HjChem


Nanjing HjChem Equipment Co.,Ltd

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# Nanjing HjChem Equipment Co.,Ltd

## Laboratory and Processing Equipemnt

**Caring for quality and your satisfaction**

HjChem is committed to continually meet and e
xceed customer's needs and requirements,
offering innovations and advanced equipment
with high quality.

- Service
- Quality
- Innovation

# ABOUT US

Nanjing HjChem Equipment company has been committed to providing customers with first-class equipment in the chemical and pharmaceutical industry.

Our product lines range from laboratory and pilot scale to industrial scale and mainly focus on the fine chemicals, biological fermentation, plant extraction and other related fields, to provide all kinds of equipment and turnkey solutions.

Our core products mainly include molecular distillation equipment, various reactors, rotary evaporat or, freeze dryers, spray dryers, temperature control unit and other supporting equipment.

We work hard to provide high quality products to our customers in universities, research labs and production facilities from all over the world. All products are with reasonable price and real time support upon our own production line, professional experience, and high quality supply chain.Our experienced and well-trained team are always ready to provide the best support.

Our products have been exported more than 38 countries including the United States, Denmark, Poland, Mexico, Israel, Span, South Korea, Japan and so on.



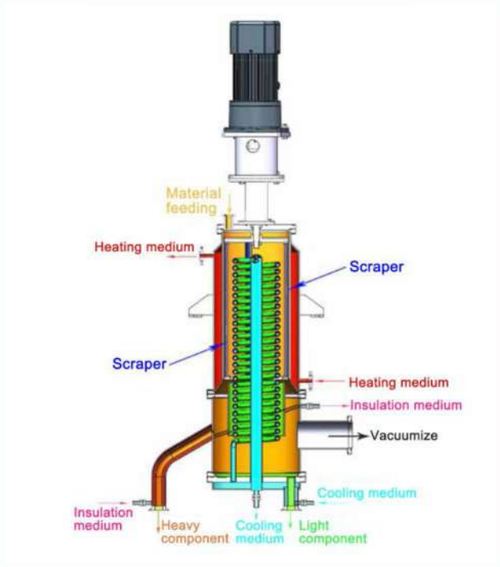
# CATALOG

Quality determins future !

# MOLECULAR DISTILLATION

Molecular distillation is a special liquid-liquid separation equipment. It is different from traditional distillation which relies on the separation principle of boiling point difference, but relies on the difference in the mean free path of molecular motion of different substances to achieve separation.

## WORKING PRINCIPLE




The material is fed from the top of the evaporator, and is continuously and evenly distributed on the heating surface through the material-liquid distributor on the rotor, and the film scraper scrapes the product into a very thin liquid film. The interior of the evaporator is in a high vacuum state. The material absorbs heat on the heating surface and escapes from the heating surface. The free path of light molecules is greater than the distance from the heating surface to the condensation surface, collides with the condenser and is captured to form a new liquid flow. It is left along the condenser tube and discharged through the bottom light discharge pipe, the free path of heavy molecules is less than the distance from the heating surface to the condensation surface, kept in the liquid flow layer of the heating surface, and collected through the circular channel at the lower end of the heating surface, then it is discharged from the heavy discharge pipe on the side.





A complete set of molecular distillation equipment includes feed unit, evaporator, external cold trap, discharge unit, heating unit, refrigeration unit, vacuum unit and other components. The selection of each component and the nature of the separated material, the process requirements, and the existing resource conditions of the enterprise are reasonably matched to ensure that the entire set of equipment meets the needs of use.
Multi-stage thin-film and molecular distillation can be connected in series, and after continuous multi-stage distillation, the separation of multi-component complex mixtures can be realized.
Multiple experiments and demonstrations are required before model selection, and simple assembly is not possible.
Our company has more than ten years of experience in model selection and use, carefully recommends each set of equipment solutions to customers, and assists customers to optimize the use process of each set of equipment to the best.

## FEATURES

When compared with traditional vacuum distillation and rectification, molecular distillation has the following characteristics:

- High borosilicate glass: easy to observe the material under different conditions of pressure,temperature, flow and speed changes(such as material color, viscosity, film-forming effect), help to get the best process parameters and experimental data.
- Heating time is very short, less likely to deteriorate and carbonize heat-sensitive substances.
- High cleanliness: the material in the separation process only contact with glass and PTFE composite material, no other pollution.
- Belong to the physical separation process, can keep the natural state of the material from polution.Widely used in high value-added materials deodorization, bleaching and purification.

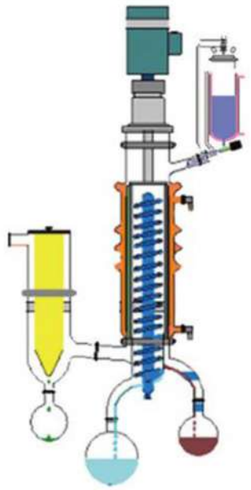
## APPLICATION




- Thermal separation of heat sensitive compounds.
- Purification of organic synthetic substances.
- Separation of active components in biological extracts.
- Recycling of industrial waste.
- Removeal of toxic substances in the food industry.
- Decolorization and deodorization of organic compounds.
- High-precision removal of residual solvents from compounds.

OPTION A:

Model: MDLS-150A



Option A: external cold trap *1pc

## Option A:

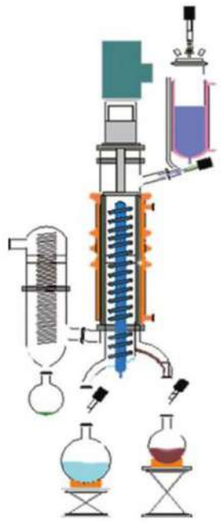
- 1. Jacket feeding tank
- 2. Motor
- 3. Main evaporator
- 4. Light components receiver
- 5. Heavy components receiver
- 6. Cold trap(Liquid nitrogen or dry ice)
- 7. Control cabinet
- 8. Heater: provide heat source for the feed tank
- 9. Heater: provide heat source for the main evaporator
- 10. Cooler: provide cold source for the main evaporator
- 11. Vacuum system: rotary-vane vacuum pump
- 12. Vacuum system: diffusion pump





OPTION B:

Model: MDLS-150B



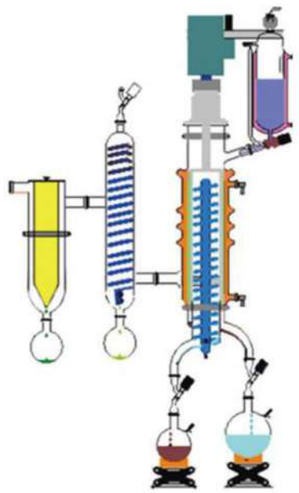
Option B: external condenser *1pc

## Option B:

- 1. Jacket feeding tank
- 2. Motor
- 3. Main evaporator
- 4. Light components receiver
- 5. Heavy components receiver
- 6. Condenser
- 7. Control cabinet
- 8. Heater: provide heat source for the feed tank
- 9. Heater: provide heat source for the main evaporator
- 10. Cooler: provide cold source for the main evaporator
- 11. Cooler: provide cold source for condenser
- 12. Vacuum system: rotary-vane vacuum pump
- 13. Vacuum system: diffusion pump

OPTION C:

Model: MDLS-150C



Option C: external condenser *1pc,
external cold trap *1pc,
need equip with cooler.

## Option C:

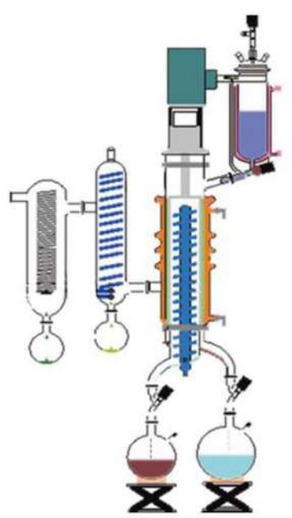
- 1. Jacket feeding tank
- 2. Motor
- 3. Main evaporator
- 4. Light components receiver
- 5. Heavy components receiver
- 6. Condenser
- 7. Cold trap
- 8. Control cabinet
- 9. Heater: provide heat source for the feed tank
- 10. Heater: provide heat source for the main evaporator
- 11. Cooler: provide cold source for the main evaporator
- 12. Cooler: provide cold source for condenser
- 13. Vacuum system: rotary-vane vacuum pump
- 14. Vacuum system: diffusion pump





OPTION D:

Model: MDLS-150D



Option D: external condenser *2pcs
equip with coolers *2sets

## Option D:

- 1. Jacket feeding tank
- 2. Motor
- 3. Main evaporator
- 4. Light components receiver
- 5. Heavy components receiver
- 6. Condenser 1
- 7. Condenser 2
- 8. Control cabinet
- 9. Heater: provide heat source for the feed tank
- 10. Heater: provide heat source for the main evaporator
- 11. Cooler: provide cold source for the main evaporator
- 12. Cooler: provide cold source for condenser 1
- 13. Cooler: provide cold source for condenser 2
- 14. Vacuum system: rotary-vane vacuum pump
- 15. Vacuum system: diffusion pump

Integrated design, compact structure, small space occupation

Separate design, select temperature control equipment according to user needs, reduce unnecessary investment

The material pipeline is fully insulated, and materials with high melting point and high viscosity can be used

Evaporator material is glass+stainless steel, good observation and high safety,can change to ss tube after experiment.





The material liquid distributor evenly distributes the material on the heating surface in a thin film, which reduces the pressure difference generated by the static liquid surface of the material. The distance between the heating surface and the condensing surface is short, and the light molecules are quickly condensed after overflowing from the heating surface, which reduces the pressure difference caused by gas transfer, and it is easier to obtain a lower evaporation pressure. In addition, as long as the light molecules overflow from the evaporation surface, they can move freely separation can be achieved if the distance is greater than the distance between the evaporation surface and the condensation surface, without heating to the boiling point of the separated substance, so the distillation temperature is much lower than that of conventional distillation.

Molecular distillation can eliminate thermal decomposition, polymerization or deterioration during the thermal separation process, so molecular distillation is the mildest distillation method for thermal separation products, especially suitable for substances with high molecular weight, high boiling point, high viscosity and poor thermal stability of organic mixtures. It has been widely used in the extraction of a variety of natural ingredients. It can get rid of the shackles of chemical treatment methods, truly maintain the natural characteristics of the product, and is regarded as the protector and returner of natural quality.

| Model | MDLS-60 | MDLS-80 | MDLS-100 | MDLS-150 | MDLS-200 | MDLS-230 |
|---|---|---|---|---|---|---|
| Evaporator diameter(mm) | 60 | 80 | 100 | 150 | 200 | 230 |
| Evaporation area(㎡) | 0.06 | 0.1 | 0.15 | 0.25 | 0.35 | 0.5 |
| Feed speed(Kg/h) | 0.5-3.0 | 1.0-5.0 | 2.0-8.0 | 3.0-15.0 | 5.0-20.0 | 8.0-30.0 |
| Feed tank volume(L) | 1 | 1 | 2 | 2 | 5 | 5 |
| Max speed(RPM) | 300 | 300 | 300 | 300 | 300 | 300 |
| Volume of light compoent | 1L | 1L | 2L | 3L | 5L | 5L |
| Volume of heavy compoent | 1L | 1L | 2L | 3L | 5L | 5L |
| Motor power(W) | 60 | 60 | 120 | 120 | 200 | 200 |
| Operation temperature | -90~+300℃ | | | | | |
| Voltage | 220V/50HZ, support customization | | | | | |

# MOLECULAR DISTILLATION Pilot scale

A complete set of molecular distillation equipment includes: evaporator, heating unit, cooling unit, vacuum unit, material delivery unit, protection unit, and control unit. According to the characteristics of separated materials, reasonable selection and configuration of each unit is very critical to the performance of the complete set of distillation equipment.

## Features

- The inner wall of the main evaporator is smooth, not easy to stick materials and very easy for cleaning.
- Materials can be discharged continuously, reducing downtime and improving evaporation efficiency.
- Each component is designed and selected according to 24-hour continuous operation, and after repeated tests and evaluations, it can meet the stability, reliability and continuity requirements of industrial production.
- The auxiliary equipment selected in combination with the user's product performance and management habits meets the needs of the process and is convenient for the user to maintain.

## Attention

- Before starting, the equipment must first reach a vacuum state, so as not to reduce the evaporation efficiency.
- When starting to feed, adjust the stirring motor speed according to the feeding speed and material viscosity.
- The system cleaning is carried out under normal pressure. After the experiment, the light and heavy components are removed, loaded into the receiving flask, and the vacuum probe is removed to avoid corrosion.





Swing welding

Condenser system

Control box

Evaporator

Continuous pump

Diffusion pump

| Model | MDPS-0.06 | MDPS-0.1 | MDPS-0.15 | MDPS-0.25 | MDPS-0.35 | MDPS-0.55 |
|---|---|---|---|---|---|---|
| Condenser area(㎡) | 0.1 | 0.17 | 0.3 | 0.4 | 0.7 | 1.7 |
| Evaporation area(㎡) | 0.06 | 0.1 | 0.15 | 0.25 | 0.35 | 0.5 |
| Feed speed(L/h) | 1-5 | 2-10 | 6-15 | 10-25 | 15-30 | 20-60 |
| Feed tank volume(L) | 5 | 5 | 10 | 10 | 15 | 20 |
| Max speed(RPM) | 30-350 | | | | | |
| Stainless-steel material | Contact with materials is stainless steel 316, other 304 | | | | | |
| Feeding/discharge mode | Gear pump from continuous feed in and out | | | | | |
| Operation temperature | Within 350℃ | | | | | |
| Min operation pressure | ≤0.001 mbar | | | | | |
| Power | 220V/50Hz/60Hz, support customization | | | | | |

# MOLECULAR DISTILLATION Industrial scale

Our team is composed of senior experts in chemical synthesis, chemical technology and engineering, chemical machinery and automation. The design of process equipment is thoughtful. According to the properties of separated materials, each unit is reasonably selected and configured for the performance of the complete set of distillation equipment.

## Features

- Material pipe is fully insulated, high melting point, high viscosity materials can be used.
- Each component is designed and selected according to 24-hour continuous operation, and after repeated tests and evaluations, it can meet the stability, reliability and continuity requirements of industrial production.
- The auxiliary equipment selected in combination with the user's product performance and management habits meets the needs of the process and is convenient for the user to maintain.
- It is our duty to provide you with model selection, production and installation, and after-sales service tracking after multiple experiments and demonstrations before model selection, not simple assembly.

## Attention

- Before starting, the equipment must first reach a vacuum state, so as not to reduce the evaporation efficiency.
- When starting to feed, adjust the stirring motor speed according to the feeding speed and material viscosity.
- The system cleaning is carried out under normal pressure. After the experiment, the light and heavy components are removed, loaded into the receiving flask, and the vacuum probe is removed to avoid corrosion.





Swing welding

Condenser system

Control box

Evaporator

Continuous pump

Vacuum system

| Model | MDIS-1SS | MDIS-1.5SS | MDIS-2SS | MDIS-3SS | MDIS-5SS |
|---|---|---|---|---|---|
| Condenser area(㎡) | 2.7 | 3.5 | 4.9 | 6.5 | 8 |
| Evaporation area(㎡) | 1 | 1.5 | 2 | 3 | 5 |
| Feed speed(L/h) | 50-120 | 60-180 | 100-200 | 100-300 | 200-500 |
| Max speed(RPM) | 30-350 | 30-350 | 30-350 | 30-350 | 30-350 |
| Stainless-steel material | Contact with materials is stainless-steel 316, other 304 | | | | |
| Feeding mode | Gear pump from continuous feed in | | | | |
| Discharge mode | Gear pump from continuous discharge | | | | |
| Operation temperature | Within 350℃ | | | | |
| Min operation pressure | ≤0.001 mbar | | | | |
| Power | 380V/50Hz/60Hz, support customization | | | | |

## Glass Reactor

The glass reactor takes advantage of the characteristics of the double-layer glass reactor. The inner layer places the reaction materials, and the stirring reaction is carried out under normal or negative pressure conditions.The material in the kettle can be concentrated, distilled, refluxed, separated and purified under the conditions of constant speed and temperature. It is an ideal instrument and equipment for teaching, experiment, pilot test and production.

### Features

- Vessel capacity can be selected from 100ml to 200L.
- High borosilicate glass material, high temperature and corrosion resistance.
- Multifunctional kettle lid, which can be customized according to customer requirements.
- The paddles are made of PTFE, integrally formed, with no gaps and no liquid residue. Stirring rod material is 316 stainless steel outsourcing polytetrafluoroethylene tube, high strength, strong corrosion resistance.
- The frame is made of thick stainless steel, which is strong and stable, and has high anti-corrosion performance.
- No dead angle discharge valve, complete discharge.





## LAB SCALE Glass Reactor

Lab scale glass reactor adopts an imported overhead agitator, and the dynamic and static rings are combined with a mechanical seal, which is corrosion-resistant and not easy to wear. The kettle body is made of G3.3 high borosilicate glass, and the kettle body has a capacity of 100ml to 5L. The frame can be sprayed with Teflon to prevent corrosion.

Motor

Quick open clamp

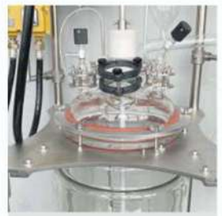
Thread opening

Discharge value

| Model | GRLS-100ml | GRLS-250ml | GRLS-500ml | GRLS-1L | GRLS-2L | GRLS-5L |
|---|---|---|---|---|---|---|
| Vessel volume | 100ml | 250ml | 500ml | 1L | 2L | 5L |
| Jacket volume | ≈20ml | ≈20ml | ≈30ml | 200ml | 200ml | 1L |
| Lid openings | 5 | 5 | 5 | 5 | 5 | 5 |
| Speed | 100-2000 r/min | | | | | |
| Stirrer | Anchor type and other types are optional | | | | | |
| HTF interface | Screw type threaded connection | | | | | |
| Frame | Teflon-coated metal, screw-type installation and removal without tools | | | | | |
| Sealing type | Self-lubricating mechanical seal | | | | | |
| Motor power | 75W | | | | | 100W |
| Voltage | 220V/50Hz, support customization | | | | | |

## PILOT SCALE Glass Reactor

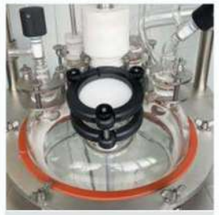
The high-vacuum jacketed glass reactor can achieve ideal high vacuum through the use of a vacuum pump. The quick-release stainless steel frame and the multi-functional ball-mouth lid have good sealing performance, which is convenient for experimenters to disassemble and reduce the wear of accessories.



All SS frame

Condensing reflux unit

Temp sensor



Kettle Lid

| Model | GRPS-10L | GRPS-20L | GRPS-30L | GRPS-50L | GRPS-80L |
|---|---|---|---|---|---|
| Vessel volume | 10L | 20L | 30L | 50L | 80L |
| Jacket volume | ≈2L | ≈5L | ≈8L | ≈15L | ≈16L |
| Flange diameter | 265mm | 265mm | 340mm | 340mm | 340mm |
| Lid openings | 6 | 6 | 6 | 6 | 6 |
| Speed | 0-400 RPM | | | | |
| Sealing type | Self-lubricating mechanical seal, PTFE outer cover, no wear debris | | | | |
| Frame | All stainless steel quick release frame | | | | |
| Motor power | 120W / 1:3 | | | | 200W / 1:3 |
| Ex motor power | 180W | | | | 370W |
| Voltage | 220V/50Hz, support customization | | | | |

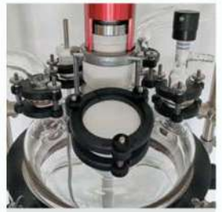




## INDUSTRIAL Glass Reactor

The connection ports of the kettle cover are all connected by ball ports, and the shaft sleeve mechanical seal is used to make the stirring more stable. The quick-release flange is convenient for disassembly and installation. The thickened stainless steel shaft is covered with PTFE.

Mechanical seal



Kettle lid

Quick flange

Discharge value

| Model | GRIL-100L | GRIL-150L | GRIL-200L |
|---|---|---|---|
| Vessel volume | 100L | 150L | 200L |
| Jacket volume | ≈20L | ≈35L | ≈40L |
| Flange diameter | 340mm | 340mm | 340mm |
| Lid openings | 6,support customization | | |
| Speed | 0-400 RPM | | |
| Sealing type | Self-lubricating mechanical seal, no wear debris | Sleeve mechanical seal | |
| Frame | All stainless steel quick release frame | | |
| Motor power | 200W / 1:3 | 400W / 1:3 | |
| Ex Motor power | 370W / 1:3 | | |
| Voltage | 220V/50Hz, support customization | | |

## Nutsche Filter Reactor

Nutsche filter reactor can be used for stirring, filtration, polypeptide synthesis, crystallization, cracking and other process. Compared with the conventional reaction kettle, there is one more replaceable filter device, and vacuum negative presure is used for suction filtration. The high borosilicate glass kettle body is high transparent, can observe the experiment process conveniently.

### Features

- The filter device is made of PTFE material.
- Kettle body capacity is available from 100ml to 100L (glass material), 150L-500L (stainless steel material).
- The filter device is fixed by a flange, which is convenient to disassemble and replace the filter sand core.
- The material in contact with the material is made of glass or PTFE, no metal contact.
- The filter material can be PTFE sand core, glass sand core filter plate, stainless steel filter element, titanium alloy filter element and filter cloth of various materials, and the filter pore size is optional (0.1um-200um).
- Widely used in plants, cosmetics, peptide synthesis, pharmaceutical and pesticide industries and food industry.





## Lab Scale Nutsche Filter Reactor

Lab scale nutsche filter reactor adopts an imported overhead stirrer, the liquid crystal displays the speed, the quick-opening fixture does not need tools, the outer spray Teflon frame is corrosion-resistant, and the filter bottom plate is connected by a stainless steel quick card.

Motor

Connector

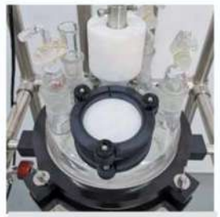
Frame

Filter device

| Model | NRLS-100ml | NRLS-200ml | NRLS-500ml | NRLS-1L | NRLS-2L | NRLS-5L |
|---|---|---|---|---|---|---|
| Vessel volume | 100ml | 250ml | 500ml | 1L | 2L | 5L |
| Jacket volume | ≈20ml | ≈20ml | ≈30ml | ≈200ml | ≈200ml | ≈1L |
| Kettle Lid openings | 5 Openings | | | | | |
| Vessel & Lid | Fast opening, PTFE gasket in the middle | | | | | |
| Rotation speed | 100-2000 RPM | | | | | |
| Frame | Teflon sprayed on the outside of the metal, screw-type installation and removal | | | | | |
| Sealing | Self-lubricating mechanical seal | | | | | |
| Filter plate | Sand core is removable | | | | | |
| Pore size | 0.1~200um optional | | | | | |
| Voltage | 220V/50Hz, support customization | | | | | |

## PILOT SCALE Nutsche Filter Reactor

Use an appropriate filter to separate the solid particles in the slurry to form a filter cake, the filtrate flows downward and flows out from the valve at the bottom outlet. The filter plates are made of various materials and pore sizes are available. Commonly used in plants, cosmetics, peptide synthesis, pharmaceutical and pesticide industries, and food industries. The material in contact with the material is glass or PTFE material, no metal contact.



Kettle Lid

Condensing reflux

PTFE filter device

Discharge value

| Model | NRPS-10L | NRPS-20L | NRPS-30L | NRPS-50L | NRPS-100L |
|---|---|---|---|---|---|
| Vessel volume | 10L | 20L | 30L | 50L | 100L |
| Jacket volume | ≈2L | ≈5L | ≈8L | ≈15L | ≈20L |
| Flange diameter | 265mm | 340mm | 340mm | 450mm | 490mm |
| Lid openings | 6 | 6 | 6 | 6 | 6 |
| Speed | 0-400 RPM | | | | |
| Sealing type | Self-lubricating mechanical seal, PTFE outer cover, no wear debris | | | | |
| Filter device | Filter plate or sand core plate, detachable, pore size 0.1 ~ 200um | | | | |
| Motor power | 120W / 1:3 | | | | 200W / 1:3 |
| Ex motor power | 180W | | 370W | | 370W / 1:3 |
| Voltage | 220V/50Hz, support customization | | | | |



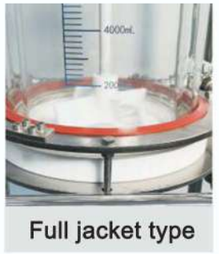


## Full Jacketed Nutsche Filter Reactor

The jacket goes straight to the bottom of the flange, and even a small amount of material can be heated evenly. The capacity can be selected from 5L to 30L. The PTFE filter bottom plate is removable and replaceable. The filter plate has an optional pore size of 0.1-200um.

Mechanical seal

All SS frame



Full jacket type

PTFE filter device

| Model | NRFJ-5L | NRFJ-10L | NRFJ-20L | NRFJ-30L |
|---|---|---|---|---|
| Vessel volume | 5L. | 10L | 20L | 30L |
| Jacket volume | ≈3L | ≈4L | ≈6L | ≈9L |
| Frame material | All stainless-steel frame, optional spraying Teflon and other processes | | | |
| Lid openings | 6,support customization | | | |
| Speed | 0-400 RPM | | | |
| Motor | 60 / 1:3 | 120 / 1:3 | | |
| Filter device | PTFE filter plate and sand core plate is optional | | | |
| Pore size | 0.1-200um | | | |
| Environment temp | 5-40°C | | | |
| Voltage | 220V/50Hz, support customization | | | |

## Stainless-steel Nutsche Filter Reactor

New stainless steel nutsche filter reactor, the kettle body is designed with 316 stainless steel with viewing window, the capacity can be selected from 10L to 500L, the PTFE filter bottom plate can be disassembled and replaced, the filter plate aperture is optional from 0.1-200um, the vessel can be sprayed with PTFE or lined with PTFE, corrosion-resistant.

Kettle Lid

Welding

Filter device

View window

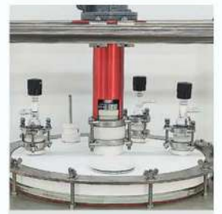
| Model | NRSS-10L | NRSS-20L | NRSS-30L | NRSS-50L | NRSS-100L | NRSS-200L |
|---|---|---|---|---|---|---|
| Vessel volume | 10L | 20L | 30L | 50L | 100L | 200L |
| Jacket volume | ≈2L | ≈5L | ≈8L | ≈15L | ≈20L | ≈40L |
| Flange diameter | 230mm | 290mm | 330mm | 365mm | 450mm | 550mm |
| Lid openings | 7,support customization | | | | | |
| Speed | 0-400 RPM | | | | | |
| Sealing type | Self-lubricating mechanical seal | | | | | |
| Filter plate | PTFE filter plate or sand core plate, pore size 0.1~200um optional | | | | | |
| Motor power | 120W / 1:3 | | | | 200W / 1:3 | |
| Ex motor power | 180W | | 370W | | 370W / 1:3 | |
| Voltage | 220V/50Hz, support customization | | | | | |





## Pyrolysis Reactor

The pyrolysis reactor adopts a shaft sleeve mechanical seal, and the kettle cover is made of PTFE material for corrosion resistance, and the opening can be customized. The three-layer frame has strong stability, and the filtration area is larger than the conventional one. The handwheel lifting device can lift the PTFE filter device.



Mechanical seal

Large filter area

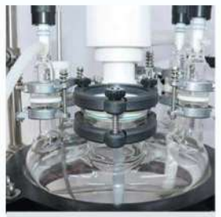
Nitrogen discharge value

Handwheel lifting

| Model | NRPY-50L | NRPY-100L |
|---|---|---|
| Vessel volume | 50L | 100L |
| Jacket volume | ≈15L | ≈20L |
| Flange diameter | 450mm | 490mm |
| Lid openings | 6,support customization | |
| Speed | 0-400 RPM | |
| Sealing type | Sleeve mechanical seal | |
| Filter device | PTFE filter plate or sand core plate, pore size 0.1~200um | |
| Motor power | 120W / 1:3 | 200W / 1:3 |
| Ex Motor power | 370W | 370W / 1:3 |
| Voltage | 220V/50Hz, support customization | |

## Crystalization Reactor

Crystallization reactor, the motor and filter bottom plate can be raised and lowered separately by the hand wheel, the multifunctional kettle lid can be used with the reaction device, the solid feeding port is enlarged to facilitate feeding and cleaning, and it is equipped with a collection bottle, and the mother liquor in the kettle is vacuum filtered to the collection bottle.



Kettle Lid

Handwheel lifting

PTFE filter device

Collection bottle

| Model | SRCY-10/5L | SRCY-20/10L | SRCY-30/10L | SRCY-50/20L | SRCY-100/50L |
|---|---|---|---|---|---|
| Vessel volume | 10/5L | 20/10L | 30/10L | 50/20L | 100/50L |
| Jacket volume | ≈2L | ≈5L | ≈8L | ≈15L | ≈20L |
| Flange diameter | 265mm | 265mm | 340mm | 450mm | 490mm |
| Lid openings | 6 | 6 | 6 | 6 | 6 |
| Speed | 0-400 RPM | | | | |
| Sealing type | Self-lubricating mechanical seal | | | | |
| Filter device | Filter plate or sand core plate, detachable, pore size 0.1~200um | | | | |
| Motor power | 120W / 1:3 | | | | 200W / 1:3 |
| Ex motor power | 180W | | 370W | | 370W / 1:3 |
| Voltage | 220V/50Hz, support customization | | | | |





## Accessory Selection

2 layers PTFE blade

3 layers PTFE blade

Anchor blade

Dispersion blade

Normal motor

Frequency converter


Ex motor

Ex frequency converter

## Overall solution

Heating cooling circulator | Crystallization reactor | Cooling circulator | Diaphragm pump

## Vacuum Suction Filter

According to the actual needs of the majority of biopharmaceutical development companies, it is improved and developed on the basis of the existing single-layer glass reactor. It is mainly used for solid-liquid separation, and can also be used for normal temperature reaction. At present, the suction filter made of glass and stainless steel has been widely promoted and used.

### Features

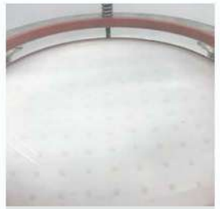
- The filter plate is detachable, easy to clean and replace.
- The middle part adopts composite sealing to resist solvent corrosion.
- The frame is made of stainless steel, which is strong and stable, and has high anti-corrosion performance.
- The discharge valve adopts the design of no dead angle, the discharge is simple and there is no residue.
- The glass is made of high borosilicate material, which is corrosion-resistant.





## GLASS Type Vacuum Suction Filter

Vacuum suction filter has PTFE filter bottom plate, resistant to strong acid, strong alkali, solvent corrosion, high vacuum tetrafluoro valve, high vacuum, corrosion resistance, stainless steel flange connection of suction filter tank, high corrosion resistance, no dead angle discharge valve, complete discharge, high temperature resistance, acid and alkali solvent resistance.



Filter device

Openings

Single-wall vessel

Discharge value

| Model | VSFG-10L | VSFG-20L | VSFG-30L | VSFG-50L |
|---|---|---|---|---|
| Vessel volume | 10L | 20L | 30L | 50L |
| Collection bottle | 5L | 10L | 10L | 20L |
| Lid openings | 2, liquid material feeing inlet, the other is spare port | | | |
| Vessel & Lid | Flange connection, PTFE gasket in the middle | | | |
| Filter device | Filter plate or sand core plate is detachable | | | |
| Working pressure | Normal pressure and negative pressure | | | |
| Frame | All stainless-steel frame | | | |
| Sand core material | Modified PTFE sand core, durable and not broken | | | |
| Pore size | 0.1~200um optional | | | |
| Voltage | 220V/50Hz, support customization | | | |

## Stainless-steel Vacum Suction Filter

The stainless steel vacuum filter is made of 304 stainless steel, which is corrosion-resistant, and is connected with a vacuum pump for suction filtration. Discharge bottom valve, no dead angle design, complete discharge, quick installation flange design for easy installation and disassembly

Buchner funnel

Vacuum port

Discharge value

Flange

| Model | VSFS-10L | VSFS-20L | VSFS-30L | VSFS-50L |
|---|---|---|---|---|
| Bottle feed size | In 60/ Out 80 mm | In 75/ Out 94 mm | In 75/ Out 94 mm | In 75/ Out 94 mm |
| Bottle discharge size | In 35/ Out 50 mm | In 35/ Out 50 mm | In 35/ Out 50 mm | In 35/ Out 50 mm |
| Inlet flange size | In 95/ Out 150 mm | In 95/ Out 150 mm | In 95/ Out 150 mm | In 95/ Out 150 mm |
| Outlet flange size | In 50/ Out 100 mm | In 50/ Out 100 mm | In 50/ Out 100 mm | In 50/ Out 100 mm |
| Filter bottle size | 350*490mm | 350*500mm | 350*650mm | 450*600mm |
| Funnel size | 350*220mm | 350*220mm | 350*220mm | 500*220mm |
| Filter device | Filter paper or filter cloth | | | |
| Dimensions | 500*500*1200 | 500*500*1300 | 500*500*1400 | 600*600*1500 |





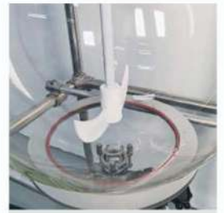
## Liquid Separator

The liquid separator is mainly used for liquid-liquid separation, and can also be used for stirring reaction at room temperature. After the reaction is completed, the material can be released from the discharge port at the bottom of the kettle, which is easy to operate.

Cylindrical

Spherical

PTFE kettle lid



Bottle holder

| Model | LS-10L | LS-20L | LS-30L | LS-50L |
|---|---|---|---|---|
| Vessel volume | 10L | 20L | 30L | 50L |
| Stirrer | PTFE Anchor blade, other type support | | | |
| Ex motor | Support customization | | | |
| Ex inverter | Support customization | | | |
| Sealing | Self-lubricating mechanical seal | | | |
| Discharge value | DN25 discharge value | | | |
| Frame | 304 stainless-steel frame | | | |
| Voltage | 220V/50Hz, support customization | | | |

## Gas Scrubber

It can be used for gas-liquid reaction or tail gas absorption in various occasions. Various specifications of 3L-100L liquid storage.This machine includes main components such as absorption main tank, glass filler, circulation pump, absorption tower, cooling device, spray cap, buffer tank etc.

### Working Process

After the circulation pump is turned on, the absorption liquid enters the shower from the round bottom flask through the condenser pipeline through the circulation pump, sprays from the tower cap down through the absorption tower, and then enters the absorption tank again. When the waste gas enters the round bottom flask and passes through the absorption column upwards, it contacts the absorption liquid with glass filler to fully mix the gas and liquid, thereby achieving the purpose of absorption. If the temperature of the exhaust gas is relatively high, it is necessary to connect the condensation pipe to cool the absorption liquid. This device adopts an active absorption device, for example, nitrogen is used as the carrier gas.





The washing liquid contained in the washing bottle needs to be selected according to the nature of the purified gas and impurities. For acidic impurities, alkaline detergent is usually used, for alkaline impurities, acidic detergent can be used, for oxidative impurities, reducing detergent can be used, for reducing impurities, oxidizing detergent can be used.When choosing detergent, you should make sure to do the following two points.

1. The solute in the detergent can react chemically with the impurity gas, and the impurity is transformed into a precipitate or dissolved as a soluble substance. Alternatively, the solvent in the detergent can fully dissolve the impurity gas, so as to achieve the purpose of removing the impurity gas.
2. The main gas has low solubility in detergent and is not absorbed by detergent in large quantities. For example, when washing carbon dioxide containing hydrogen chloride with concentrated sodium bicarbonate, hydrogen chloride reacts with sodium bicarbonate and is fully absorbed, carbon dioxide does not react with sodium bicarbonate, and has a small solubility in the solution, thereby achieving the purpose of removing impurity gases. If sodium carbonate solution is used instead, because carbon dioxide reacts with sodium carbonate solution to form sodium bicarbonate, and carbon dioxide is also fully absorbed by the solution, this method is not advisable.

Tower hat

Buffer tank

Absorption tower

Connector

| Model | GS-5L | GS-10L | GS-20L | GS-30L | GS-50L |
|---|---|---|---|---|---|
| Volume | 5L | 10L | 20L | 30L | 50L |
| Pump | Optional explosion-proof and anti-corrosion materials | | | | |
| Quick Clamp | Stainless-steel 304 | | | | |
| Filler | Glass, stainless steel or other material packing | | | | |
| Flange gasket | PTFE | | | | |
| Condenser | Standard | | | | |
| Material | High borosilicate glass | | | | |
| Powder | 220V / 50Hz, support customization | | | | |

## Rotary Evaporator

The rotary evaporator can be used to recover and evaporate organic solvents. The material forms a large-area film on the bottle wall and evaporates efficiently. The evaporated solvent is cooled by a high-efficiency glass condenser and recovered in the collection bottle. It is especially suitable for the concentration and purification of materials that are easy to decompose and denature at high temperature.

### Features

- LCD screen digital display temperature and speed, easy to operate.
- Bathtub lifting mode, electric lifting and manual lifting are optional.
- Vertical serpentine condensing coil with large condensing area and good effect.
- All parts in contact with materials are made of high borosilicate glass and PTFE. Composite sealing, maintenance free.
- Using Japanese technology-AC induction motor, stepless sped regulation, no brush, no spark,can work long time effectively.
- Advanced frequency control is adopted to ensure stable operation of the motor. High evaporation, high recovery.





## LAB SCALE Rotary Evaporator

The rotary evaporator is mainly used for concentration, crystallization, drying, separation and solvent recovery in the pharmaceutical, chemical and biopharmaceutical industries. The lab scale rotary evaporator adopts manual elastic mechanical lifting, which is convenient for up and down. Rotary bottle can choose pear-shaped rotary bottle or round rotary bottle.

Condenser

Feeding port

Controller

Mechanical lifting

| Model | RE-1L | RE-2L | RE-3L |
|---|---|---|---|
| Rotary flask | 1L | 2L | 3L |
| Receiving flask | 2L | 2L | 2L |
| Lifting mode | Manual mechanical elastic lifting | | |
| Rotating motor | 30W | | |
| Speed | 0-110 r/min | | |
| Heating power | 950W | | |
| Bath material | 304 stainless steel anti-corrosion and anti-scale | | |
| Condenser | Vertical coiled coil | | |
| Sealing | Teflon + fluorinated rubber double seal | | |
| Voltage | 220V/50Hz, support customization | | |

## PILOT SCALE Rotary Evaporator

Pilot-scale electric rotary evaporator has an optional capacity of 10L-100L. The integrated control panel adopts a digital PID temperature and speed controller, electric lift, which is convenient to adjust the height of the water bath up and down, and the vertical main condenser and auxiliary condenser make the evaporation speed faster. PTFE seals and valves, improve service life and corrosion resistance.

Double heating coil

Feeding port

Quick flange

Operation panel

| Model | RE-10L | RE-20L | RE-50L | RE-100L |
|---|---|---|---|---|
| Rotary flask | 10L | 20L | 50L | 100L |
| Receiving flask | 5L | 10L | 20L | 50L |
| Rotating motor | 250W | 250W | 250W | 370W |
| Heating power | 2KW | 3KW | 3KW | 9.5KW |
| Vacuum degree | <20Mbar | | | |
| Temp range | RT~99°C | | | |
| Lifting mode | Electric lifting,0-180mm | | | |
| Condenser | Vertical, main cooling + secondary cooling, high efficiency three return condensing pipe | | | |
| Sealing | PTFE main part + composite material + fluorine-coated O-ring | | | |
| Voltage | 220V/50Hz, 1 phase | 3phase, 220V/380V/50/60Hz | | |





## EX-proof Rotary Evaporator

The pilot explosion-proof electric lifting rotary evaporator adopts an explosion-proof control panel, and the liquid crystal displays the speed and temperature. The explosion-proof motor does not generate sparks when it is running, and has a high safety factor. The water bath adopts electric lifting and is easy to operate.

Feeding port

Double heating coil

Ex-proof panel

Quick flange

| Model | EX-RE-10L | EX-RE-20L | EX-RE-50L | EX-RE-100L |
|---|---|---|---|---|
| Rotary flask | 10L | 20L | 50L | 100L |
| Receiving flask | 5L | 10L | 20L | 50L |
| Rotating motor | 250W | 250W | 250W | 370W |
| Heating power | 2KW | 3KW | 3KW | 9.5KW |
| Vacuum degree | <20Mbar | | | |
| Temp range | RT~99°C | | | |
| Lifting mode | Electric lifting,0-180mm | | | |
| Condenser | Vertical, main cooling + secondary cooling, high efficiency three return condensing pipe | | | |
| Sealing | PTFE main part + composite material + fluorine-coated O-ring | | | |
| Voltage | 220V/50Hz, 1 phase | 3phase, 220V/380V/50/60Hz | | |

## Heating Circulator

Equipped with heating cooling container, with large heat transfer area, fast heat up and cool down,small heat transfer oil demand.Can heat up and cool down continuously.With function of internal PT100 for correcting internal circulation.The whole cycle is full closed, there is no oil mist at high temperature, heat transfer oil can not be oxidized and browning.

### Temperature range: +50°C ~ +170°C

| Model | HC-5020 | HC-A020 | HCW-5020 | HCW-A1020 | HCW-A1520 |
|---|---|---|---|---|---|
| Temp range | +50°C ~ +170°C | | | | |
| Controller | PID adaptive controller | | | | |
| Temp control | Heat transfer medium outlet temperature control | | | | |
| Temp feedback | Heat transfer medium temperature feedback PT100 | | | | |
| Temp accuracy | ±0.5°C | | | | |
| Heater | Flanged pipe electric heater | | | | |
| Heating power | 5.5kw | 10kw | 5.5kw | 10kw | 15kw |
| Cooling capacity 170°C | | | 5.5kw | 10kw | 15kw |
| Cooling capacity 100°C | | | 4kw | 8kw | 12kw |
| Cooling capacity 65°C | | | 1.8kw | 3.4kw | 5kw |
| Pump flow rate & pressure | Max35L/min | Max50L/min | Max35L/min | Max50L/min | Max50L/min |
| | 1.5bar | 1.5bar | 1.5bar | 1.5bar | 1.5bar |
| Connection size | ZG3/4 | ZG3/4 | ZG3/4 | ZG3/4 | ZG1 |
| Dimensions mm | 400*700*1300 | 400*700*1300 | 400*700*1300 | 400*700*1300 | 700*1000*1750 |
| Weight | 70kg | 80kg | 78kg | 128kg | 170kg |
| Power 380V50Hz | 5.9kw | 10.8kw | 6kw | 10.9kw | 15.7kw |
| Shell material | Cold rolled sheet with powder coating, optional SUS 304 | | | | |
| Optional | Option 7-inch color touch screen, record temperature curve, data export USB | | | | |





### Temperature range: +50°C ~ +300°C

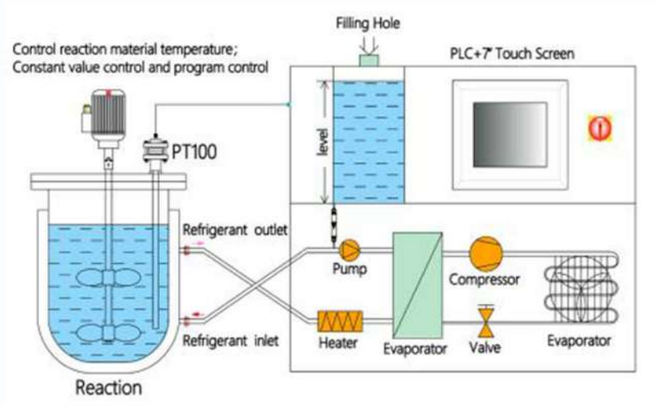
| Model | HC-3530 | HC-5530 | HC-7530 | HC-A1030 | HC-A1530 | HC-A2530 |
|---|---|---|---|---|---|---|
| Temp range | +50°C ~ +300°C | | | | | |
| Controller | PID adaptive controller | | | | | |
| Temp control | Heat transfer medium outlet temperature control | | | | | |
| Temp feedback | Heat transfer medium temperature feedback PT100 | | | | | |
| Control panel | 7-inch color touch screen, recording temperature curve, data export USB interface | | | | | |
| Temp accuracy | ±0.5°C | | | | | |
| Heater | Flanged pipe electric heater | | | | | |
| Communication | Optional Modbus RTU protocol, RS485 interface | | | | | |
| Heating power | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw | 25kw |
| Cooling capacity 300°C | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw | 25kw |
| Cooling capacity 200°C | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw | 25kw |
| Cooling capacity 100°C | 2.8kw | 4kw | 5kw | 7kw | 12kw | 20kw |
| Cooling capacity 65°C | 1kw | 1.8kw | 2.2kw | 3kw | 5kw | 8.5kw |
| Pump flow rate & pressure | Max35L/min | Max35L/min | Max50L/min | Max50L/min | Max110L/min | Max150L/min |
| | 1.2bar | 1.2bar | 1.2bar | 1.2bar | 1.5bar | 1.5bar |
| Electrical | Schneider ABB | | | | | |
| Safety protection | Self-diagnosis function, high pressure switch, overload relay, variety of security features such as thermal protection devices. | | | | | |
| Closed system | It is full closed circulation, there is no oil mist at high temperature, pressure do not rise up, the system will supplement oil automatically at low temperature. | | | | | |
| Interface size | ZG3/4 | ZG3/4 | ZG1 | ZG1 | ZG1 | DN32 |
| Dimensions | 400*700*1300 | 400*700*1300 | 450*700*1600 | 450*700*1600 | 700*1000*1750 | 700*1000*1750 |
| Weight | 95kg | 110kg | 120kg | 160kg | 195kg | 265kg |
| Power380V50Hz | 5kw | 7kw | 9kw | 12kw | 17kw | 28kw |
| Optional | Support 3 phase 220V/60Hz, 480V/60Hz | | | | | |
| Shell material | Cold rolled plate with powder coating ( Optional stainless-steel 304) | | | | | |
| Moving method | Universal castors with braking | | | | | |

## Heating Cooling Circulator

Dynamic temperature control system temperature range from -120℃ to 350℃, superior performance, high precision, intelligent temperature control. Multi-function alarm system and safety function, 7-inch color TFT touch screen graphic display, magnetic drive pump, no shaft seal leakage problem.Widely used in petrochemical, chemical, pharmaceutical, bioengineering industry and so on.

### Features

- International brand compressor, superior performance.
- Intelligent temperature control. Constant value control and program control.
- Maximum process stability and reproducibility.
- Adopt plate heat exchanger, pipeline heating, the fastest heating and cooling rates.
- High cooling power from 0.5 to 1200kw.
- Large temperature range without heat transfer medium change.
- Closed system, extend thermal fluid lifetime.
- Comprehensive warning and safety functions.
- Rapid cooling down from high temperature.
- Use magnetic drive pump, solve the circulation pump leakage.








## Temperature range: -25°C~200°C

| Model | | HCC-2525 | HCC-2535 | HCC-2555 | HCC-2570 | HCC-25100 | HC-25150 |
|---|---|---|---|---|---|---|---|
| Temp range | | -25°C~200°C | | | | | |
| Controller | | 7-inch color touch screen, temperature curve display and record, USB data export | | | | | |
| Compressor | | Emerson, Danfoss, Italy Dorin, French Tecumseh | | | | | |
| Refrigerant | | R404A | | | | | |
| Electrical | | Schneider ABB | | | | | |
| Evaporator | | Plate heat exchanger | | | | | |
| Temp control | | Material temperature control and jacket temperature control can be freely selected | | | | | |
| Temp difference | | Temperature difference between jacket and material can be controlled and set | | | | | |
| Communication | | Modbus RTU protocol, RS485 interface | | | | | |
| Control accuracy | | Heat transfer medium:±0.5℃, reaction material:±1℃ | | | | | |
| Temp feedback | | Heat transfer medium feedback PT100, reaction material feedback PT100 | | | | | |
| Heating power | | 2.5kw | 3.5kw | 5.5kw | 7kw | 10kw | 15kw |
| Cooling capacity | 200°C | 2.5kw | 3.5kw | 5.5kw | 7kw | 10kw | 15kw |
| | 100°C | 2.5kw | 3.5kw | 5.5kw | 7kw | 10kw | 15kw |
| | 20°C | 2.5kw | 3.5kw | 5.5kw | 7kw | 10kw | 15kw |
| | -5°C | 2kw | 3kw | 4.5kw | 6.6kw | 8kw | 12kw |
| | -20°C | 1kw | 1.8kw | 2.8kw | 3.8kw | 4.6kw | 7kw |
| Pump flow rate & pressure | | Max20L/min | Max35L/min | Max35L/min | Max50L/min | Max50L/min | Max110L/min |
| | | 2bar | 2bar | 2bar | 2bar | 2bar | 2.5bar |
| Safety protection | | Self-diagnosis function, freezer overload protection, high pressure switch, overload relay, thermal protection device, high temperature protection and others | | | | | |
| Closed system | | No water vapor at low temperature, pressure do not rise up when system is running. The system will supply oil automatically at low temperature. | | | | | |
| Interface size | | DN15 | DN25 | | | | |
| Dimensions | | 400*600*1050 | 500*680*1350 | 550*680*1450 | 550*680*1650 | 620*680*1550 | 750*750*1750 |
| Weight | | 115kg | 165kg | 185kg | 230kg | 280kg | 300kg |
| Power supply | | 220V/50Hz,4kw | 380V/50Hz,6kw | 380V/50Hz,8kw | 380V/50Hz,11kw | 380V/50Hz,14kw | 380V/50Hz,21kw |
| Optional | | Support 3 phase 220V/60Hz, 480V/60Hz | | | | | |
| Shell material | | Cold rolled plate with powder coating ( Optional stainless-steel 304) | | | | | |
| Moving method | | Universal castors with braking | | | | | |

## Temperature range: -40°C~200°C

| Model | | HCC-4025 | HCC-4035 | HCC-4055 | HCC-4070 | HCC-40100 | HCC-40150 |
|---|---|---|---|---|---|---|---|
| Temp range | | -40°C~200°C | | | | | |
| Controller | | 7-inch color touch screen, temperature curve display and record, USB data export | | | | | |
| Compressor | | Emerson, Danfoss, Italy Dorin, French Tecumseh | | | | | |
| Refrigerant | | R404A | | | | | |
| Electrical | | Schneider ABB | | | | | |
| Evaporator | | Plate heat exchanger | | | | | |
| Temp control | | Material temperature and jacket temperature control can be freely selected | | | | | |
| Temp difference control | | Temperature difference between jacket and material can be controlled and set | | | | | |
| Communication | | Modbus RTU protocol, RS485 interface | | | | | |
| Temp feedback | | Temperature feedback of heat transfer medium and material temperature PT100 | | | | | |
| Control accuracy | | Heat transfer medium:±0.5℃, reaction material:±1℃ | | | | | |
| Heating power | | 2.5kw | 3.5kw | 5.5kw | 7kw | 10kw | 15kw |
| Cooling capacity | 200°C | 2.5kw | 3.5kw | 5.5kw | 7kw | 10kw | 15kw |
| | 100°C | 2.5kw | 3.5kw | 5.5kw | 7kw | 10kw | 15kw |
| | 0°C | 2.5kw | 3.5kw | 5.5kw | 7kw | 10kw | 15kw |
| | -20°C | 2.2kw | 3kw | 4kw | 5.2kw | 7.6kw | 10kw |
| | -35°C | 0.5kw | 0.9kw | 1.2kw | 1.6kw | 2.4kw | 3.2kw |
| Pump flow rate & pressure | | Max20L/min | Max35L/min | Max35L/min | Max50L/min | Max50L/min | Max110L/min |
| | | 2 bar | 2 bar | 2 bar | 2 bar | 2 bar | 2.5 bar |
| Safety protection | | Self-diagnosis function, freezer overload protection, high pressure switch, overload relay, thermal protection device, high temperature protection and others | | | | | |
| Closed system | | No oil mist at high temperature and no water vapor at low temperature, pressure do not rise up when system is running.The system will supply oil automatically at low temperature. | | | | | |
| Interface size | | DN15 | DN20 | | | | DN25 |
| Dimensions | | 550*680*1350 | 550*680*1350 | 550*680*1450 | 620*680*1550 | 620*680*1550 | 750*750*1750 |
| Weight | | 160kg | 185kg | 210kg | 255kg | 300kg | 340kg |
| Power supply | | 220V/50Hz,4.5kw | 380V/50Hz,6.5kw | 380V/50Hz,9kw | 380V/50Hz,12.5kw | 380V/50Hz,16.5kw | 380V/50Hz,24kw |
| Optional | | Support 3 phase 220V/60Hz, 480V/60Hz | | | | | |
| Shell material | | Cold rolled plate with powder coating ( Optional stainless-steel 304) | | | | | |
| Moving method | | Universal castors with braking | | | | | |





## Temperature range: -50°C~250°C

| Model | | HCC-5025 | HCC-5035 | HCC-5055 | HC-5070 | HCC-50100 | HCC-50150 |
|---|---|---|---|---|---|---|---|
| Temp range | | -50°C~250°C | | | | | |
| Controller | | 7-inch color touch screen, temperature curve display and record | | | | | |
| Compressor | | Emerson, Danfoss, Italy Dorin, French Tecumseh | | | | | |
| Refrigerant | | R404A, R23 | | | | | |
| Electrical | | Schneider ABB | | | | | |
| Evaporator | | Plate heat exchanger | | | | | |
| Temp control | | Material temperature and jacket temperature control can be freely selected | | | | | |
| Temp difference control | | Temperature difference between jacket and material can be controlled and set | | | | | |
| Communication | | Modbus RTU protocol, RS485 interface | | | | | |
| Temp feedback | | Temperature feedback of heat transfer medium and material temperature PT100 | | | | | |
| Control accuracy | | Heat transfer medium:±0.5℃, reaction material:±1℃ | | | | | |
| Heating power | | 2.5kw | 3.5kw | 5.5kw | 7kw | 10kw | 15kw |
| Cooling capacity | 250°C | 2.5kw | 3.5kw | 5.5kw | 7kw | 10kw | 15kw |
| | 100°C | 2.5kw | 3.5kw | 5.5kw | 7kw | 10kw | 15kw |
| | 20°C | 2.5kw | 3.5kw | 5.5kw | 7kw | 10kw | 15kw |
| | 0°C | 1.8kw | 3.3kw | 5.5kw | 7kw | 10kw | 15kw |
| | -20°C | 0.85kw | 1.5kw | 2.85kw | 4.2kw | 6kw | 11kw |
| | -40°C | 0.25kw | 0.45kw | 0.9kw | 1.5kw | 2kw | 3.75kw |
| Pump flow rate & pressure | | Max20L/min | Max35L/min | Max35L/min | Max50L/min | Max50L/min | Max110L/min |
| | | 2 bar | 2 bar | 2 bar | 2 bar | 2 bar | 2.5 bar |
| Safety protection | | Self-diagnosis function, freezer overload protection, high pressure switch, overload relay, thermal protection device, high temperature protection and others | | | | | |
| Closed system | | No oil mist at high temperature and no water vapor at low temperature, pressure do not rise up when system is running.The system will supply oil automatically at low temperature. | | | | | |
| Interface size | | DN15 | DN20 | | | | DN25 |
| Dimensions | | 550*680*1350 | 550*680*1350 | 550*680*1450 | 620*680*1550 | 620*680*1550 | 750*750*1750 |
| Weight | | 160kg | 185kg | 210kg | 255kg | 300kg | 340kg |
| Power supply | | 220V/50Hz,4.5kw | 380V/50Hz,6.5kw | 380V/50Hz,9kw | 380V/50Hz,12.5kw | 380V/50Hz,16.5kw | 380V/50Hz,24kw |
| Optional | | Support 3 phase 220V/60Hz, 480V/60Hz | | | | | |
| Shell material | | Cold rolled plate with powder coating ( Optional stainless-steel 304) | | | | | |
| Moving method | | Universal castors with braking | | | | | |

## Temperature range: -60°C~200°C

| Model | | HCC-6025 | HCC-6035 | HCC-6055 | HCC-6075 | HCC-60100 | HCC-60150 |
|---|---|---|---|---|---|---|---|
| Temp range | | -60°C~200°C | | | | | |
| Controller | | 7-inch color touch screen, temperature curve display and record | | | | | |
| Compressor | | Emerson, Danfoss, Italy Dorin, French Tecumseh | | | | | |
| Refrigerant | | R404A, R23 | | | | | |
| Electrical | | Schneider ABB | | | | | |
| Evaporator | | Plate heat exchanger | | | | | |
| Temp control | | Material temperature and jacket temperature control can be freely selected | | | | | |
| Temp difference control | | Temperature difference between jacket and material can be controlled and set | | | | | |
| Communication | | Modbus RTU protocol, RS485 interface | | | | | |
| Temp feedback | | Temperature feedback of heat transfer medium and material temperature PT100 | | | | | |
| Control accuracy | | Heat transfer medium:±0.5℃, reaction material:±1℃ | | | | | |
| Heating power | | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| Cooling capacity | 200°C | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| | 100°C | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| | 20°C | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| | 0°C | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| | -20°C | 2.0kw | 3kw | 4.85kw | 6kw | 8.2kw | 12kw |
| | -40°C | 0.95kw | 1.45kw | 2.3kw | 3.1kw | 4.8kw | 7.75kw |
| | -55°C | 0.25kw | 0.5kw | 0.75kw | 0.9kw | 1.5kw | 2.8kw |
| Pump flow rate & pressure | | Max20L/min | Max35L/min | Max35L/min | Max60L/min | Max60L/min | Max110L/min |
| | | 2 bar | 2 bar | 2 bar | 2 bar | 2 bar | 2.5 bar |
| Safety protection | | Self-diagnosis function, freezer overload protection, high pressure switch, overload relay, thermal protection device, high temperature protection and others | | | | | |
| Closed system | | No oil mist at high temperature and no water vapor at low temperature, pressure do not rise up when system is running.The system will supply oil automatically at low temperature. | | | | | |
| Interface size | | DN15 | DN20 | | | | DN25 |
| Dimensions | | 400*600*1050 | 550*700*1450 | 600*700*1650 | 60*700*1650 | 600*700*1650 | 700*700*1650 |
| Weight | | 170kg | 185kg | 265kg | 305kg | 340kg | 380kg |
| Power supply | | 220V/50Hz,5kw | 380V/50Hz,7.5kw | 380V/50Hz,10kw | 380V/50Hz,14kw | 380V/50Hz,18kw | 380V/50Hz,26kw |
| Optional | | Support 3 phase 220V/60Hz, 480V/60Hz | | | | | |
| Shell material | | Cold rolled plate with powder coating ( Optional stainless-steel 304) | | | | | |
| Moving method | | Universal castors with braking | | | | | |





## Temperature range: -70°C~250°C

| Model | | HCC-7025 | HCC-7035 | HCC-7055 | HC-7075 | HCC-70100 | HCC-70150 |
|---|---|---|---|---|---|---|---|
| Temp range | | -70°C~250°C | | | | | |
| Controller | | 7-inch color touch screen, temperature curve display and record | | | | | |
| Compressor | | Emerson, Danfoss, Italy Dorin, French Tecumseh | | | | | |
| Refrigerant | | R404A, R23 | | | | | |
| Electrical | | Schneider ABB | | | | | |
| Evaporator | | Plate heat exchanger | | | | | |
| Temp control | | Material temperature and jacket temperature control can be freely selected | | | | | |
| Temp difference control | | Temperature difference between jacket and material can be controlled and set | | | | | |
| Communication | | Modbus RTU protocol, RS485 interface | | | | | |
| Temp feedback | | Temperature feedback of heat transfer medium and material temperature PT100 | | | | | |
| Control accuracy | | Heat transfer medium:±0.5℃, reaction material:±1℃ | | | | | |
| Heating power | | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| Cooling capacity | 250°C | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| | 100°C | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| | 20°C | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| | 0°C | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| | -20°C | 2kw | 3.5kw | 4.85kw | 6kw | 8.2kw | 1.4kw |
| | -40°C | 1.3kw | 1.75kw | 2.3kw | 3.1kw | 4.0kw | 8.75kw |
| | -60°C | 0.4kw | 0.55kw | 0.75kw | 0.9kw | 1.2kw | 2.8kw |
| Pump flow rate & pressure | | Max20L/min | Max35L/min | Max35L/min | Max50L/min | Max50L/min | Max110L/min |
| | | 2 bar | 2 bar | 2 bar | 2 bar | 2 bar | 2.5 bar |
| Safety protection | | Self-diagnosis function, freezer overload protection, high pressure switch, overload relay, thermal protection device, high temperature protection and others | | | | | |
| Closed system | | No oil mist at high temperature and no water vapor at low temperature, pressure do not rise up when system is running.The system will supply oil automatically at low temperature | | | | | |
| Interface size | | DN15 | DN20 | | | | DN25 |
| Dimensions | | 400*600*1350 | 600*700*1150 | 600*700*1350 | 600*700*1350 | 700*700*1350 | 700*700*1550 |
| Weight | | 190kg | 235kg | 275kg | 325kg | 370kg | 420kg |
| Power supply | | 220V/50Hz,5.2kw | 380V/50Hz,8kw | 380V/50Hz,11kw | 380V/50Hz,15kw | 380V/50Hz,20kw | 380V/50Hz,28kw |
| Optional | | Support 3 phase 220V/60Hz, 480V/60Hz | | | | | |
| Shell material | | Cold rolled plate with powder coating ( Optional stainless-steel 304) | | | | | |
| Moving method | | Universal castors with braking | | | | | |

## Temperature range: -80°C~250°C

| Model | | HCC-8025 | HCC-8035 | HCC-8055 | HCC-8075 | HCC-80100 | HCC-80150 |
|---|---|---|---|---|---|---|---|
| Temp range | | -80°C~250°C | | | | | |
| Controller | | 7-inch color touch screen, temperature curve display and record | | | | | |
| Compressor | | Emerson, Danfoss, Italy Dorin, French Tecumseh | | | | | |
| Refrigerant | | R404A, R23 | | | | | |
| Electrical | | Schneider ABB | | | | | |
| Evaporator | | Plate heat exchanger | | | | | |
| Temp control | | Material temperature and jacket temperature control can be freely selected | | | | | |
| Temp difference control | | Temperature difference between jacket and material can be controlled and set | | | | | |
| Communication | | Modbus RTU protocol, RS485 interface | | | | | |
| Temp feedback | | Temperature feedback of heat transfer medium and material temperature PT100 | | | | | |
| Control accuracy | | Heat transfer medium:±0.5℃, reaction material:±1℃ | | | | | |
| Heating power | | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| Cooling capacity | 250°C | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| | 100°C | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| | 20°C | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| | 0°C | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| | -20°C | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 8.5kw | 14kw |
| | -40°C | 1.8kw | 2.55kw | 3.3kw | 5.8kw | 6.3kw | 11kw |
| | -60°C | 1.0kw | 1.4kw | 1.6kw | 3.0kw | 3.3kw | 5.8kw |
| | -75°C | 0.3kw | 0.42kw | 0.7kw | 1.3kw | 1.4kw | 2.4kw |
| Pump flow rate & pressure | | Max20L/min | Max35L/min | Max50L/min | Max110L/min | Max110L/min | Max110L/min |
| | | 2 bar | 2 bar | 2 bar | 2 bar | 2 bar | 2.5 bar |
| Safety protection | | Self-diagnosis function, freezer overload protection, high pressure switch, overload relay, thermal protection device, high temperature protection and others | | | | | |
| Closed system | | No oil mist at high temperature and no water vapor at low temperature, pressure do not rise up when system is running.The system will supply oil automatically at low temperature. | | | | | |
| Interface size | | DN15 | DN20 | | | | DN25 |
| Dimensions | | 500*600*1350 | 600*700*1550 | 700*700*1650 | 700*800*1650 | 1000*800*1650 | 1000*950*1650 |
| Weight | | 240kg | 285kg | 345kg | 500kg | 600kg | 750kg |
| Power supply | | 380V/50Hz,6.5kw | 380V/50Hz,10kw | 380V/50Hz,13kw | 380V/50Hz,17kw | 380V/50Hz,22kw | 380V/50Hz,33kw |
| Optional | | Support 3 phase 220V/60Hz, 480V/60Hz | | | | | |
| Shell material | | Cold rolled plate with powder coating ( Optional stainless-steel 304) | | | | | |
| Moving method | | Universal castors with braking | | | | | |





## Temperature range: -90°C~250°C

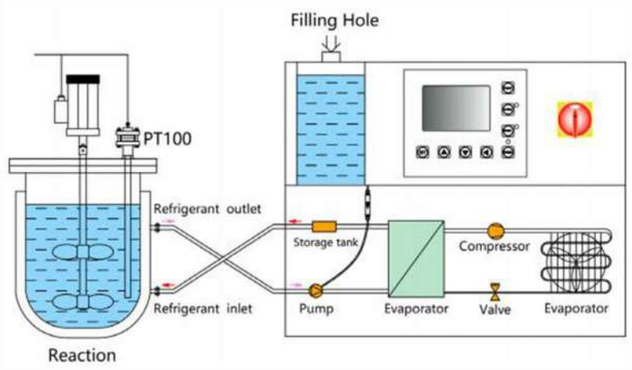
| Model | | HCC-9025 | HCC-9035 | HCC-9055 | HC-9075 | HCC-90100 | HCC-90150 |
|---|---|---|---|---|---|---|---|
| Temp range | | -90°C~250°C | | | | | |
| Controller | | 7-inch color touch screen, temperature curve display and record | | | | | |
| Compressor | | Emerson, Danfoss, Italy Dorin, French Tecumseh | | | | | |
| Refrigerant | | R404A, R23, R14 | | | | | |
| Electrical | | Schneider ABB | | | | | |
| Evaporator | | Plate heat exchanger | | | | | |
| Temp control | | Material temperature and jacket temperature control can be freely selected | | | | | |
| Temp difference control | | Temperature difference between jacket and material can be controlled and set | | | | | |
| Communication | | Modbus RTU protocol, RS485 interface | | | | | |
| Temp feedback | | Temperature feedback of heat transfer medium and material temperature PT100 | | | | | |
| Control accuracy | | Heat transfer medium:±0.5℃, reaction material:±1℃ | | | | | |
| Heating power | | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| Cooling capacity | 250°C | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| | 100°C | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| | 0°C | 2.5kw | 3.5kw | 5.5kw | 7.5kw | 10kw | 15kw |
| | -40°C | 2kw | 2.8kw | 5kw | 6kw | 8kw | 12kw |
| | -60°C | 1.1kw | 1.9kw | 2.8kw | 3.2kw | 4.2kw | 6kw |
| | -80°C | 0.35kw | 0.5kw | 0.8kw | 1.2kw | 1.6kw | 2.1kw |
| | -85°C | 0.2kw | 0.3kw | 0.5kw | 0.7kw | 0.85kw | 1.3kw |
| Pump flow rate & pressure | | Max20L/min | Max35L/min | Max35L/min | Max50L/min | Max60L/min | Max110L/min |
| | | 2 bar | 2 bar | 2 bar | 2 bar | 2.5 bar | 2.5 bar |
| Safety protection | | Self-diagnosis function, freezer overload protection, high pressure switch, overload relay, thermal protection device, high temperature protection and others | | | | | |
| Closed system | | No oil mist at high temperature and no water vapor at low temperature, pressure do not rise up when system is running.The system will supply oil automatically at low temperature | | | | | |
| Interface size | | G3/4 | G3/4 | G3/4 | G1 | G1 | DN32 |
| Dimensions | | 550*1000*1750 | 450*850*1300 | 550*1000*1750 | 550*1000*1750 | 700*1000*1750 | 1000*1500*1850 |
| Weight | | 260kg | 295kg | 365kg | 570kg | 680kg | 950kg |
| Power380V50HZ | | 8kw | 11kw | 16kw | 21kw | 27kw | 38kw |
| Optional | | Support 3 phase 220V/60Hz, 480V/60Hz | | | | | |
| Shell material | | Cold rolled plate with powder coating ( Optional stainless-steel 304) | | | | | |
| Moving method | | Universal castors with braking | | | | | |

## Cooling Circulator

Cooling circulator, a very wide refrigeration temperature range, and a controllable temperature of -150℃ to -5℃. It adopts secondary subcooling, fast cooling speed, safe and reliable, and is used for rapid liquid cooling. It is widely used in high-tech industries such as petrochemical, medical, pharmaceutical, biochemical, freeze-drying and so on.

### Features

- International brand compresor, which is small in size and high in efficiency.
- To save water resources, it is possible to use the glycol-water mixture to carry out circulating refrigeration, strict circulation pipeline design, prevent circulating water pollution.
- Computer cascade temperature controller, temperature digital display, adjustment unit 0.1 degree, PT100 temperature sensor, -125℃~-20℃ wide temperature range.
- Ambient temperature monitoring function to prevent the system operating environment temperature from being too high.
- It adopts full-closed design, no water absorption during low-temperature operation, ensuring the purity of cold and heat transfer medium, preventing ice crystals and improving the life of thermal fluid.








## Temperature range: -25°C~30°C

| Model | | LX-0250 | LX-0400 | LX-0700 | LX-1000 | LX-1450 | LX-2000 |
|---|---|---|---|---|---|---|---|
| Temp range | | -15~30°C | -25°C~30°C | | | | |
| Controller | | LCD display set temperature and measure temperature, touch key input | | | | | |
| Compressor | | Emerson, Danfoss, Italy Dorin, French Tecumseh | | | | | |
| Refrigerant | | R404A | | | | | |
| Electrical | | Schneider ABB | | | | | |
| Evaporator | | Plate heat and cold exchanger | | | | | |
| Temp control | | Outlet temperature control | | | | | |
| Communication | | Optional Modbus RTU protocol, RS485 interface | | | | | |
| Operation panel | | Optional 7-inch color touch screen show temperature curve and data export in excel | | | | | |
| Temp feedback | | Temperature feedback of heat transfer medium outlet | | | | | |
| Cooling capacity | 0°C | 1.5kw | 2.4kw | 4kw | 7.5kw | 10kw | 15kw |
| | -10°C | 1kw | 1.5kw | 2.7kw | 6.3kw | 8kw | 12kw |
| | -20°C | 0.55kw | 0.8kw | 1.5kw | 3.5kw | 5kw | 7.3kw |
| Pump flow rate & pressure | | Max20L/min 0.7bar | Max20L/min 0.7bar | Max35L/min 1bar | Max50L/min 1bar | Max75L/min 1bar | Max75L/min 1bar |
| Tank volume | | 15L | 25L | 30L | 35L | 45L | 60L |
| Safety protection | | Self-diagnosis function, freezer overload protection, high pressure switch, overload relay, thermal protection device, high temperature protection and others | | | | | |
| Closed system | | No water vapor at low temperature, pressure do not rise up when system is running. The system will supply oil automatically at low temperature. | | | | | |
| Interface size | | DN15 | DN20 | | | | |
| Dimensions | | 400*600*1050 | 400*600*1150 | 500*680*1350 | 550*680*1450 | 620*680*1550 | 750*750*1750 |
| Weight | | 115kg | 145kg | 180kg | 225kg | 290kg | 340kg |
| Power supply | | 220V/50Hz,1.5kw | 220V/50Hz,2.2kw | 220V/50Hz,3.5kw | 380V/50Hz,4kw | 380V/50Hz,5kw | 380V/50Hz,6.5kw |
| Optional | | Support 3 phase 220V/60Hz, 480V/60Hz | | | | | |
| Shell material | | Cold rolled plate with powder coating ( Optional stainless-steel 304) | | | | | |
| Moving method | | Universal castors with braking | | | | | |

## Temperature range: -40°C~30°C

| Model | | LX-4018 | LX-4040 | LX-4062 | LX-4090 | LX-40A1 | LX-40A2 |
|---|---|---|---|---|---|---|---|
| Temp range | | -40°C~30°C | | | | | |
| Controller | | LCD display set temperature and measure temperature, touch key input | | | | | |
| Compressor | | Emerson, Danfoss, Italy Dorin, French Tecumseh | | | | | |
| Refrigerant | | R404A | | | | | |
| Electrical | | Schneider ABB | | | | | |
| Evaporator | | Plate heat and cold exchanger | | | | | |
| Temp control | | Heat transfer oil outlet temperature control | | | | | |
| Communication | | Optional Modbus RTU protocol, RS485 interface | | | | | |
| Operation panel | | Optional 7-inch color touch screen show temperature curve and data export in excel | | | | | |
| Temp feedback | | Temperature feedback of heat transfer medium outlet | | | | | |
| Cooling capacity | -10°C | 1.5kw | 3.2kw | 4.5kw | 6.2kw | 8.3kw | 12kw |
| | -20°C | 1.2kw | 2.7kw | 3.8kw | 5.5kw | 7kw | 10kw |
| | -35°C | 0.4kw | 0.75kw | 1.15kw | 1.5kw | 2.1kw | 3kw |
| Pump flow rate & pressure | | Max20L/min 0.7bar | Max20L/min 0.7bar | Max35L/min 1bar | Max35L/min 1bar | Max75L/min 1bar | Max75L/min 1bar |
| Tank volume | | 15L | 20L | 25L | 30L | 35L | 45L |
| Safety protection | | Self-diagnosis function, freezer overload protection, high pressure switch, overload relay, thermal protection device and others | | | | | |
| Closed system | | No water vapor at low temperature, pressure do not rise up when system is running. The system will supply oil automatically at low temperature. | | | | | |
| Interface size | | DN15 | DN20 | | | | |
| Dimensions | | 400*600*1050 | 500*680*1350 | 550*680*1450 | 550*680*1550 | 620*680*1650 | 750*750*1750 |
| Weight | | 145kg | 185kg | 230kg | 275kg | 340kg | 380kg |
| Power supply | | 220V/50Hz,2.2kw | 380V/50Hz,3.5kw | 380V/50Hz,4.5kw | 380V/50Hz,6kw | 380V/50Hz,7kw | 380V/50Hz,9kw |
| Optional | | Support 3 phase 220V/60Hz, 480V/60Hz | | | | | |
| Shell material | | Cold rolled plate with powder coating ( Optional stainless-steel 304) | | | | | |
| Moving method | | Universal castors with braking | | | | | |





## Temperature range: -60°C ~ -20°C

| Model | | LX-6018 | LX-6030 | LX-6062 | LX-6090 | LX-60A1 | LX-60A2 |
|---|---|---|---|---|---|---|---|
| Temp range | | -60°C ~ -20°C | | | | | |
| Controller | | LCD display set temperature and measure temperature, touch key input | | | | | |
| Compressor | | Emerson, Danfoss, Italy Dorin, French Tecumseh | | | | | |
| Refrigerant | | R404A, R23 | | | | | |
| Electrical | | Schneider ABB | | | | | |
| Evaporator | | Plate heat and cold exchanger | | | | | |
| Temp control | | Outlet temperature control | | | | | |
| Communication | | Optional Modbus RTU protocol, RS485 interface | | | | | |
| Operation panel | | Optional 7-inch color touch screen show temperature curve and data export in excel | | | | | |
| Temp feedback | | Temperature feedback of heat transfer medium outlet | | | | | |
| Cooling capacity | -20°C | 0.85kw | 1.45kw | 2.5kw | 3.4kw | 4.8kw | 7.2kw |
| | -40°C | 0.7kw | 1.2kw | 2.1kw | 2.8kw | 4kw | 6kw |
| | -55°C | 0.4kw | 0.6kw | 1.2kw | 1.6kw | 2kw | 3kw |
| Pump flow rate & pressure | | Max20L/min 0.7bar | Max20L/min 0.7bar | Max35L/min 1bar | Max35L/min 1bar | Max75L/min 1bar | Max75L/min 1bar |
| Tank volume | | 15L | 20L | 25L | 30L | 35L | 45L |
| Safety protection | | Self-diagnosis function, freezer overload protection, high pressure switch, overload relay, thermal protection device, high temperature protection and others | | | | | |
| Closed system | | No water vapor at low temperature, pressure do not rise up when system is running. The system will supply oil automatically at low temperature. | | | | | |
| Interface size | | DN15 | DN20 | | | | |
| Dimensions | | 400*600*1050 | 500*680*1350 | 550*680*1450 | 550*680*1550 | 620*680*1650 | 750*750*1750 |
| Weight | | 145kg | 185kg | 230kg | 275kg | 340kg | 380kg |
| Power supply | | 220V/50Hz,2.2kw | 380V/50Hz,3.8kw | 380V/50Hz,4.5kw | 380V/50Hz,6.5kw | 380V/50Hz,8kw | 380V/50Hz,10.5kw |
| Optional | | Support 3 phase 220V/60Hz, 480V/60Hz | | | | | |
| Shell material | | Cold rolled plate with powder coating ( Optional stainless-steel 304) | | | | | |
| Moving method | | Universal castors with braking | | | | | |

## Temperature range: -80°C ~ -20°C

| Model | | LX-8018 | LX-8030 | LX-8062 | LX-8090 | LX-80A1 | LX-80A2 |
|---|---|---|---|---|---|---|---|
| Temp range | | -80°C ~ -20°C | | | | | |
| Controller | | LCD display set temperature and measure temperature, touch key input | | | | | |
| Compressor | | Emerson, Danfoss, Italy Dorin, French Tecumseh | | | | | |
| Refrigerant | | R404A, R23 | | | | | |
| Electrical | | Schneider ABB | | | | | |
| Evaporator | | Plate heat and cold exchanger | | | | | |
| Temp control | | Heat transfer oil outlet temperature control | | | | | |
| Communication | | Optional Modbus RTU protocol, RS485 interface | | | | | |
| Operation panel | | Optional 7-inch color touch screen show temperature curve and data export in excel | | | | | |
| Temp feedback | | Temperature feedback of heat transfer medium outlet | | | | | |
| Cooling capacity | -40°C | 0.6kw | 1.4kw | 2.8kw | 3.4kw | 4.8kw | 7.2kw |
| | -60°C | 0.4kw | 0.8kw | 1.6kw | 2.1kw | 4kw | 6kw |
| | -75°C | 0.2kw | 0.5kw | 0.9kw | 1.2kw | 2kw | 3kw |
| Pump flow rate & pressure | | Max20L/min 0.7bar | Max20L/min 0.7bar | Max35L/min 1bar | Max35L/min 1bar | Max75L/min 1bar | Max75L/min 1bar |
| Tank volume | | 15L | 20L | 25L | 30L | 35L | 45L |
| Safety protection | | Self-diagnosis function, freezer overload protection, high pressure switch, overload relay, thermal protection device, high temperature protection and others | | | | | |
| Closed system | | No water vapor at low temperature, pressure do not rise up when system is running. The system will supply oil automatically at low temperature. | | | | | |
| Interface size | | DN15 | DN20 | | | | |
| Dimensions | | 500*680*1350 | 550*680*1450 | 550*680*1550 | 620*680*1650 | 750*750*1750 | 1150*900*1350 |
| Weight | | 185kg | 230kg | 275kg | 340kg | 380kg | 470kg |
| Power supply | | 220V/50Hz,3.5kw | 380V/50Hz,4.5kw | 380V/50Hz,5.5kw | 380V/50Hz,7.5kw | 380V/50Hz,9.5kw | 380V/50Hz,13kw |
| Optional | | Support 3 phase 220V/60Hz, 480V/60Hz | | | | | |
| Shell material | | Cold rolled plate with powder coating ( Optional stainless-steel 304) | | | | | |
| Moving method | | Universal castors with braking | | | | | |





## Temperature range: -120°C ~ -70°C

| Model | | LX-10025 | LX-10050 | LX-10086 | LX-12015 | LX-12030 | LX-12055. |
|---|---|---|---|---|---|---|---|
| Temp range | | -105°C ~ -60°C | | | -120°C ~ -70°C | | |
| Controller | | LCD display set temperature and measure temperature, touch key input | | | | | |
| Compressor | | Emerson, Danfoss, Italy Dorin, French Tecumseh | | | | | |
| Refrigerant | | R404A, R23, R14 | | | | | |
| Electrical | | Schneider ABB | | | | | |
| Evaporator | | Plate heat and cold exchanger | | | | | |
| Temp control | | Outlet temperature control | | | | | |
| Communication | | Optional Modbus RTU protocol, RS485 interface | | | | | |
| Operation panel | | Optional 7-inch color touch screen show temperature curve and data export in excel | | | | | |
| Cooling capacity | -60°C | 2.5kw | 5kw | 8.6kw | / | / | / |
| | -75°C | 1.3kw | 3kw | 5kw | 1.2kw | 2.4kw | 4kw |
| | -95°C | 0.7kw | 1.4kw | 2.3kw | 0.7kw | 1.4kw | 2.1kw |
| | -110°C | / | / | / | 0.3kw | 0.55kw | 0.95kw |
| Pump flow rate & pressure | | Max20L/min 0.7bar | Max35L/min 1bar | Max75L/min 1bar | Max20L/min 1bar | Max35L/min 1bar | Max75L/min 1bar |
| Tank volume | | 15L | 20L | 35L | 20L | 30L | 30L |
| Safety protection | | Self-diagnosis function, freezer overload protection, high pressure switch, overload relay, thermal protection device, high temperature protection and others | | | | | |
| Closed system | | No water vapor at low temperature, pressure do not rise up when system is running. The system will supply oil automatically at low temperature. | | | | | |
| Interface size | | DN15 | DN20 | | | | |
| Dimensions | | 500*680*1350 | 600*700*1650 | 700*700*1650 | 600*700*1650 | 700*700*1650 | 1000*900*1650 |
| Weight | | 235kg | 320kg | 455kg | 340kg | 380kg | 480kg |
| Power supply | | 220V/50Hz,5.5kw | 380V/50Hz,7.5kw | 380V/50Hz,11kw | 380V/50Hz,6kw | 380V/50Hz,9.5kw | 380V/50Hz,14kw |
| Optional | | Support 3 phase 220V/60Hz, 480V/60Hz | | | | | |
| Shell material | | Cold rolled plate with powder coating ( Optional stainless-steel 304) | | | | | |
| Moving method | | Universal castors with braking | | | | | |

# FREEZE DRYER

Freeze dryer is a stable material drying process, which means that the water-containing material is first frozen into a solid state, and then under a certain degree of vacuum, the water is directly sublimated from the solid state to a gaseous state to remove the water for storage substance.

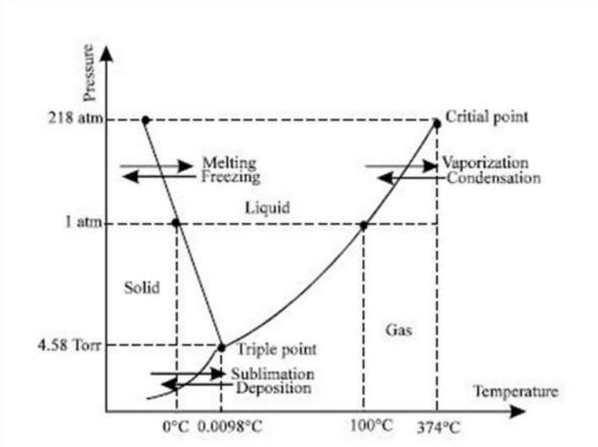
There are many drying methods, such as sun-dried, boil dry and spray drying. But these drying methods are all carried out at a temperature above 0℃ or higher. The products obtained by drying usually shrink in size and harden in texture. Some substances are oxidized, and most of some volatile components will be lost. Some heat-sensitive substances, such as proteins and vitamins, will be denatured, and microorganisms will lose their vitality. The final substance is not easy to dissolve in water etc. Therefore, the dried product has a great difference in properties compared with that before drying.

The freeze-drying process is carried out under low temperature and vacuum environment, so the heat-sensitive components in the product such as proteins, microorganisms and other biologically active components can be protected, the loss of volatile components is less, and the product is not easy to oxidize.

Freeze-drying technology is currently widely used in the research and development and processing of biology, medicine, food, herbal medicines, industrial materials, fine chemicals and other industries.








Schematic diagram for the triple phases of water

- When the pressure is lower than 610Pa, no matter how the temperature changes, the liquid state of water cannot exist.
- When water is at the triple point (temperature is 0.01°C, water vapor pressure is 610.5Pa), water, ice, and water vapor can coexist and balance each other.
- When the pressure is lower than 610Pa, no matter how the temperature changes, the liquid state of water cannot exist.
- In a high vacuum state, using the principle of sublimation, the moisture in the pre-frozen material is directly sublimated into water vapor in an ice state and removed without melting the ice, so as to achieve the purpose of freeze-drying.

Cosmetic Lyophilization

Immune protein Lyophilization

Strains Lyophilization

Plant Extracts Lyophilization

Fruit Lyophilization

Graphene Lyophilization

# FREEZE DRYER Lab scale

LFD series includes ordinary type, gland type, multi-manifold type, multi-manifold gland type, which are suitable for heat-sensitive substances. It adopts an air-cooled condensing refrigeration system. The cold trap body is made of high-quality stainless steel. It can be used for pre-freezing, t+he transparent drying chamber is convenient for observing the whole process of freeze-drying.

## Application

The LFD laboratory freeze dryer series are widely used in the freeze drying of serum, plasma, antibodies, vaccines, drugs, microorganisms, biological research and plant extracts, as well as the drying of nanoparticles, colloids, powders, food, plants and cultral relics in the non-biological field.

## Features

- Ordinary type: applicable to most materials, directly put into the material tray for drying.
- Gland type: when the material needs to be dried in the vial and it cannot be exposed to the outside air after drying. After the material is dried, it is sealed under a vacuum state through the rotary handle on the top of the machine.This model can not only press the cap on the vial, but also has a sample tray inside, and it has all the functions of the ordinary typle.
- Multi-manifold type: when multiple varieties of materials are drying, they cannot interfere with each other and intersect. This type is required to facilitate observation and temporary sampling. The ordinary type can't be intervened in the drying process, because the entire drying environment is in a vacuum state, and samples cannot be removed midway.
- Multi-manifold gland type: choose this dryer when a variety of materials need to be dried, among which there is a need for vial treatment and other materials drying.
- In the field of biological laboratory technology products, freeze-drying technology is mainly used in the production of serum, plasma, vaccines, enzymes, antibiotics, hormones and other drugs, biochemical inspection drugs, blood, bacteria, arteries, bone, skin, cornea, nerve tissue and various organs for long-term preservation.





Normal Type

Gland Type

Multi-manifold Type

Multi-manifold gland

| Model | Type | Specification | | Dimensions (L*W*H) | Power (W) |
|---|---|---|---|---|---|
| LFD-1 | Normal | Temp:＜-50℃<br>No-load:＜15Pa<br>Water catching:3kg/24h<br>Vacuum digital display | Tray: φ200*4,area:0.12㎡ | 380*650*360mm | 1100 |
| | Gland type | | Tray: φ180*3,area:0.07㎡<br>vial φ16/258,φ22/132pcs | 380*650*360mm | 1100 |
| | Multi-manifold type | | Bottle: 50/100/250/500/1000ml<br>Ttl 8pcs.Tray:φ200*4,area:0.12㎡ | 380*650*360mm | 1100 |
| | Multi-manifold gland | | Bottle: 50/100/250/500/1000ml<br>Ttl 8pcs.Tray:φ180*3,area:0.07㎡ | 380*650*360mm | 1100 |
| LFD-1L | Normal | Temp:＜-80℃<br>No-load:＜15Pa<br>Water catching:3kg/24h<br>Vacuum digital display<br>optional tray heating | Tray: φ200*4,area:0.12㎡ | 600*600*900mm | 1600 |
| | Gland type | | Tray: φ180*3,area:0.07㎡<br>vial φ16/258,φ22/132pcs | 600*600*900mm | 1600 |
| | Multi-manifold type | | Bottle: 50/100/250/500/1000ml<br>Ttl 8pcs.Tray:φ200*4,area:0.12㎡ | 600*600*900mm | 1600 |
| | Multi-manifold gland | | Bottle: 50/100/250/500/1000ml<br>Ttl 8pcs.Tray:φ180*3,area:0.07㎡ | 600*600*900mm | 1600 |
| LFD-18 | Normal | Temp:＜-50℃<br>No-load:＜15Pa<br>Water catching:6kg/24h<br>Vacuum digital display<br>optional tray heating | Tray: φ240*4,area:0.18㎡ | 550*550*950mm | 1500 |
| | Gland type | | Tray: φ220*3,area:0.11㎡<br>vial φ16/410,φ22/207pcs | 550*550*950mm | 1500 |
| | Multi-manifold type | | Bottle: 50/100/250/500/1000ml<br>Ttl 8pcs.Tray:φ240*4,area:0.18㎡ | 550*550*950mm | 1500 |
| | Multi-manifold gland | | Bottle: 50/100/250/500/1000ml<br>Ttl 8pcs.Tray:φ220*3,area:0.11㎡ | 550*550*950mm | 1500 |
| LFD-27 | Normal | Temp:＜-80℃<br>No-load:＜15Pa<br>Water catching:6kg/24h<br>Vacuum digital display<br>optional tray heating | Tray: φ240*6,area:0.27㎡ | 1200*550*880mm | 2200 |
| | Gland type | | Tray: φ220*3,area:0.11㎡<br>vial φ16/410,φ22/207pcs | 1200*550*880mm | 2200 |
| | Multi-manifold type | | Bottle: 50/100/250/500/1000ml<br>Ttl 8pcs.Tray:φ240*6,area:0.27㎡ | 1200*550*880mm | 2200 |
| | Multi-manifold gland | | Bottle: 50/100/250/500/1000ml<br>Ttl 8pcs.Tray:φ220*3,area:0.11㎡ | 1200*550*880mm | 2200 |

# FREEZE DRYER Small scale

SFD series small freeze dryer adopts imported brand compressor, in-situ pre-freezing, intelligent operation, stable and reliable performance, compact and beautiful appearance. Widely used in food, chemical industry, Chinese medicinal materials, Cordyceps, health care products etc.

## FEATURES

- In-situ pre-freeze drying, one-button start operation.
- PLC control system, touch screen , display drying curve and USB data storage interface.
- Temperature and vacuum protection to ensure the operation and the drying effect.
- Automatic control of the whole process, program mode or vacuum mode can be selected.
- 304 stainless steel square tray is not easy to deform, corrosion-resistant, easy to clean.
- The drying room adopts high light transmission, colorless and transparent plexiglass door, which can be cleaned to observe the change process of materials during operation.
- One key defrosting function, defrosting is simple and fast.
- Automatic control of the whole process of freeze-drying, program mode or vacuum mode can be selected.

| Model | SFD-1 | SFD-4 | SFD-6 | SFD-1A | SFD-4A | SFD-6A |
|---|---|---|---|---|---|---|
| Tray area | 0.1㎡ | 0.4㎡ | 0.6㎡ | 0.1㎡ | 0.4㎡ | 0.6㎡ |
| Cold trap temp | -40℃ | -40℃ | -40℃ | -70℃ | -70℃ | -70℃ |
| Ultimate vacuum | 10Pa | 10Pa | 10Pa | 10Pa | 10Pa | 10Pa |
| Handling capacity | 1kg/batch | 4kg/batch | 6kg/batch | 1kg/batch | 4kg/batch | 6kg/batch |
| Tray spacing | 43mm | 45mm | 58mm | 43mm | 45mm | 58mm |
| Heating method | Electrical heating | | | | | |
| Power supply | 220V 50Hz, support customization | | | | | |
| Power | 750W | 1100W | 2300W | 750W | 1100W | 2300W |
| Tray size | 145*275mm | 195*425mm | 345*425mm | 145*275mm | 195*425mm | 345*425mm |
| Tray layer | 3 Level | 4 Level | 4 Level | 3 Level | 4 Level | 4 Level |
| Dimensions(mm) | 510*740*830 | 550*830*930 | 720*800*1190 | 510*740*830 | 600*1000*1050 | 730*1000*1190 |





# FREEZE DRYER Pilot scale

The PFD series of pharmaceutical freeze dryers uses high-quality materials and components that are widely accepted in the biological and pharmaceutical industries. The equipment fully complies with cGMP standards and is widely used in biopharmaceuticals, probiotics, cosmetics, strains, medicine and other industries。

## FEATURES

- In-situ pre-freeze drying, one-button start operation.
- Heat transfer oil heating, high temperature control accuracy, tray temperature difference is ≤1℃ uniform drying effect.
- SUS 304 tray, adjustable temperature, vacuum adjustable, controllable process.
- Multiple programs can be stored, each program can be set to 36 segments, program parameters can be modified during operation, and vacuum drying curves and data can be recorded and exported.
- Equiped with and inflation value, it can be filled with dry inert gas.
- With normal model and gland type for option.

| Model | PFD-2 | PFD-3 | PFD-5 | PFD-10 |
|---|---|---|---|---|
| Tray area | 0.2㎡ | 0.3㎡ | 0.52㎡ | 1.04㎡ |
| Water trap condensing | 3kg/batch | 5kg/batch | 8kg/batch | 16kg/batch |
| Tray size(W*L) | 280*360mm | 300*380mm | 360*480mm | 360*480mm |
| Tray spacing | 70mm | 70mm | 70mm | 70mm |
| Tray layer | 2+1 layer | 3+1 layer | 3+1 layer | 6+1 layer |
| Temp range of tray | -50~+80℃ | -50~+80℃ | -50~+80℃ | -50~+80℃ |
| Min temp of water trap | ≤-70℃ | ≤-70℃ | ≤-70℃ | ≤-70℃ |
| Ultimate vacuum | ≤5Pa | ≤5Pa | ≤5Pa | ≤5Pa |
| Power | 3kw | 3.5kw | 4.5kw | 8kw |
| Weight | 350kg | 430kg | 450kg | 750kg |

# SPRAY DRYER

Spray dryer has wide applicability to all solutions such as emulsions and suspensions, and is suitable for drying heat-sensitive materials, such as biological products, biological pesticides, enzyme preparations, etc. Because the sprayed materials only receive high temperature and are heated instantaneously when they are sprayed into mist, these active materials still maintain their active components after drying.

The whole machine is made of high-quality stainless steel. The atomization chamber, cyclone separator, and material receiving bottle are made of high borosilicate glass, which can withstand high temperatures and can be watched throughout the process. The drying effect is better, the temperature is accurate, and the material enters the atomization chamber, instantly dries without damaging material properties. The particle uniformity is good, the material collection method is cyclone recovery, the material recovery rate is high, and the cost is reduced. The drying room can watch the atomization state throughout the process, and the automatic feeding program is controlled. Equipped with a cleaning brush, easy to disassemble and clean.





## FEATURES

- Original imported nozzel, high efficiency.
- Large color touch screen operation, combination of automatic control and manual control, English interface, parameter LCD display.
- Real-time regulation of PID constant temperature control technology, clear temperature control, heating temperature control accuracy ±1℃.
- Equipped with automatic dredging of the jet (needle) and adjustable frequency, when the nozzle is blocked, it will be automatically cleared to ensure the continuity of the experiment.
- Feed amount can be adjusted by feed peristaltic pump.
- Built-in imported oil-free air compressor, the noise is less than 50db.
- Equipped with an air inlet filter to ensure sample purity.
- The dried product has a uniform particle size, and more than 95% of the dry powder is in the same particle size.

## APPLICATION

Pharmaceutical industry: biopharmaceutical products such as enzymes, hormones, amino acids, peptides and proteins, antibiotics, vaccines, vitamins, yeast etc.

Chemical industry: ceramic materials, nanomaterials, batteries and materials science, detergent, pesticides, fungicides, insecticides, pigments, paints and dyes, cosmetics etc.

Food industry: milk , eggs, coffee powder; spice, infant food, bioactive compounds, nutritional health products etc.

# SPRAY DRYER Lab scale

Lab small size spray dryer is designed and manufactured by absorbing international advanced technology.The major components and electrical parts are imported from famous brands. It can be used without any auxiliary equipment, and the machine is a whole, portable, self-contained one.Moreover, it also adopts PLC controller and touch-screen display.

## Product Parameter

| Model | | SD-1500 | SD-1500A |
|---|---|---|---|
| Body material | | Cold rolled plate with powder coating | SUS304 (Optional SUS316L) |
| Sample material | | Water solubility | Corrosive solution |
| Performance | Water evaporation | 1500-2000ml/h, support customization | |
| | Temp setting range | 30~300℃(inlet),30~140℃(outlet) | |
| | Temp accuracy | Inlet temperature ±1℃ | |
| | Dry air volume range | 0~0.7m³/min | |
| | Spray air pressure range | 0~0.3Mpa | |
| | Peristaltic pump flow range | 0~80ml/min | |
| Components | Temperature | Inlet,outlet temperature output(4~20ma) | |
| | Glass Material | High borosilicate glass,no pollution | |
| | Temp regulator | PID digital temperature controller | |
| | LCD Touch screen | Fan, heater, pump, needle injection switch,alarm display. | |
| | Air compressor | Imported air compressor | |
| | Suction fan | Bypass fan brushless DC motor | |
| | Air filter | Optional Environmentally friendly air filter | |
| | Nozzle | Standard 1.0, customized 0.7/1.0/1.5/2.0/2.2 | |
| | Air connected interface | Outer diameter 7mm | |
| | Spray air pressure | Bassoon 0.3Mpa | |
| | Exhaust connection interface | 50mm | |
| Dimensions&Weight | | 550*650*1350mm,110kg | |





# SPRAY DRYER Low Temperature

The low-temperature spray dryer is specially developed for heat-sensitive materials. The machine is compact and can operate without other facilities. One-button power-on, large color LCD touch screen operation, fully automatic or manual monitoring of two operating modes, convenient operation and monitoring of the experimental process.

The low-temperature spray dryer realizes the instant drying of materials under low-temperature conditions (normal temperature 40-100℃ (can be heated)), and provides a very convenient and safe drying method for heat-sensitive materials, such as biological products, traditional Chinese medicine natural products with high sugar content extracts, heat-labile polymer materials, materials that vaporize when heated etc.

## Product Parameter

- Inlet air temperature control: room temperature 40-100℃(adjustable),high and low temperature dual-purpose functions can be customized.
- Outlet temperature control: 30~60℃.
- Water evaporation:600ml/h ~ 50L/h.
- Heating type：electrical heating.
- Feeding method: peristaltic pump, screw pump.
- Dry air treatment system.
- Condensation cooling system.
- Average drying time:1.0~1.5s
- Voltage: 380V
- Control system: PLC+HMI
- Atomization method: centrifugal, air flow, pressure, multiple types are optional
- Product recovery method: low hat type, 2-point recovery at the bottom of the tower + cyclone separator.
- Drying room accessories: observation window, lighting window, product recovery bucket.
- Purpose: experimental research and development, pilot production.

## SPRAY DRYER Special for organic solvent

The organic solvent spray dryer is a closed cycle, and the heat carrier can be recycled. Through the heat carrier and closed cycle method, we can effectively avoid the danger of high temperature during material drying, prevent contact with oxygen during spray drying, and recycle more than 90% of the material etc.

For volatiles that are organic chemical solvents, toxic or escaping materials that can cause harm to people and the environment after drying, the feed liquid contains organic solvents or the product is an oxidizable, flammable, and explosive material. Under normal circumstances, the materials that require this process cannot be exposed to oxygen, so the heat carrier is mostly inert (such as nitrogen, carbon dioxide, etc.), this method is also called inert gas drying.The tail gas discharged from the dryer, after gas-solid separation, also needs to go through the condenser to recover the solvent or remove the moisture, and then enter the dryer after being heated by the heater for recycling.

### Product Parameter

- Solvent: ethanol. (Special solvents can be heated up, and the temperature is heated by indirect silicone oil heat exchange).
- Solvent recovery: condensation recovery.
- Processing capacity: 5~50L/h, support customization.
- Dry powder recovery rate: ≥90%(according to material characteristics).
- Product residual solvent: ≤2%.
- System oxygen content: ≤3%.
- Explosion-proof: with explosion-proof device.
- Device system: positive pressure state.
- System structure:material liquid transportation, atomization system, hot air system, drying system, induced draft system, control system, solvent recovery system.





## SPRAY DRYER Lab scale Special for organic solvent

Nitrogen is used as a circulating carrier, it has a protective effect on dry materials. The circulating carrier such as nitrogen plays the role of carrying moisture, dehumidifying and circulating transmission, and its carrier medium can be reused.

First, the heated nitrogen gas is filled in the drying tower, and the liquid material is transported to the nozzle by the infusion pump. The liquid material is atomized into fine droplets by the nozzle, and the liquid droplets fully exchange heat with the hot nitrogen in the drying tower. The liquid part is evaporated instantly, the powdery material formed by the solid part sinks to the bottom of the tower, and finally the dry powdery material is discharged from the bottom of the tower.

The evaporated organic solvent gas, under the action of the fan, removes the dust attached to the gas through cyclone separator, bag filter and other devices, and then condenses the saturated organic solvent gas into liquid through the condenser after dust removal. In order to prevent the liquid from being taken away, a gas-liquid separator is added behind. In the meantime, the inert gas used as the drying medium is continuously heated and then recycled as a drying carrier in the system.

### Product Parameter

- Inlet air temperature: 30-220℃(adjustable),outlet air temperature: 50-110℃.
- Electrical heating.
- Power: 6KW.
- Atomizer: concentric two-fluid atomizer.
- Collection bucket: 1L.
- Induced fan power: 0.75KW.
- Condenser area:0.5m²
- Two-fluid atomization form.
- Nozzle diameter:1.0,1.5,2.0,2.2mm optional.
- Organic solvent treatment unit, solvent recovery.

# CENTRIFUGAL SPRAY DRYER

The air is filtered and heated into the air distributor at the top of the dryer. The feed liquid passes through the high-speed centrifugal atomizer on the top of the tower body and (rotates) sprays into extremely fine fog-like liquid beads, which can be dried into finished products in a very short time in contact with the parallel flow of hot air.

There're different fine powder separation and recovery devices, such as cyclone (the common type and various combination type), bag filter, cyclone + bag filter, cyclone + wet scrubber, and bag filter + wet scrubber etc. We support different fine powder separation and recovery devices as per the characteristics of product and requirements of customer.

## Product Parameter

- Water-evaporation: 5L/6L/8L/10L/15L/20L/25L/50L/100L per hour.
- Inlet air temperature: RT-250℃; outlet air temperature: RT-120℃.
- Centrifugal atomizer: variable frequency speed adjustable.
- Centrifugal nozzle: 2000-40000 RPM (adjustable).
- Feeding method: peristaltic pump/screw pump.
- Heating method: electric heating, steam, gas heating.
- The spray, drying and collection device is made of high-quality 304 stainless steel with double mirror, and the spray drying room is equipped with an observation port.
- Special protection function, the fan does not start, the heater can not start.
- Equipped with air inlet filtration to ensure sample purity.
- Real-time control PID constant temperature control technology, accurate temperature control, heating temperature control accuracy of ±1℃.
- Average drying time:1.0~10s
- Control system: PLC+HMI







Lab Spray Dryer

SS Lab Spray Dryer

Customized Lab Spray Dryer

Big sight glass

3L centrifugal nozzle

2L centrifugal nozzle

Spray dryer for organic solvent

Centrifugal spray dryer 8L

# AGITATED NUTSCHE FILTER DRYER

Agitated nutsche filter dryer completes the whole process of filtration, washing, drying, solid discharging in the same equipment. It is widely applied in the pharmaceutical, chemical and agrochemical, food etc. What is more, it can realize the continuous operation without air, and even more suitable for producing sterile and poisonous products.

According to different application, ANFD can be made from SS304, SS316L, Ti, Hastelloy, PTFE lined or other materials. Our ANFE is designed and manufactured in compliance with GMP regulations.

## More options

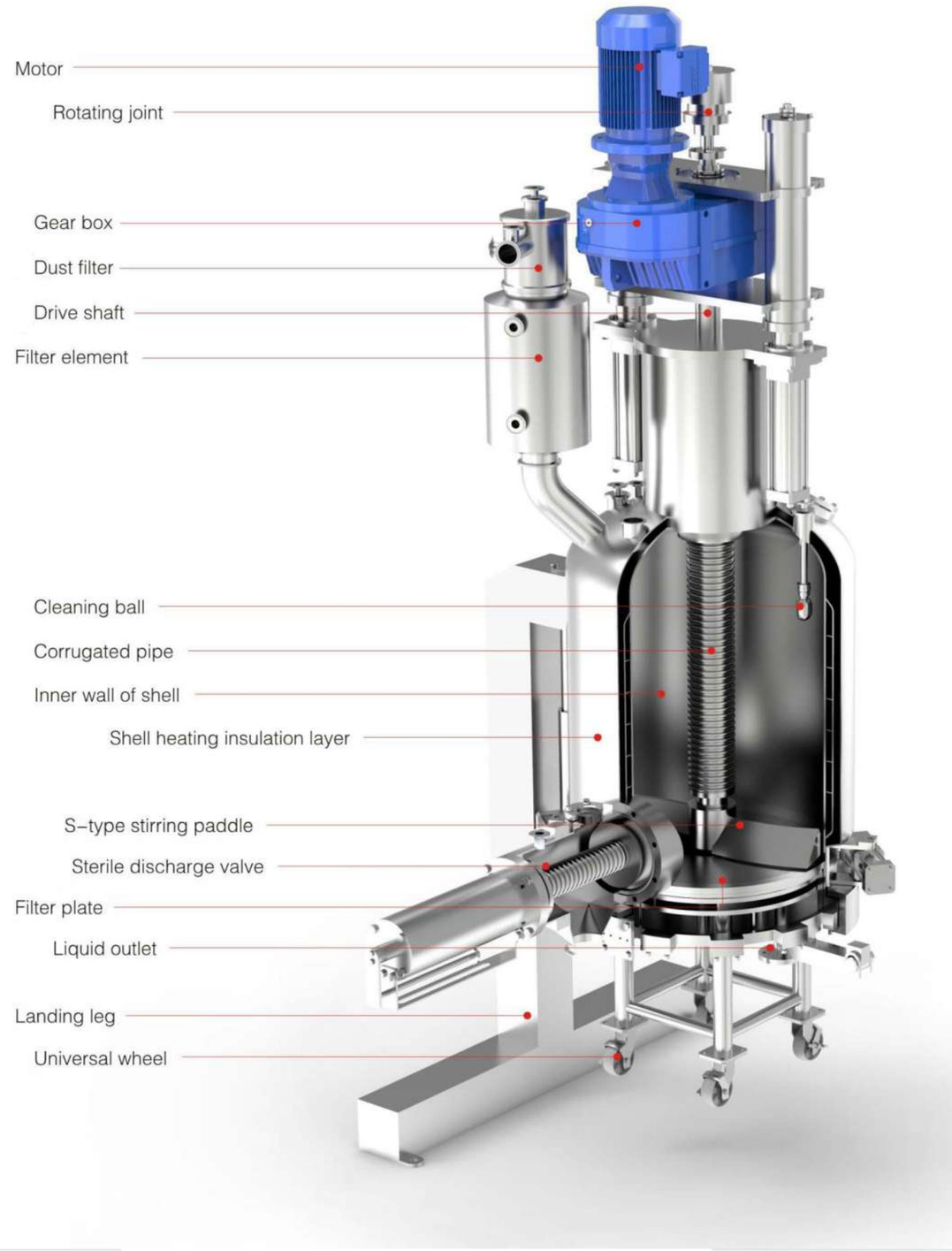
1. Select appropriate materials for different media.
2. Wide range of operating temperature and presure.
3. Heating/cooling of the body and/or agitator
4. CIP/SIP systems.
5. Removable bottom plate, easy change filter plate
6. Discharge through sterile valve.
7. European ATEX certification.
8. DQ, IQ and OQ protocols.

## Application

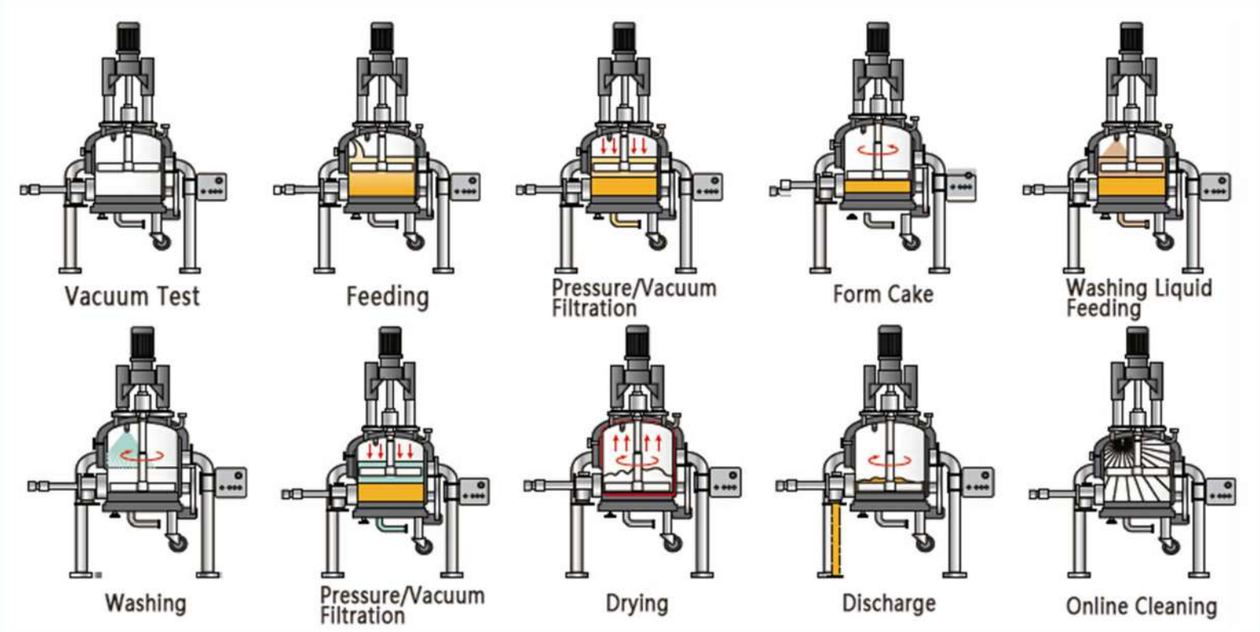
**Chemical:**
Additives, catalysts, metallic powders, minerals, pigments, polymers.
**Pharmaceutical:**
Antibiotics, APIs, biotechnology, colorants, crystals, peptides, essences and flavours, natural extracts, vitamins etc.
**Others:**
Sugar production, titanium dioxide production, melamine production, glyhposate decoloring denitrification, activated carbon filter, polycrystalline silicon powder recovery, waste acid, hydrofuoric acid and nitric acid filtering.







## AGITATED NUTSCHE FILTER DRYER




1. Feeding:
Connected with a reactor or crystallizing tank for feeding with a slurry.

2. Filtration:
Filter liquid/solid under pressure or vacuum sunction working enviroment.
Mother liquid to be collected in a tank.

3. Washing:
Feeding washing liquid through inlet or spray ball to further purification of filter cake, rinse and dehydration of mother liquid remained.Mix the washing liquid and filter cake through up and down of agitator by layers, then the filter cake can get the full wash.

4. Drying:
Agitator will scrape filter cake to loose it by layers, the tank body, bottom of filter device, agitator wil heat the filter cake at the same time. Morever, the vacuum inside the equipment will accelerate the evaporating speed, the entered hot air will take away the damp and accelerate the speed of desiccation.

5. Sampling & Discharging:
Sampling at the sampling port, and discharing after sample passing the test.



## AGITATED NUTSCHE FILTER DRYER



| Model | Volume ($m^3$) | Inner Dia. (mm) | Filtration Area($m^2$) | Height Body(mm) | Height TTL(mm) | Weight Net(KG) |
|---|---|---|---|---|---|---|
| ANFD-300 | 0.02 | 300 | 0.07 | 400 | 1300 | 150 |
| ANFD-400 | 0.05 | 400 | 0.12 | 450 | 1500 | 250 |
| ANFD-500 | 0.15 | 500 | 0.19 | 650 | 2600 | 1450 |
| ANFD-600 | 0.22 | 600 | 0.28 | 700 | 2900 | 1650 |
| ANFD-800 | 0.53 | 800 | 0.5 | 900 | 3300 | 2300 |
| ANFD-900 | 0.66 | 900 | 0.62 | 900 | 3500 | 2800 |
| ANFD-1000 | 0.93 | 1000 | 0.78 | 1000 | 3800 | 3600 |
| ANFD-1200 | 1.3 | 1200 | 1.1 | 1000 | 3900 | 4700 |
| ANFD-1400 | 2.0 | 1400 | 1.53 | 1100 | 4400 | 6400 |
| ANFD-1600 | 2.7 | 1600 | 2.0 | 1100 | 4500 | 7400 |
| ANFD-1800 | 3.8 | 1800 | 2.5 | 1200 | 4700 | 10500 |
| ANFD-2000 | 4.8 | 2000 | 3.0 | 1200 | 5100 | 11500 |