Lithium Battery Washing Test Machine

Battery Washing Test Chamber for Portable Lithium Battery Packs

Standard Support: GB 31241 (Washing Test for Portable Lithium Battery Packs)
Manufacturer: KingPo Test Equipment Co., Ltd. www.dgkingpo.com Tel: +86-769-81627526

1. Product Overview

The KingPo Lithium Battery Washing Test Machine is a specialized environmental test chamber designed to simulate the mechanical and thermal stresses experienced by lithium battery packs during accidental washing. It reproduces realistic washing processes including soaking, agitation, spinning, and dehydration under controlled laboratory conditions.

This equipment is primarily used to evaluate risks such as sealing failure, electrolyte leakage, structural damage, insulation breakdown, or short-circuit hazards in portable lithium battery packs used in smartphones, wearables, Bluetooth devices, power banks, and other consumer electronics. It supports GB 31241 safety evaluation requirements for manufacturers and testing laboratories.

2. Key Features

- **Comprehensive Washing Simulation** — Programmable cycle includes water filling, temperature control, soaking, mechanical agitation, drainage, and spin dehydration.
- **Advanced PLC + Touch Screen Control** — Intuitive interface for setting temperature, rotation speed, test duration, and full operating sequences.
- **Servo Drive System** — Provides stable, precise, and adjustable rotation speed control (1–850 rpm).
- **Wide Temperature Range** — PID-controlled heating from room temperature +10°C up to 80°C with high accuracy.
- **Robust Stainless Steel Construction** — SUS304 inner chamber and turntable (SUS316 optional) for excellent corrosion resistance.
- **Customizable Sample Fixtures** — Adaptable fixtures for various battery pack sizes and shapes.
- **Comprehensive Safety Design** — Safety interlock, alarm system, and protective door locking for secure battery testing.
- **Data Recording & Export** — USB data export with optional remote monitoring and network integration.

3. Technical Specifications

Parameter	Specification	Notes
Model Series	KP-BW Series	Customizable configurations available
Inner Barrel Diameter	Ø650 mm	Customizable
Inner Barrel Depth	550–600 mm	Customizable
Turntable Diameter	500 ± 10 mm	–
Rotation Speed Range	1–850 rpm	Adjustable via servo drive
Solution Temperature Range	RT +10°C ~ 80°C	PID precise control
Temperature Accuracy	±1°C (typical)	Higher accuracy available on request
Control System	PLC + Touch Screen	Remote control optional
Drive System	Servo Motor	Stable and precise speed control
Inner Chamber Material	SUS304 Stainless Steel	SUS316 optional for higher corrosion resistance
Safety Features	Safety interlock, alarm, protective door lock	Designed specifically for battery testing safety
Data Interface	USB export	Network / remote monitoring optional
Power Supply	AC 380V / 220V	Customizable

4. Testing Principle

The battery pack is securely fixed on the rotating turntable inside the stainless steel chamber. The equipment executes a programmable washing cycle that includes:

- Water filling and solution heating to the set temperature
- Soaking period to allow moisture penetration

- Mechanical agitation via controlled rotation
- Drainage and high-speed spin dehydration

This process simulates real-world moisture ingress, temperature stress, rotational forces, and mechanical shock. After testing, the battery is evaluated for water ingress, deformation, electrolyte leakage, insulation failure, voltage changes, or short-circuit risks. The test helps compare different battery designs, sealing methods, and batch consistency.

5. Typical Test Procedure

1. Secure the battery pack on the customized fixture/turntable.
2. Close the chamber door and verify safety interlocks are engaged.
3. Set or load the washing test program (temperature, rotation speed, duration, sequence).
4. Start the automatic test cycle.
5. Monitor the process via the touch screen (real-time parameters and alarms).
6. After cycle completion, safely remove the battery and perform post-test inspection (visual, electrical, leakage check).
7. Export and archive the test data/report for traceability.

6. Applications

- Battery Manufacturers — Washing durability and sealing integrity testing for portable lithium battery packs
- Testing Laboratories — GB 31241 compliance testing and safety evaluation
- Quality Control Departments — Incoming inspection and production batch verification
- R&D Teams — Validation of new battery pack sealing designs and materials
- OEMs & Device Manufacturers — Safety verification for smartphones, wearables, and portable electronics

7. Standard Configuration

The standard system typically includes:

- SUS304 stainless steel inner chamber and turntable
- PLC + Touch Screen Control System
- Servo Drive System
- Safety interlock, alarm system, and protective door lock
- USB data export function
- Basic customizable sample fixtures

Note: Chamber size, fixture design, control programs, and automation level are highly customizable. Please confirm specific requirements when ordering.

8. Ordering Information

To provide the most suitable configuration, please confirm the following when requesting a quotation:

- Battery pack sizes, weights, and shapes to be tested
- Required washing test parameters (temperature, speed, duration, sequence)
- Need for integration with other battery test equipment or data systems (MES/QMS)
- Power supply requirements (380V / 220V or other)
- Any special safety features or automation requirements
- Whether on-site installation, training, or extended warranty is needed

KingPo Test Equipment Co., Ltd.

Hengkeng Industrial Zone, Dongguan, Guangdong, China

Tel: +86-769-81627526 | Website: www.dgkingpo.com | Email: sales@dgkingpo.com