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# Unopex B 230

## Pilot Scale Spray Dryer



## B 230 Pilot Scale Spray Dryer

For small scale productions and scale-up studies

Unopex designs and manufactures spray dryers from lab scale research and development applications to full production scale.

Unopex B 230 Pilot Scale Spray Dryer has been designed for small scale productions in powder manufacturing companies as well as scientific test works in universities and R&D departments.

### Technical Specifications

Model	Unopex B 230
Evaporating capacity	0.5 - 6 kg/h (water)
Drying air inlet temperature	max. 250 °C (optional 350 °C)
Feed pump	peristaltic, variable speed
Configuration	co-current / counter-current
Atomization system	2-fluid nozzle / rotary atomizer
Material of construction	stainless steel 1.4401 - 1.4404
Heating system	electrical, PID controlled
Operating panel	touchscreen
Computer connection	data transfer with ethernet or USB
Dimensions (LxWxH)	2.0x1.5x2.5 m



## Fields of Application

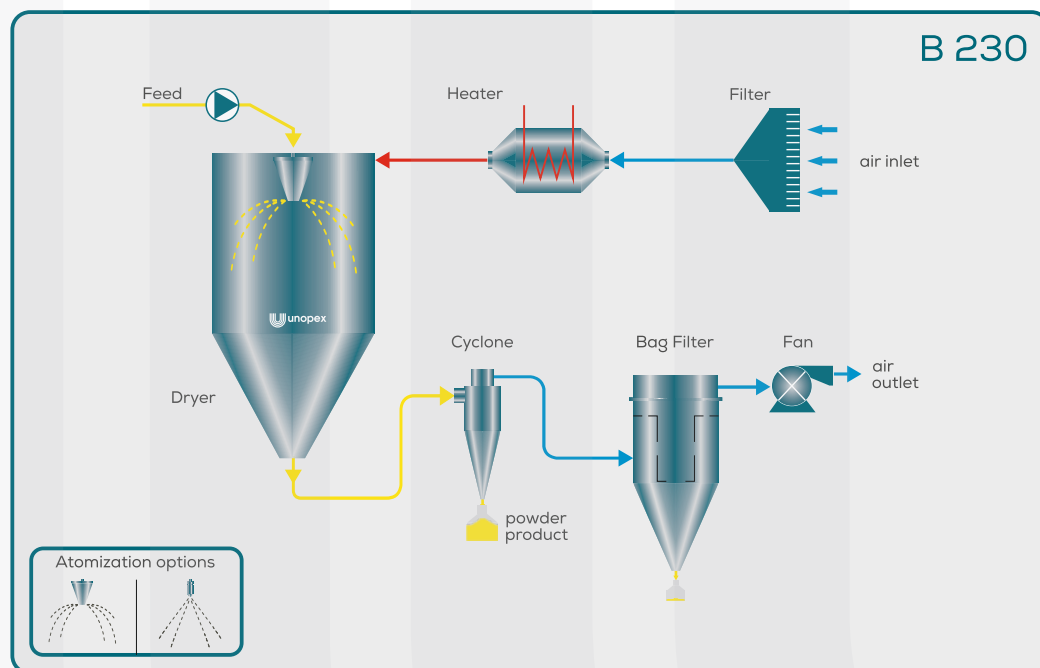
- Foodstuffs
- Plant Extracts
- Pharmaceuticals
- Nutraceuticals
- Flavours and Colourings
- Fruit and Vegetable Extracts
- Milk and Egg Products
- Cosmetics
- Biochemicals
- Fine Chemicals
- Ceramics and Advanced Materials
- Polymers and Resins

## Standard Components

- Drying chamber
- Cyclone
- Feed tank
- Peristaltic feed pump
- Two-fluid nozzle, co-current
- Inlet air filter
- Electrical air heater
- Temperature sensors
- Powder container
- Pneumatic hammer
- Fan and ducts
- Mobile operating panel with touchscreen
- Support structure



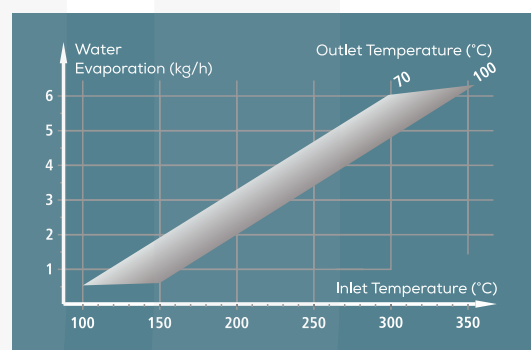
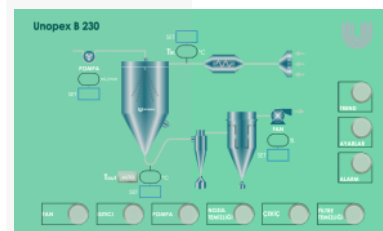
## Flow Chart





## Options

- Bag Filter
- Rotary atomizer
- Two-fluid nozzle, counter-current
- Explosion venting system
- Explosion suppression system
- Hepa filters
- Air broom
- CIP system
- Wet scrubber system
- GMP documentation
- Fan noise attenuation
- Remote access & control



## Scale Up

The results from a successful spray drying test conducted on the Unopex B 15 Mini Spray Dryer can be utilized in the scale up procedure to Unopex B 230 Pilot Scale Spray Dryer.



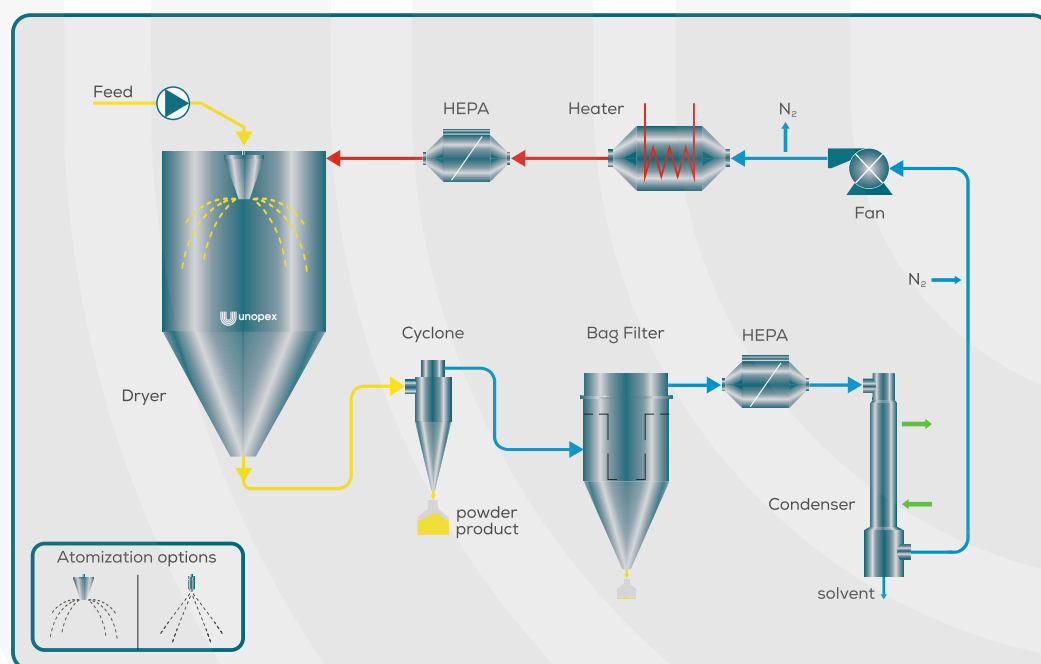
## B 230-C Closed Cycle Spray Dryer

Precisely tailored to your needs

Unopex B 230-C Closed Cycle Spray Dryers are particularly used for spray drying of feeds containing organic solvents or where the product must not contact oxygen during drying. Drying takes place in an inert gas atmosphere where nitrogen recycles.

Closed cycle spray dryers are gas and powder tight and are designed according to the strictest safety standards. The inflammable solvent vapors are fully recovered in liquid form.

### Flow Chart



## Closed Cycle Configuration

- Drying under N<sub>2</sub> atmosphere
- ATEX
- Hepa filters
- Rupture disk
- CIP (clean-in-place)
- CE/GMP

## Industries

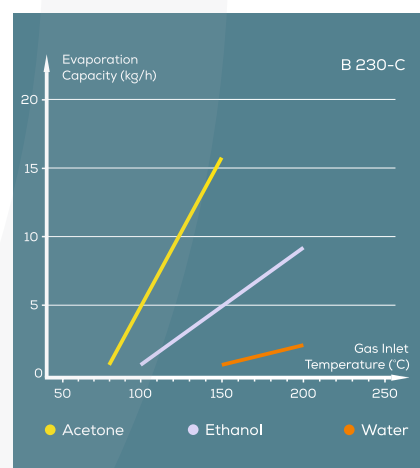
- Pharma
- Food
- Cosmetics
- Chemicals
- Metallurgy
- Academia

## Organic solvents

- ethanol
- methanol
- acetone
- ethyl acetate

## Benefits

- enables to work with 100% organic solvents
- enables to work with water/solvent mixtures
- safe operation under inert conditions
- minimal inert gas consumption due to closed cycle
- safe and explosion free working conditions due to real time oxygen control





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