



Translation of the original operating instructions

TC3000S

Small rigid test chamber for ELT3000

Catalog No.
600-100

From software version
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1 About this manual

1.1 General information

The test chamber must only be operated in the proper condition and in the condition described in the instruction manual, and used by trained personnel.

Follow the local regulations for the use of the test chamber.

Follow the instructions in this document as well as the operating instructions of the ELT3000 battery leak detector.

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

2 Safety

2.1 Intended use

The test chamber may only be used together with the ELT3000 battery leak detector. Only vacuum-tight, undamaged lithium-ion batteries may be tested in the test chamber. Leaking substances from the batteries must not damage the test chamber and the test device.

In conjunction with the gas control unit of the ELT3000 battery leak detector, the test chamber enables leak tests on vacuum-tight and undamaged test objects (lithium-ion batteries).

Incorrect usage

Avoid the following unintended uses:

- Opening of the liquid separator by untrained operators.
- Installation by untrained or unauthorized personnel.
 - Only installation by trained personnel or Inficon employees is permitted.
- Incorrect swapping of the exhaust air ("INLET") and supply air lines ("VENT") on the ELT3000.
- Use outside the technical specifications, see "Technical Data".
- Use in radioactive areas.
- 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 objects that are not vacuum-tight (pressures <100 Pa) in the rigid test chamber.
- Testing of wet or damp test objects.
- Testing damaged batteries.
- Removing and failing to reinstall the insulator in the test chamber.
- Pumping out condensable liquids or vapors.
- Testing components or substances other than lithium-ion batteries.
- Using the device in potentially explosive atmospheres.

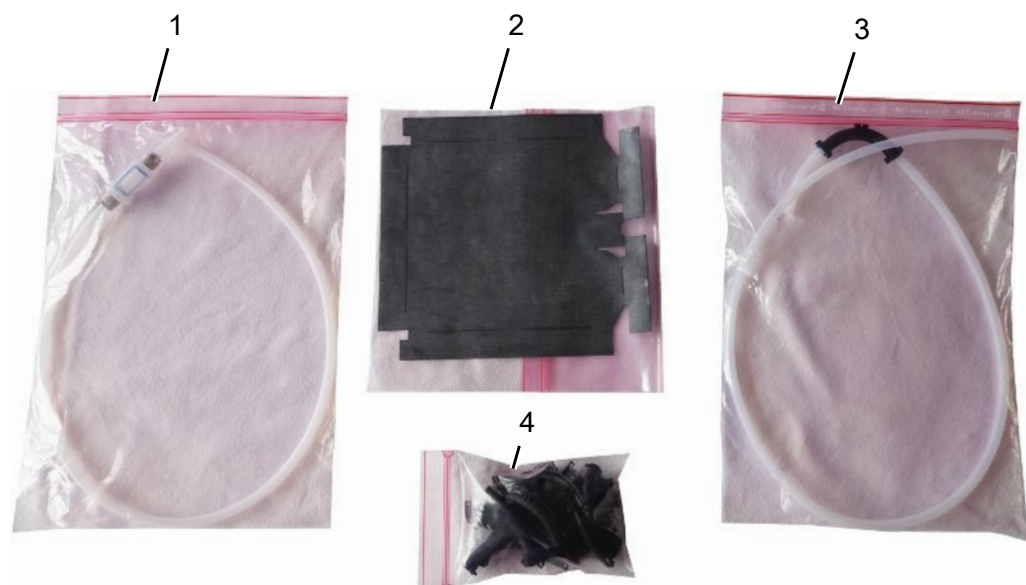
Note: This device is not intended to be used in living areas.

3 Scope of delivery, transport

Scope of delivery

Item	Quantity
Test chamber TC3000S	1
Instructions for use	1
Insulator	5
VENT hose Ø 8 mm, length 3 m (GDU)	1
Inlet hose with inline filter	1
Angle clip DA 8 mm, as pair	10

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



1	Inlet hose with inline filter	3	VENT hose
2	Insulator	4	Angle clips

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.

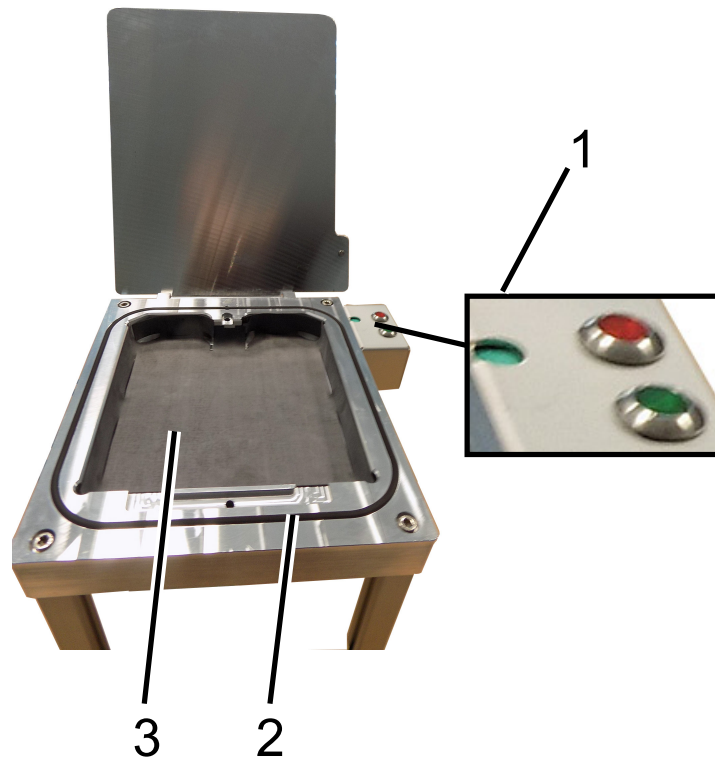
4 Description

Small rigid test chamber TC3000S



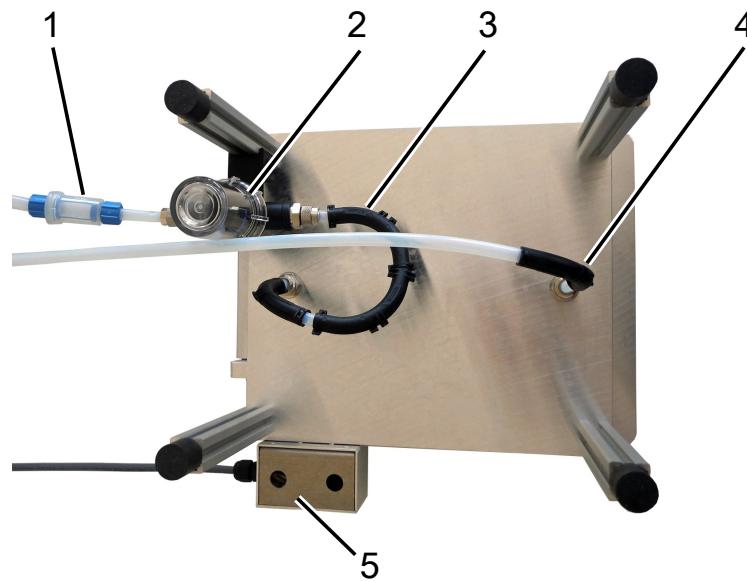
1	Front of test chamber	2	Back of test chamber
3	Liquid separator		

Test chamber TC3000S - top side



1	Proximity switch with red-green display (for automatic measurement start)	3	Insulator (order no.: 200009865)
2	O-ring 250x5 mm (order no.: 200009851)		

Test chamber TC3000S - bottom side



1	Particle filter	4	Supply air ("VENT")
2	Liquid separator	5	Proximity switch with red-green display
3	Exhaust air ("INLET")		

4.1 Markings on the device

The markings on the device have the following meanings:



Note: Only put objects that are obviously undamaged and vacuum-tight in the device.



Warning about hand injuries



Device cannot be disposed of as normal domestic waste.

4.2 Technical data

Mechanical data

Dimensions (L × W × H)	350 mm x 280 mm x 200 mm
Installation depth (with filter)	450 mm
Weight	5.4 kg

Electrical data

Operating voltage	24 V DC
Power consumption	5 VA

Physical data

Pressure range	1080 hPa to 1 hPa
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Ambient conditions

Temperature range (°C)	10 °C to 40 °C
Relative humidity (%)	80 % at 30 °C, linear decrease to 50 % at 40 °C
Height above sea level (m)	2000 m
Degree of contamination	II

5 Installation

WARNING

Risk of injury from escaping electrolytes

If the vent line and inlet line are incorrectly swapped on the liquid separator, the liquid separator no longer protects against the penetration of solvent or electrolyte into the battery tester.

- ▶ Make sure that you do not incorrectly swap the vent line and the inlet line when connecting the lines on the ELT3000 battery tester.

CAUTION

Risk of injury from falling or tipping device

If the device slips off its surface, it can fall down and crush your feet.

- ▶ Only place the test chamber on a horizontal, non-slip and vibration-free surface.
- ▶ Do not place the test chamber on the gas control unit.
- ▶ Use non-slip rubber bumpers for the device feet.

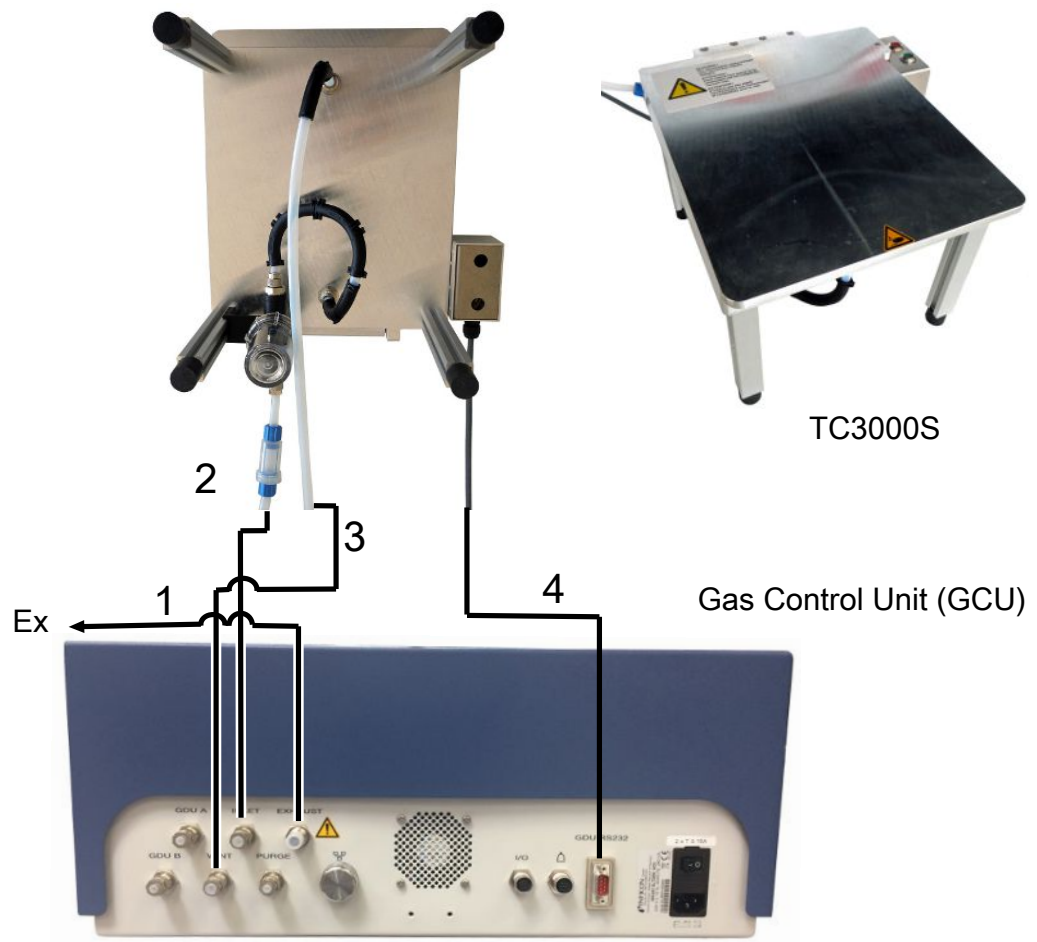
NOTICE

Property damage due to improper installation

Installation only by INFICON employees or trained personnel.

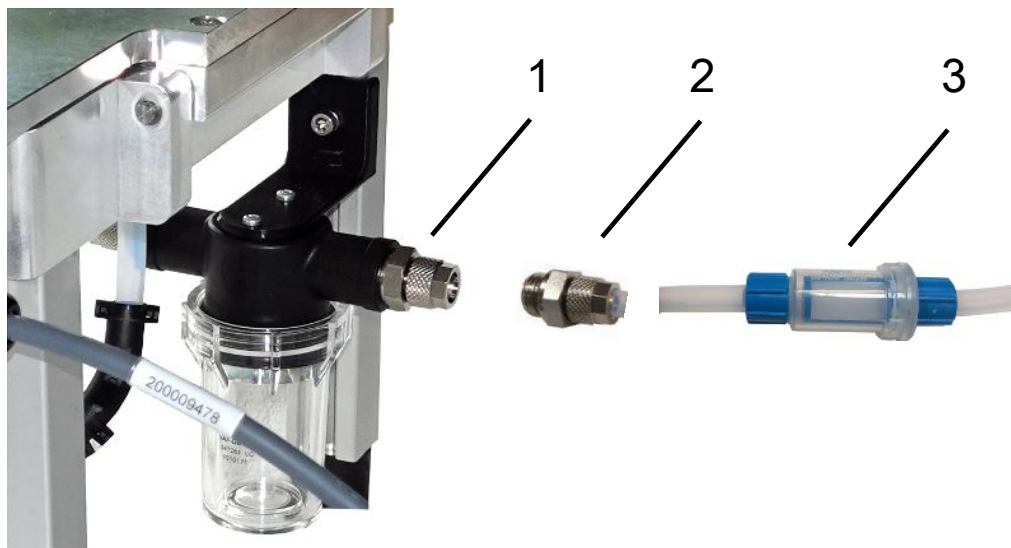
The device may only be set up and connected by INFICON employees or trained personnel.

Installation scheme



1	Gas control unit exhaust air	3	Supply air ("VENT" connection)
2	Exhaust air ("INLET" connection)	4	Proximity switch connection

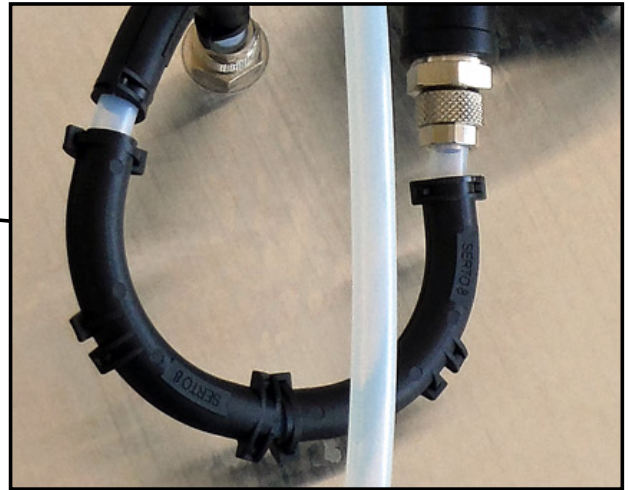
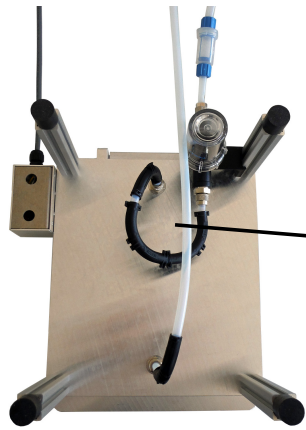
Hose connection



1	Preassembled union nut	3	Exhaust air hose with particle filter
2	Union nut		

- 1** Loosen the pre-assembled union nut from the liquid separator.
- 2** Push the union nut over the supplied exhaust air hose with particle filter and fasten it finger-tight.
- 3** Mount the exhaust air hose with the particle filter finger-tight on the liquid separator.
- 4** Use the enclosed angle clips to route the hoses without kinks.

Angle clips



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 insulator.
- ▶ Make sure that the battery connections do not touch the test chamber cover.
- ▶ Only test vacuum-tight and 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).
- ▶ 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.

- ▶ Avoid contact with irritating electrolytes.
- ▶ Only place vacuum-tight and obviously undamaged battery cells in this 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 swivel 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**

Accumulation or blockage in detachable parts due to solvents lead to functional problems.

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

6.1 Test procedure

This test chamber is used to perform leak tests on vacuum-tight and undamaged test objects (lithium-ion batteries).

Place the test object in the test chamber. By closing the cover you actuate the proximity switch and the measurement is started. The result of the test is shown on the display of the gas control unit.

By pumping out the air from the test chamber, a pressure gradient between test object and test chamber is generated. Due to this pressure gradient, gas flows through leaks 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 configured setpoint. A distinguishable leaktight/leaky signal is output.

You can now open the cover and remove the test object. Skin contact with electrolyte when cleaning the test chamber or removing leaky test objects should be avoided.

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.

The two LEDs flash simultaneously during startup.

7 Maintenance

WARNING

Burns to the skin

Leaking batteries can release electrolyte, which in combination with water becomes hydrofluoric acid and is highly corrosive.

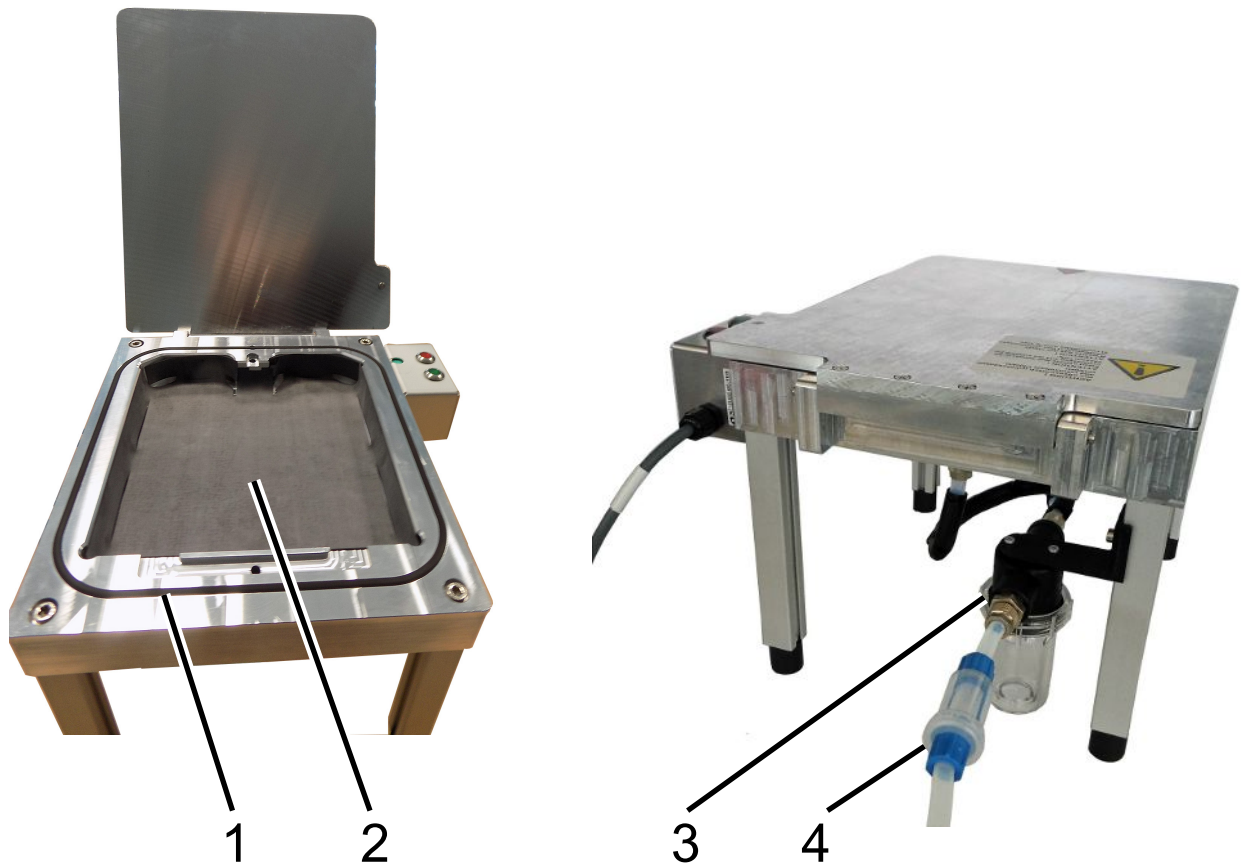
- ▶ Carefully remove minor, visible contamination of the test chamber with alcohol.
- ▶ Avoid contact with the electrolyte.
- ▶ Before sending the test chamber to INFICON Service, fill in a contamination declaration, also see Service [▶ 20]. INFICON Service then decides whether the test chamber must be sent to a decontamination center beforehand.

CAUTION

Risk of injury from contamination

Crystalline deposits or liquids in the system pose an increased risk of contamination.

- ▶ Always wear personal protective equipment during maintenance work.



1	O-ring 250 x 5 mm (order no.: 200009851)	3	Liquid separator
2	Insulator (order no. 200009865)	4	Particle filter

Particle filter

- ▶ Replace the particle filter annually or as needed, e.g. noticeable solvent accumulation or blockage.

Liquid separator

- ▶ Replace the liquid separator annually and empty it as needed.

O ring

- ▶ Replace the O-ring of the test chamber in case of functional problems and external damage.

Insulator

- ▶ Replace the insulator in case of mechanical damage and wear.

8 Service

Before sending the test chamber to INFICON Service, a declaration of contamination must be completed. INFICON Service then decides whether the test chamber must be sent to a decontamination center beforehand.

8.1 Disposal

Disposal of test chamber

The test chamber as an accessory can be disposed of by the operator or sent to the manufacturer. The test chamber 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 Declaration of Contamination

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

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 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:

Small rigid chamber for ELT3000

Models: **TC3000S**

The products meet the requirements of the following Directives:

- *Directive 2014/30/EU (EMC)*
- *Directive 2011/65/EU (RoHS)*


Applied harmonized standards:

- *EN 61326-1:2013*
Class A according to EN 55011
- *EN IEC 63000:2018*

Catalogue numbers:

600-100

Cologne, June 18th, 2020


Dr. Döbber, President LDT

Cologne, June 18th, 2020


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