BLANCLABO laboratory equipment

memmert

Battery test chamber

BTC



DESIGNED FOR THERMAL BATTERY TESTING.
ENGINEERED FOR SAFETY IN APPLICATIONS UP TO HAZARD LEVEL 4.

The Memmert U-BTC battery test chamber was specifically developed for thermal battery testing up to Hazard Level 4, combining precise temperature control with integrated safety features for reliable test conditions.

DESIGNED FOR SAFE BATTERY TESTING

Battery testing requires more than precise temperature control. Heat generated by the battery, the test procedure and potential failure scenarios all need to be considered when creating a reliable test environment.
Designed specifically for thermal battery testing up to Hazard Level 4, the U-BTC covers temperatures from +20 to +120 °C and provides reliable conditions for testing at elevated temperatures.
Its integrated safety concept combines pressure relief, mechanical door securing and a process-dependent electronic door lock.

SAFETY FEATURES COME STANDARD

Safety features are built into the U-BTC from the start. Its integrated safety concept brings together monitoring, mechanical door locking, process-dependent electronic locking and pressure relief to support reliable thermal battery testing. A key advantage: key battery-specific options are already included as standard, so they do not need to be selected or ordered separately.

01 A8 – Temperature restriction +120 °C
02 K2 – Interior nearly gastight
03 V5 – Door-open recognition
04 D4 – Process-dependent programmable door lock
05 E0m – Signal lights
06 Pressure relief duct

Pressure relief duct with a spring-loaded flap for reliable pressure relief. The Ø 120 mm entry port with protective grille also allows connection to an exhaust system.

Two toggle latches securely hold the door in the closed position, while additional internal reinforcement plates strengthen the cabinet structure for added rigidity.

Three signal lights show the current device status at a glance:

Red: Fault
Yellow: Manual mode
Green: Programme running



FULL VISIBILITY AT ALL TIMES

Battery testing requires transparency and reproducibility. For connected processes and seamless documentation, the battery test chamber can be fully integrated into the digital myChamber ecosystem:

myChamber App: Remote monitoring of ongoing processes via smartphone
myChamber Control: Device management, process monitoring and documentation (FDA-compliant)



FOR YOUR BATTERY TESTING

The U-BTC is designed for thermal battery testing from individual cells to complete battery systems. It supports a wide range of applications in development, validation and quality assurance, including test tasks related to standards such as IEC 62660, IEC 62619 and ISO 12405-4.

Typical users include automotive OEMs and suppliers, battery cell manufacturers, energy storage providers, test laboratories and research institutions.

Relevant standards

01 **EN 62133** – Safety of secondary cells
02 **IEC 60086** – Lithium batteries
03 **UL 2054** – Household batteries
04 **UL 2580** – Batteries for electric vehicles
05 **EN 50604** – Batteries for light electric vehicles
06 **ISO 12405** – Testing of battery packs
07 **IEC 62660** – Secondary lithium-ion cells for electric vehicles

THE EUCAR HAZARD LEVELS

Hazard Levels indicate how a battery may react during testing. The Memmert U-BTC is designed for applications up to Hazard Level 4 and must not be used for applications at Hazard Level 5 or higher.

Hazard level	Description	Effect on the battery cell	Visual / acoustic alarm	Temperature limiter Tmax	Electrical door lock	Mechanical door securing	Reversible pressure relief flap	Fire detection CO_2 measurement	CO_2 / N_2 / LN_2 purging system	Continuous N_2 inerting O_2 measurement	Overpressure relief / rupture disc
0	**No effect**	No effect. No impairment of functionality.	☒								
1	**Protection system activates**	No defect. Cell recoverable; protection system repair required.	☒	☒							
2	**Defect, damage**	Cell damaged. Repair required.	☒	☒	☒						
3	**Leak, mass loss < 50%**	Electrolyte loss, no venting, no flame or fire.	☒	☒	☒	☒					
4	**Gas release, mass loss > 50%**	Electrolyte loss, cell venting, no flame or fire.	☒	☒	☒	☒	☒				
5	**Fire or flame**	No rupture, no explosion, no flying parts.	☐	☐	☐	☐	☐	☐	☐		
6	**Rupture**	No explosion, no flying parts.	☐	☐	☐	☐	☐	☐	☐	☐	
7	**Explosion**	Explosion, destruction within a very short time	☐	☐	☐	☐	☐	☐	☐	☐	☐

MODEL OVERVIEW

UF110-BTC-HL4
UN110-BTC-HL4



UF160-BTC-HL4
UN160-BTC-HL4



UF250-BTC-HL4
UN250-BTC-HL4



UF260-BTC-HL4
UN260-BTC-HL4



Model size	Volume	Internal dimensions (W × H × D)	External dimensions (W × H × D)	Setting temperature range	Max. loading of chamber
110	108 L	560×480×400 mm	745×864×584 mm	+20°C to +120°C	175kg
160	161 L	560×720×400 mm	745×1104×584 mm	+20°C to +120°C	210kg
250	256 L	800×640×500 mm	984×1023×684 mm	+20°C to +120°C	300kg
260	256 L	640×800×500 mm	824×1183×684 mm	+20°C to +120°C	300kg
400	384 L	640×1200×500 mm	824×1720×684 mm	+20°C to +120°C	300kg
450	449 L	1040×720×600 mm	1224×1247×784 mm	+20°C to +120°C	300kg
750	749 L	1040×1200×600 mm	1224×1720×784 mm	+20°C to +120°C	300kg

Model variants

Each U-BTC model size is available as UN-BTC with natural convection or as UF-BTC with forced air circulation.

TwinDISPLAY as standard

All models are supplied as Plus units with TwinDISPLAY. Extended operating and software functions, such as running programmes, are therefore included as standard.

CONTACT

For battery testing, the test task, temperature requirements and safety scope must be aligned. We will be happy to help you select the right U-BTC configuration for your application.

Discuss your test requirements:
www.memmert.com/en/btc

For personal advice, quotations or technical questions, please contact your local Memmert representative or our international sales team.

BLANC - LABO S.A.
Chemin des Mouettes 1
CH - 1027 Lonay

T: +41 (0)21 804 18 50
E: sales@blanc-labo.com
I: www.blanc-labo.com

Memmert
memmert.family
memmert.family

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