

LABSPRAY

LABFREEZ®



Laboratory Spray Dryer

Aqueous, Organic solvent, Heat sensitive material
Making large particle, Granulation, Coating
1.5kg~5kg per hour base on your requirements

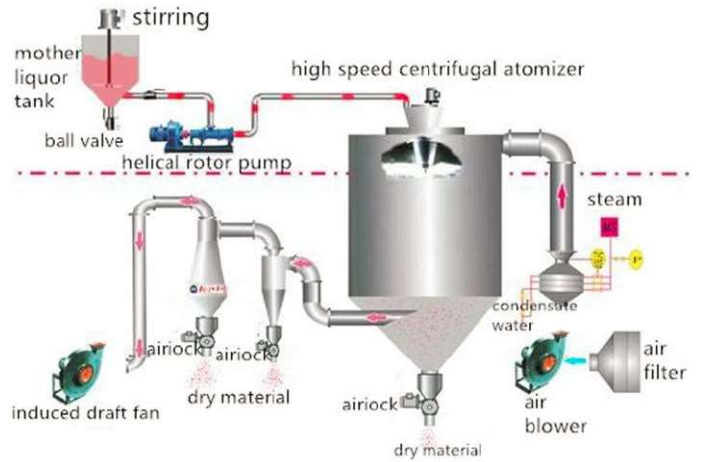
LABFREEZ® SD-10A Mini Spray Dryer



What is spray drying?

Spray drying is a process of drying water solution, emulsion and so on. It is widely used in Industrial Chemistry and food industry. Dry milk, detergents and dyes are only some of the products currently dried by spray dryer. Spray drying can be used to preserve food or only as a quick drying method with the advantages light weight and small volume.

Spray drying is usually a method of injecting a fluid mixture into the hot dry air for drying. The solvent usually is water-based; it is instantly volatilized by hot air. This evaporation process removes heat quickly so that the product is dried gently without being affected by heat. The product becomes powder, particle, or lump within seconds.



Applications



SD-18A BENCH-TOP MINI SPRAY DRYER

LAB SPRAY DRYER

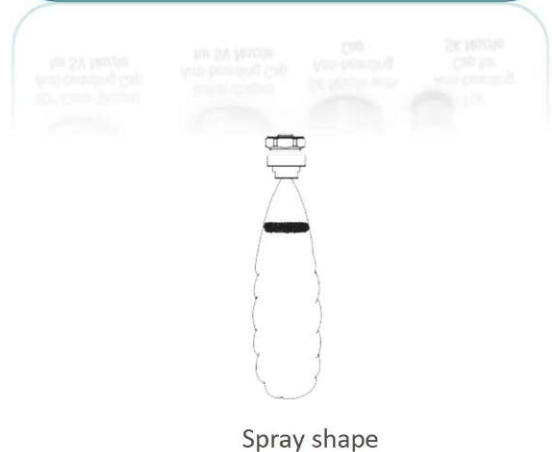
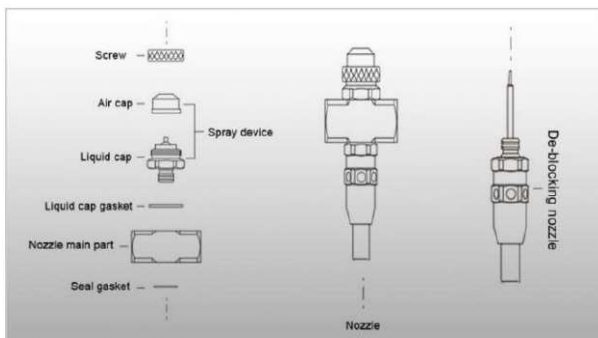


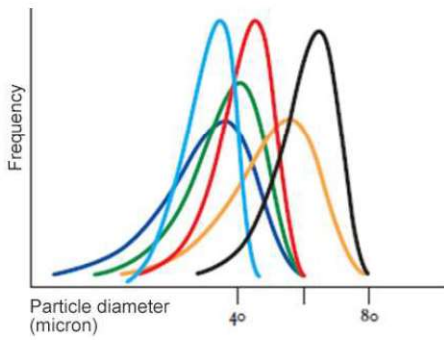
→ METICULOUS & STABLE

- U.S. spray brand Two fluid spray nozzle, SS316 material
- Deblock interval adjustable
- Power supply & Fan imported from Taiwan
- Siemens PLC & Schneider electric components
- LCD touch display from Taiwan
- 3.3 high borosilicate glass ensure safety working
- With USB interface to export data to computer
- ISO 9001 & ISO 14001 certificated

→ TWO-FLUID ATOMIZER

- Professional designers surgeon design, patent application has been submitted
- Full body painting process
- Mechanical parts grinding secret agents, only the pursuit of perfection
- American Spray double fluid nozzle is an excellent high precision spray nozzle. The instrument uses an external mixing nozzle, the air and liquid streams can be individually controlled to effectively spray highly viscous liquids and suspended abrasives.
- Double fluid nozzle is installed at the center of the top of the air distributor and sprays directly down into the tower. The feed enters at a minimum pressure through a tube inlet of the nozzle and is atomized with compressed air.





Particle size distribution

formed by different atomization methods under comparable conditions

- Two-fluid spray nozzle, Parallel flow
 - Rotary atomizer, Parallel flow
 - Pressure spray nozzle, parallel flow
- Two-fluid spray nozzle, Fountain flow
 - Pressure spray nozzle, Fountain flow
 - Combined nozzle

→ FEATURES



DELICATE DESIGN ON APPEARANCE

- Whole body high-end spray painting process which is beautiful, and easy to clean than normal stainless steel.
- Backup Pipes, seals is coming with machine.



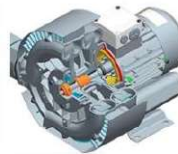
FAMOUS BRAND ELECTRIC ACCESSORIES

- Siemens brand PLC, Fuzzy PID control, precise & humanity
- Schneider electric parts and components



ADVANCED INTERFACE

- Intelligent & humanity LCD interface
- Visual touch operation, animation demo process flow
- Inlet temperature, outlet temperature, frequency value, pricker frequency can be display and control
- Data logging, analysis, alarm and overload protection



REAL FREQUENCY CONVERTER FAN

- Frequency converter fan can be great help in particles forming, product yield and processing
- Real frequency wind turbine design, Delta brand inverter



QUALITY AIR COMPRESSOR IS FITTED

- Silence oil free air compressor and pipes is comes with machine;
- Picture is as reference.



QUICK RELEASE DESIGN

- Quick-connection design for power supply, thermometers air wire, air compressor gas pipe, allows you to handle easy.



U.S. DWYER BRAND FLOW METER

- Fitted with U.S. Dwyer brand flow meter



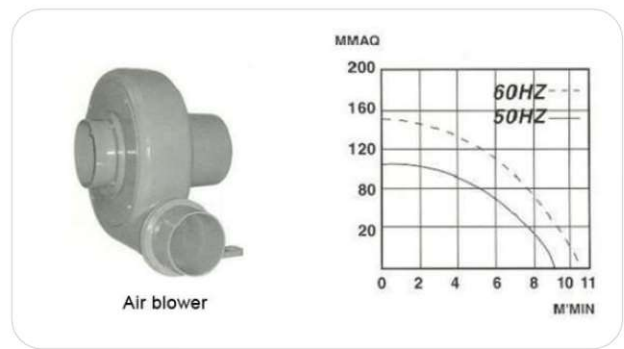
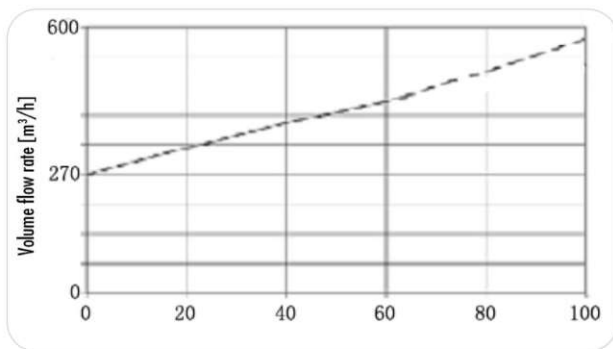
USB INTERFACE

- Comes with USB interface, data to be exporting to computer easy.

→ AIR SUPPLY SYSTEM

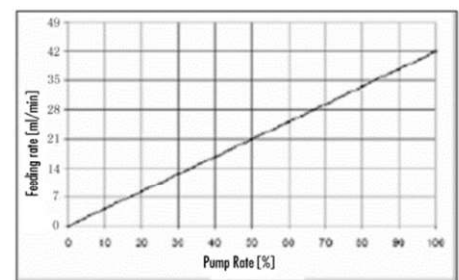
- Medium pressure blower imported from Taiwan
- Fan is the internal mechanical structure of the rotor

- The air supply system of the instrument adopts frequency conversion control to realize the stepless adjustment of the air volume, so as to meet the requirements of different process spray drying experiments.



→ PERISTALTIC PUMP

Peristaltic pump can be adjusted for pipes with different inner diameters and outer diameters. The diameter of the pipe is different, absolute flow is different. This relationship of the standard 19# silicone hose is shown in the diagram.



→ CLEAR HUMAN INTERFACE

Control Panel Data:

- Air Intake(°C): 0.0
- Air outflow(°C): 0.0
- Preinstall: 0.00
- Inlet Air(%): 0.0
- Inlet temp(°C): 0.00
- Feed Rate(%): 0.0
- Needles(s): 0.00

Graph Legend:

- Absolute clock: 0-12h, 12.25%
- Feed Rate: 0.00-100.00
- Air preset: 0.0-300.0 °C
- Temp measure: 0.0-300.0 °C
- Outlet air temp: 0-300 °C
- Air Volume: 0-100 %

Num	Record time	Feed rate	Air preset	Inlet temp	Outlet air temp	Air volume

Menu System Options:

- Reset
- Mute
- CH/EN
- Log in
- User
- Power off
- Pump
- Switch
- Data export

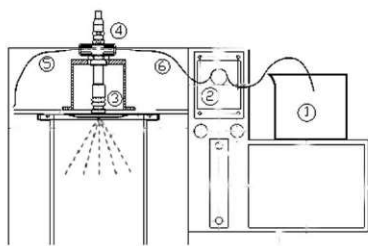
→ APPLICABILITY OF SD-18A MINI-SPRAY DRYER

- SD-18A small spray drying apparatus can be used for drying aqueous solution and suspension. It is suitable for the experiment and production of uniform powder. Such as: pharmaceuticals, dyes, pigments, food and beverage, milk, egg products plants and vegetable products, heat sensitive materials, plastics, polymers, resins, ceramics, perfume, soap, detergent, blood, adhesives, oxides, textiles, bone, teeth etc.
- SD-18A is particularly applicable to the laboratory for liquid material directly into micro powder, without materials filtration, concentrating and crushing before drying, applicable for all solutions such as emulsion, suspension.



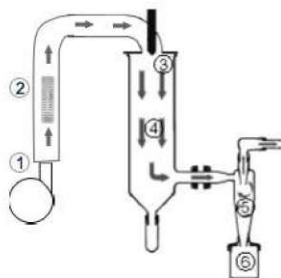
Cannot be used to deal with flammable, explosive or easy to produce large amounts of gas material. In particular, gases that are chemically unknown cannot be released.

→ STRUCTURE



Principle of sample feeding and dispersing

- ① Feed material
- ② Peristaltic pump
- ③ Two fluid nozzle
- ④ Automatic nozzle cleaning system
- ⑤ Compressed air line
- ⑥ Feed line



Functional principle of dry air

- ① Air inlet (Air supplied by fan)
- ② Heating pipes and electric heaters
- ③ Concentric inlet of hot air around nozzle
- ④ Spray cylinder
- ⑤ Used to separate particles from a gas stream
- ⑥ Product collection container

→ **PRODUCT COLLECTION**



→ **SPECIFICATIONS**

MODEL	SD-18A MINI SPRAY DRYER
Max evaporator capacity	1800ml/h
Peristaltic pump feed rate	0 ~ 2000ml/h
Control system	Siemens PLC Control 7" color touch LCD display
Inlet air temperature	30 ~ 250°C (control precision ±1°C)
Outlet air temperature	30 ~ 120°C (control precision ±1°C)
Dry air flow rate	70m³/h (maximum 330m³/h)
Blower (frequency converter fan)	0.2KW/220v
Electric heater	3.2KW/220V
Temperature sensor	PT-100, control accuracy ± 1°C
Spray system	0.7mm diameter Two-fluid nozzle (inside mix) 0.4mm & 1.0mm optional
Particle size	1 ~ 25um
Avg drying time	1.0 ~ 1.5s
Automatic block device	Automatic needling function Frequency 1-60s adjustable
Electrical standard	Schneider
Quick release	Temperature meter, air piping and power supply
Air compressor	0.25KW Max 4.2m³/H Work pressure 2~5 (bar)
Exhaust pipe	Diameter 51 mm
Collection bottle	150 & 450ml
Power supply	220/230V, 50 ~ 60Hz
Rate power	220V / 3.6KW
Weight	60 kg
Dimensions(H×W×D)	910mm×575mm×423mm

→ **STANDARD ACCESSORIES**

NO.	ITEM	QTY
1	SD-18A spray dryer host	1 set
2	Atomizer	1 set
3	Glass assembly	1 set
4	Glass drying room	1 pc
5	Cyclone separator	1 pc
6	Small collection bottle	1 pc
7	Product container	1 pc
8	Glass elbow	1 pc
9	Exhaust gas pipe (51mm diameter)	1.5 m
10	Silica gel tube	2 pcs
11	PU tube	1 pc
12	Teflon connector	1 pc
13	Power cord with quick release head	2 m
14	Air pipe with quick release head	2 m
15	Pt100 temp. sensor with quick release head	1 set
16	Gasket of glass tower body	2 pcs
17	O-ring sealing	4 pcs
18	Clamp	1 pc
19	External oil-free silence air compressor	1 set
21	Installation tools	1 set

→ **BRAND OF MAIN PARTS**

ITEM NAME	BRAND
Nozzle	U.S. spray system ANSI316
PLC	Siemens S7-200PLC
Touch screen	Taiwan MHI
Fan motor	Taiwan Delta Inverter fan
AC contactor	Schneider
Intermediate relay	Schneider
Air switch	CHINT
Button	Schneider
Socket	Aviation socket
Solid state relay	TWITEC
Rotameter	U.S. Dwyer

MAIN MATERIAL

PARTS	MATERIAL NAME
Glass assembly	3.3 high borosilicate glass
Nozzle/ heater	ANSI316
Sealing element	Teflon
Product feed pipe	silicon rubber
Exhaust pipe	polyurethane
Product external	Quality steel high quality spraying

→ **OPTIONAL LIST**

NO.	NAME	SPECIFICATION
SD18A016	spray nozzle	0.4mm (U.S. spray)
SD18A017	spray nozzle	1.0mm (U.S. spray)
SD18A018	Stainless Steel Bag Filter Collector	

→ **OIL-FREE AIR COMPRESSOR**

Voltage	220V/50 or 110V/60
Power (W)	550W/0.75HP
Max. flow (L/min)	115
Amount @7bar(L/min)	40
Noise dB(A)	58
Max. pressure (Bar)	8
Gas tank capacity (L)	22
GW/NW (KG)	30/23
Size (L/W/H) mm	410*410*520

