

Spray Dryer Pulvis Mini Spray

GB210-A

Evaporated water Max. 1,300mL/h

Temp. control range 40°C~ 220°C

Sample flow Variable up to 26mL/min

Spray nozzle (selectable) Tow-way nozzle

Power supply AC 200V,220V,240V

Display language Japanese, English, Chinese

Compact spray dryer that can produce powder easily on a laboratory scale. It is capable of variety of applications from preliminary experiments in a pilot plant to drying work in general laboratories.

- Samples unstable at high temperatures can be reliably processed into fine powder. The heat is applied instantly and indirectly to the powder itself
- Prepared fine powder will not be oxidized, contains minimal moisture and is contaminant-free
- Direct drying from solution/suspension liquid to fine powder with a reduced risk of contamination. No pre or post processes such as filtration, separation, or pulverization are required
- Processing of samples containing organic solvents is made possible by connecting the Solvent Recovery Unit GAS410
- This unit can also be used as a fluid bed drying granulator by installing a separate mini bed attachment GF200 instead of GF300 spray drying attachment
- An automatic lift is equipped as standard to enable easy installation or removal of glass drying chamber attachment
- A service outlet (max. 2A) and a sample stand are equipped as standard for connecting a magnetic mixer for stirring suspended liquid sample
- Stable spray drying using a unique peristaltic pump, nozzle cooling mechanism, pulse jet mechanism and a nozzle knocker enable stable spray drying



Specifications

Product code	212777
Model	GB210-A (GB210(basic unit)+GF300)
Temp. adjusting range	40 to 220°C (inlet temperature), 0 to 60°C (Outlet temperature)
Temperature adjusting accuracy	Inlet temperature±1°C
Spraying system	Two-way nozzle, Nozzle No. 1A as standard
Drying air amount adjusting range	0 to 0.7m ³ /min
Spray air pressure adjusting range	0 to 0.3MPa
Liquid sending pump flow rate range	0 to 26 ml/min
Spray air line washing function	Spraying at the nozzle tip, Manual pulse jet system
External output	Inlet temperature, Outlet temperature, Temperature outlet (4-20 mA)
Automatic lift	Moving up/down of glass chamber automatic lift
Temperature adjusting device	PID digital temperature adjusting device
Touch panel	Blower, Heater, Liquid sending pump, Pulse jet switch, Error display
Control select switch	Inlet temperature, output temperature control switch (Outlet temp. control is conditional)
Temperature sensor	K-thermocouple
Heater	2.0 kW (at 200V) to 2.88 kW (at 240V)
Liquid sending pump	Fixed amount peristaltic pump
Spraying air pump	Spraying air compressor (Sold separately) is used.
Service outlet	For stirrer: AC100V, Max. 2A
Suction blower	Bypass blower, Brushless DC motor
Filter	Suction filter, Exhaust filter
Recovery of solvent	Solvent recovery unit GAS410 (sold separately) is used.
Spray nozzle cooling mechanism	Connector: Nipple×2, O.D.:ø10.5 mm
Spray air connection diameter	Nipple diameter:ø7 mm
Exhaust connecting diameter	ø50mm
Safety function	Inlet/Outlet temperature overheat, Sample feed reverse rotation mechanism, Over current electric leakage breaker, Nozzle connection error
External dimensions*1	W760×D420×H1,350 mm
Weight	110kg
Power supply (50/60Hz) rated current	AC220V 17A, AC240V 18A, Switching of terminals necessary
Accessories	Silicon tube (with a stopper)×3, Tiron tube (with a stopper)×2 Exhaust duct (with one hose band)×1, Outlet temperature sensor, Spray air tube, Sample box, Static electricity removal earth, Teflon braided hose 5m (with two hose bands), Container table
Necessary utility	28L/min. air volume and 0~294kPa(3kg/cm ²) compressed air is required

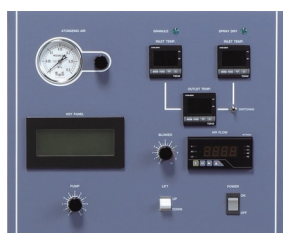
The length of the power cord is about 2m outside the unit.

*1 External dimensions do not include projections.

● The air compressor used in this system must have a pressure regulator with air flow of 20 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.

Control Panel



Inlet temperature, outlet temperature, and drying air amount are digitally displayed. Setting is made on the touch panel that allows operation settings, operation status displays well as error display, and settings of various operation conditions. as well as error display, and settings of various operation conditions.

Product code	212776
Mini spray attachment	GF300
Evaporated water amount	Max.1300mL/h
Sample for drying	Suspended solution, emulsion
Ultra hard glass	Cyclone, drying chamber, product container

Repeatability of spray drying test

Test No.	Sample name	Sample density (%)	Drying conditions							Yield (g)	Recovery rate (%)
			Inlet temp. (°C)	Outlet temp. (°C)	Dry air amount (m ³ /min)	Spray air pressure kPa(kg/cm ²)	Test sample amount (g)	Sent amount of sample liquid (g/min)	Test time (min)		
1	Coffee solution	5	150	80	0.45	147(1.5)	198	6.6	30	8.1	81.8
2	Coffee solution	5	150	80	0.45	147(1.5)	198.7	6.6	30	8.1	81.5
3	Coffee solution	5	150	80	0.45	147(1.5)	200.6	6.7	30	8	79.8
4	Coffee solution	5	150	80	0.45	147(1.5)	198.1	6.6	30	8.2	82.8
5	Coffee solution	5	150	80	0.45	147(1.5)	199.3	6.6	30	8.4	84.3

Solvent Recovery Unit GAS410 (option)



When using organic solvents (alcoholic solvent), use an optional GAS 410 solvent recovery unit.

Handling



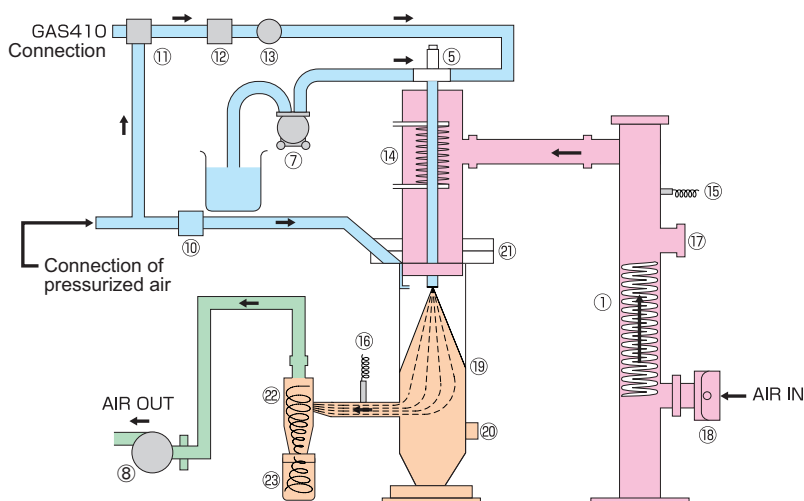
The one touch removal system has made the removal and cleaning of the drying chamber, the cyclone, and the product container much easier.

Applications



- Food and medicinal products: Powdered milk, egg yolks, soy sauce, coffee, starches, proteins, hormones, serums, antibiotics, enzymes, fragrant materials, essences, etc.
- Organic chemistry: Waxes, dyes, cleaning agents, surface acting agents, agricultural chemicals, antiseptic agents, synthesized resins, pigments, etc.
- Inorganic chemistry: Ferrites, ceramics, photocopy toners, magnetic tape materials, photosensitive materials, various industrial chemicals, waste fluid of samples, etc.

Diagram



No.	Part name
①	Heater
⑤	Spray nozzle
⑦	Liquid sending pump
⑧	Blower, exhaust filter
⑩	Solenoid valve
⑪	3-way solenoid valve
⑫	Needle valve
⑬	Pressure gauge
⑭	Nozzle cooling port

No.	Part name
⑮	Inlet temperature sensor
⑯	Outlet temperature sensor
⑰	Blind (service port)
⑱	Suction port, suction filter
⑲	Drying chamber
⑳	Cap (outside air inlet)
㉑	Distributor
㉒	Cyclone
㉓	Product collecting container

Optional items

No.	Product name	Product code
①	Fine grain sample collecting mini cyclone	212780
②	Safety cover	212787
③	Static removal brush set	212788
④	Regulator	212789
⑤	Supply air filter box (for 0.3 μm collection)	212791
⑥	*Inlet/outlet temperature recorder (3-dot)	212792

*Please specify when ordering main unit

Spraying Nozzle

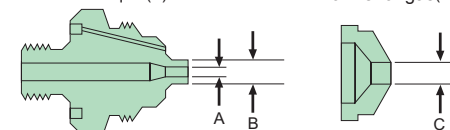


Two-way nozzle system

The tip of the nozzle comprises of a nozzle for liquid and a nozzle for gas.

Nozzle for liquid(F)

Nozzle for gas(A)



Model	Nozzle No.	Size (μm)	Particle size
1A (Standard)	(F) 1650	A 406	1~40μm
	(A) 64	B 1270	
	(A) 64	C 1626	
1	(F) 2050	A 508	5~40μm
	(A) 64	B 1270	
	(A) 64	C 1626	
2A	(F) 2050	A 508	5~50μm
	(A) 70	B 1270	
2	(F) 2850	A 711	10~40μm
	(A) 70	B 1270	
	(A) 70	C 1778	
3	(F) 2850	A 711	10~50μm
	(A) 64	B 1270	
	(A) 64	C 1626	

Particle sizes may vary on samples used and parameter settings.