Vacuum Drying System for Rechargeable Battery's Manufacturing Process

DPB430

Vacuum drying is performed during a rechargeable battery manufacturing process to remove water content from work pieces. This vacuum drying system has a high speed exhaust function, high speed heating function, a quick cooling function, high temperature distribution accuracy, work piece temperature monitor terminal, and a vacuum profiling mechanism in order to reduce process time and to improve process yield.

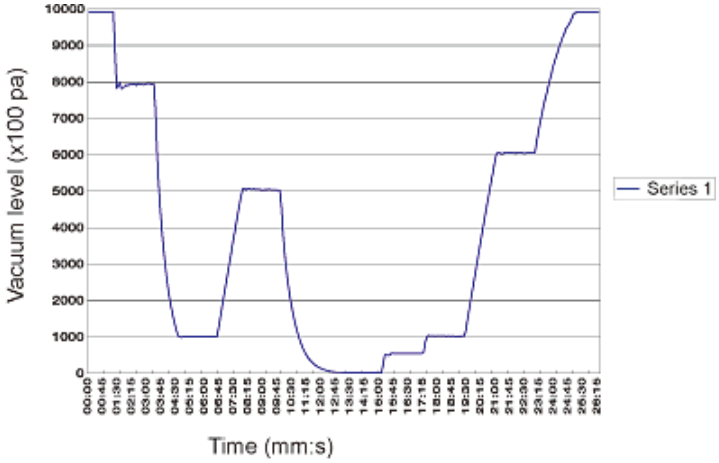
- Allows reduction of conductance in the vacuum exhaust route and installation of a high performance exhaust pump
- Designed to support a pressure of 1 Pa or less
- Hot plate system to enable high speed temperature increase
- Improved temperature distribution accuracy within the chamber thanks to the employment of a high temperature distribution accuracy (±2deg.C) hot plate
- Equipped with five thermocouples in the chamber as standard to monitor a work piece temperature
- Touch panel operation
- Vacuum control is possible to execute vacuum profiling (optional)
- Ports are equipped with a current introduction terminal and thermocouple introduction terminal as standard to allow installation of heater plates separately inside (introduction terminals are optional).
- Supports installation of a vacuum blower fan or an external air introduction unit to reduce time of temperature increase and decrease in atmosphere and improve temperature distribution (supports separately for specific item).

■ **Specifications**

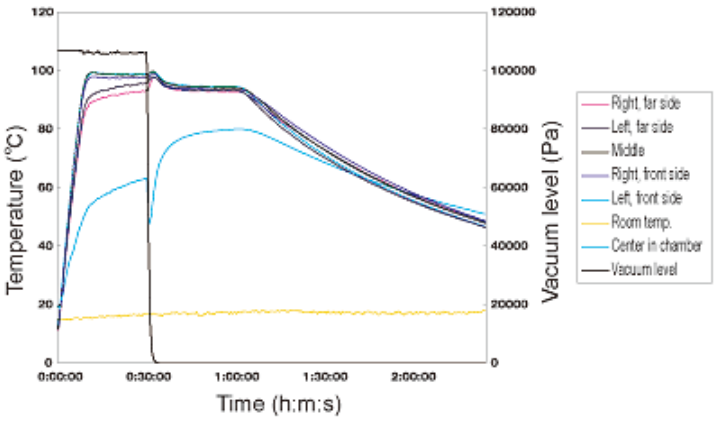
Model		DPB430
System		Heat radiation and transfer system with vacuum and 4-side hot plates
Performance	Operating temp. range	Room temperature + 10 to 150deg.C
	Operating vacuum level range	101 kPa to 0.1 kPa
	Attainable vacuum level	1 Pa or less (at no-load), depending on vacuum pump capacity
	Temp. adjustment accuracy	±2deg.C (at 100deg.C), both in atmosphere and vacuum, temperatures at five points in chamber
	Temp. distribution accuracy	±5deg.C (at 100deg.C), both in atmosphere and vacuum, temperatures at five points in chamber
	Temp. distribution accuracy of bottom hot plates	±2deg.C (at 100deg.C), both in atmosphere and vacuum
	Time to attain max. temp.	Approx. 100 min. up to 100deg.C, both in atmosphere and vacuum, shortest reach time of temperatures at five points in chamber
Configuration/Functions	Exterior	Chrome free electro galvanized steel plate Chemical proof baking finish
	Interior	Stainless steel plate
	Door	Material of inside of chamber: Aluminum, without heat insulator, one touch handle mechanism
	Door packing	Vacuum O-ring (Fluororubber)
	Heater	5.25 kW
	Temperature controller	PID control with a micro computer (2-system heater control)
	Temp. control/overheat preventive device sensor	K-thermocouple
	Sample temperature sensor	K-thermocouple 6/chamber
	Vacuum controller	16 step pressure control, stable time setting function, vacuum control with timers (0 to 9999 sec.)
	Vacuum setting	On the touch panel
	Vacuum valve	Air driven, NW40
	Vacuum meter	101 kPa to 10-2 Pa, vacuum indicator
Safety unit		Over current ELB, independent overheat preventive device, stop valve, emergency relief valve, emergency stop valve, vacuum valve filter regulator
Standards	Internal size	W500 x D476 x H480 mm
	External size	W1100 x D850 x H1400 mm
	Bottom surface effective size	W480 x D420 x H480 mm
	Exhaust port	NW40 flange
	Air supply port	Rc1/2
	Power supply	3 phase AC200V 50/60 Hz 16A (excluding vacuum pump power supply)
	Compressed air	0.5 Mpa or more, φ6 mm tube coupler is used.

■ **Internal chamber**

■ **Vacuum profile**



■ **Water cooling**



5 points on hot plate + one center in chamber + vacuum level