Detects leaks
1,000 times
smaller than pressure methods

ELT3000 Battery Leak Detector

The first battery leak test yielding consistently reliable results

INFICON
Inspired by visions. Proven by success.

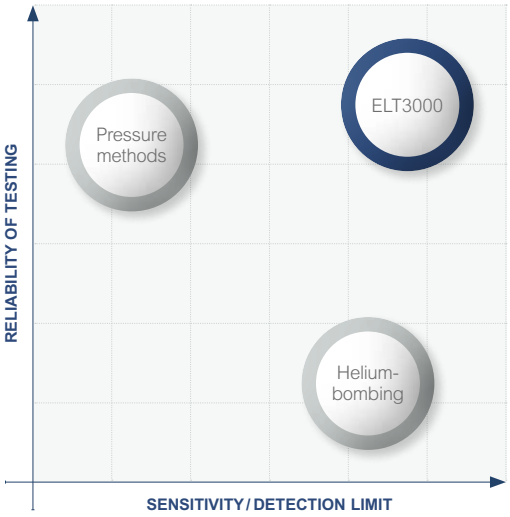
Reliable battery quality through innovative end-of-line testing

Sensitivity, reliability and innovation – the modular ELT3000 system sets a new benchmark for battery leak testing.

Lithium-ion batteries are used in a wide range of emerging technologies including prismatic cells, round cells, and pouch cells. The latter are used in many industries, for example by smartphone and tablet manufacturers or in the booming industry for e-mobility.

PRODUCT SAFETY REQUIRES LEAK TESTING

The battery market is growing rapidly, but the methods specifically designed for testing for electrolyte leaks have not yet been adopted. Methods such as traditional pressure testing or helium bombing are currently used, with the first only detecting rather large leaks and the second not finding liquid leaks reliably. The answer to a reliable and at the same time very sensitive battery leak test is the ELT3000.



1,000 TIMES MORE PRECISE, UNIQUE TO THE MARKET

With the ELT3000, INFICON offers a unique test system for battery cells that helps you comply with the ISO9000 standard. It is the only system that determines leakage directly, rather than indirect parameters (like pressure changes). Based on mass spectrometer technology it can find leaks 1,000 times smaller than the ones found with traditional pressure test methods. The new ELT3000 helps you to guarantee battery lifetimes of up to 10 years.

PRECISION MEETS SIMPLICITY

Operating the system is intuitive – no costly training courses are needed. The modular design makes it easy to integrate the ELT3000 into your automated processes.

ADVANTAGES AT A GLANCE

RELIABLE LIFETIME

Leaks 1,000 times smaller than with traditional methods can be detected by the use of mass spectrometer technology allowing a battery cell lifetime of up to 10 years.

FUTURE-PROOF INVESTMENT

The ELT3000 system is well-suited for prismatic cells, round cells and pouch cells. Even if you decide to go to different cell geometries, you can continue testing with the ELT3000.

SIMPLE TO USE AND TO INTEGRATE

The easy testing procedure and the touch display make the ELT3000 simple and intuitive to use. No costly training courses are needed. The system can be fully integrated into automated production.

HIGHLY EFFICIENT

Both test chamber designs allow for simultaneous testing of several cells in one testing cycle. In combination with short cycle times, the system allows for fast throughput testing.

PRECISE DOWN TO THE MICROMETER

Electrolyte vapors are extracted from the battery cell under rough vacuum. The system can detect leaks down to a few micrometers in diameter – corresponding to a helium equivalent leak rate of $1*10^{-6}$ mbar·l/s.

GAS DETECTION SYSTEM

The gas detection system has been tailored specifically to battery leak testing and detects electrolyte solvent leaking out of the cell and into the chamber. The measured leak rate is transferred to the control unit. The leak detector can detect all common electrolyte solvents.

E-CHECK TEST LEAKS

Certified calibration leaks enable traceable results that fulfill the requirements of the ISO9000 standard.

THE TEST CHAMBERS

You can choose between two rigid and one flexible chamber. Rigid chambers are the optimal choice for all cells with rigid housings. The flexible chamber is ideally suited for more fragile cells (e.g. pouch cells). It lies tightly around the units to be tested and enables safe testing without damaging the cells in vacuum.

Both chambers provide automated cleaning when parts are externally contaminated with electrolyte or after a leak has been found. Customized chambers can be used for highest throughput when testing rigid cells.

Efficient testing: For increased efficiency several cells may be tested simultaneously to achieve high throughput and productivity.

rigid test chamber

CONTROL UNIT

The heart of the ELT3000 system is the control unit. At the push of a button, the test cycle is started and the touch screen displays the numerical result as well as a good / not good result. Testing results can be saved on request and can be exported via a USB interface.

EASY TRACKING OF TEST RESULTS

Archiving is made easy by the simple use of a barcode scanner. You can track each cell individually. The system links the test result with the relevant part ID and a timestamp. Due to the standardized interface, any commercially available barcode scanner may be used.

ISO 14001
ISO 9001

Premium Quality
made in Germany

Innovation based on proven technology

INFICON develops, manufactures and supplies innovative measurement devices, precise sensor technology and progressive process control software to help companies meet today's manufacturing challenges.

INFICON proven solutions are widely accepted for common pretesting of components for battery modules and assembled battery packs. Our experience in refrigerant, hydrogen and helium leak testing allowed us to develop the first dedicated battery leak detector, which will give you a competitive edge in delivering the highest quality batteries.

ELT3000 BATTERY LEAK DETECTOR

TECHNICAL DATA	
Smallest detectable leak rate	1×10^{-6} mbar l/s (Helium equivalent leak rate)
Measuring range	3 decades
Leak rate units	mbar·l/s, atm·cc/s, Pa·m³/s
Detection sensor	Quadrupole mass spectrometer (2 cathodes)
Time until ready for measurement	<180 s
Serial interfaces	USB 2.0; M12 (for connection I/O1000); RJ45 (network connection)
Interface via I/O1000 Modul	10 digital Inputs; 8 digital outputs; RS232
Operating temperature	10° C to 40° C (50 – 104 F)
Ingress protection class	IP20
Dimensions Gas Detection (B x H x T)	610 mm x 300 mm x 380 mm (24 in x 12 in x 15 in)
Dimensions Control Unit (B x H x T)	700 mm x 540 mm x 250 mm (27.6 in x 13.7 in x 6.4 in)
Weight	65 kg (144.5 lbs)
Operating language	English, German, Korean, Chinese, Japanese

ORDERING INFORMATION	
PRODUCT	**Cat. no.**
Basic Leak Detector	
ELT3000 (Gas Detection Unit + Control Unit) 230 V, 50 Hz	600 – 001
ELT3000 (Gas Detection Unit + Control Unit) 110 V, 60 Hz	600 – 002
Test Chambers	
TC3000S Rigid Chamber (180 mm x 180 mm x 27 mm)	600 – 100
TC3000L Rigid Chamber (400 mm x 210 mm x 120 mm)	600 – 101
FTC3000 Flexible Chamber (400 mm x 350 mm)*	600 – 102
Calibration Leaks	
E-Check (DMC)	600 – 105
ACCESSORIES	
I/O1000 Modul	560 – 310
Data cable I/O1000 2 m	560 – 332
Data cable I/O1000 5 m	560 – 335
Data cable I/O1000 10 m	560 – 340
BM1000 PROFIBUS	560 – 315
BM1000 PROFINET	560 – 316
BM1000 DeviceNet	560 – 317
BM1000 EtherNet/IP	560 – 318

*coming soon

ELT3000 – SUSTAINABILITY BUILT IN

Leak testing of battery cells ensures the longevity of batteries to avoid unnecessary waste of precious materials as used in battery manufacturing. Leak testing also helps prevent a battery's emission of harmful electrolytes to the environment.

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