Spray Dryer Purvis Mini Bed

Spray Dryer (For Granulating, Drying, Mixing)

GB210-B

Processing capacity	Temp. adjustment range	Sample flow
50g to 300g	40 to 220deg.C	Variable up to 26 L/min.

Spray nozzle (selectable)	Power supply
For liquid/gas	AC200V to 240V

Spray dryer to granulate powder and to dry wet powder

This unit has been designed to granulate powder and to dry wet powder using a fluid bed. This is a fluid bed drying granulator that is used in the combination of Basic unit GB210 and Mini-bed attachment GF200. The unit supports multiple power supplies of AC200V, AC220V, and AC240V.

- Experimental conditions such as the hot air temperature, air amount, binder liquid sending amount can be set with the setting dial on the front of the unit easily.
- The chamber is made of ultra hard glass and the user can observe status of the fluid bed or spraying status. Also, the flowage meter, the spraying pressure meter, the chamber inlet/outlet temperature indicator are useful for evaluation of data.
- The unit can also be used as a spraying dryer by installing the mini spray attachment GF300 (optional).
- The unit also has an automatic lift as a standard to enable convenient attachment or removal of the drying air flow meter (voltage type) or attachments.
- Product configuration is global as can be seen in the multiple power supplies and the touch panel that supports Japanese, English, and Chinese.

■ **Specifications**

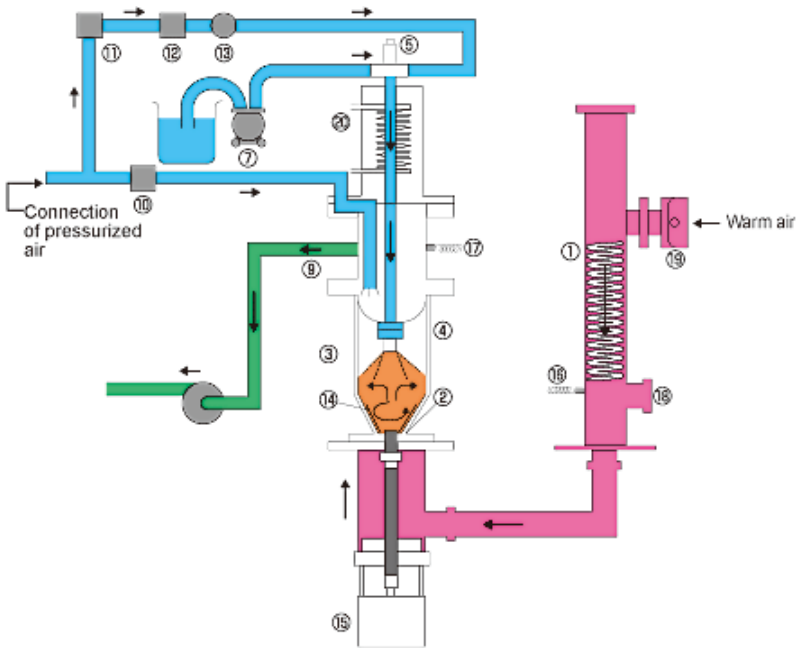
Product code	**212778**
Model	**GB210-B**
■ **Performance**	
Temp. adjusting unit setting range	40 to 220deg.C (inlet temperature), 0 to 60deg.C (outlet temperature)
Temperature adjusting accuracy	Inlet temperature±1deg.C
Drying air amount adjusting range	0 to 0.7 m3/min
Spray air pressure adjusting range	0 to 0.3 MPa
Liquid sending pump flow rate range	0 to 26 mL/min
■ **Configuration**	
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 x 2, O.D.:φ10.5 mm
Spray air connection diameter	Nipple diameter:φ7 mm
Exhaust connecting diameter	φ50 mm
■ **Safety function**	Inlet/outlet temperature overheat, sample feed reverse rotation mechanism, over current electric leakage breaker, nozzle connection error
■ **Standards**	
External size	W760 x D420 x H1,350 mm
Weight	Approx. 110 kg
Power supply (50/60Hz) rated current	AC200V 16A (20A) (AC220V 17A, AC240V 18A *Switching of terminals necessary)
■ **Accessories**	Silicon tube (with a stopper) x 3, tiron tube (with a stopper) x 2, exhaust duct (with one hose band) x 1, outlet temperature sensor, spray air tube, sample box, static electricity removal earth, Tetlon braided hose 5m (with two hose bands), a container table

■ **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 display as well as error display, and settings of various operation conditions also in English and Chinese in addition to Japanese.

Product code		212775
Mini bed attachment		**GF200**
Configuration/standards	Processing capacity	5 to 300g (It differs depending on whether the unit is of the batch type or specific samples used.)
	Flow layer chamber capacity	3L
	Spray nozzle	Dual fluid nozzle: 1A
	Stirring blades	Integrated inside the flow layer chamber
	Filter	Polyester (Carbon fiber mixed PTFE membrane laminate)
	Filter cleaning mechanism	Pulse jet system
	Glass parts	Ultra hard glass
	Weight	Approx. 13 kg

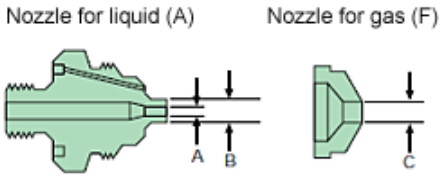
■ **System diagram**



No.	Part name	No.	Part name
(1)	Heater	(11)	3-way solenoid valve
(2)	Micro porous plate	(12)	Needle valve
(3)	Flow layer chamber	(13)	Pressure meter
(4)	Filter chamber	(14)	Stirring blades
(5)	Nozzle	(15)	Stirring heater
(6)	Filter	(16)	Inlet temperature sensor
(7)	Liquid sending pump	(17)	Outlet temperature sensor
(8)	Blower	(18)	Blind
(9)	Interim pipe	(19)	Suction port, suction filter
(10)	Solenoid valve	(20)	Nozzle cooling connection port

■ Spray nozzle

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



Product code	Model	Nozzle No.	Size (μm)
281297	1A (standard)	(F)1650	A 406 B 1270
		(A)64	C 1626
281298	1	(F)2050	A 508 B 1270
		(A)64	C 1626
281290	2A	(F)2050	A 508 B 1270
		(A)70	C 1778
281291	2	(F)2850	A 711 B 1270
		(A)70	C 1778
281292	3	(F)2850	A 711 B 1270
		(A)64	C 1626

■ Applications

■ Granulation, drying, mixing of powder

<Applications>
Medicines, food, catalyst, die, detergent, ceramics, etc.

The unit accepts sample weight as less as 50 to 300g and is suitable for experiments of expensive samples or those of a laboratory level.

■ Operability

Employment of one touch removal system has made removal or cleaning of the drying chamber, the cyclone, or the product container further easier.

■ **Example of implementation**

Sample		Binder		
Name	Weight (g)	Name	Density (%)	Spray amount (g)
Silicon	200	PVA	5.0	77
Oxidized iron	160	PVA	2.5	50
Ceramics	200	PVA	3.0	106
Alumina	160	PVA	3.0	60
Silica	150	CMC	1.0	100
Lactose	200	Sorbitol	70.0	10
Tea essence	250	Guar gum	0.5	24
Grease containing powder	200	Glucose	30.0	11

Sample	Testing conditions					Results	
Name	Inlet temp. (deg.C)	Liquid sending speed (g/min)	Spraying pressure kPa(kg/cm2)	No. of spraying	Nozzle height (cm)	Average dia. (μm)	12 to 115 mesh recovery rate (%)
Silicon	125	15	59(0.6)	4	27	339	58
Oxidized iron	120	15	98(1.0)	4	21	205	62
Ceramics	120	15	78(0.8)	3	22	404	82
Alumina	110	15	59(0.6)	4	22	311	88
Silica	120	15	78(0.8)	4	22	306	60
Lactose	100	14	98(1.0)	4	25	390	80
Tea essence	85	6	59(0.6)	10	28	333	77
Grease containing powder	85	4	59(0.6)	7	22	236	82

*The average granule diameter is a geometric average.

■ **Optional parts**

Product name	Product code
Safety cover	212787
* Inlet/outlet temperature recorder (3-dot)	212792
Regulator	212789
Supply air filter box (for 0.3 micro meter collection)	212791

Note : The item marked " * " in the column of "Remark" shall be ordered together with the main unit.