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

Product code	212730
Model	**DL410**
Water evaporation rate	Max. approx. 3,000 mL/h*1
Temperature control range	40°C to 300°C
Blower / Dry air flow rate	Brushless motor / 0.3 to 1m³/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 prevension of heater room, Over current electric leakage breaker, Safety cover
Dry air flow meter	Float type, Measuring range: 0.3~1.2m³/min
Air spray pressure gauge	Bourdon type, Measuring range: 0~0.3MPa
External dimensions*2	W1060×D880×H1,750mm
Weight	Approx. 180kg
Power source	AC 220V, single phase 22A
Included Accessories	
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.
Optional Accessories	
Spraying nozzle	4, 5 (options), 3 standard
Compressed air	28 L/min air volume and 3kgf/cm² compressed air is required

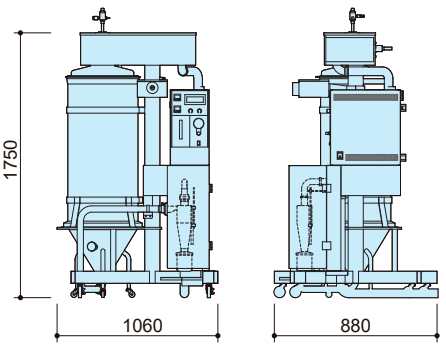
The length of the power cord is about 2m outside the unit.

*1 If more than 50mL/min is used, the sample may not dry sufficiently or the sample may adhere to the drying chamber.

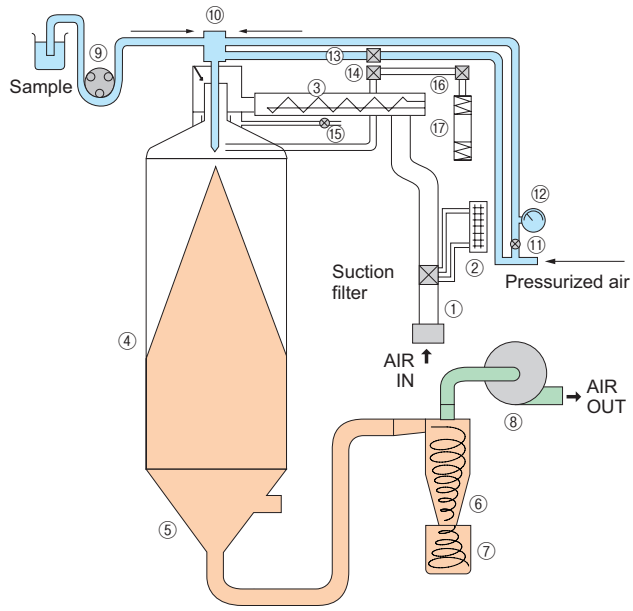
*2 External dimensions do not include projections.

- The air compressor used in this system must have a pressure regulator with air flow of 25 L/min or more and discharge pressure of 0 to 294kPa (3kg/cm²).
- Please note that this equipment is not explosion-proof for use with flammable or explosive substances.

Dimensions (mm)

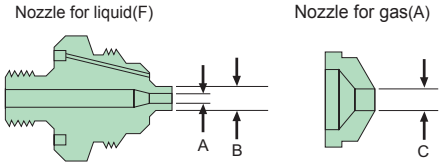


Diagram



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

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.

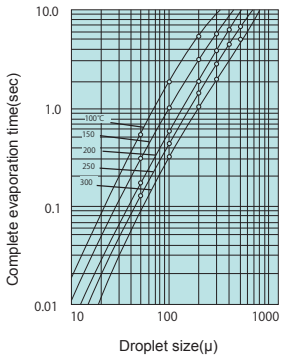
(4) Special applications
Spray concentrated, spray reaction, powder sizing, etc.

Powder generated by DL410

Equipment

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.