

# Spray Dryer (Large Capacity)

## DL410

Evaporated water Max. 3,000mL/h

Temp. control range 40°C to 300°C

Sample flow Variable up to 70mL/min

Spray nozzle (selectable) Tow-way nozzle

This spray dryer can produce fine particles from 40 to 100µm which are considered to be extremely difficult to produce in laboratories. It is useful for preliminary tests for pilot plant or expensive samples, micro capture spray drying research, substitute for general laboratory drying method etc.

### Easy operation and maintenance

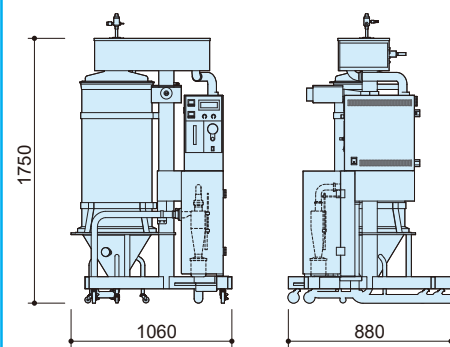
- The hot air inlet and drying chamber cover automatically move up and down, and since the cyclone and product vessel can easily be removed, cleaning and maintenance after your experiment is easy
- Control functions are conveniently arranged on the control panel for various conditions
- Air flow meter, pressure gauge and other measurements allow easy control of experiment conditions



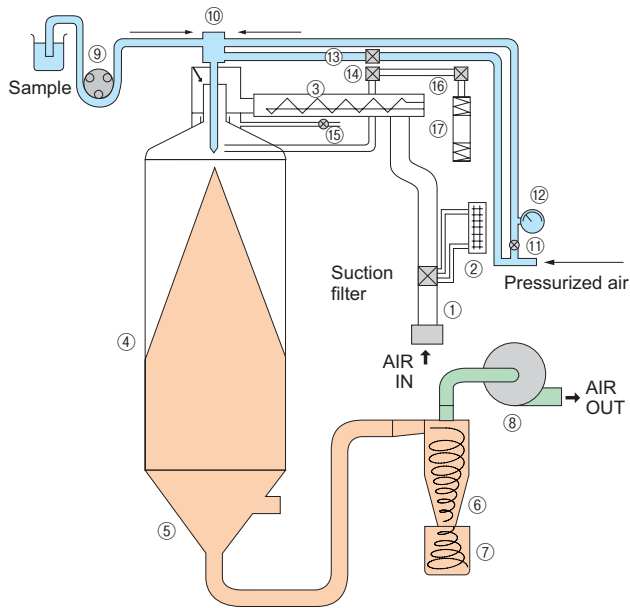
### Specifications

Model	DL410
Water evaporation rate	Max. approx. 3,000 mL/h
Temperature control range	40°C to 300°C
Blower / Dry air flow rate	Brushless motor / 0.3 to 1m <sup>3</sup> /min
Spraying system	Two-way nozzle (Dia. of orifice: 0.7mm)
Spray / hot air contact system	Downward spray parallel flow system
Temperature display	Inlet temp. output temp. digital display (0~320°C)
Temperature sensor	K thermocouple
Stainless pipe heater	2kW×2
Sample liquid feeding pump	Flow rate variable up to 70mL/min.
Solvent recovering capability (optional)	Organic solvent recovery unit GAS410 must be used
Drying chamber	Ultrahard glass, I.D. 457×975(H)mm
Spray line cleaning	Needle inside the nozzle to clean the mesh automatically
Safety device	Inlet/Outlet temperature overheat, Sample feed reverse rotation mechanism, Overheat prevention of heater room, Over current electric leakage breaker, Safety cover
Dry air flow meter	Float type, Measuring range: 0.3~1.2m <sup>3</sup> /min
Air spray pressure gauge	Bourdon type, Measuring range: 0~0.3MPa
External dimensions (W×D×H)	1060×880×1750mm
Weight	Approx. 180kg
Power source	AC 220V, single phase 22 A
<b>Included Accessories</b>	
Sample liquid tube	Silicone tube (I.D. 3.2mm ×O.D. 6.4mm ×2m), 2pcs
Static removal brush	1pc
Air hose	I.D. 7.9 mm×3m, 1pc.
Exhaust duct	I.D. 50mm×3m, 1pc.
<b>Optional Accessories</b>	
Spraying nozzle	4, 5 (options), 3 standard
Compressed air	28 L/min air volume and 3kgf/cm <sup>2</sup> compressed air is required

### Dimensions (mm)

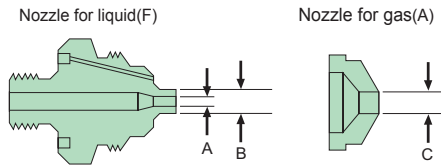


## Diagram



- |                             |                                    |
|-----------------------------|------------------------------------|
| ① Orifice tube              | ⑩ Atomizing nozzle                 |
| ② Drying air flow meter     | ⑪ Atomizing pressure control valve |
| ③ Heater                    | ⑫ Atomizing pressure gauge         |
| ④ Drying chamber            | ⑬ Needle knock solenoid valve      |
| ⑤ Drying chamber lower half | ⑭ Nozzle blower solenoid valve     |
| ⑥ Cyclone                   | ⑮ Cool air control valve           |
| ⑦ Product vessel            | ⑯ Head elevation control valve     |
| ⑧ Aspirator                 | ⑰ Air cylinder for head elevation  |
| ⑨ Sample feed pump          |                                    |

## Spraying Nozzle



## Spraying Nozzle size (μm)

Model	Nozzle No.	Size (μm)	Particle size
3 (Standard)	(F) 2850	A 711 B 1270	up to 50μm
	(A) 64.5	C 1638	
4 (Option)	(F) 60100	A 1530 B 2550	40~100μm
	(A) 120	C 3060	
5 (Option)	(F) 100150	A 2550 B 3825	40~200μm
	(A) 130	C 4530	

Particle sizes may vary on samples used and parameter settings.

## Control Panel



Multilingual touch screen controller

## Application

### (1) Spray granulation

With the process of granulation and spheronization, powder liquidity is significantly improved and the pressure is uniform. Applications: aluminum, zirconia, ceramics, heavy metals, cemented carbide fields etc.

### (2) Micro capture

In spray drying, the combination of core and coating material is a source solution to obtain encapsulated powder.

#### Applications:

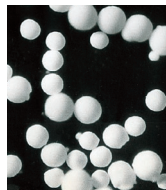
- Ink for pressure-sensitive paper
- Adjustment of pharmaceutical products flavouring and lyolysis.
- Encapsulation of fragrances used in food and hygiene related products
- Encapsulation of dyes, fertilizers, oils, adhesives etc.

### (3) Spray cooling granulation

Difficult to get dry powder, such as wax, oils and fats, fatty acids, etc.

### (4) Special applications

Spray concentrated, spray reaction, powder sizing, etc.



0 50 100μm  
Powder generated by DL410

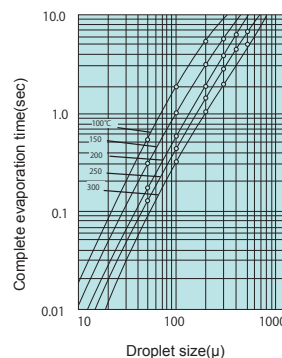
## Equipment



Static removal brush  
Burn prevention safety cover

Burn prevention safety cover and the static removal brush are standard equipment.

## Time



Drying time until the liquid droplets are completely evaporated with hot air.