

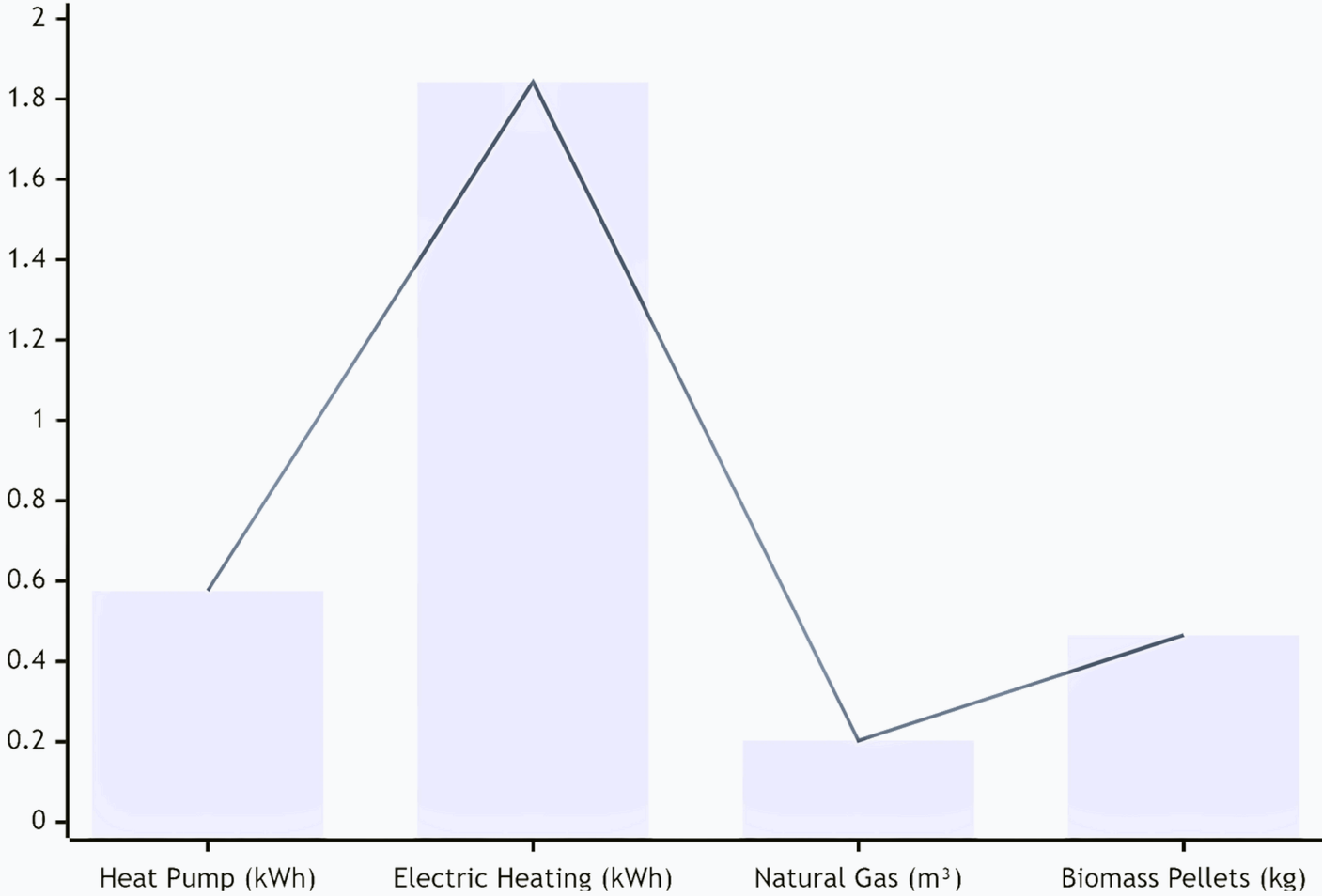
**3. No open flame heating, high safety factor.**

# Heat pump dryer VS Other types of dryers

Energy Efficiency Ratio (COP)
Heat pump dryer VS Electric heating dryer
Condition 1 : Environmental temperature 0-20 ℃

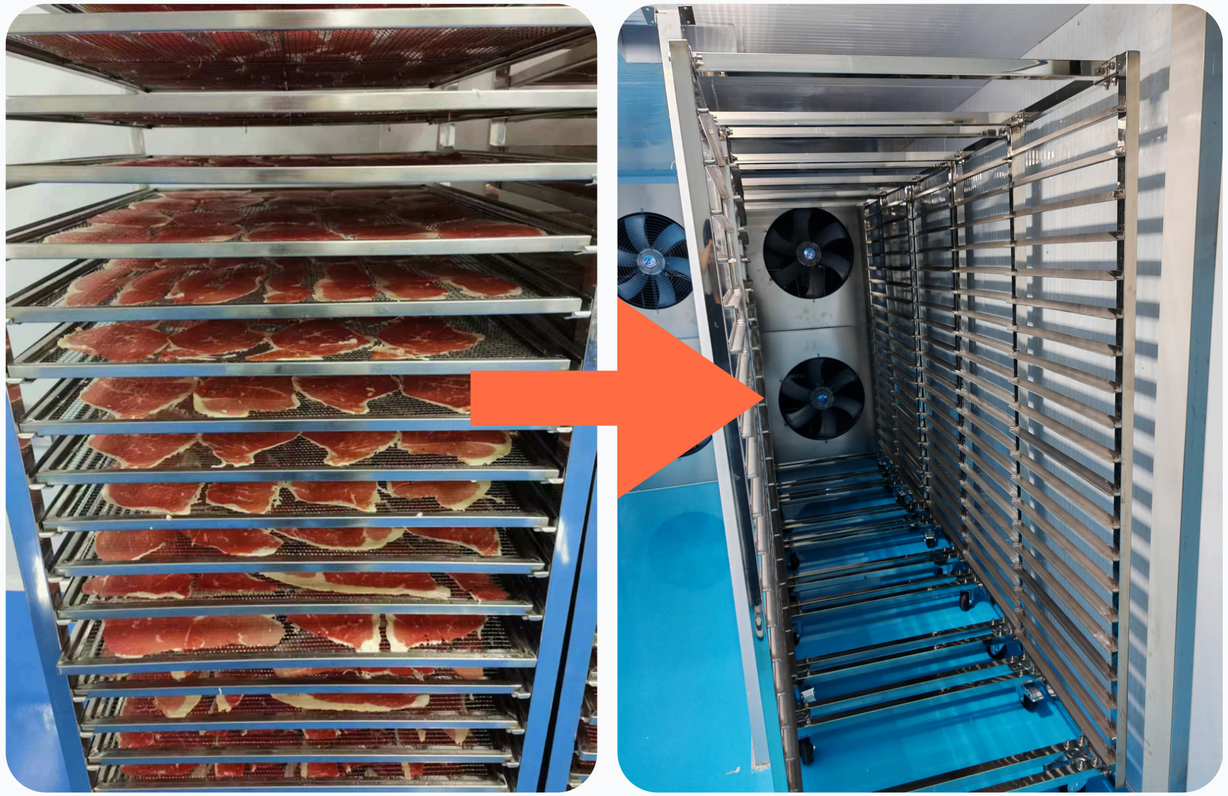


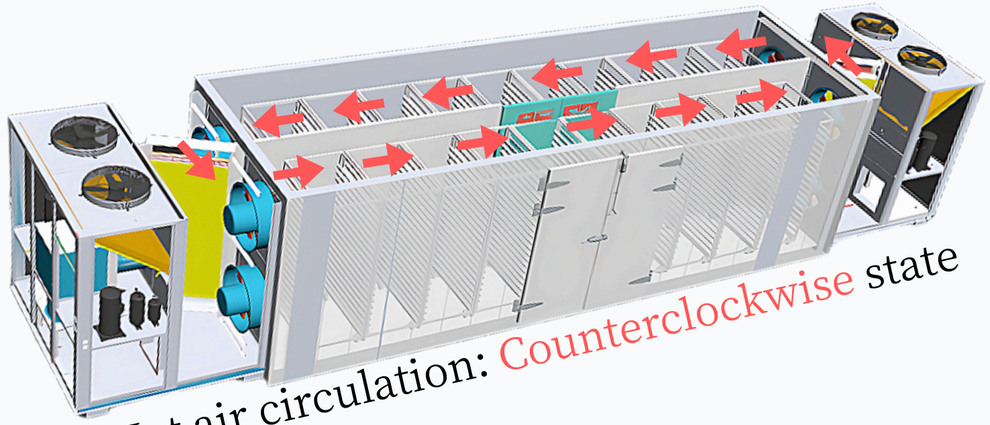

The energy cost of heating
Condition 1 : Insulated and sealed 100 cubic meter space
Condition 2 : 20 ℃ to 75 ℃ within 30 minutes



# Then, how does the dryer heat the material?

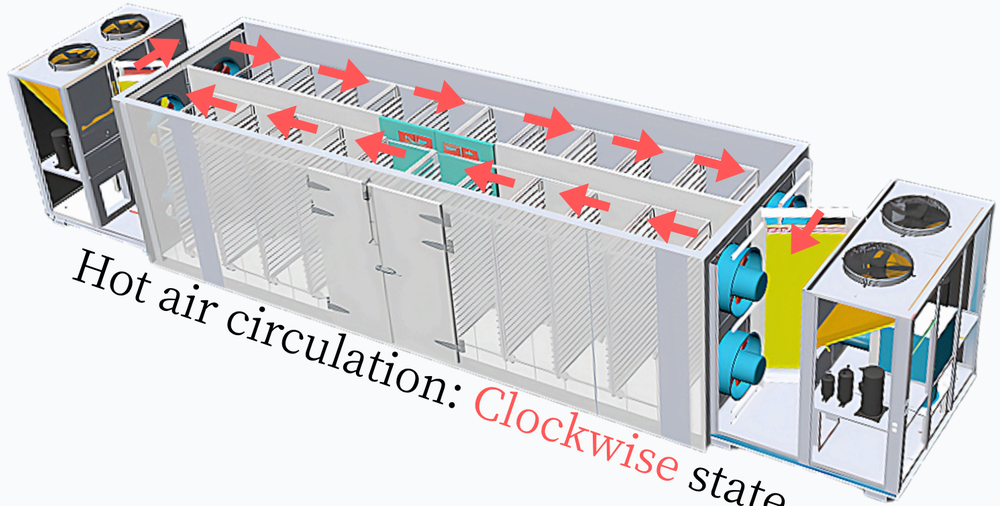
## Place the product into the dryer chamber





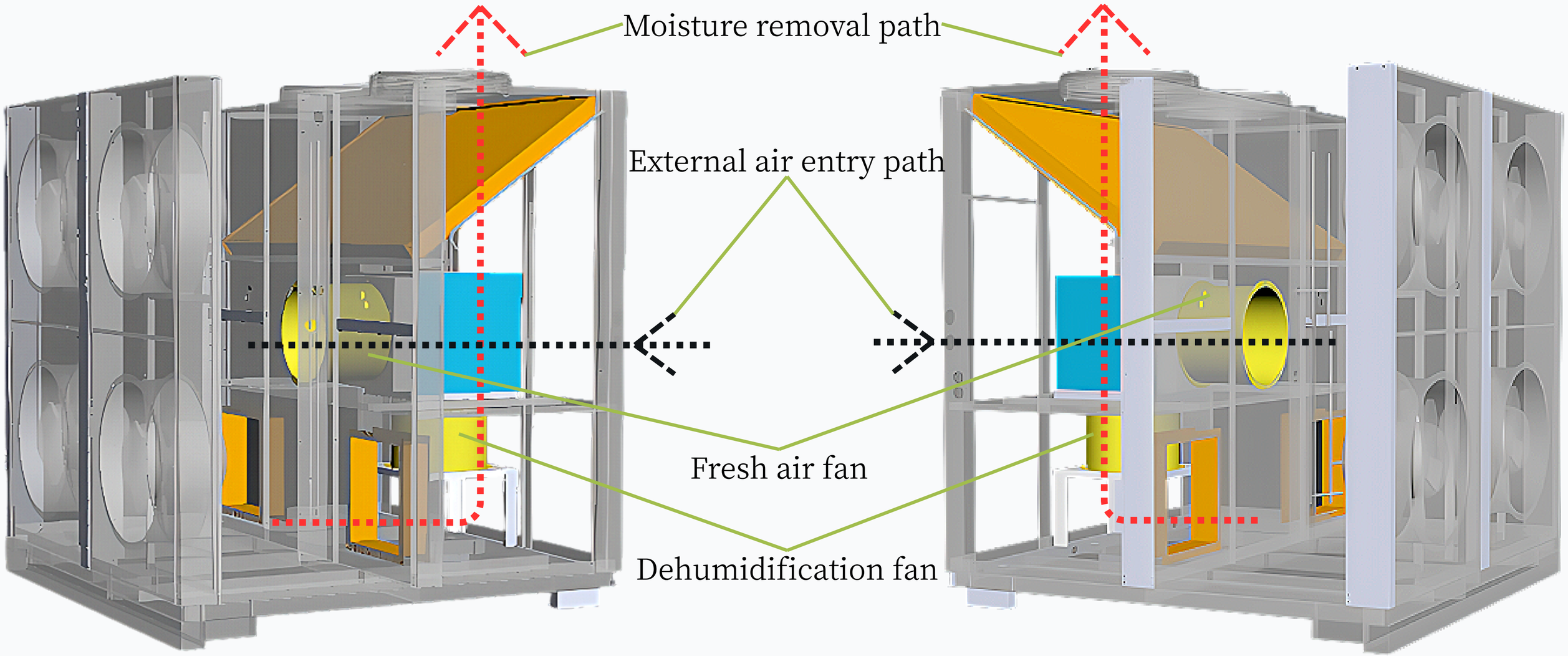
Hot air circulation: Counterclockwise state

When the heat pump starts to generate heat, a hot air flow is formed in the chamber through the operation of the fan. The products in the chamber absorb heat and evaporate moisture when they come into contact with the hot air.



Hot air circulation: Clockwise state

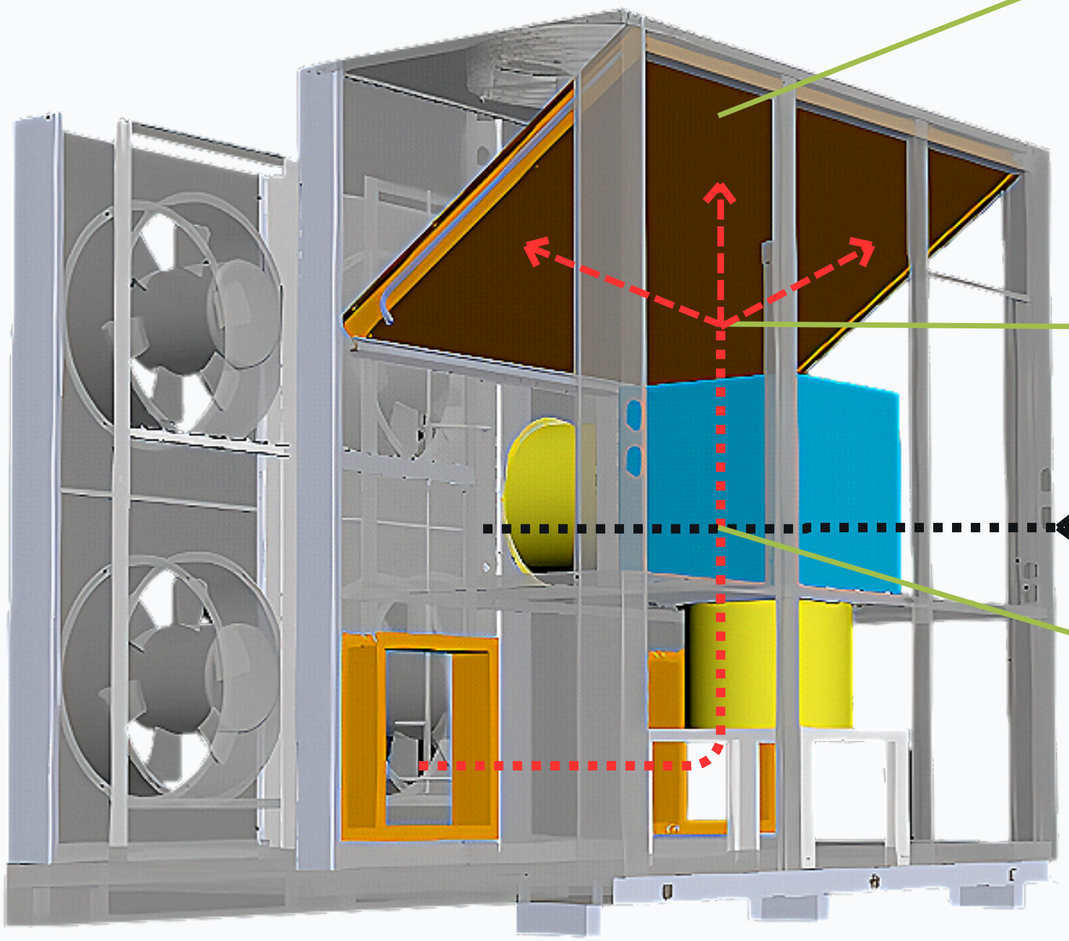
# Finally, how does the dryer remove moisture?




The water vapor of the product needs to be discharged in a timely manner to avoid quality defects caused by high humidity.

# Reduce heat loss during dehumidification?





Heat recovery: When the evaporator encounters high temperatures, the refrigerant inside the evaporator will quickly absorb heat and vaporize, thereby improving heating efficiency and energy efficiency ratio.

When the water vapor of the product is discharged outward, it will be accompanied by a large amount of heat, This heat will be used for heat recovery (output to the evaporator).

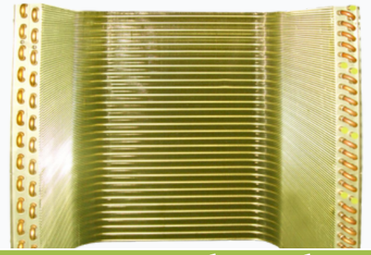
External air entry path

During the dehumidification process, fresh air and high-temperature steam will cross contact once in the heat recovery device to achieve two purposes:

1. Increase the temperature of the fresh air entering and improve the temperature stability of the dryer;
2. Reduce the humidity of fresh air entering the chamber and minimize fluctuations in humidity in the dryer;

## Heat Pump Dryer

## Components of a dryer



Evaporator and condenser
(Nano anti-corrosion)

Compressor
(Emerson / Copeland)

Circulating fan
(SIBIONO)

Dehumidification fan
(SIBIONO)

Heat recovery device
(SIBIONO)

Temper & humi probe
(SIBIONO)

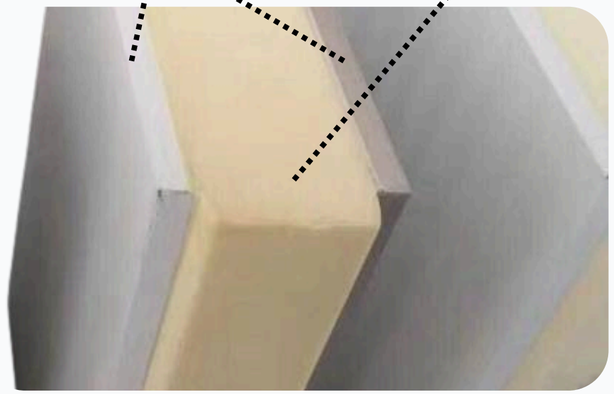

PLC control
(SIBIONO)


KM & TOL
(Schneider)

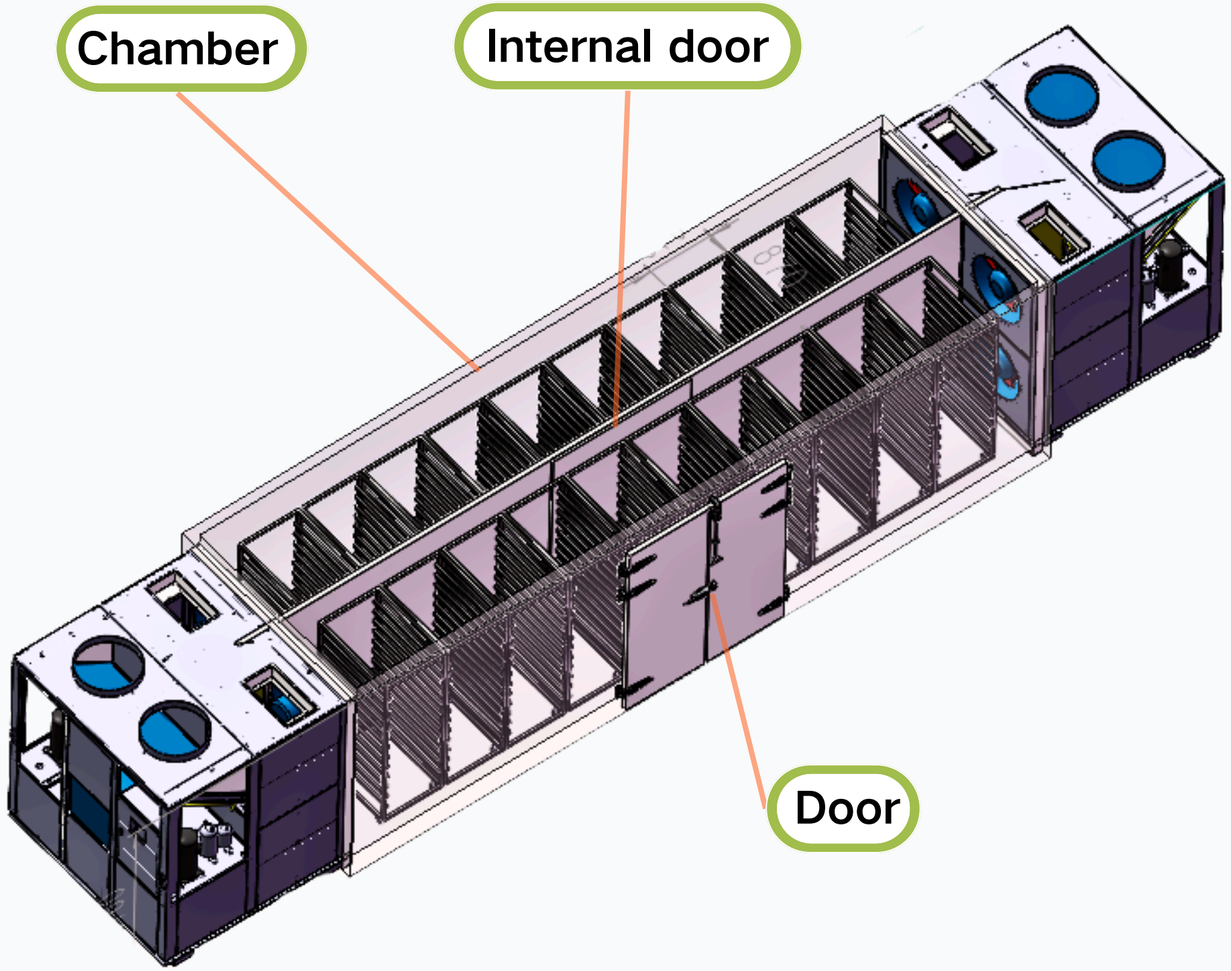
Expansion valve
(SANHUA)

# Then, the structure of the chamber!





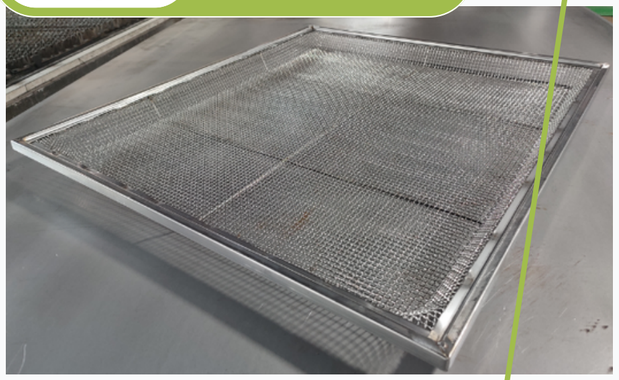

Using **100MM thick polyurethane insulation material** to construct the chamber of the dryer, the product can be dried in a sealed and insulated environment, achieving the goals of energy conservation and efficiency.

# Next is the display of trolley and tray!

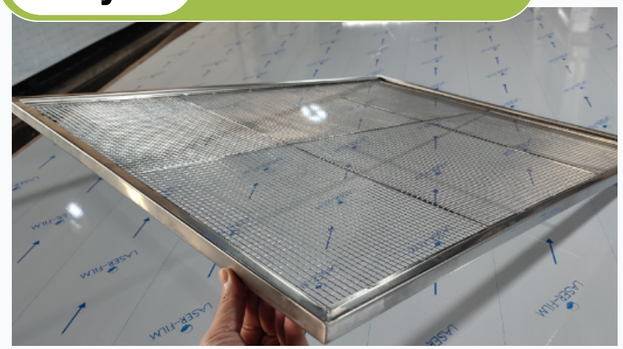


**Material: SUS 304**

**Tray A** 80*60*5cm



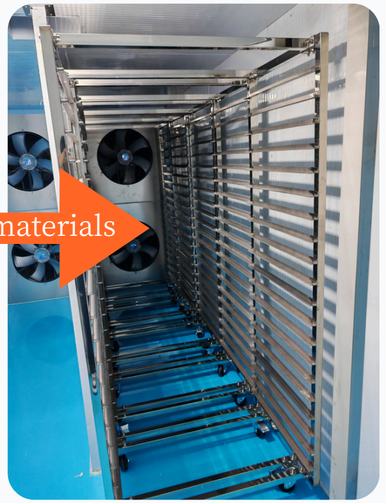
**Tray B** 80*60*1.5cm



**Trolley** 87*61*190cm





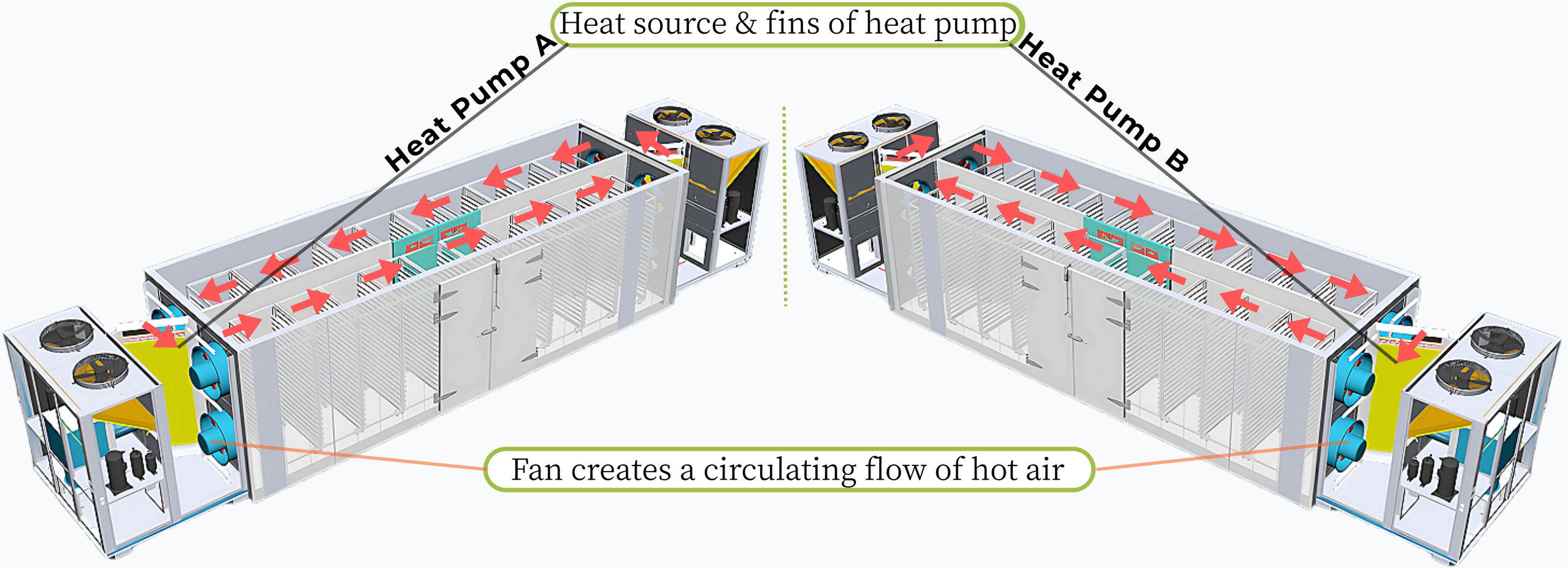




# New hot air system: timed direction change! Products absorbs heat more evenly



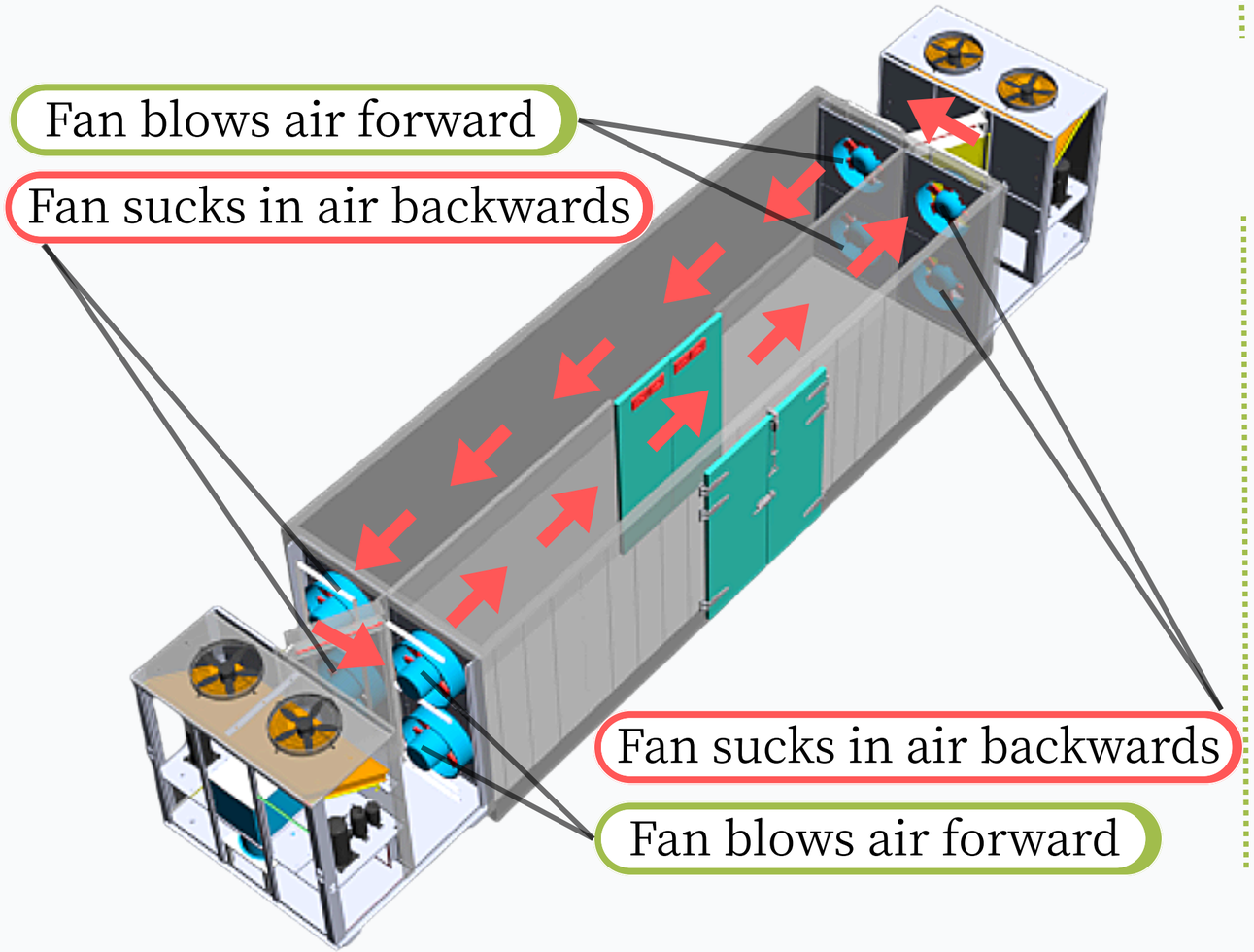
Hot air circulation: Counterclockwise state

Hot air circulation: Clockwise state

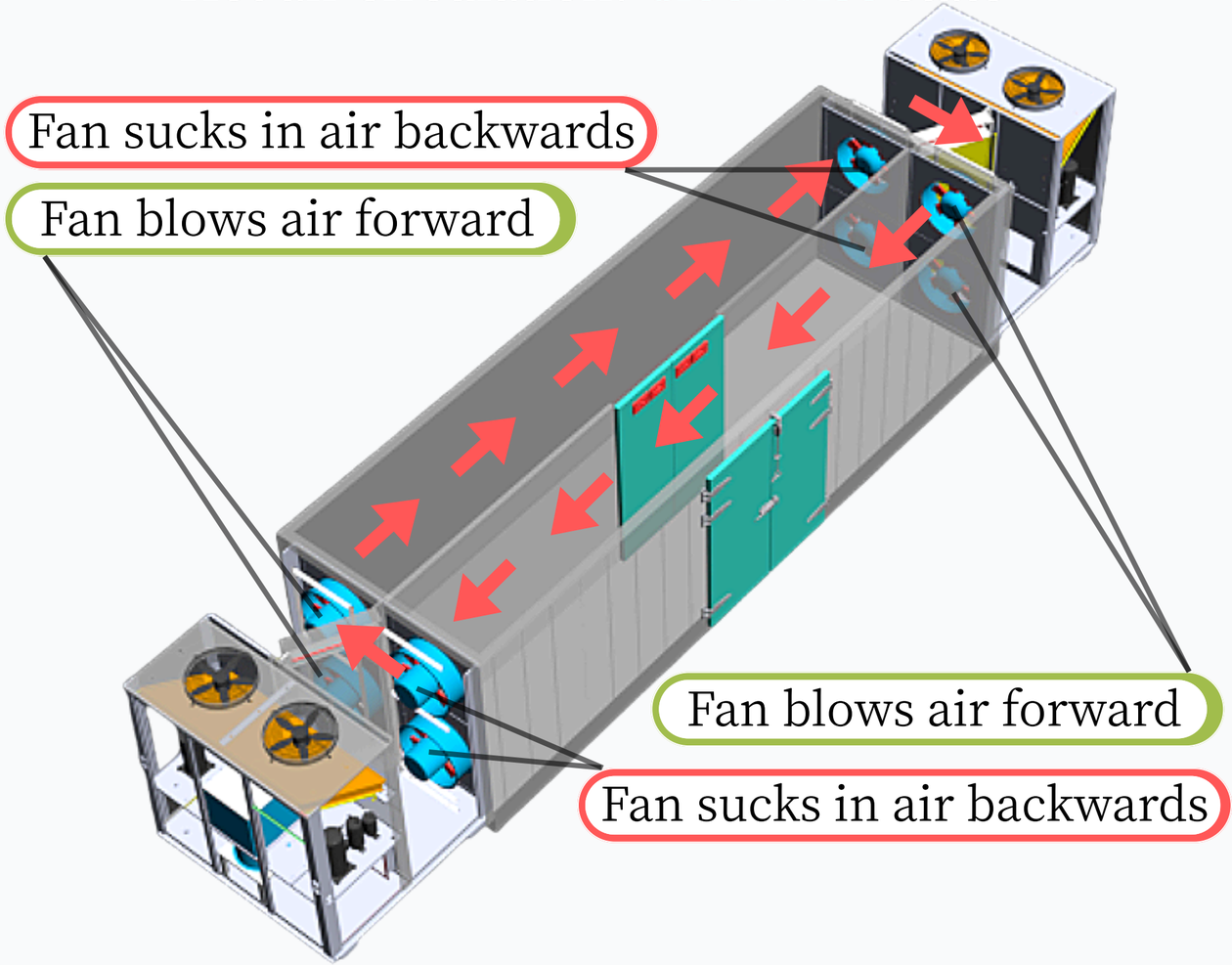



1. Automatic and timed switching of hot air output direction;
2. Bidirectional heat output reduces indoor temperature difference;
3. Ensure that the products on the shelf can be heated from both the front and back.

## Hot air circulation: Counterclockwise state

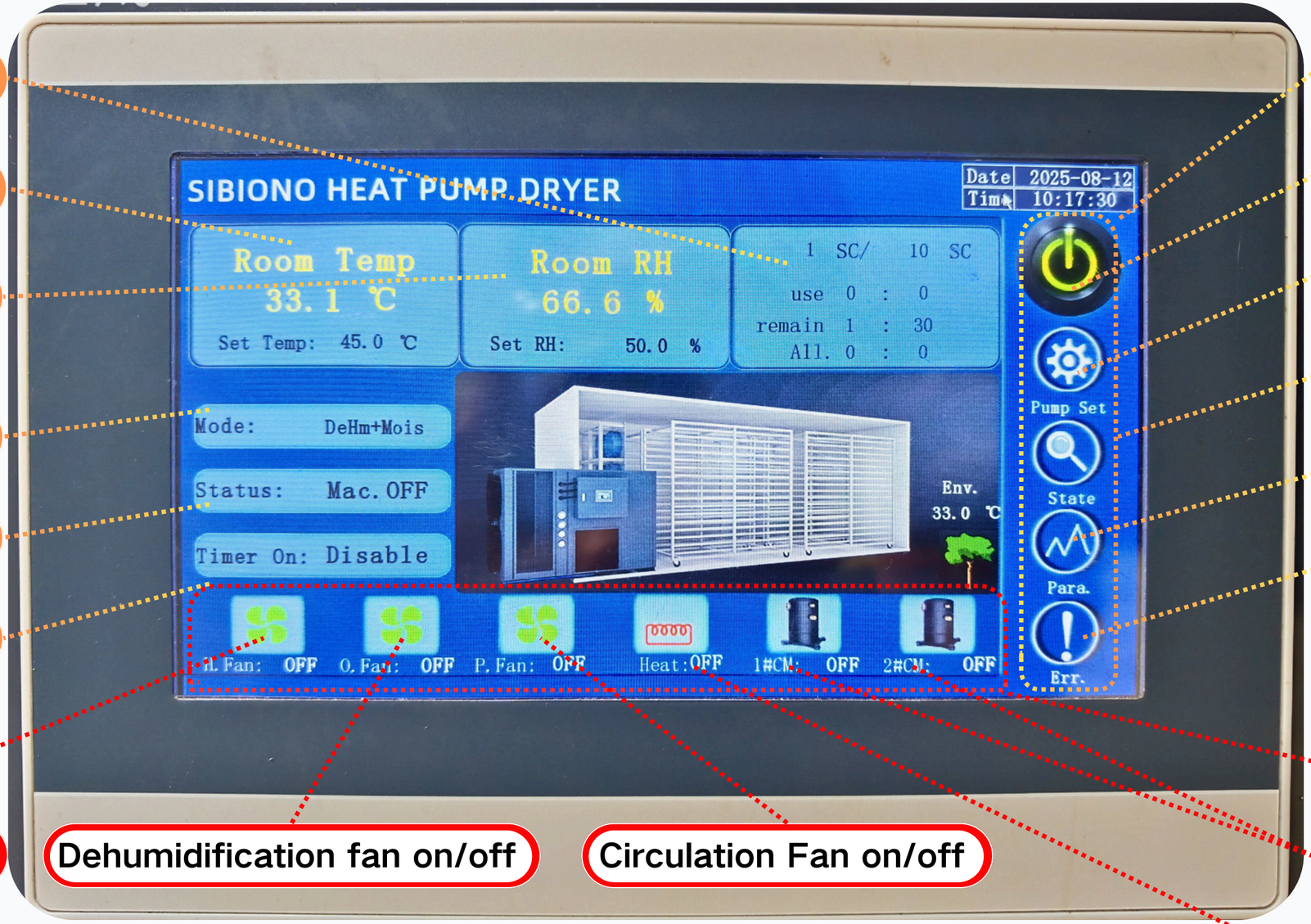



## Hot air circulation: Clockwise state



# Firstly, take a look at the control screen!






- Run time statistics
- Chamber temperature
- Chamber humidity
- Drying machine mode
- Running state
- Timed function status
- Function button area
- Heat Pump on/off
- System setting
- Dryer status
- User Param setting
- Fault information
- component status bar
- Evaporator fan on/off
- Dehumidification fan on/off
- Circulation Fan on/off
- Compressor on/off
- assisted heating on/off

# Secondly, the drying process setting table

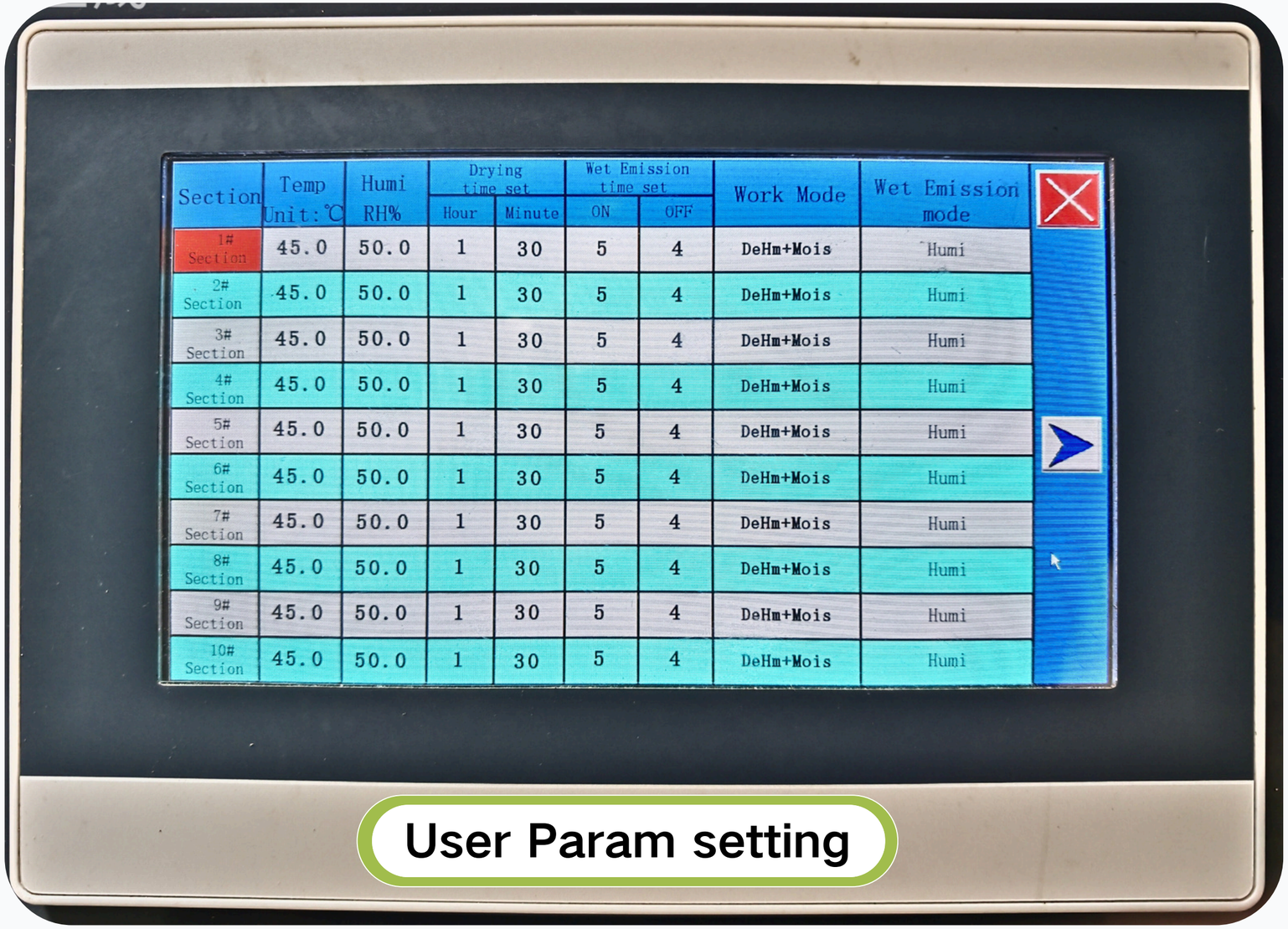


The operation settings of SIBIONO heat pump dryer support up to 10 stages of operation data. After you fill in the parameters, the machine will automatically run according to these parameters:

A. Set the running time for each stage;
B. Temperature can be set for each stage;
C. Humidity can be set for each stage;
D. Dehumidification frequency for each stage;

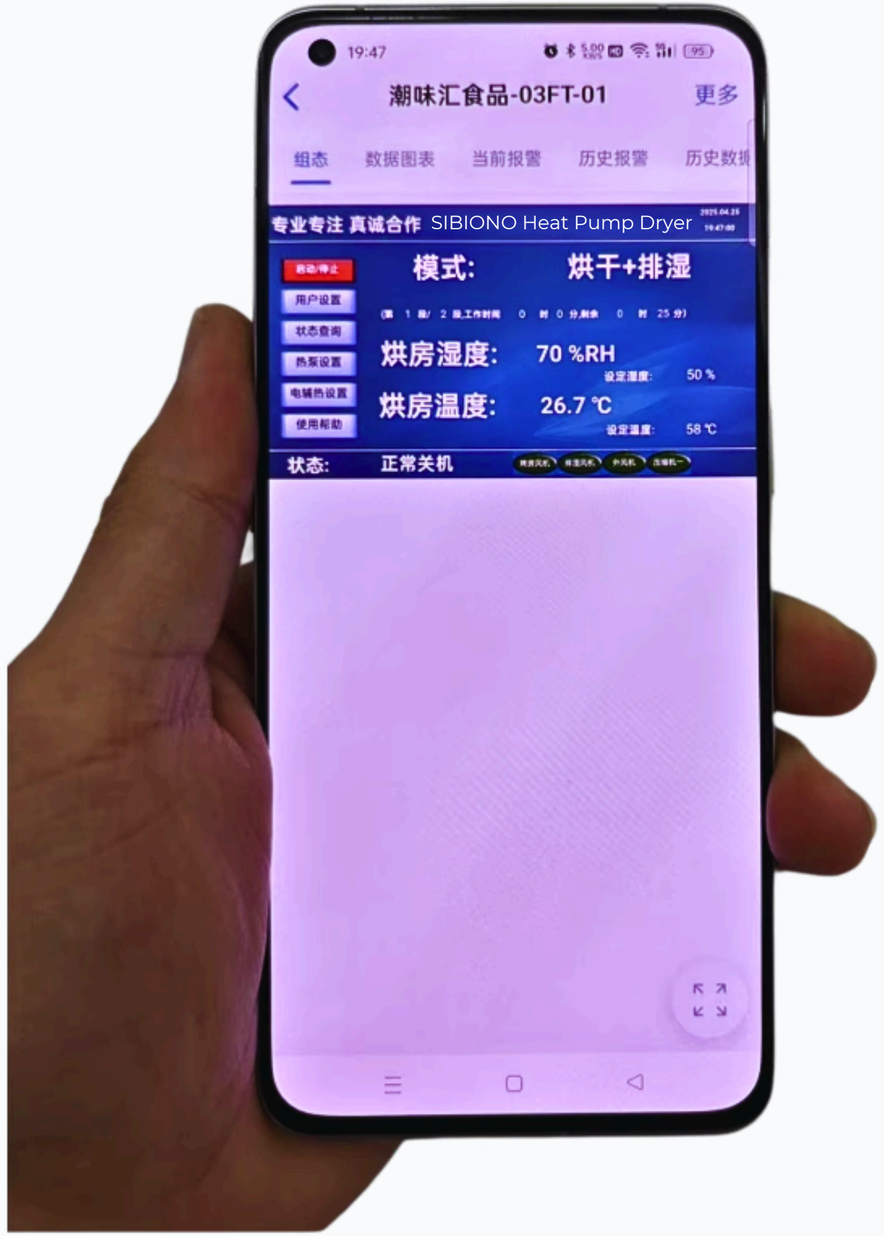
Regarding the drying parameters, different products have different parameters. We can provide corresponding drying parameter documents for each product to help you use the machine smoothly.

- Mango Drying Datas
- Lemon Drying Datas
- Apricot Drying Datas
- Jerky Drying Datas
- Pineapple Drying Datas
- .....



# New feature, mobile online control APP




SIBIONO dryers all support online control, allowing real-time monitoring of data, fault notifications, and changes to the operation data of the dryer through mobile phones.

PS: Default support for Chinese and English, customizable language.

# Case sharing

9-year-old brand SIBIONO dryer - Rich product experience








## Please contact us for drying case

| | | | |
|---|---|---|---|
| Fruits | Mango | Fig | Pineapple ..... |
| Jerkys | Beef | Breasts | Duck breast meat ... |
| Vegetables | Edible fungi | Chili | Sweet potato ... |
| Seafoods | Small fish | Big Fish | Shrimp ... |
| Noodles | Noodle | Straight noodles | Rice noodles ... |

赛百诺 SIBIONO

**Guangzhou SIBIONO Drying Equipment Co., Ltd**

# Contact Us

9-year-old brand SIBIONO dryer - Rich product experience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