



## A HIGH EFFICIENCY HEAT PUMP DEHUMIDIFIER FOR HOT PEPPER DRYING



Chili, also called FanJiao, Haijiao, hot pepper, spicy Angle, qin pepper, etc. , is a kind of plants of the genus solanaceae chili. Fruit is usually conical or oblong, its green when immature will become bright red, yellow or purple after maturity, but in red is the most common. The fruit of chilil contains capsaicin and spicy, So it can increase appetite. Vitamin C content in chili ranks first in the vegetables.

Red peppers are rich in vitamin C and carotene (vitamin A precursor), and chili peppers are rich in a variety of vitamin B (especially vitamin B6), as well as potassium, Magnesium and iron, which are essential elements for the body. High levels of vitamin C in chili peppers also help foods, such as beans and cereals and iron from non-heme sources.

Chili is mainly divided into five categories: tufted pepper, long pepper, sweet persimmon pepper, cherry pepper, conical pepper, etc. There are more than 2000 kinds of pepper in the world. The higher the degree of capsicum is, the hotter the pepper is.

Fresh chili has a very short shelf life and can be preserved for a long time after dehydration and drying. The drying process of chili pepper is as follows



Pick: fresh chili pepper is picked to choose the fully mature, normal color, and complete fruit of the pepper; removed the superfluous branches and leaves inside the capsicum to remove the rear loading plate. It is not easy to stack in the material plate. The general thickness 8-10cm is good.



Fix color and drying at a constant temperature, drying by increasing the temperature step by step, in the early stage of drying, need both drying and dehumidification. The temperature is generally controlled below 50 degrees, and if the temperature is too high during the drying, which will result in the browning of the color of pepper. The main nutritional ingredient, capsaicin, VC, etc. , is seriously damaged as heating and oxidation, which seriously affects the quality of the product.



Drying at high temperature, the moisture content of pepper is dried below 30%, then drying at high temperature (depending on the type of pepper, the drying temperature is different), when the moisture content of pepper is less than 10%, stop drying.



The freshly dried pepper is easy to be broken. It is necessary to put the dried pepper in the air for a period of time to moisture regain. When the moisture content is about 13%, to pack and put into storage.)

\* Remark: different types of pepper, drying process is slightly different. The above process is for reference only, which is based on the drying process that our company actually debugged.



## Pepper Drying Machine Instruction

Pepper has a large moisture content and is easy to rot in wet environment, so it is more important to remove moisture inside drying room in time than to control drying temperature during drying.

“Dryfree” Pepper drying special heat pump drying high efficiency dehumidifier, specially designed for pepper drying, heat source using heat pump drying, high efficiency dehumidification system timely release of moisture in the baking room;the whole process of drying computer monitoring, Accurate control of



drying temperature; optimal air duct layout to ensure uniform temperature in all parts of the baking room. All materials in the baking room are heated evenly, the drying degree is even after drying, the color is uniform, and the whole drying process is free of pollution and discharge, High efficiency, low energy consumption, dried pepper is superior to natural drying, the quality is superior.)

In the drying process, there is no open fire or overheating, which effectively eliminates the phenomenon of contact with open fire or overheating of hot pepper during conventional drying. It can realize low temperature drying, high efficiency dehumidification, and improve drying speed. It can also ensure that nutrition elements will not be lost, which is the first choice of drying machine for modern green organic agriculture.)

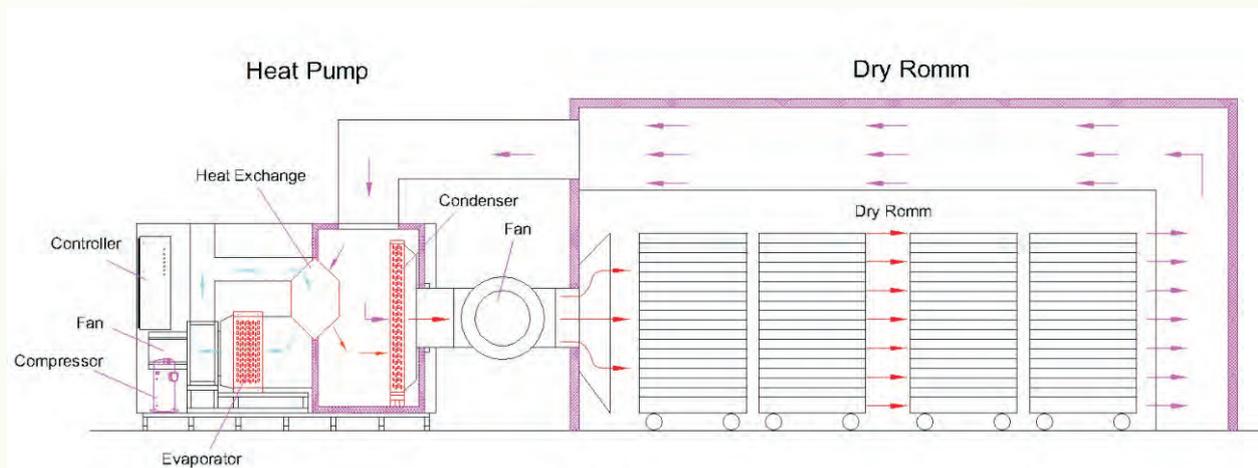
### Heat pump unit parameter

|   |  |
|---|--|
| Model                                   | SNJ-12P                                      |
| Equipment size (length*width*height/mm) | 2350*1800*1700                               |
| Voltage VN/frequency HZ)                | 380/50                                       |
| Total power of equipment(KW)            | 10   |
| Rated current (A)                       | 16   |
| Power (HP)                              | 12   |
| Rated heating capacity (KW)             | 18   |
| Rated temperature (°C)                  | 60   |
| Maximum temperature (°C )               | 85   |
| Compressor brand                        | Valley wheel                                 |
| Compressor quantity                     | 2  |
| Dehumidification quantity               | 30-60kg, hour                                |
| control system                          | Touch screen and PLC Programmable Controller |
| Anti-shock grade                        | Class 1                                      |
| Protection level                        | 1P×4   |
| Mainframe weight (KG)                   | 500  |
| Ambient temperature (°C)                | 0-40   |
| Noise [dB (A) ]                         | 55   |

## Product Advantage:

1. The heating and dehumidification system is integrated, the equipment is smaller, the installation is more convenient, and the operation is more stable.
2. Automatic computer control operation, no manual guard, running data LCD display, drying process data is intuitive and clear.
3. Closed cycle heating system and dehumidification system can save energy to the maximum extent and will not pollute the surrounding environment.
4. Accurate drying temperature controlled and efficient dehumidification, do not destroy the internal nutrients of pepper or cause nutrient loss.
5. The maximum heating temperature can reach above 85 degrees.
6. High efficiency, low energy consumption, no pollution, stable performance.
7. The material is heated evenly, fast and of good quality.

## Schematic Diagram



### A Project of Pod Pepper Drying

- 1) Pod pepper water content: 80% → 10%
- 2) Configuration: 1 axial flow fan and 4 negative pressure fans
- 3) Dehumidifier should be started during baking
- 4) Each 4 kg of fresh pod pepper bakes about 1 kg dry pod pepper
- 5) Dry 1000kg one batch: Use dehumidifier, 12P+36KW electrical heating
- 6) Drying room size: 6800 (L) \* 2700 (W) \* 2300 (H)
- 7) Drying time: 32H
- 8) Trolley 10pcs, 15 layer each trolley, two tray each layer, total 300 trays
- 9) Trolley size 1200 (L) \* 890 (W) \* 2150 (H)

### Controller parameter

| Total control parameter                      |      |
|--|------|
| Segment number (segment)                     | 4    |
| control model                                | time |
| Running time limit (hours)                   | 32   |
| Control temperature difference (°C)          | 2.0  |
| Wet control delay (minute)                   | 1    |
| Preheating temperature (°C)                  | 55   |
| Preheating time (minute)                     | 60   |
| Preheating and open auxiliary heating (°C)   | 0    |
| Preheating and closed auxiliary heating (°C) | 54   |

## Cotroller parameter

Four-stage control parameters

|                              | stage I   | stage II  | stage III | stage IV  |
|------------------------------|-----------|-----------|-----------|-----------|
| temperature Control (°C)     | 58        | 65        | 58        | 55        |
| humidity Control (%)         | 45        | 35        | 25        | 15        |
| End humidity (%)             | 35        | 25        | 15        | 13        |
| Segmented time (minute)      | 540       | 600       | 420       | 300       |
| Open auxiliary heating (°C)  | 0         | 0         | 0         | 0         |
| Auxiliary heating (°C)       | 56        | 63        | 50        | 0         |
| Moisture exhaust fan control | Automatic | Automatic | Automatic | Automatic |

## Drying photos

