



Translation of the original operating instructions

FTC3000

Flexible test chamber for ELT3000

Catalog No.
600-102

From software version

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mima95en1-05-(2501)



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1 About this Manual

Product names may occur in the document, which are added for identification purposes only and belong to the respective owner of the rights.

1.1 Target Groups

This instruction manual is intended for operators and technically qualified personnel with experience in leak detection technology and the integration of leak detectors in leak detection systems. In addition, the installation and use of the device require knowledge of electronic interfaces.

1.2 Warnings

⚠ DANGER

Imminent hazard resulting in death or serious injuries

⚠ WARNING

Hazardous situation resulting in potential death or serious injuries

⚠ CAUTION

Hazardous situation resulting in minor injuries

NOTICE

Hazardous situation resulting in damage to property or the environment

1.3 Definition of Terms

Minimum detectable leak rate

The minimum detectable leak rate that can be detected by the leak detector under ideal conditions ($< 1 \times 10^{-6}$ mbar l/s*).

* Helium equivalent leak rate For DMC at a pressure difference of 1000 mbar to 0 mbar.

GCU

Gas Control Unit (basic unit, operating unit)

GDU

Gas Detection Unit

DMC

Dimethyl carbonate, typical solvent in battery electrolyte. CAS No. 616-38-6

MSDS

Material Safety Data Sheet

2 Safety

2.1 Intended use

The flexible test chamber is designed for leak testing of Li-ion cells and Li-ion batteries. Uncharged cells / batteries can be tested safely. For testing charged cells / batteries, further safety measures must be taken to avoid personal injury and damage to property.

- For validation of the test, cells prepared as leaky are placed in the chamber. The preparation of the cells, which creates further hazards, is performed by the operator and is not an integral part of the test or the device. Testing of leaking cells will result in soiling of the flexible test chamber and possibly "contamination". Cells to be tested with the flexible test chamber must be pre-qualified. For this purpose, uncharged cells are examined, for example, to determine whether they can withstand the stresses of the leak testing. Suitable measures for the safety of man and machine must be taken by the operator.
- The test objects must be filled with an electrolyte in which one solvent component ideally consists of dimethyl carbonate (DMC, CAS No. 616-38-6).
- Depending on the internal structure of the test objects and the external geometries, local mechanical stresses can occur on the test objects. This can damage the test objects themselves, but also other components located in the test chamber.
- Make sure that the test chamber and the outer wall of the test objects are clean. Leak testing with charged test objects represents an additional safety risk and should only be carried out by appropriately trained personnel and with the installation of further safety measures.
- Make sure that the test objects are supported by the flexible membrane from all sides. The distance between the test objects in the test chamber must be at least four times the thickness of the test objects as a circumferential distance from other test objects. Furthermore, a distance of at least 5 cm to the edge of the test chamber must be maintained.

Also, no other materials, except for specially designed protective frames or protective edges, should be placed in the test chamber (e.g. holders for several test objects), as this does not allow reliable stabilization by the test chamber membrane on the test objects.

- The test chamber may only be used in conjunction with the ELT3000 and ELT3000 Plus.

Incorrect usage

Avoid the following unintended uses:

- Testing of partially or fully charged cells and batteries without further safety measures
- Use outside the technical specifications, see "Technical Data".

- Use in locations with very low humidity.
- Use in radioactive areas.
- Use in potentially explosive atmospheres.
- Use in areas with risk of electromagnetic interference.
- Closing the test chamber while your fingers are in the swivel range of the test chamber.
- Use of accessories or spare parts, which are not listed in this manual.
- Testing of test objects whose current collectors can be short-circuited via the test chamber ring.
- Test of test objects that touch the sealing lips of the foil chamber.
- Test of sharp objects
- Testing of wet or damp test objects.
- Test of test objects with significant differences in temperature to the environment.
- Testing of cells and batteries that are visibly damaged.
- Use of tools that may damage the sealing surfaces or elastomers of the test chamber during mechanical cleaning.

Note: This device is not intended to be used in residential areas and cannot ensure adequate protection of radio reception in such environments. The battery leak detector does not perform a safety function. In the event of strong electromagnetic interference, measured values could be falsified. It is recommended to check the function of the test chamber regularly (e.g. with a calibration leak).

2.2 Duties of the Operator

- Read, observe, and follow the information in this manual and in the work instructions provided by the owner. This concerns in particular the safety and warning instructions.
- Always observe the complete operating instructions for all work.
- If you have any questions about operation or maintenance that are not answered in this operating instructions, contact INFICON service.

2.3 Owner Requirements

The following notes are for companies or any person who is responsible for the safety and effective use of the product by the user, employees or third parties.

Safety-conscious operation

- Only operate the flexible test chamber and the battery leak detector if it is in technically perfect condition and shows no signs of damage.

- Only operate the flexible test chamber and the battery leak detector as intended, in a safety-conscious and hazard-conscious manner and in compliance with these operating instructions.
- Provide ambient conditions that are suitable for operating staff, the test chamber and the test specimen.
- Adhere to the following regulations and observe their compliance:
 - Intended use
 - General applicable safety and accident prevention regulations
 - International, national and local standards and guidelines
 - Additional device-related provisions and regulations
- Only use original parts or parts approved by the manufacturer.
- Keep this instruction manual available on site.

Personnel qualifications

- Only allow instructed personnel to work with the flexible test chamber and the battery leak detector. The instructed personnel must have received appropriate training. This includes knowledge of the dangers posed by leaking electrolyte/solvent.
- Make sure that authorized personnel have read and understood the instruction manual and all other applicable documents.

2.4 Dangers

The measuring instrument was built according to the state-of-the-art and the recognized safety regulations. Nevertheless, improper use may result in risk to life and limb on the part of the user or third parties, or damage to the unit or other property may occur.

**⚠ WARNING****Danger to health due to hazardous materials and substances**

Test specimens are usually filled with substances that are hazardous to health. If these substances leak during the test, they are freely accessible to the operator after the test.

- ▶ Wear appropriate protective clothing, especially gloves, gowns, and face shields.
- ▶ Ensure sufficient ventilation at the installation location.
- ▶ Avoid contact with skin, eyes, or clothing.
- ▶ Avoid inhaling these substances.
- ▶ Only test specimens for leak tightness that do not show any damage or smell of electrolyte or solvent after initial inspection.
- ▶ Before removing the test specimen (visual check and smell test), check whether any contents of the test specimen have leaked out.
- ▶ Pay attention to the risks posed by released electrolyte components and their reaction products.
- ▶ Defective test specimens can develop gross leaks during the leak testing. In the case of test specimens with gross leaks, observe the company's internal regulations for handling electrolyte and the safety instructions in the safety data sheets.
- ▶ Do not pump out toxic or corrosive gases.
- ▶ Clean the device regularly and keep it clean at all times.
- ▶ Observe the safety instructions in the safety data sheets for the test objects.
- ▶ Operate the device only with a connected exhaust air connection and in well-ventilated rooms. Alternatively, the device may be used in rooms where hazardous substances under test are monitored.
- ▶ When nitrogen or argon is used as a purge gas, it can cause asphyxiation at dangerous room concentrations. Suitable measures must be taken. The pressure in the gas line to the purge gas connection must not exceed 100 mbar over atmospheric pressure. An exhaust gas line must be connected.

**⚠ WARNING****Fire and explosion hazard**

Sharp foreign objects can penetrate into test pieces during the test procedure and cause a short circuit. Defective test specimens can start a fire, even with a time delay. The elastomer components of the device are not fire-resistant and cannot prevent the

spread of fire. Reaction products during combustion can lead to further health risks. A metal tray is installed underneath the device. It catches dripping, hot or burning plastics.

- ▶ Make sure that the test chamber is always free of foreign objects.
- ▶ Do not operate the device unattended.
- ▶ Only operate the device with the exhaust hose connected.
- ▶ Do not pump off explosive gases.
- ▶ Carefully place the test specimens in the test chamber so that they do not come into contact with any parts outside the membrane.



⚠ CAUTION

Warning about hand injuries

Danger of crushing by opening the flap if the clearance is too small at the top and rear.

Danger of crushing when closing the test chamber lid in the gap between the test chamber lid and the test chamber, or between the test chamber rings.

- ▶ Ensure that there is sufficient space where the devices are located, see also "Setup [▶ 16]".
- ▶ Only open and close the test chamber when your fingers are outside the test chamber halves and outside the pivoting range of the test chamber.
- ▶ Do not touch the hinge when closing the test chamber.



Measurement inaccuracies due to dirty test chamber

Escaping electrolyte can contaminate the test chamber.

- ▶ After detecting leakage, check the elastomer films of the test chamber for contamination caused by escaping electrolyte.
- ▶ Avoid inhaling harmful gases or vapors.
- ▶ Keep the gaskets for the test chamber halves clean. Do not use grease or lubricants.
- ▶ Remove coarse soiling with a dust-free cloth. This soiling can falsify the measurement results. The device features a purging function which can be carried out in case of minor soiling, see ELT3000 instructions "Purging the device". Use personal protective equipment.
- ▶ Change the membrane supports if they are heavily soiled. See also "Change membrane support [▶ 24]".

3 Scope of delivery, transport

Scope of delivery	Item	Quantity
	Test chamber FTC3000	1
	Hoses with filters and angle clamps (VENT and INLET)	2
	Stud	4
	Knurled nut	4
	Operating manual	1
	Unpacking instructions for FTC3000	1
	Hose assembly leaflet for FTC3000	1

- ▶ Check the scope of delivery after receipt of the product to make sure it is complete.

Transport

NOTICE

Damage caused by transport

Transport in unsuitable packaging material can damage the device.

- ▶ Keep the original packaging.
- ▶ Only transport the device in its original packaging.

Storage

Always store the device in compliance with the technical data, see "Technical Data".

NOTICE

Losses due to overly prolonged storage

The functional safety of the membranes of the measuring chamber will eventually become impaired.

- ▶ Do not store membranes for more than 3 years.
- ▶ Store the test chamber and other membranes in a dry place that is not exposed to light.

4 Description

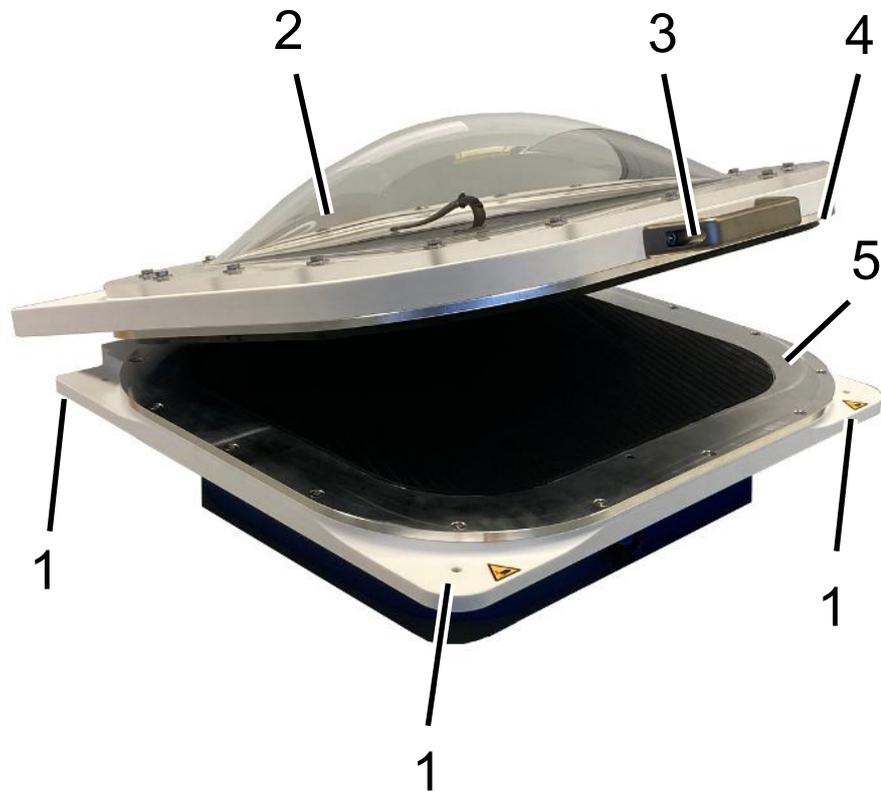


Fig. 1: FTC3000

1	Stud mount (4x)	2	Inspection dome
3	Handle for opening the test chamber	4	Top membrane support
5	Bottom membrane support		

4.1 Function

The flexible test chamber, in conjunction with the Gas Control Unit of the ELT3000, makes it possible to perform leak testing on test objects. The flexible test chamber supports the test object from the outside. Test objects that are not vacuum-tight can thus be tested for leak tightness.

Place the test object between the elastic membranes of the flexible test chamber. By pumping out the air from the test chamber, a pressure gradient between test object and test chamber is generated. The flexible membranes wrap around the test object and support it.

Due to this pressure gradient, gas flows through leakages out of the test object and into the test chamber. This gas is sent to the GDU (Gas Detection Unit) for analysis.

After the analysis, the result is compared with the setpoint. A distinguishable leak-proof/leaky signal is output.

4.2 Markings on the device

The markings on the device have the following meanings:



Device cannot be disposed of as normal domestic waste.



Warning about hand injuries



Read operating instructions

4.3 Technical Data

Mechanical data

Dimensions of closed chamber (L x W x H)	590mm x 520mm x 270mm
Dimensions of open chamber (L x W x H)	590mm x 520mm x 660mm
Installation depth (with filter)	740 mm
Weight	approx. 19 kg

Electrical data

Operating voltage	24 V DC
Power consumption	10 W
Protection class	EN 60529 IP20 UL 50E Type 1

Physical data

Pressure range	1080 hPa to 1 hPa
Switch on until ready for operation	2 min.

Ambient conditions

Temperature range (°C)	10 °C to 40 °C
Permissible storage temperature (°C)	0 °C to 60 °C
Relative humidity (%)	80 % at 30 °C, linear decrease to 50 % at 40 °C
Height above sea level (m)	2000 m
Pollution degree	II

5 Installation

5.1 Setup

- In order not to distort the measurement results, select a location where the possible room temperature for the device is constant.
- Do not expose the device to direct sunlight.
- If the clearance to the top and rear is too small, fingers can be crushed when opening the flap. The following clearance is required:
 - Footprint: 1m²
 - Functional height: 1.5 m above the device
 - Space required for mounting: 4m²
 - Movement space at the workplaces: 2m²
- The flexible test chamber must be mounted on the GCU of the ELT3000 battery leak detector by a competent person. Alternatively, the flexible test chamber can also be mounted on a rack, see operating manual of the ELT3000 battery leak detector.

WARNING

Danger from moisture and electricity

Moisture entering the device can lead to personal injury due to electric shocks as well as damage to property due to short circuiting.

- ▶ Only operate the device in a dry environment.
- ▶ Operate the device away from sources of liquid and moisture.

5.2 Mount the device

NOTICE

Property damage due to improper installation

It is recommended to have the installation carried out by INFICON or by trained personnel.

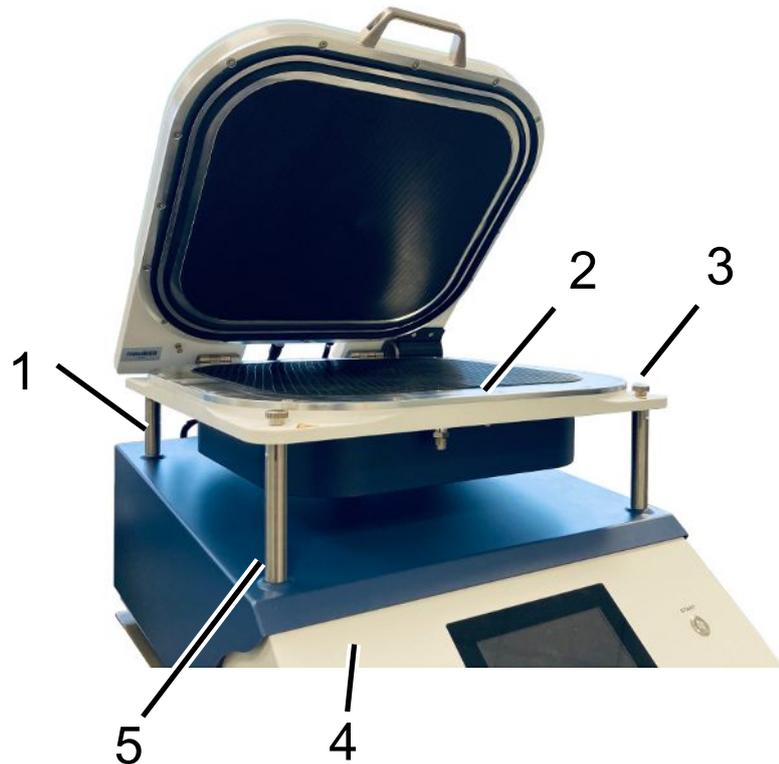


Fig. 2: FTC3000 mounted on GCU

1	Rear stud (2x)	2	Test chamber
3	Knurled nut (4x)	4	GCU
5	Front stud (2x)		

- 1 Remove the four screws on the top of the Gas Control Unit.



⚠ CAUTION

Injury due to electric shock

To ensure good grounding, the four studs must be correctly fixed in place.

- ▶ The tightening torque of the front studs is 7 Nm.
- ▶ The tightening torque of the rear studs is 18 Nm.

- 2 Insert the two front studs into the provided tapped holes on the GCU.
- 3 Insert the two rear studs into the provided tapped holes on the GCU.
- 4 Place the test chamber on the studs and fasten the closed chamber with the front two knurled nuts.
- 5 Open the chamber and fasten the rear two knurled nuts.
- 6 Connect the connections with the supplied connecting cables and hoses as shown in "Connect device [▶ 18]".

5.3 Connect device

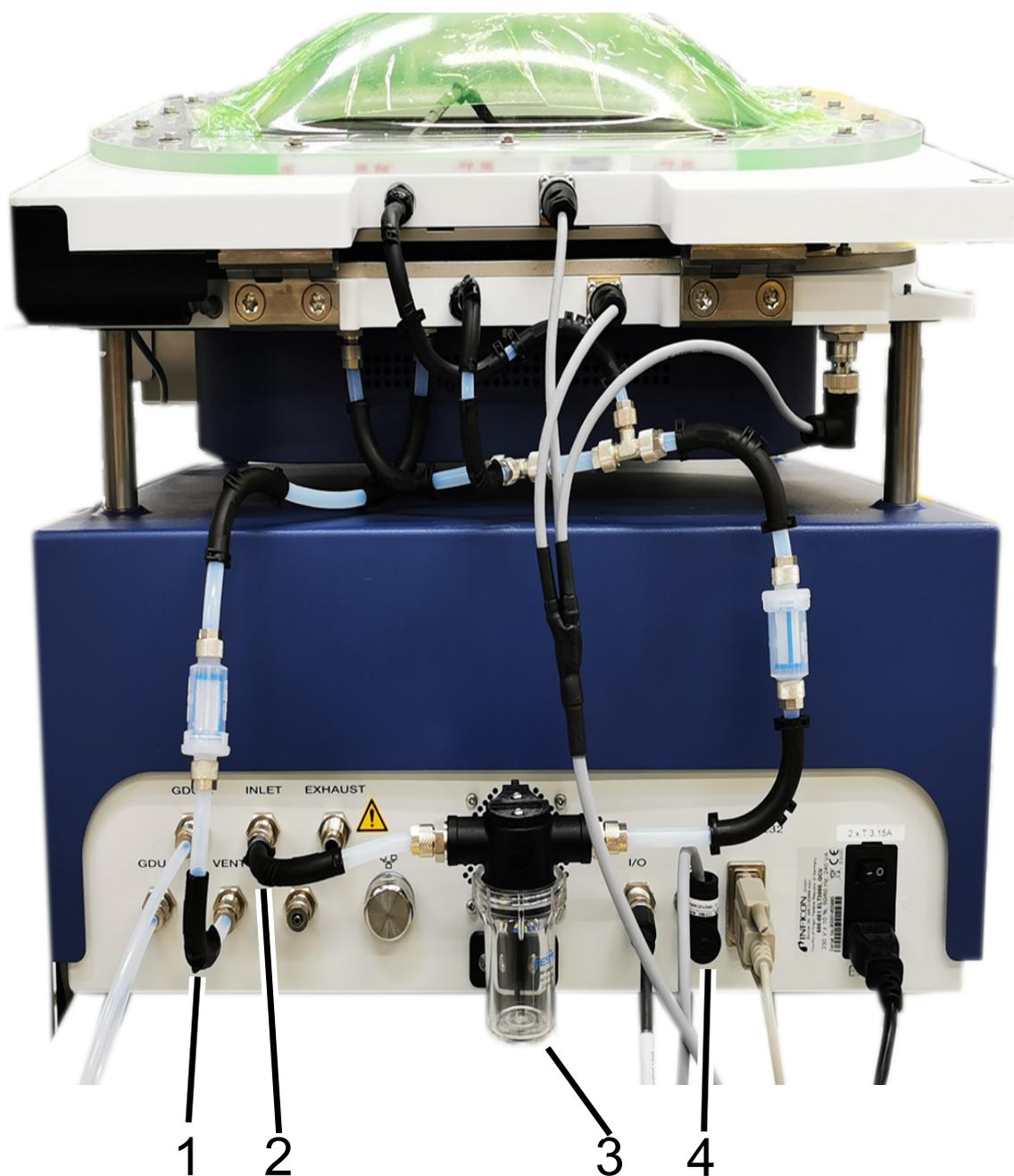


Fig. 3: Connection of FTC3000 to GCU

1	"VENT"	3	Liquid separator
2	"INLET"	4	Connection for proximity switch (for automatic measurement start) with red-green display and ESD connection.

6 Operation

WARNING

Risk of injury from explosion

If both battery poles come into contact with the electrically conductive test chamber, a short circuit and thus high temperatures can occur in the tested battery.

- ▶ Do not perform a battery test without the original insulator.
- ▶ Only test obviously undamaged battery cells in this test chamber.
- ▶ Make sure that there is no material in the test chamber that could damage the battery (e.g. pointy, sharp objects).
- ▶ Leave batteries in the chamber only during the test period, and not permanently.
- ▶ Keep the test chamber clean and wash it regularly.
- ▶ No smoking.
- ▶ Keep ignition sources away from the test chamber.

WARNING

Respiratory tract irritation

The solvents in lithium-ion batteries can cause respiratory irritation and loss of consciousness if they leak from the battery.

- ▶ To avoid irritating the respiratory tract, avoid contact with and inhalation of electrolyte.
- ▶ Only place obviously undamaged batteries in the test chamber.



CAUTION

Warning about hand injuries

- ▶ Only open and close the test chamber when your fingers are outside the test chamber halves and outside the pivoting range of the test chamber.

⚠ CAUTION**Danger due to physical stress / ergonomics**

Continuous opening and closing of the test chamber cover can result in fatigue of the arm muscles.

Incorrect setup of the test chamber can impair its moving parts.

- ▶ Plan enough breaks to avoid fatigue.
- ▶ Set up the test chamber so that there is no impairment of its moving parts.
 - ⇒ When setting up the test chamber, pay attention to the height and distance from the operator.
 - ⇒ Pay attention to the arrangement of the test object trays.

NOTICE**Property damage due to accumulation or blockage in detachable parts with solvents**

Accumulations or clogging of detachable parts by solvents or electrolyte residues lead to functional problems.

- ▶ Replace the liquid separator and particle filter as needed, otherwise annually.
- ▶ Replace all gaskets and hoses as necessary, otherwise annually.

NOTICE**Reduction of the service life of the membrane and lip seal**

Improper handling of the chamber will shorten the service life of the membrane.

- ▶ Avoid sharp edges on test objects. Use protective frames or protective edges for sharp-edged test objects to avoid damaging the membrane.
- ▶ Observe the intended use of the test chamber. Large test objects such as cuboids or similar should be tested in a suitable test chamber.
- ▶ Do not stack test objects in the test chamber.
- ▶ In order to distribute the load of the test object evenly on the membrane, place the test object as centrally as possible and maintain an appropriate distance between the test object and the edge of the test chamber". .
- ▶ Always place the test objects carefully in the test chamber and then remove the test objects carefully.
- ▶ Avoid contamination of the test object and test chamber.
- ▶ To prevent the membranes from losing their elasticity, avoid direct sunlight and UV radiation.

6.1 Perform leak test

This test chamber is used to perform leak testing on undamaged test objects (lithium-ion batteries).

- ✓ Test chamber and vacuum control unit are properly connected, see also "Installation [▶ 16]".
- ✓ The vacuum control unit is switched on. The two LEDs flash simultaneously during startup.
 - 1** Place the test object in the test chamber.
 - 2** When the "Autostart" mode is activated, the proximity switch is actuated by closing the lid and the measurement is started.
 - ⇒ The air is pumped out of the test chamber.
 - ⇒ After the analysis, the result is compared with the configured setpoint.
 - ⇒ The red LED lights up when a leak greater than the configured setpoint has been detected.
 - ⇒ The green LED lights up when a leak less than the configured setpoint has been detected.
 - 3** You can now open the cover and remove the test object. Skin contact with electrolyte when cleaning the test chamber or removing test objects that have failed leak tests should be avoided.

7 Cleaning and Maintenance

7.1 Sending for repair or maintenance

You can send the device to the manufacturer for repair or maintenance. For further details see "Sending in the device [▶ 37]".

7.2 Cleaning the housing

The surfaces of the device are made of aluminum, IIR (butyl rubber), PMMA, stainless steel and PETP

- 1** Make sure that the ELT3000 basic unit is disconnected from the power supply by disconnecting the power supply plug.
- 2** For external cleaning of the test chamber, use an agent that is commonly used on plastic or metal surfaces (e.g. light-duty household cleaners). Do not use any solvents that may attack plastic or metal.
- 3** Avoid all areas inside the chamber that will be exposed to vacuum.

7.3 Clean membranes and lip gaskets

Black membranes are located at the top and bottom of the measuring chamber and form the interior of the test chamber. The two lip gaskets are located on the upper half of the chamber.



Fig. 4: FTC3000 with GCU

- 1** Wipe off the membrane and the lip gaskets with a damp cloth. In case of minor soiling (e.g. dust), use only warm water to moisten it. In case of heavy soiling (e.g. electrolyte residues), use the main solvent of the electrolyte used to moisten it. Avoid other cleaning agents containing alcohols, greases or oils.
- 2** Ensure complete drying of the membrane and lip gaskets.

7.4 Change membrane support

⚠ WARNING

Danger to health due to hazardous materials and substances

Burns may occur on contact with defective batteries and electrolyte residues.

- ▶ Avoid contact with skin, eyes, or clothing.
- ▶ Wear appropriate protective clothing, especially gloves, gowns, and face shields.
- ▶ Ensure sufficient ventilation at the installation location.
- ▶ Observe the safety instructions in the safety data sheets for the test objects.

Top membrane support	Send in for repair or order, order number 200010776
Bottom membrane support	Send in for repair or order, order number 200010777
Required tools	T25 screwdriver
	Wrench, size 16 for counterholding
	Wrench, size 12



Fig. 5: FTC3000: Back view

1	Upper chamber half	3	"VENT" hose
2	Lower chamber half	4	"INLET" hose

During measurement, two membranes nestle against the test object from above and below as air is pumped out.

The membranes may be leaking, so that accurate measurements are no longer possible. Causes of damage can be sharp edged objects, aging or wear. Remove the membrane support including the damaged membrane.

To repair or replace the membrane support with membrane, contact the manufacturer's service department. Due to the high quality requirements at the manufacturer, the membrane support is re-tensioned, the components are tested and then a leak testing is performed.

Disassembly

- ✓ At least one membrane no longer functions properly or has to be replaced for reasons of age.



- 1 Open the measuring chamber and determine which membrane is damaged.
- 2 Upper membrane support: If necessary, to remove the upper membrane support including the damaged membrane, unscrew the countersunk screws on the inside of this membrane support using a T25 screwdriver.
- 3 Loosen and remove the ratchet clamp by moving the rows of teeth against each other.



Fig. 6: Ratchet clamp on the top of the measuring chamber

- 4 Lower membrane support: To remove the lower membrane support including the damaged membrane if necessary, first disconnect both hoses from the bottom of the measuring chamber and pull them off. To loosen the nuts, use a wrench (size 16) for counterholding.



Fig. 7: Threaded hose connection of lower membrane support

- 5 Use a T25 screwdriver to unscrew the countersunk screws.
- 6 Loosen and remove the ratchet clamp by moving the rows of teeth against each other.

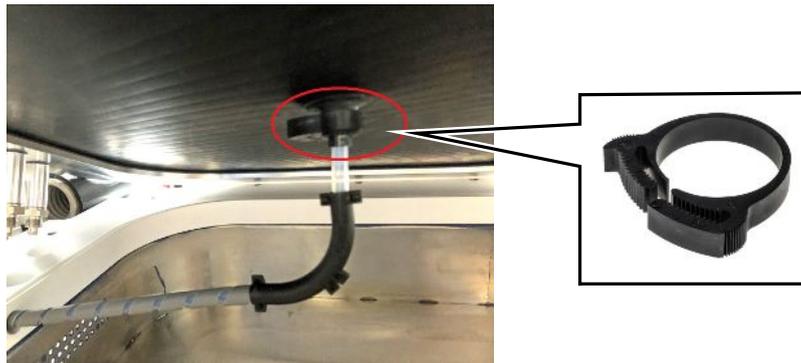


Fig. 8: Ratchet clamp on the underside of the measuring chamber

- 7 For repair, pack the membrane support, so that it is protected against damage during transport.
- 8 Please do not hesitate to contact us and send a completed declaration of contamination before sending anything to us, see also "Sending in the device [▶ 37]".

Installation

- If you sent a membrane support with a defective membrane to the manufacturer, your membrane support has been equipped with a new membrane and leak testing has been performed. In the case of an upper membrane support, new lip gaskets have also been added.
- If you want to take precautions in the event of damage to a membrane, you can purchase from the manufacturer of the device ready-tensioned upper and lower replacement membrane supports. Note that the service life of stored membranes reduced by opening the original packaging and due to light.

- ✓ They feature a separate membrane support with an intact membrane.
- 1 Attach the existing hose to the new chamber membrane. (This applies to both the upper and lower halves of the chamber.)
Fix the connection from the outside using the ratchet clamp. To do this, insert the black end piece of the hose into the central connection located on the back of the membrane.
 - 2 To assemble the upper membrane support, hold it with the screw holes above the thread openings, and screw the countersunk screws hand-tight with a T25 screwdriver. Tighten crosswise with a torque of 4 Nm.
 - 3 To install the lower membrane support, insert the membrane support with the screw holes over the provided thread holes. To do this thread the hose connection through the boreholes in the lower membrane support. There is only one mounting direction possible.
Use a T25 screwdriver to tighten the countersunk screws hand-tight. Tighten crosswise with a torque of 4 Nm.
 - 4 Mount the lower hose connections to the lower membrane support.

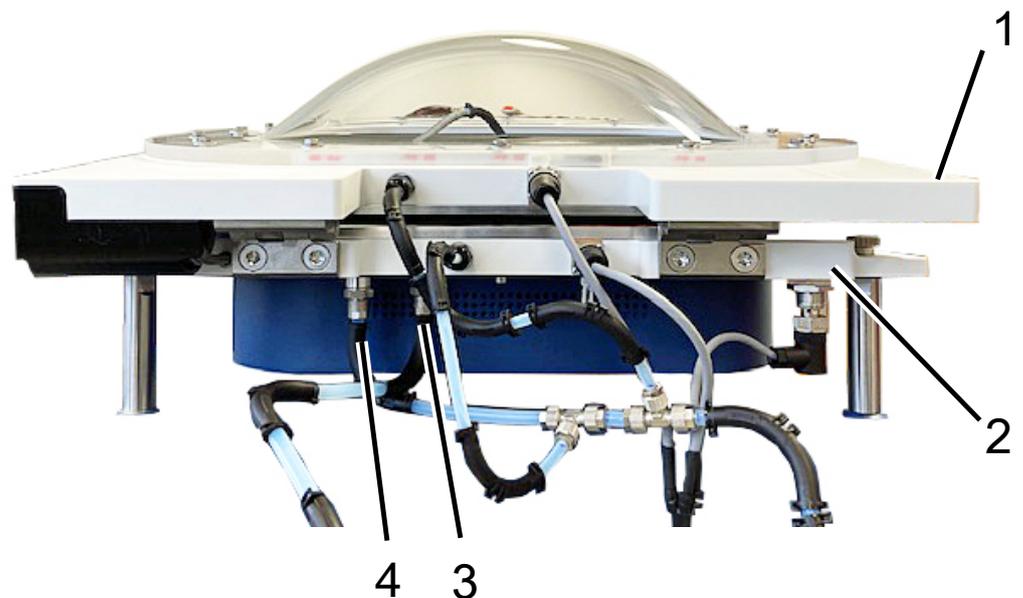


Fig. 9: Membrane support

1	Upper chamber half	3	"VENT" hose
2	Lower chamber half	4	"INLET" hose

- 5 Move the black hose guides into a right angle arrangement. This provides strain relief.

7.5 Check liquid separator

WARNING

Danger to health due to hazardous materials and substances

Burns may occur on contact with defective batteries and electrolyte residues.

- ▶ Avoid contact with skin, eyes, or clothing.
- ▶ Wear appropriate protective clothing, especially gloves, gowns, and face shields.
- ▶ Ensure sufficient ventilation at the installation location.
- ▶ Observe the safety instructions in the safety data sheets for the test objects.

The function of the test chamber and the measuring accuracy of the leak detector can be impaired by dirty liquid separators. Check the transparent inspection glass of the liquid separator regularly for electrolyte residues.



Fig. 10: Check liquid separator

1	Inspection glass
---	------------------

- 1 Replace the inspection glass if it is clearly dirty.
- 2 When reinserting the inspection glass, make sure that the gasket is in the liquid separator.

7.6 Change liquid separator

⚠ WARNING

Danger to health due to hazardous materials and substances

Burns may occur on contact with defective batteries and electrolyte residues.

- ▶ Avoid contact with skin, eyes, or clothing.
- ▶ Wear suitable protective clothing, especially gloves, apron and face protection.
- ▶ Ensure sufficient ventilation at the installation location.
- ▶ Observe the safety instructions in the safety data sheets for the test objects.

Required tools	Wrench, size 16
	Wrench, size 12

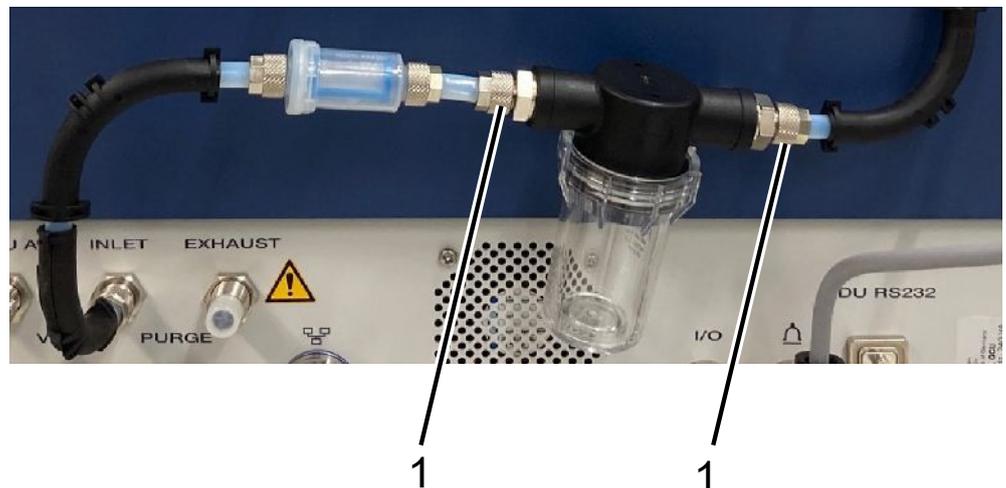


Fig. 11: Change liquid separator

1	Union nuts (metal)
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- 1 To change the liquid separator, loosen the union nuts and pull off the hose.
- 2 Replace the dirty liquid separator with a new liquid separator. Note the direction of mounting.
- 3 Tighten the union nuts again.

7.7 Cleaning hoses

WARNING

Danger to health due to hazardous materials and substances

Burns may occur on contact with defective batteries and electrolyte residues.

- ▶ Avoid contact with skin, eyes, or clothing.
- ▶ Wear appropriate protective clothing, especially gloves, gowns, and face shields.
- ▶ Ensure sufficient ventilation at the installation location.
- ▶ Observe the safety instructions in the safety data sheets for the test objects.

During the leak testing, air is extracted from the test chamber via a line in which an inline filter is integrated, see also "Mount the device [▶ 16]". The second line is used for ventilation.

If there is little liquid ingress or condensation formation, the hoses can be dismantled by a specialist with technical training.

- 1 To dismantle the hoses, loosen the threaded connections and pull off the hoses including the filter cartridge.
 - ⇒ If a larger amount of liquid has reached the bottom of the hoses, contact the service department.
- 2 Replace the hoses and filter if necessary, see "Change inline filter [▶ 31]".
- 3 Reinsert the hoses with the filter.

7.8 Checking inline filter

The function and measuring accuracy of the leak detector can be impaired by contaminated filters. Check the transparent filter elements (inline filter) regularly for the ingress of dust.

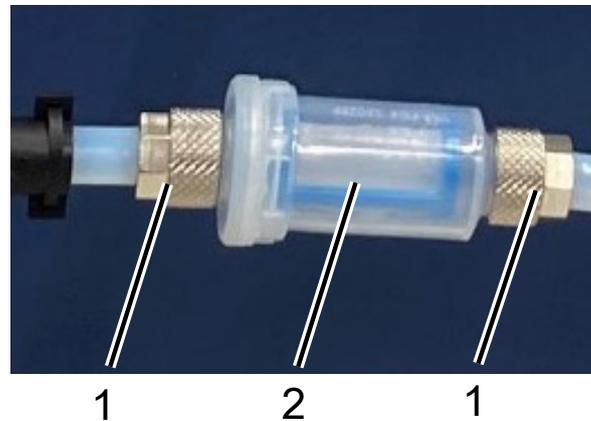


Fig. 12: Checking inline filter

1	Union nuts (metal)	2	Filter element
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- ▶ Replace the filter elements if they are clearly dirty.

See also

 [Change inline filter \[▶ 31\]](#)

7.9 Change inline filter

WARNING

Danger to health due to hazardous materials and substances

Burns may occur on contact with defective batteries and electrolyte residues.

- ▶ Avoid contact with skin, eyes, or clothing.
- ▶ Wear appropriate protective clothing, especially gloves, gowns, and face shields.
- ▶ Ensure sufficient ventilation at the installation location.
- ▶ Observe the safety instructions in the safety data sheets for the test objects.

Filter set	200009854
Required tools	Wrench, size 12 mm

- 1 To be able to pull the hose off the filter element, loosen the union nuts with a wrench, see "Checking inline filter [▶ 31]".
- 2 Replace the contaminated filter element with a new filter element. Note the direction of mounting.
- 3 Tighten the union nuts of the filter element.

See also

📄 Maintenance plan FTC3000 [▶ 35]

7.10 Change the hinges of the test chamber

Hinges for test chamber CS4 (set)	Order number 200006381
Required tools	T45 screwdriver

✓ You have a set with two hinges for the replacement.

- 1 Close the test chamber.
- 2 Make sure that the device is disconnected from the power supply by disconnecting the power supply plug.
- 3 On the rear of the device, unscrew the four hinge screws on the lower test chamber ring using a T45 screwdriver.
- 4 Carefully open the test chamber lid and pull it backwards.
 - ⇒ In this way, the spring is pulled out of the guide of the lower test chamber ring.



- 5 In order to avoid scratching the test chamber lid, place it on a soft surface along with the dome.
- 6 Unscrew the two screws of each hinge on the inside of the test chamber lid.



- 7 Remove the defective hinges and the spacer plates.
- 8 Insert the new hinges when reusing the spacer plates.
- 9 Install in reverse order.

7.11 Change the coil spring of the measuring chamber

Coil spring for test chamber CS4	Order number 200006389
Required tools	<ul style="list-style-type: none"> • T25 screwdriver • T45 screwdriver

✓ You have an intact coil spring to replace a defective coil spring.

- 1 Make sure that the device is disconnected from the power supply by disconnecting the power supply plug.
- 2 Open the lid of the test chamber.

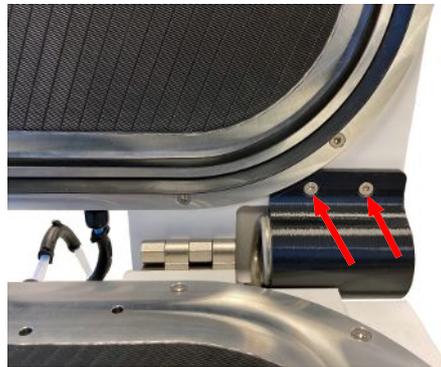


Fig. 13: Coil spring - Cover

- 3 Using a T25 screwdriver, unscrew the two screws of the black spring housing and remove the spring housing.
- 4 Close the test chamber.



Fig. 14: Fastening to lower membrane support

- 5 Using a T45 screwdriver, remove the two hinge screws of the lower test chamber on both sides.
- 6 Carefully lift the upper test chamber lid. Once the spring is unloaded, gently pull on the back of the test chamber lid to remove the spring from the guide on the lower support and pull it backwards.

- ⇒ In this way, the spring is pulled out of the guide of the lower test chamber ring, see also "Change the hinges of the test chamber [▶ 32]".
- 7 In order to avoid scratching the test chamber lid with dome, place it on a soft surface.
 - 8 Pull out the defective spring and replace it.



- 9 Install in reverse order.

7.12 Service by the manufacturer

Maintenance inside the device should only be performed by the manufacturer. We recommend having the device serviced every four years by the manufacturer's service.

7.13 Maintenance plan FTC3000

Material Description	Part number	Assembly	Operating hours / years	Repair level
Replacement Membrane Frame Upper	200 010 776	FTC3000	2 years/replace if necessary	II
Replacement Membrane Frame Lower	200 010 777	FTC3000	2 years/replace if necessary	II
Liquid separator set	201 009 857	FTC3000	2 years/replace if necessary	I
Inline filter	200 009 854	FTC3000	10,000 operating hours / replace if necessary	I
Hinge Changing	200 063 81	FTC3000	replace if necessary	II
Coil Spring Changing	200 062 89	FTC3000	replace if necessary	II

Table 1: Maintenance plan FTC3000

Repair Level I: Customer

Repair Level II: Customer with technical training by INFICON

8 Accessories and spare parts

	Order number
Complete upper membrane support FTC3000	200010776
Complete lower membrane support FTC3000	200010777
Liquid separator + hoses	200009855
Inline filter	200009854
Hinges measuring chamber CS4 (Set)	200006381
Spring measuring chamber CS4	200006389
Complete hose set for FTC3000	200010962
Chamber gasket set for FTC3000	200010778

9 Decommissioning

9.1 Disposing of the device

The device can either be disposed of by the operator or be sent to the manufacturer. The device consists of materials that can be recycled. This option should be exercised to prevent waste and also to protect the environment.

- During disposal, observe the environmental and safety regulations of your country.



The test chamber cannot be disposed of as normal domestic waste.

9.2 Sending in the device



WARNING

Danger due to harmful substances

Contaminated devices could endanger health. The contamination declaration serves to protect all persons who come into contact with the device.

- ▶ Fill in the declaration of contamination completely.

- 1 Contact the manufacturer and send in a completed declaration of contamination before return shipment.
 - ⇒ You will then receive a return number and a shipping address.
- 2 Use the original packaging when returning.
- 3 Before sending the device, attach a copy of the completed contamination declaration.

Declaration of Contamination

The service, repair, and/or disposal of vacuum equipment and components will only be carried out if a correctly completed declaration has been submitted. Non-completion will result in delay.
 This declaration may only be completed (in block letters) and signed by authorized and qualified staff.

1 Description of product

Type _____

Article Number _____

Serial Number _____

2 Reason for return

3 Operating fluid(s) used (Must be drained before shipping.)

4 Process related contamination of product:

toxic	no <input type="checkbox"/> 1)	yes <input type="checkbox"/>	
caustic	no <input type="checkbox"/> 1)	yes <input type="checkbox"/>	
biological hazard	no <input type="checkbox"/>	yes <input type="checkbox"/> 2)	
explosive	no <input type="checkbox"/>	yes <input type="checkbox"/> 2)	
radioactive	no <input type="checkbox"/>	yes <input type="checkbox"/> 2)	
other harmful substances	no <input type="checkbox"/> 1)	yes <input type="checkbox"/>	

2) Products thus contaminated will not be accepted without written evidence of decontamination!

The product is free of any substances which are damaging to health
 yes

1) or not containing any amount of hazardous residues that exceed the permissible exposure limits

5 Harmful substances, gases and/or by-products

Please list all substances, gases, and by-products which the product may have come into contact with:

Trade/product name	Chemical name (or symbol)	Precautions associated with substance	Action if human contact

6 Legally binding declaration:

I/we hereby declare that the information on this form is complete and accurate and that I/we will assume any further costs that may arise. The contaminated product will be dispatched in accordance with the applicable regulations.

Organization/company _____

Address _____ Post code, place _____

Phone _____ Fax _____

Email _____

Name _____

Date and legally binding signature _____
Company stamp _____

Copies:
 Original for addressee - 1 copy for accompanying documents - 1 copy for file of sender

10 CE Declaration of Conformity



EU Declaration of Conformity

We – INFICON GmbH - herewith declare that the products defined below meet the basic requirements regarding safety and health, and relevant provisions of the relevant EU Directives by design, type and the versions, which are brought into circulation by us. This declaration of conformity is issued under the sole responsibility of INFICON GmbH.

In case of any products changes made without our approval, this declaration will be void

Designation of the product:

**Flexible chamber for battery leak detector
as interchangeable equipment for
Battery leak detector ELT3000**

Models: **FTC3000**

Catalogue numbers:

600-102

Authorised person to compile the relevant technical files:

Heinz Rauch, INFICON GmbH, Bonner Strasse 498, D-50968 Cologne

Cologne, September 29th, 2021

H. Bruhns, Vice President LDT

The products meet the requirements of the following Directives:

- **Directive 2006/42/EC (Machinery)**
- **Directive 2014/30/EU (EMC)**
- **Directive 2011/65/EC (RoHS)**

Applied harmonized standards:

- **EN ISO 12100:2010**
- **EN 61326-1:2013**
Class A according to EN 55011:2016+A1:2017
- **EN IEC 60204-1:2016**
- **EN IEC 63000:2018**

Cologne, September 29th, 2021

pro

W. Schneider, Research and Development

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11 UK Declaration of conformity



UK Declaration of Conformity

We – INFICON GmbH - herewith declare that the products defined below meet the basic requirements regarding safety and health, and relevant provisions of the relevant legislation by design, type and the versions, which are brought into circulation by us. This declaration of conformity is issued under the sole responsibility of INFICON GmbH.

In case of any products changes made without our approval, this declaration will be void.

Designation of the product:

**Flexible chamber for battery leak detector
as interchangeable equipment for
Battery leak detector ELT3000**

Models: **FTC3000L**

Catalogue numbers:

600-102

Authorised person to compile the relevant technical files:

Heinz Rauch, INFICON GmbH, Bonner Strasse 498, D-50968 Cologne

Cologne, January 13th, 2022

H. Bruhns, Vice President LDT

The products meet the requirements of the following Directives:

- **S.I. 2008 No. 1597 (Machinery)**
- **S.I. 2016 No. 1091 (EMC)**
- **S.I. 2012 No. 3032 (RoHS)**

Applied harmonized standards:

- **EN ISO 12100:2010**
- **EN 61326-1:2013**
Class A according to EN 55011:2016+A1:2017
- **EN IEC 60204-1:2016**
- **EN IEC 63000:2018**

Cologne, January 13th, 2022

pro

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