



About
PILOTECH

www.shpilotech.com



Leader For **SPRAY DRYER**

Pilotech has been engaged in spray drying for nearly 20 years. Our products are exported to more than 60 countries. Now we already have over 3,500 users around the world.

To be The **Leader for Spray Dryer** in the World –Pilotech

Pilotech started to produce laboratory spray dryer since 2005. We have over 50 patents and over 5 software copyrights.

Our company is also the only manufacturer in the world that can produce a wide range of spray dryers, including benchtop spray dryer, vacuum spray dryer, spray-freezing dryer, all-in-one machine for spray drying and fluidized granulator, organic solvent spray dryer and nano spray dryer.

Our laboratory spray dryer has many advantages, such as stable performance, easy operation and durable service. For this reason, the product is very popular among researchers. It has occupied more than 70% of the market in China. It is now used by more than 3,500 users in the world, and exported to more than 60 countries and regions, including USA, UK, Germany, Italy, Russia, South Korea, Singapore, Japan, Malaysia, Canada, Australia, South Africa, Taiwan and Hong Kong.



500 Papers on Google
Scholar

Pilotech JOURNEY

YC-015: The first lab two fluid spray dryer in China

Our laboratory spray dryer is very small, but it solves many problems. For example, with our product, you don't need to face the problems like difficulty in preparing materials, large coverage, and big noise.

2005

YC-1800: The first lab low temperature spray dryer in China

You don't need to worry that the materials containing sugar will stick on the wall when they are used for spray drying. You don't need to worry that the heat-sensitive materials, such as enzymic preparations, will degenerate when they are used for spray drying.

2007

YC-015A: The first inert loop spray dryer in China (for organic solvents)

It can also ensure safe spray drying of organic solvent in laboratory. With our product, both toxic and oxidizable materials can be treated with spray drying in laboratory.

2008

YC-1000: The first lab spray granulator in China

Only one machine can realize four functions, including spray drying, spray granulation, fluidized bed drying and fluidized bed coating.

2009

YC-2000: The first lab vacuum spray dryer in China

It is a perfect combination of vacuum drying and spray drying. The heat sensitive materials such as probiotics can remain active after spray drying in laboratory.

2010

YC-3000: The first lab spray freeze dryer in China

It is also a perfect combination of spray drying and freeze drying. Compared with freezer dryer, our spray dryer can provide a faster drying process, and the dried materials have better fluidity and solubility.

2011

2012

YC-018: The first pilot scale spray dryer, powder recovery rate can reach 92%

Our spray dryer for pilot plant test is also very small. It only covers an area of 1 square meter, but it has the processing capacity of 3L/H. It has the advantages, such as low noise, low power (only 5.5KW), and high material recovery rate.

YC-500: benchtop spray dryer

The processing capacity is 500ML/H. The minimum material volume is 30ML. Because it is very small, it can be placed on the workbench.

2013

2014

YC-501 and YC-018A: Inert loop spray dryer

YC-501 is the smallest organic solvent spray dryer. It can be applied to spray drying of very tinny materials. YC-018A is organic solvent spray dryer for pilot plant test. It applies to the preparation of materials in laboratory and pilot plant.

YC-510: Vacuum spray dryer, which contains high temperature type, vacuum low temperature type or inert loop type (optional)

YC-510 is a multifunctional device. It can be used as traditional laboratory spray dryer, vacuum spray dryer or organic solvent spray dryer (optional) to process different materials.

2016

2017

Developed a new concentric spray nozzle

If the materials are atomized by traditional spray nozzle, they can be easily sprayed to the wall of bottle, because traditional spray nozzle may have some defects in installation or spraying accuracy. So we recommend the concentric spray nozzle. The concentric spray nozzle has better performance. Its spray will form an umbrella around the nozzle.

The world leading R&D SOLUTION FOR SPRAY GRANULATOR

- Famous brand for spray granulator in China
- 20 years continuous development
- Over 3,500 customers all over the world



Developed by Shanghai Pilotech
Instrument & Equipment Co.,Ltd.



YC-03 laboratory spray granulator has double spray head design for top spray, two spray heads can be switched online to adapt to different sizes of particles, the air inlet is equipped with primary, medium and high-efficiency filtration to meet the D-class cleanliness requirements of the clean area. Ensure the adjustment, optimization and continuity of experimental processes.

Mini Spray Granulator YC-03

The world leading R&D solution for spray granulating / drying / coating

CONTROLS & FUNCTIONALITY

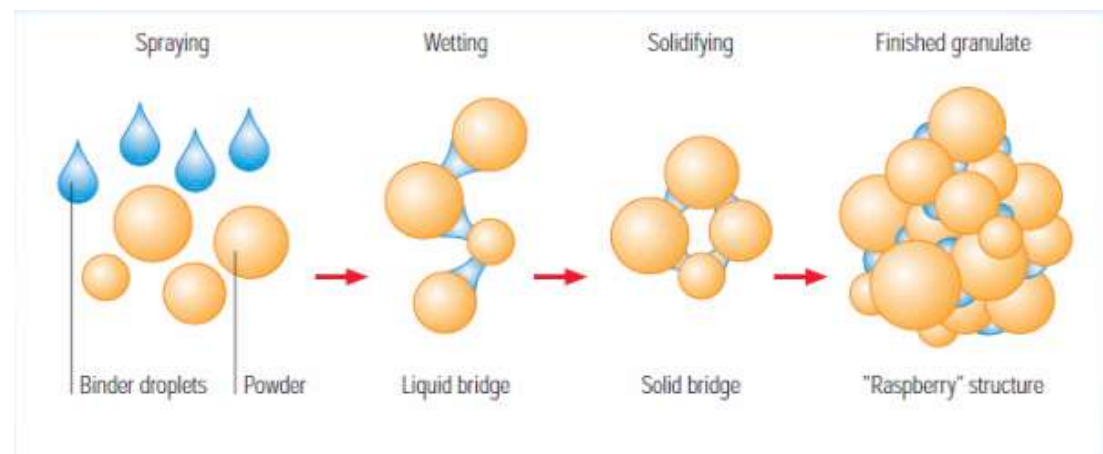
Convenient operation: PLC control is adopted for the control system, featured by one button startup, color touch screen operation, and real time modification of the test parameters during testing, such as The two-way inlet air temperature , granulation pot temperature, outlet air temperature, backflush frequency, and peristaltic pump speed, which is convenient for the user.

- Two-way Inlet Air Temperature
- Granulation Pot Temperature
- Outlet Air Temperature
- Backflush Frequency
- Peristaltic Pump Speed



Principle of granulation

The top spray device consists of a conical material tank and an expansion chamber. The material rises and falls, forming a fluidized motion. In the conical tank the reciprocation of the material brings about a fluidized state like the shape of a fountain. The spray gun sprays liquid evenly onto the material, where liquid bridge is formed, followed by solid bridge, thus bigger granules are made.



Greater efficiency

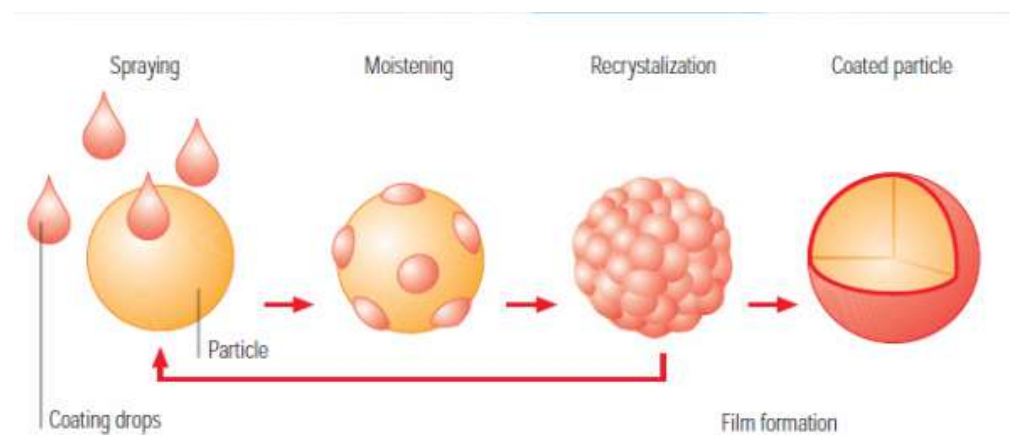
Suitable for almost all fluid bed processes: Spray Drying, granulating / agglomerating and coating using bottom spray process.

Suitable operation & adaptable

Stable operation: Core components of the equipment, including the touch screen, blower, heater, and control system, are imported, ensuring stable and reliable operation of the equipment. The pot can be replaced with ones of different sizes, which meet the testing demand of various volumes materials. The air inlet is equipped with class 100 purification & filtering device to ensure that the material is free of secondary contamination. The atomizer can be replaced online, which facilitates adjustment and optimization of the test process.

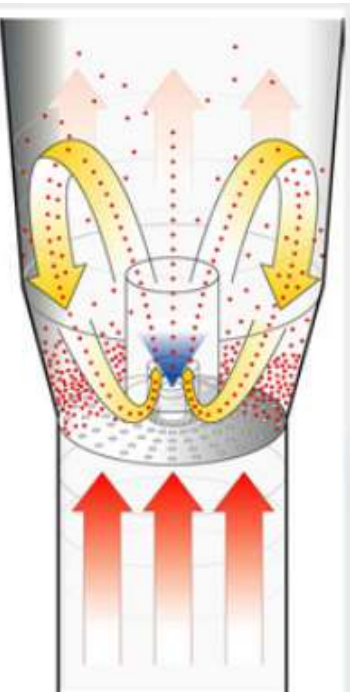
Principle of coating

The bottom spray device, a significant breakthrough in coating technology, has made coating of small particle size possible. With the development of the technology, powder as small as 50 μ m can be coated. The bottom spray device comprises a conical pot and a guide cylinder. The bottom of the pot has a dual-path air intake structure so as to control the air flow state both inside and outside the guide cylinder.



The material in the guide cylinder ascends at a high speed, enters the expansion chamber and falls outside the guide cylinder, which is a cycle that goes repeatedly. The spray nozzle at the center of the guide cylinder atomizes the liquid drops upwardly from the bottom so particle surface and forms patches of coating film. In this process the coating film becomes thicker steadily and dries until the coating process is complete.

The atomizer can be replaced online, which facilitates adjustment and optimization of the test process. The heater, atomizer and blower are furnished with online alarm functions. Material temperature and inlet air temperature feedback function: With material temperature feedback, inlet air temperature and timing of liquid spray are automatically adjusted and controlled, which ensures stability of the testing process so as to meet the optimum process requirement. New type of pneumatic sealing ring is used, which facilitates operation and ensures gas tightness.



In order to meet user's requirement of adjusting various parameters within the testing range, PID thermostat control technology with real time regulation is adopted for temperature control so that temperature is accurately controlled when experimenting, ensuring stable temperature in the process of granulation and coating.

Unique dual control system for air flow inside and outside the guide cylinder: Stepless online adjustment can be performed of the guide cylinder internal and external air flow, as a result even if the pill diameter and/or specific gravity changes in the process of coating and granulation, the fluidization inside and drying outside the cylinder can still be adjusted online to optimum state.

Three Different Spray Types

Top-Spray Fluid Bed System

YC-03 spray granulator has double spray head design for top spray, two spray heads can be switched online to adapt to different sizes of particles, the air inlet is equipped with primary, medium and high-efficiency filtration to meet the D-class cleanliness requirements of the clean area. Ensure the adjustment, optimization and continuity of experimental processes.

Tangential Spray Fluidized Bed Dryer

In this type of fluidized bed system, you will often find the spray nozzle located at the edge of a product container or expansion chamber. It is possible to adjust the spray nozzle position, you can change and leave it at varying heights. It functions by rotating a disk which will produce centrifugal force. As air goes across the variable disk gaps, it develops a lifting force. Through gravitational pull, the particles drop onto the spinning disk. A mix of the forces results in granules having uniform contents due to thorough homogeneous blending, coating, and drying.

Bottom Spray Fluidized Bed Dryer

This spray granulator dryer is ideal for particle coating, where the system sprays from underneath particles bed up in product flow. It integrates spray nozzles into the upward flow of up bed and hence totally encircled by the product. Can achieve targeted and regulated particle movement by combining the Wurster column with a bottom plate. This is necessary for optimal coating materials applied to the product you are processing.

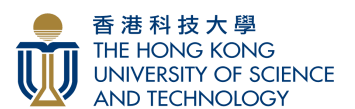
The feedback function of the material temperature and the inlet air temperature is linked to ensure the realization of the best process.

The new inflatable sealing ring is used to simplify the operation and ensure air tightness.

The new backflush system is used to effectively improve the granulation yield.

Trusted by the users

Over 1,500 domestic customers of top universities, enterprises and research institutes use our spray granulator. And exported to more than 60 countries & regions such as the United States, Italy, South Korea, Mexico, Singapore, Canada, Malaysia, Chile and Russia etc.



Wide range of applications

YC-03 spray granulator can be used in a wide range of applications where the production of a free-flowing powder & instant powder & surface coated powder is required. This technique has successfully processed materials in the following areas:

- Oxide • Blood • Polymers and Resins
- Beverages • Flavours & Colourings
- Milk & Egg Products • Plant & Vegetable Extracts
- Pharmaceuticals • Heat Sensitive Materials
- Plastics • Perfumes • Dyestuffs
- Ceramics & Advanced Materials
- Soaps & Detergents • Textiles
- Foodstuffs • Adhesives
- Bones, Teeth & Tooth Amalgam and many others



Spray granulator YC-03 technical data

Sr.no	Parameter	Pilotech YC-03 spray granulator
1	Function	Spray granulator, coating, fluid bed drying, mixing
2	Spray granulator capacity	Max. 3000g/batch
3	Minimum sample volume	500g
4	granulator temperature	40-150°C
5	Compressed air	1-4bar
6	Coating	Max. 3000g/batch
7	Mixing	Max. 3000g/batch
8	Nozzle type	Two fluid nozzle
9	Nozzle jet	0.8mm for coating, 1.0mm for granulating
10	Rated airflow	240 m ³ /h
11	Peristaltic pump	Max. 3000ml/h
12	Main chamber volume	30L
13	Heater power	380V; three-phase five-wire; 8KW
14	Main chamber material	SUS304 Stainless steel
15	Body material	SUS304 Stainless steel
16	Seal of cyclone/cylinder	Silicone
17	Dimensions	1450*1180*2290mm
18	Display	7-Inch LCD display, USB port

*This catalog is for reference only. Equipment upgrades may bring changes in parameters and structure. Therefore, this catalog does not serve as equipment acceptance proof. Thanks for your understanding.

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