

Technical Data

Main Voltage	230V/50Hz, Single Phase $\pm 10\%$
Power Rating	3000 W
Current Consumption	16A max.
Evaporation Capacity	1.0 L / hr H ₂ O max. (Optional: 0.5 & 1.5 L / hr H ₂ O)
Aspirator Blower Capacity	118 Nm ³ / hr max.
Temperature of drying air	250°C $\pm 1^\circ\text{C}$ Accuracy
Heater Capacity	2.5 KW.
Compressed air for spray flow	2-5 bar
Chamber Diameter	4", 6" or user-specified
Nozzle	Two-fluid, co-current, SS-316L, 0.7mm, with Auto-De-blocking Device & option of variable nozzle apertures
Material of construction	Product Contact Parts & Main Stand : SS-316L Heating Apparatus : Borosilicate Glass Interconnecting Parts : Teflon, Silicon, Alkathene
Dimension L×W×H	50×60×100cm
Weight	60 kg
RS-232 port for PC / Printer Interface	Available with SprayMate / LSD 348
SprayWin Software	Available free with SprayMate / LSD 348
Optional Accessories	Counter-Current Nozzle Variable Nozzle apertures - 0.5, 1.0, 1.5mm Three-Fluid Nozzle Ultrasonic Nozzle Twin-Cyclone Attachment Nitrogen Inert Loop Hot Melt System PTFE Scrubber for sub-micron particle collection Spray Congealing Attachment

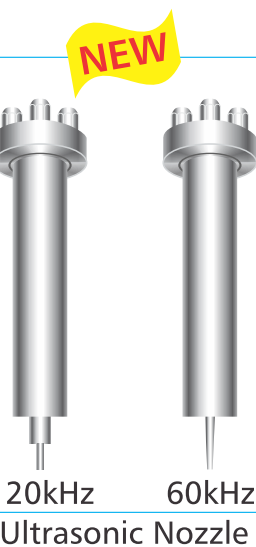
Certifications

JAY INSTRUMENTS & SYSTEMS PVT. LTD.

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 Chennai, Delhi, Hubli, Hyderabad

LABORATORY SPRAY DRYER



120kHz 60kHz
Ultrasonic Nozzle



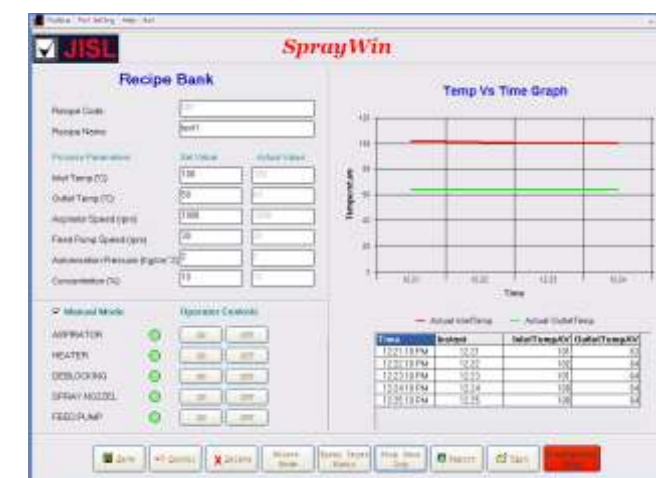
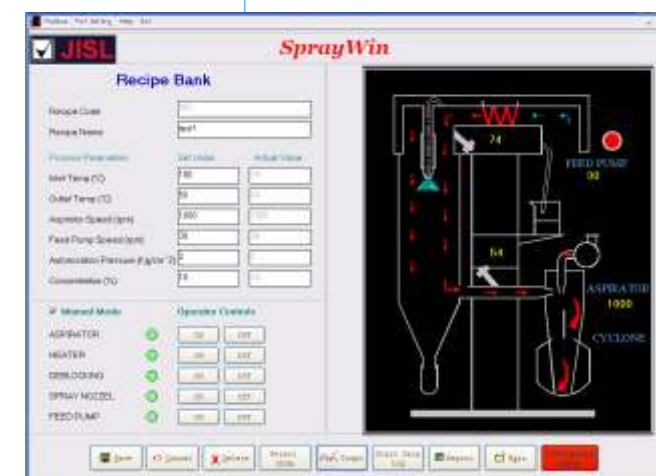


SprayMate

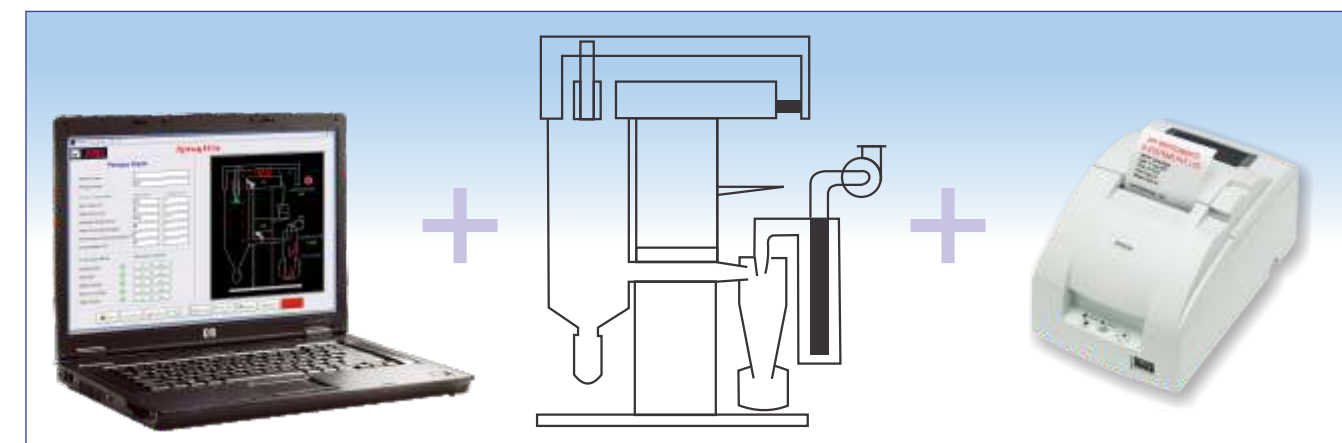
Versatile yet user friendly



SprayWin PC software



- SprayWin is a PC-based software for on-line control & monitoring of Lab Spray Dryer.
- It is compatible with SprayMate & LSD-348 models.
- It establishes two-way communication link between the Lab Spray Dryer & the PC through RS232C serial port.
- All the devices & functions of Lab Spray Dryer can be controlled & monitored from the PC & also all the process data acquired from the Lab Spray Dryer are displayed on the PC screen.
- The real time changes in the process data e.g Inlet & Outlet Temperatures are displayed & plotted as a Graph.
- The set of process parameters alongwith the Graph, collectively called as a Recipe, can be saved to & retrieve from the PC memory & also hard copy of the same can be printed.



Operating Principle

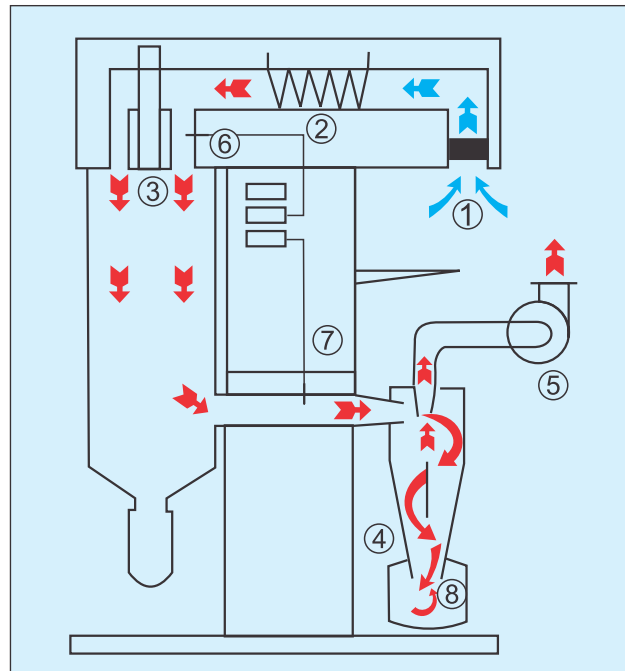


Diagram of the drying air

1. Air intake
2. Heater
3. Air distributor
4. Cyclone (product is separated from the air stream)
5. Aspirator
6. Temperature sensor, air inlet
7. Temperature sensor, air outlet
8. Collection pot

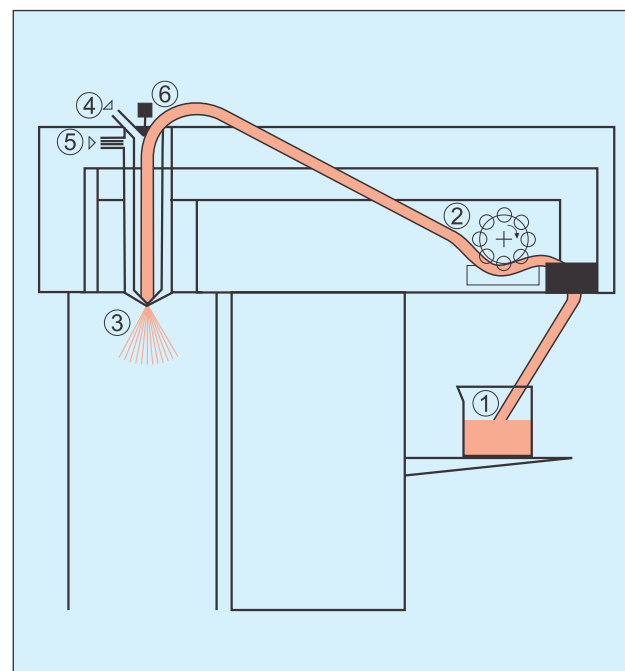


Diagram of the product flow and spray nozzle

1. Feed solution, emulsion or dispersion
2. Peristaltic feed pump
3. Product spray
4. Connector for atomization air or gas
5. Connector for cooling water
6. Nozzle auto-de-blocking device.

Applications



Spray Drying

The majority of true colloidal solutions, emulsions and dispersions are suitable for spray drying, provided the dried product will be a powder.

The most frequently used method of drying aqueous extracts or solutions is freeze-drying, which is time consuming. The dried product is usually electrostatically charged and requires further processing to give a dry powder.

The Lab Spray Dryer produces a dried, uniform powder in only a few minutes. In most cases, the powder is less hygroscopic than a freeze dried product.



Microencapsulation

This method is used mainly for liquid products which are sensitive to moisture, ambient atmosphere, oxidation, contact with other products, evaporation, e.g. aromatics. Or if liquids have to be mixed with a powder or when it is necessary to release a product or active ingredient under specific conditions such as temperature, pressure or pH.

Microencapsulation is achieved by creating an emulsion of the liquid product with a solution of coating material (filmogen) and carrier material. The emulsion is then sprayed to produce coated liquid product of small hollow spheres with a diameter of 10-20 μ .



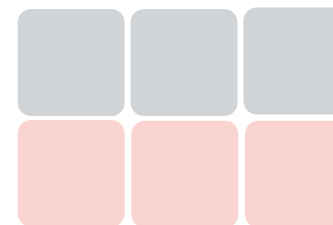
Recovery of synthetic or extracted products

This is usually done by concentrating the extracted product and drying under vacuum. Additional operation, such as filtration and centrifugation are often required and always carry the risk of contamination.

Lab Spray Dryer produces a fine, dry, contamination-free powder because the entire drying process is done in one step with a closed vacuum system.

Structure Conversion

In many pharma applications, an amorphous product is preferable to crystalline product due to better solubility, quicker healing effect when taken as medicine etc. Lab Spray Dryer achieves this conversion in a single step.



User Industries

- Pharmaceuticals
- Ayurvedics
- Herbals
- Food Products
- Biochemicals
- Fragrances
- Flavors
- Aromatics
- Pesticides & related Agro-chemicals
- Dyes & Pigments
- Detergents & Surfactants
- Polymers & Resins
- Ceramic Products
- Cereal Products



Parts and Accessories



Oil-Free Compressor



Hepa Filter



Flameproof Aspirator



Scrubber Filter



Set of Glassware



Co Current Nozzle with Variable Apertures



Twin Cyclone System



Counter Current Nozzle



Inert Close Loop / Solvent Recovery System

Lab Spray Dryer

For safe, fast & efficient spray drying of aqueous & organic solutions

Many products are preferentially used in solid form. This simplifies storage & measurement & it may be essential for the application for which the product is to be used. Spray drying is a speedy, time saving and gentle method of obtaining even the smallest quantities of substance in powder form.

The very short residence times & the cooling effect-resulting from evaporation makes it possible to process even temperature sensitive products in a gentle manner. If the use of organic solvents is involved, the thermal load is reduced to a minimum.

One step -Many-Objectives

Not only does the Lab Spray Dryer make it possible to obtain powder directly from a solution but many other processes can also be completed in a single stage :

- Modification of particle size
- Agglomeration of nanoparticles
- Drying suspensions
- Particle Coating
- Immobilization of liquids and solid materials in a matrix
- Manufacture of microcapsules

Whether the requirement is gentle drying of natural product, dyestuffs, the isolation of highly effective pharmaceutical active agents, or the micro encapsulation of aromas - the Lab Spray Dryer is an ideal choice for such applications.

Other Models



Advanced yet Simple



Economical yet Elegant