

2. SD-15 / SD-15A Lab Small Spray Dryer



SD-15 Lab Spray dryer is self contained and supplied complete and ready for immediate operation. All major components are housed within a stainless steel cabinet and the unit can be used on a bench top or with an optional stainless steel stand. The system was designed to be stand by a keyboard, conducted by a colorful crystal screen of touch guidance mode , and allowed two modes of run: Automatic-mode, and Eye-monitored mode for the purpose of easily controlling experimental process .

APPLICATIONS

Spray drying can be used in a wide range of applications where the production of a free-flowing powder sample is required. This technique has successfully processed materials in the following areas:

Beverages • Flavours and Colourings • Milk and Egg Products • Plant and Vegetable Extracts • Pharmaceuticals • Heat Sensitive Materials • Plastics • Polymers and Resins • Perfumes • Ceramics and Advanced Materials •

Soaps and Detergents • Blood • Dyestuffs • Foodstuffs • Adhesives • Oxides • Textiles • Bones, Teeth and Tooth Amalgam and many others. Most solutions and suspensions can be spray dried providing that the resulting product has the characteristics of a solid material.

PRINCIPLE

1. A menu driven microprocessor controller allows the selection of inlet temperature, airflow, automatic de-blocker frequency and pump speed. The controller features an RS 232 output for connection to a PC or data logger and software allows the control and monitoring of all functions and printing of results.
2. The self-priming peristaltic pump delivers the sample liquid from a container through a small diameter jet into the main chamber. At the same time an integral compressor pumps air into the outer tube of the jet which causes the liquid to emerge as a fine atomised spray into the drying chamber.
3. Heated air is blown through the main chamber evaporating the liquid content of the atomised spray. The solid particles of the material, which are normally in a free flowing state, are then separated from the exhaust air flow by a cyclone and collected in the sample collection bottle. The exhaust airflow is directed through a flexible 60 mm diameter hose direct to atmosphere or to an existing extraction system.

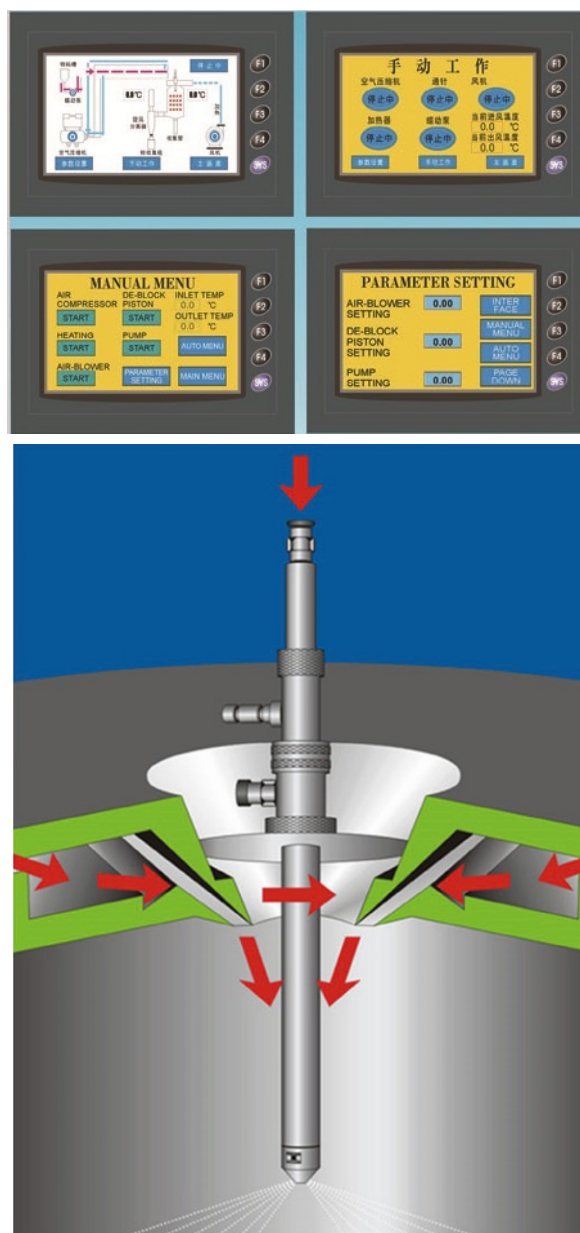


SD-15A



ADVANTAGES

- Two modes of run: Automatic-mode, and Eye-monitored mode for the purpose of easily controlling experimental process. PLC controller, LCD touch panel control fascia with flow path of system. Using proface touchable interface display operation, operator can control temperature, airflow volume, air pressure, pump speed and de-blocker frequency.
- Spray chamber, cyclone separator, receiving tank are all made of Borosilicate glass which can resist strong acid/alkali, high temperature. It can work in a no-pollution and stable environment, and the whole process can be inspected. All the spare parts are easy to install and wash.
- Made of SUS-316 Stainless steel. Easy operating.
- To assure accurate temperature control and easy parameter adjusting, SD-15 applies PID.
- A filter has been equipped to the inlet unit to prevent the sample from contamination.
- The self-priming peristaltic pump delivers the sample liquid from a container through a small diameter jet into the main chamber to avoid secondary pollution.. To make sure the process conducted steady and smoothly, magnetic agitator is optional to make the solution well mixed.
- Narrow size distribution of particles.
- Automatic de-blocking device prevents the nozzle from becoming blocked and variably controlled
- The air compressor is no oil and don't pollute compress air. The power from receiving tank has a good flow. The sound is low than 60db, and following the GMP understands.
- Supplied complete and ready for most spray drying applications.
- Automatic de-blocking device prevents the nozzle from becoming blocked and variably controlled.
- Equipped with air filter to remove and collect fine particles in exhausted air.
- **Can be used for organic & water solvents (Model SD-15A)**



TECHNICAL INFORMATION

Model	SD-15	SD-15A
Material for drying	Water-base	Organic solutions With nitrogen circulation system and online recovery system
Power	3kw	6kw
Heating power	3kw	3.5kw
Air flow	3~6m ³ /min	1~3m ³ /min
Inlet/outlet filters	Optional (HEPA)	N2
Dehumidifier	No	Yes
Control	PID Automatic or manual dual control	
Display	LCD touch display can show Inlet temperature / outlet temperature / peristaltic pump speed / wind / through needle frequency	
Inlet air temperature range	30°C to 300°C	
Outlet air temperature range	30°C to 120°C	
Evaporate water capacity	1500mL/h	
Particle diameter range	1-25um	
Drying time	1.0~1.5s	
Temp. Precision	±1 °C, real time PID control	
Max. Sample feed	2000mL/H	
Min. Sample feed	30mL/H	
Weight	110kg	
Dimensions	650×500×1550mm (W*D*H)	
Packing size & weights	990×790×1480 mm/ 168KG, 660×430×610 mm/ 23kg (main-chamber/cyclone/sample collection bottle/waste collection tube) (2 packages)	
obturator ring	50 pcs	
Nozzle diameter	Can be chosen from 0.5mm/0.7mm/0.75mm/1.0mm/1.5mm/2.0mm	
Nozzle material	SS316 stainless steel	
Atomizer material	SS316 stainless steel	
Power supply	220V/50Hz or 110V/60Hz	

Specification of Nitrogen for SD-15A spray dryer

Item	Specification
Pressure	1~4 bar
Flow rate	2m ³ /min
Consumable	6~8 hours/40L
Purity	99.99%

MAIN COMPONENTS

Items	Standard	Remarks
Air Compressor	4.2 m ³ /H, internally installed	Hanjin (Korea)
SELF-PRIMING PERISTALTIC PUMP	1500ml/H	RS (France)

Peristaltic Pump Head		RS (France)
PLC		ELT (Taiwan)
touch screen	180*140mm	ELT (Taiwan)
transducer		ELT (Taiwan)
AIR-BLOWER	6.5M ³ /min	PDX(Taiwan)
thermal-protective elbow	140mm	stainless steel & High temperature resistant material (1700°C)
exhaus adapter	50mm	stainless steel
THERMOCOUPLE	M8x1.25	
MAIN-CHAMBER	140mm	PYREX
CYCLONE	85 mm	PYREX
NOZZLE	0.7mm	
silicone rubber tube	φ8xφ5	resist heat, 2M

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