

## 11. SD-5000 Vacuum Inert Loop Spray Dryer



### Application

Suitable for heat sensitive water-based and organic solvent to be dry in low temperature, included inert loop system, solvent recovery system, cooling system and vacuum system.

### Description

SD-5000 vacuum low temperature spray dryer is an enhanced product of SD-500 desktop spray dryer. The SD-500 desktop spray dryer is popular with scientific researchers because of its small size and convenient operation. We have developed a vacuum low temperature spray dryer and an organic solvent spray dryer on the basis of SD-500. After users purchase the SD-500 It only needs to purchase vacuum components or nitrogen circulation system to form a vacuum low-temperature spray dryer or an organic solvent spray dryer, and the connection is very convenient, saving experimental funds and venues, and convenient for users to purchase on demand.

The problem of rapid drying of heat-sensitive materials has always plagued many scientific researchers. Common vacuum drying and spray drying have great damage to the biological activity of the material or the structure of the material. The freeze-drying time is long, the energy efficiency is low, and the drying After the material is agglomerated, it needs to be crushed a second time. SD-5000 laboratory vacuum low temperature spray dryer, when you need ordinary spray drying, only need to use the main body of the spray dryer, there is no need to open the vacuum component, and your material needs to be dried at a low temperature below 60 °C, you open Vacuum components can be quickly dried at an inlet air temperature of 55°C, completely avoiding the destruction of the material's activity or structure during the drying process, and providing extremely convenient and safe drying methods for heat-sensitive materials, such as enzyme preparations and living organisms. Products, extracts of natural products of traditional Chinese medicine with high sugar content, heat-resistant polymer materials, materials that vaporize when heated, etc.



### Features

- SD-5000 laboratory vacuum low temperature spray dryer is divided into a desktop spray dryer main unit and vacuum components. The modular design facilitates the switching between high temperature spray drying and vacuum low temperature spray drying;
- The spray head is a concentric spray head. Make sure there is no eccentricity during spraying and it will spray to the side of the bottle wall. After the spray head is installed, it can move up and down to facilitate the adjustment of the spray position and improve the spray drying effect;
- SD-5000 laboratory vacuum low temperature spray dryer uses a color touch screen operation, real-time regulation of PID constant temperature control, so that the temperature control in the full temperature zone is accurate, the heating temperature control accuracy is  $\pm 1^{\circ}\text{C}$ , and the feed rate of the peristaltic pump can be adjusted at any time.
- The entire experimental process of spray drying is completed in a vacuum environment, which greatly reduces the material drying temperature and solves the problem of spray drying of heat-sensitive materials;
- The atomization structure of the two-fluid spray is made of high-quality stainless steel materials, with a compact design, no auxiliary equipment, easy to use, and as long as new.
- The instant spray drying is completed under low temperature (minimum  $50^{\circ}\text{C}$ ) conditions, and the moisture content after drying is less than 1%. Under such drying conditions, substances that are easily oxidized, volatile, and heat sensitive can maintain chemical structure and biological activity well ;

### Specifications

Model	SD-5000 Vacuum inert loop spray dryer
Rated drying capacity	500ml/h
Minimum inlet air temperature	$50^{\circ}\text{C}$
power supply	220V/3000W
compressed gas	$4.2\text{m}^3/\text{h}$ , 2-5bar
nozzle	0.7mm standard, (0.5/0.75/1.0/1.5/2.0mm available)
Spray head	Two-fluid, concentric spray head, not eccentric during atomization, spray head can move up and down
Particle size after drying	1-25 $\mu\text{m}$
Operation method	Automatic/Manual
Maximum feed volume	500ml/h
Min material handling capacity	20ml
Drying room material	SUS 304 stainless steel
Inlet temperature range	$50\sim 200^{\circ}\text{C}$
Heating temperature accuracy	$\pm 1^{\circ}\text{C}$
Cyclone material	SUS-304 stainless steel
Frame material	SUS-304 stainless steel
Sealing ring	Silica gel
Outlet temperature	$40^{\circ}\text{C}$
display	7-Inch LCD display with USB interface
Temperature protection	Have
Spray head material	Concentric spray head, SUS 316 L stainless steel
Vacuum degree	-0.08Mpa

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