



TORONTECH

EXPLOSION-PROOF TEST CHAMBERS FOR BATTERY TESTING



Explosion-proof test chambers are specialized testing systems designed to safely evaluate the performance, reliability, and safety of batteries, particularly under extreme conditions. These chambers are constructed with reinforced, explosion-proof enclosures to prevent the release of harmful gases, flames, or debris in the event of a battery failure.

They are engineered to simulate various environmental and operational stresses, such as high temperatures, overcharging, rapid discharge, short circuits, and physical impacts, allowing manufacturers to ensure their batteries meet safety and performance standards.

APPLICATIONS

Applications of Explosion-Proof Chambers in Battery Testing

These chambers play a critical role in industries where battery safety is paramount, such as automotive, aerospace, consumer electronics, and renewable energy. They are used to test lithium-ion batteries, battery packs, and energy storage systems for electric vehicles, drones, and portable devices. Explosion-proof chambers are essential for performing abuse tests like thermal runaway, mechanical crush tests, and fire exposure to evaluate how batteries behave under worst-case scenarios. By identifying potential risks during the testing phase, manufacturers can refine designs and enhance safety before products reach consumers.

Compliance with Industry Standards

Explosion-proof test chambers for battery testing are designed to comply with strict international safety standards to ensure reliable and consistent results. Common standards include UN 38.3 for lithium battery transport, IEC 62133 for the safety of portable batteries, UL 1642 for lithium battery cells, and IEC 62660 for batteries used in electric vehicles. Additionally, standards like ISO 12405 and SAE J2464 outline test methods for performance and safety evaluations. Torontechâ€™s explosion-proof test chambers are built to meet these rigorous requirements, offering advanced safety features, precise

control systems, and customizable configurations to support the evolving needs of battery manufacturers and researchers worldwide.

Standards

1. SAE J 2464
2. UL 2580
3. UL 2054
4. USCAR
5. UN/DOT 38.3
6. UN Lithium Battery Testing
7. UNECE Regulation No. 100
8. FreedomCar
9. IEEE 1625
10. IEEE 1725
11. IEC 60086-4
12. IEC 61960
13. IEC 62281
14. IEC 62133
15. IEC 62660-2

Explosion-proof Design of Battery Temperature Chamber

1. **Explosion-Proof Window:** Glass window reinforced with stainless steel mesh to prevent glass fragments from scattering during an explosion.
2. **Automatic Pressure Relief:** The chamber door automatically opens to release pressure when it exceeds the set threshold, safeguarding the battery chamber.
3. **Explosion-Proof Chains:** Secure the chamber door to prevent excessive movement during an explosion, enhancing safety for personnel.

4. **Three-Layer Warning Light:** Activates a red light and buzzer during emergency stops or system faults in the battery test chamber.
5. **Smoke Detector:** Provides an immediate alert upon detecting smoke.

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FEATURES

Features of Battery Temperature Chamber

1. SUS304 stainless steel inner chamber with a high-quality cold-rolled steel exterior.
2. Custom-designed seal resistant to high and low temperatures, combined with an electric heating system to prevent condensation and frost.
3. Comprehensive safety protection system ensures reliable operation of the battery test chamber with minimal downtime.
4. Observation window equipped with an electric anti-fogging film.

5. Smart air-cooled cooling system.

TECHNICAL SPECIFICATIONS

Model No.	ToronEXPC-408
Test Space Volume□ Liters □	408
Inner chamber size W×H×D(mm)	800×850×600
Exterior chamber size W×H×D(mm)	1000×1755×1360
Temperature range	R: -20°C to +150°C L: -40°C to +150°C S: -70°C to +150°C (180°C optional)
Temperature fluctuation	±0.5°C
Temperature uniformity	≤ 2.0°C
Temperature change rate acc. IEC 60068-3-5	Heating rate 3°C/min, cooling rate 1°C/min (average rate, no load)
Exterior chamber material	High-quality carbon steel with painting
Interior chamber material	SUS304 matte stainless steel plate
Insulation material	Rigid polyurethane foam insulation
Explosion-proof window	Multi-layer vacuum glass window with a stainless steel protective net, preventing the glass from flying in case of explosion
Explosion-proof pressure relief vent	When the pressure in the equipment or pipeline exceeds the pressure of the safety valve, the pressure relief is automatically opened.

Model No.	ToronEXPC-408
Explosion-proof door chain lock	Quickly vent internal air pressure and protect personnel safety
Cooling mode	Air cooled
Controller	LCD Touch Screen Controller with PID control
Safety protection device	NFB(No fuse breaker), over pressure, over heat and over current protectors for compressor, over temperature protectors, over load protector of fan, dry heat protector, short of water protector
Standard accessory	Sight window*1, Cable port(port Φ100mm)*2, Shelves*2, LED Lighting device*1 Smoke detector*1, 3-Color tower alarm lamp*1, Mobile Casters with foot cups, Power cable*5m
Ambient temp.	+5 to +35°C
Voltage	380V AC 3Ø 50Hz
Customization service	Non-standard or special requirements can be customized.



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