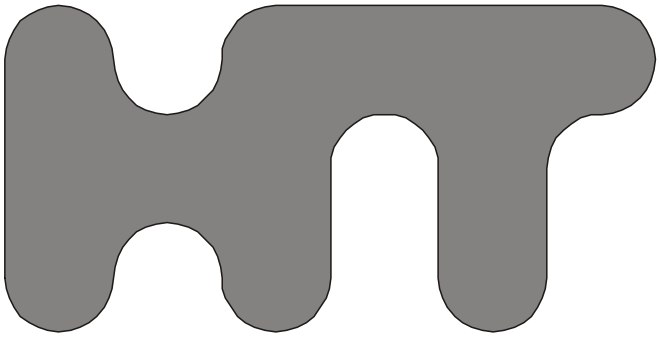


Manual

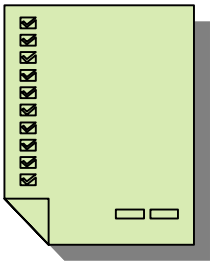
# ECOTRON ®

Incubator Shaker

# INFORS EQUIPMENT
# Read this FIRST!

## SAFETY

## COMPLIANCE



## SPECIFICATIONS

## MAINTENANCE & SERVICING

## CE conformity declaration

INFORS equipments are CE-labelled from the factory and supplied with an EC declaration of conformity.

The incubation shaker Ecotron complies in terms of Directive 2006/42EC on machinery Annex II Part 1 Section A with the following relevant regulations:

- **Directive on Machinery 2006/42/EC**
- **EMC Directive 2004/108/EC**

## Quality Management Systems

All INFORS equipment is manufactured in accordance with INFORS' quality management system which is certified by BVQI in accordance with the requirements of ISO 9001.

## Testing

All INFORS equipment undergoes electro-mechanical operational testing before it leaves the factory. The exact nature of the tests varies according to the equipment type.

All equipment is delivered with a signed test certificate. The tests described are conducted in accordance with the procedures set out in INFORS' quality management system and in accordance with international classification companies.

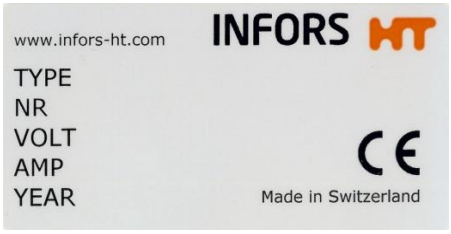
## Applicability

This is specified in the specifications table included within this section of the document.

If any of these specific sections appears to be missing for your equipment please contact INFORS and this can be rectified.

Please be aware that if the equipment is acquired second-hand from an original user, it may have been modified, upgraded and enhanced such that some details of the configuration may differ to those described in this manual. We will provide any help and information necessary to bring the documentation up to date but individual options may not be the standard ones supplied by Infors. In this case, it is the responsibility of the previous owner to supply any additional manuals, configuration information and safety-related items. **INFORS disclaims responsibility for all equipment that is not in original condition i.e. modified by the user without prior agreement from INFORS.**

## Identification plate




The identification plate is located on the housing of every piece of equipment

**The identification plate must never be removed from the equipment.**
**If the name plate is removed, it is not possible to identify the equipment, and it will not be possible for warnings contained in this manual to relate to the specific applications for which the equipment is used.**

## General Safety Points

 **NEVER** open or remove covers (internal or external with the power switched on.

 No operations beyond those expressly stated in this guide are authorised by INFORS as being suitable for the equipment.

 All work on the equipment – including adjustments, repairs, pipe couplings, etc. – must be undertaken by professionally qualified staff.

 When repair and maintenance work has been completed, any safety equipment provided must be refitted in its original state before the equipment is started.

 The equipment must be installed in accordance with the instructions contained in this user manual.

 The equipment's weight is over the permitted allowance of kilos/pounds that people may lift, so it must be lifted mechanically. –see specifications sheet.

 Users are responsible for ensuring that the equipment is used in accordance with safety procedures applicable to their work and is free of any biological or chemical contamination if an examination by INFORS staff is requested.
INFORS will not be held responsible for any equipment which has been improperly used, maintained, modified or repaired; nor for any consequential losses arising.

 All the housing covers of the basic unit and operating panel are, as they may cover critical areas, only to be removed by personnel explicitly authorised by INFORS to do so.

If in doubt about any aspect of the use of this equipment or its suitability for an application, please contact INFORS.

 Please ensure a Risk Assessment is carried out according to your safety regulations before using the equipment

## Safety points relating to installation & use

 Electrical connections should only be installed and fitted by a qualified electrician to current electrical safety regulations.

 Installation of all services lines should be made only with pressure resistant tubing retained with suitable tubing clamps.

 Authorization for use of an oxygen supply and its operation in accordance with your own safety guidelines are the responsibility of the customer'

 Never use the main ON/OFF switch to end operation!

 Always work to GMP and observe other appropriate standards

 Observe all safety issues relating to hazardous chemicals, biological material and equipment under pressure, especially points regarding skin and eye contact.

 The equipment is only to be operated by suitably qualified and trained personnel, both in terms of equipment use & microbiological expertise.

 In normal use, operators should ware appropriate safety clothing, gloves, safety goggles and a face mask as appropriate to the degree of microbiological risk.

 The nature of the microbiological and chemical risks associated with the use of individual units cannot be assessed by the manufacturer and its specification is the responsibility of the user.

 The environmental hazards associated with the use of individual units cannot be assessed by the manufacturer and its specification is the responsibility of the user.

## Safety points related to testing the equipment

 The main power switch should not be used as a functional ON/OFF.

 Never put your hand into an operating unit – risk of injury due to high rotational forces.

 Handle glass vessels, reagent bottles and other glass components with care to minimise the risk of breakage or other damage resulting is sharp edges

 Do not apply excessive pressure when handling any glass components in case of breakage and consequent sharp edges.

 Ensure hair, loose clothing etc cannot come into contact with any rotating parts.

## Emissions and Warning indications

 Any loud and/or unusual noise from any part of the equipment should be taken as a sign of a problem and the equipment closed down and inspected immediately.

 Any smoke or smell of burning should be taken as a sign of a problem and the equipment closed down and inspected immediately.

In normal operation, some additional noise and heat may be generated, the extent depending on the phase of operation (see performance data)

## Service & Maintenance

- Only fully qualified and authorised persons may repair the equipment
- Cleaning and routine maintenance information in provided in the main manual.

**Isolationsmatte (Art. Nr. 29378) muss unter der Maschine bleiben und darf nicht entfernt werden.**
**Insulation mat (Art. No. 29378) must stay under the machine and must not be removed.**
**Le tapis d'isolation (No. d'Art. 29378) doit rester sous l'appareil et ne doit pas être enlevé.**

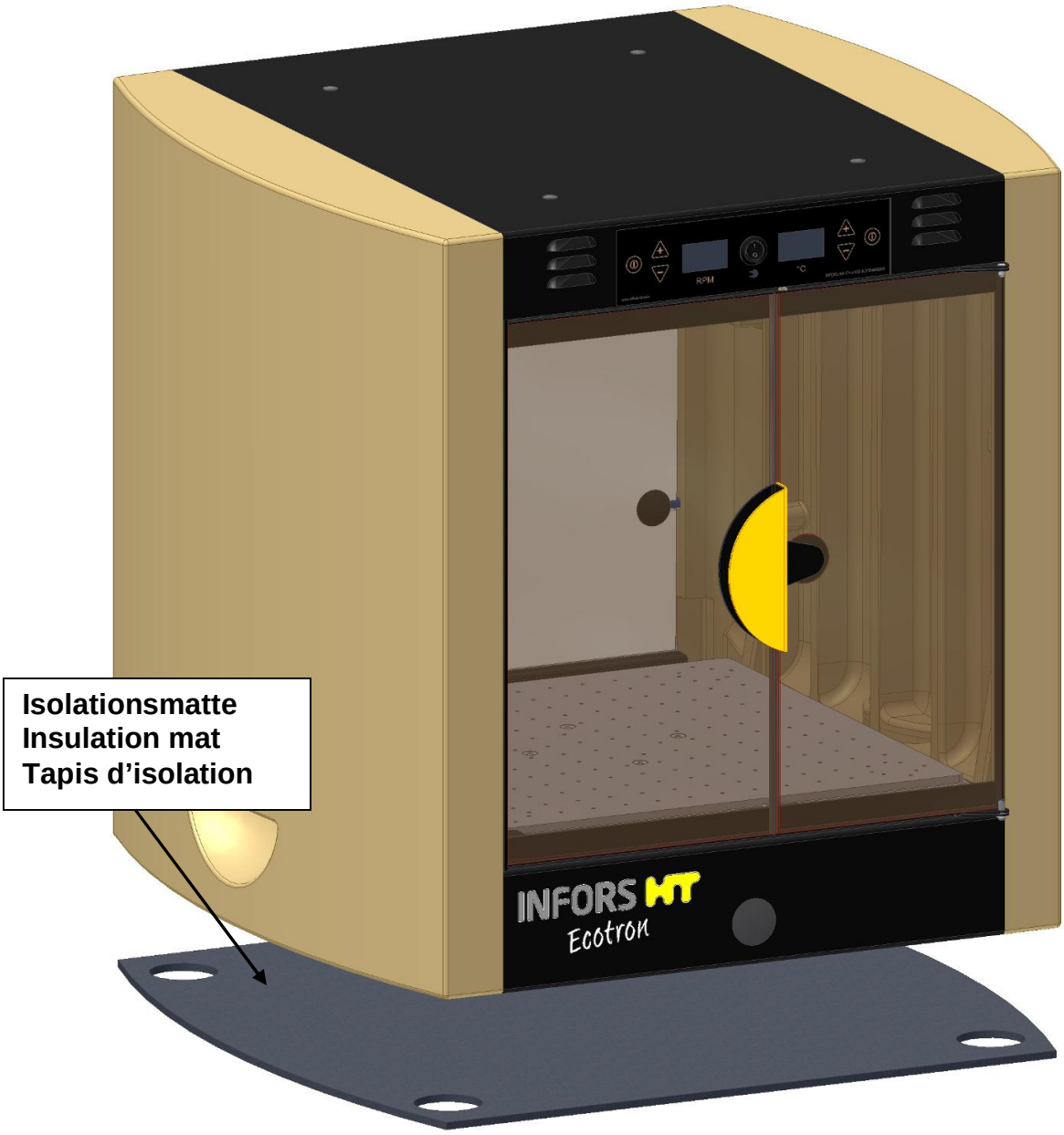



*Fig 1: Equipment with insulation mat.*

**ECOTRON ® - Incubator Shaker**

**Table of Contents**

Chapter

**Modifications**
Due to the constant development and improvement of our products, the equipment supplied may differ from the description in this manual. INFORS explicitly retains the right to make such deviations and modifications.

**Guarantee**
You can find the guarantee in chapter 17.2.

## 1. Safety Considerations

The ECOTRON ® incubator shaker corresponds to modern demands for safe and easy-handling. Any exposed current-carrying components (exception: lamps outside of the incubation chamber) are low-voltage only, switching networks are physically separated and the chance of mechanical injuries minimised.

Nevertheless, the following basic hints are indispensable for the safety of the user and the protection of the machine. These hints, both here and in the following text, are printed in *italics* in conjunction with a warning symbol (hand with pointed finger). They are to be followed in every case.

*All the **housings and covers** of the shaker are only to be removed by personnel explicitly authorised by INFORS to do so. This is because safety-critical zones may be covered by housing panels.*

*The movement of the shaker table can cause injury due to the high torque when in operation. Therefore, the **tray** is only to be handled when **at rest**.*

*The vent holes at the sides and in the back are **not to be obstructed** in any way. On no account allow objects to become stuck in the fan or air intake openings.*

*The **minimum distance** has to be followed when installing the shaker.*

***Remove the transport security device** before bringing the shaker into operation (see chapter 3.3).*

During long absences or interruptions of operation, according to location (eg. humid laboratory or unprotected position), it is recommended to withdraw the main power plug in order to avoid the risk of accidents.

*The specifications in chapter "4.2. Chemical Resistance" have to be followed precisely.*

## 2. Product description & technical data

### 2.1 Comfort

The important features of simple operation and virtually silent running are guaranteed for a wide range of applications in your laboratory, coupled with an attractive design.
A range of parameter set-points and timer functions can be programmed via a sensitive and ergonomic operating panel.
The ECOTRON is predicated on the incubator shaker concept but there is the possibility to utilise the incubation hood for temperature control only without the shaker, allowing for different sorts of applications.

### 2.2 Useful Space and Required Space

Despite having a relatively small footprint, the ECOTRON ® offers all the possible features required in an incubator shaker. It provides space for cooling, lighting and humidification in addition to the room required for a tray of 420x420 mm.
The space-saving folding door allows for use not only as a table shaker but also when located under a bench. Continuing the good tradition of the MULITRON ® range, stacking of one unit on top of another is possible.

### 2.3 Technical points

After decades of experience of building magnetic drive systems, a completely new version has been developed which is so well enclosed that liquids cannot penetrate.
The heating system for the incubation chamber guarantees a rapid and even temperature distribution across the whole of the shaker tray. Supply of coolant is regulated for the most economical use of energy.
The latest innovations in the field of micro processing and PID-regulation allow precise maintenance of the set values.

### 2.4 Safety

Additional operational safety is provided by an over temperature cut-out.
After power failure the machine starts automatically with current parameter values.
The entire electronics and control technology is mounted in the top part of the housing and is therefore completely protected from the unfortunate consequences of a flask breakage. The collection tray under the shaking table makes cleaning easy and it can be rinsed with water. A drain port is provided at the front of the unit for removal of liquid.

### 2.5 Fittings

In the most basic configuration, the ECOTRON ® is provided with shaker and temperature control.
Cooling can be supplied either from an external chiller connected to a cooling coil with magnetic control valve or via an integral cooling system.
The integral shaker tray of size “E” can be fitted with clamps or reagent tube holders. Amongst the accessories is a tray with adhesive matting, which can be simply screwed to the shaker table.

## 2.6 Dimension Drawing

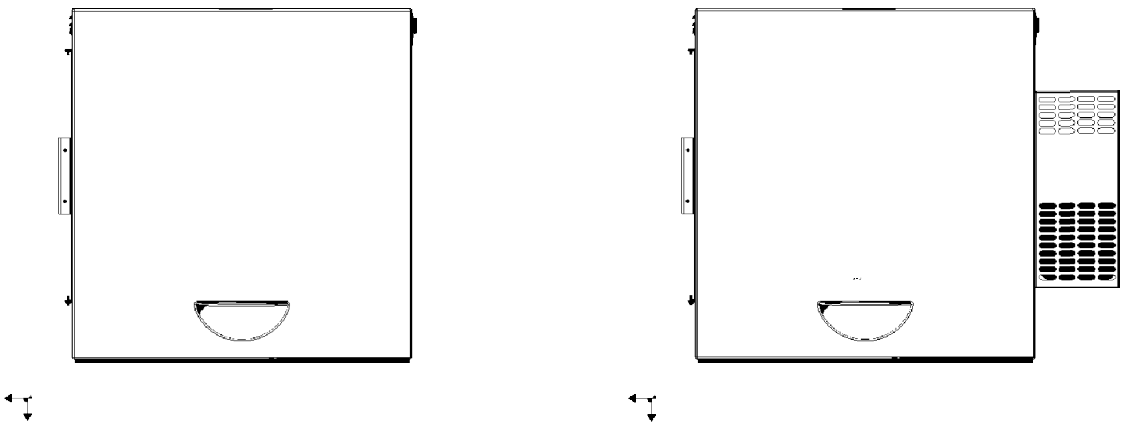


*Fig 2. Side elevation, picture on the left side without cooling e.g. external cooling, and on the right with compressor cooling.*

## 2.7 Technical data

| | |
|---|---|
| width | 635 mm |
| depth: | 623 mm |
| depth with opened door: | 850 mm |
| height: | 625 mm (with rubber feet) |
| incubation chamber: (h x b x d) | 400 x 440 x 530 mm |
| incubation chamber: (volume) | approx. 90 l |
| required footprint: (b x d) | 635 x 600 mm |
| weight without tray- cooling | 75 kg |
| weight without tray -no cooling | 60 kg |
| electric connection: | 230 V/110 V ± 10%, 50/60 Hz, depending on version |
| current consumption: | max. 2 amperes (without cooling) |
| power: | approx. 400 watt (heating, excl. cooling) |
| rotation speed: | see chapter 7.2. |
| max. deviation: | 1 % with maximal speed of rotation |
| temperature control: | electronic proportional action controller with Pt-100 probe |
| temperature precision (Pt-100): | ± 0.2 °C |
| temperature range[3)]: (without light) | 5 °C over ambient temperature to 65 °C |
| with ext. cooling[3)]: | depending on the temperature of the coolant and the environment |
| with int. cooling[3)]: | approx. 10 ± 1°C beneath ambient temperature up to 65 °C, but not under 4°C |
| air circulation: (total) | 110 $m^3$/h |
| heating power: | 400 watt |
| cooling power: | 200 watt/hour at an evaporating temperature of 1 °C |
| power capacity of the cooling | 90 watt at 230V/50Hz at an outside temperature of 32 °C<br>180 watt at 115/60Hz at an outside temperature of 32 °C |
| tray: | tray size E (420 x 420 mm) |
| flask: | according to the specifications of the customer |
| weight of adhesive tray: | 1.4 kg |
| allowed loading: (incl. tray) | see 7.2 |
| dimension drawing: | see above |
| order number: | varies according to the type |

[3)] for outside temperature up to max. 30 °C

# 3. Transport

## 3.1 Transport

In view of the heavy weight of the ECOTRON ® it should never be transported or moved by one person alone. For displacements over longer distances within a building the use of a fork lit or a small trolley is recommended. However the shaker is only to be moved by a fork lift if it is still standing on the original palette on which it was delivered by the manufacturer. Also, transport on a small trolley has to be effected with great care.

*Danger of shearing off the shaker's feet in case of exceptional stress. Therefore, never push the equipment without lifting it.*

Should it no longer be possible to transport the equipment using a small trolley it should be carried by two adults using the two handles on each side. *Weight without tray and cooling min. 60 kg.*

*The handles left and right are only for lifting the machine and not for transport (danger of tipping).*

## 3.2 Packing

Depending on the version and the destination the ECOTRON shaker is either packed seaworthy or placed on a large special palette. Non-polluting packing material was chosen in order to minimize pollution

## 3.3 Unpacking

Please be sure that the shaker, especially the window, will not sustain damage (scratches) during unpacking.
Transport security: Open the door and remove the polystyrene blocks in the incubation chamber. If the unit is transported again later, the transport security must be fitted. After fitting, the shaking table must be fixed.

*Care when putting the unit down – to avoid crushing your fingers, only place the equipment in location using the integral handles.*

### 3.4 Stacking of units (optionally)

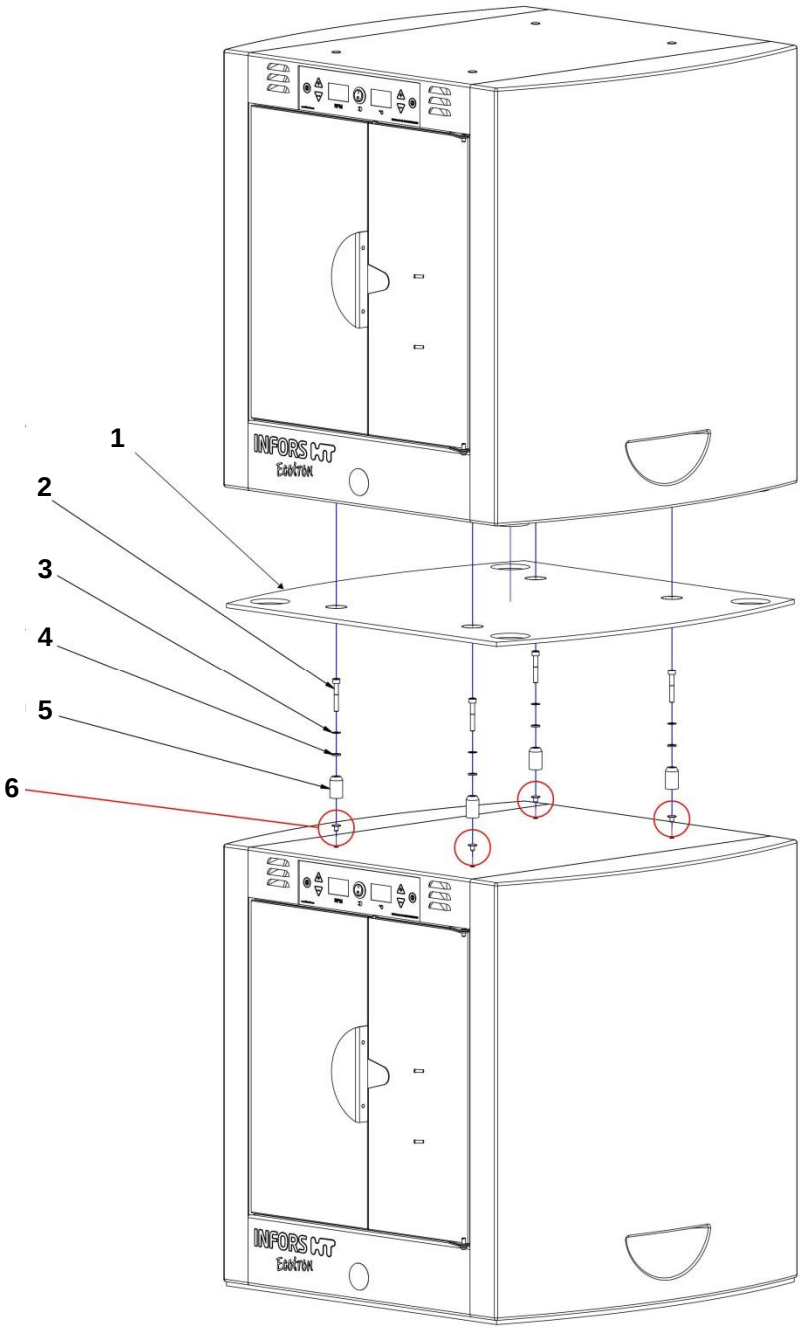



*Fig. 3: Stacking units*

| | | | |
|---|---|---|---|
| 1 | Insulation mat | 4 | Washer M6x12x1.6mm (4 x) |
| 2 | Hexagon socket head cap screw M6x40 (4 x) | 5 | Guide sleeve (4 x) |
| 3 | Spring washer M6x11x1.1mm (4 x) | 6 | Cover cap (4 x) |

Up to two Ecotron units can be stacked on each other. Stacking requires the optional stacking kit.

*CAUTION: The operation of stacked units without stacking kit is not permitted! The top unit may change its position due to vibrations and may crash down.*

For stacking, proceed as follows:
- Remove the four cover caps from the threaded holes in the top side of the lower unit.
- Screw the four hexagon socket head cap screws with the washers, spring washers and guide sleeves into the threaded holes.
- Place the insulation mat in between.

Two adults:
- Lift the upper unit using the integral handles on each housing side and place it vertically onto the lower unit.

The guide sleeves will automatically slide into the respective notches in the frame of the top unit.

## 4. Location

### 4.1 In General

The following points have to be considered when choosing the location:
- Protection from mechanical dangers (small trolleys, kicks, etc.)
- For a shaker without cooling, the outside temperature should not be higher than 5 °C above the desired minimal incubation temperature.
- For a shaker with cooling the outside temperature should not be higher than 15 °C above the desired minimal incubation temperature.
- The outside temperature may not exceed 30 °C.
- The machine should not be exposed to direct sunlight!
- The surface on which the shaker stands has to be horizontal and absolutely flat.
- The shaker should not be exposed to extreme masses of dust and dirt while unprotected.
- The control panel is not waterproof and must not be exposed to hosing down or spraying with water.
- The optional base on which the shaker may be placed must be positioned safely and stable.
- Please think of all the different connections you need for the interfaces.

### 4.2 Chemical Resistance

The housing was tested with different solvents. With the solvents listed below neither a relevant change of weight nor a change of the Shore D-hardness was found:

- water
- inorganic acids: phosphorus, nitric, hydrochloric or sulphuric acid, watery 10%
- organic acids: formic, acetic and lactic acid, watery 10 %
- inorganic bases: soda lye, at 10 % solution (aqueous)
- inorganic chemicals in aqueous solution: hydrogen peroxide 10 %, calcium chloride saturated solution, bleaching lye solution concentrated
- hydrocarbons: fuel, motor oil, diesel

The housing should not be exposed to the following solvents in large quantities nor over a long period of time:
- methanol
- ethanol
- acetone
- cyclohexanone
- ethyl acetate
- ethylglycolacetate
- methylenchloride

The door window can be cleaned with a damp cloth and a normal neutral cleaner.

## 5. Interfaces

### 5.1 Electricity

Sparkplug with a double protective system ("Europlug")
230 (115) Volt ± 10 %
50 (60) Hz

### 5.2 Drain

The drain is located in the front of the housing beneath the door under a closure (see chapter 10.3).
Outlet: lightweight pipe 11 mm diameters.

# 6. Assembly, Installation

## 6.1 Main Switch

The main switch is located in the middle of the operating panel. It is an ON/OFF selection switch which has to be turned on (position ON) first of all. If you turn off the switch (position OFF) the shaker is completely separated from the power system.
When the switch is turned on, a green power plug icon appears under the switch.

It is possible to leave the main switch on during normal operation even if neither shaker nor heating are working. In this "Stand-by" position the shaker consumes approx. 6 Watt. Frequent turning on and off (e.g. every hour) should be avoided in order to minimize stress of the electronic parts. If the shaker is not used for several days we recommend you switch off at the mains switch.

The set points of all parameters (temperature, speed, timer) are memorized after turning off the main switch or during an interruption of current.

## 6.2. Operating Panel

### 6.2.1 General

All parameters are set with the help of the operating panel, which is located at the top of the machine.

### 6.2.2 Display

Possible displays in normal operation:

- Numerals for actual value or set points
- ON / OFF
- OPn (Door is open)
- hi / lo (Set point is below or above actual value)

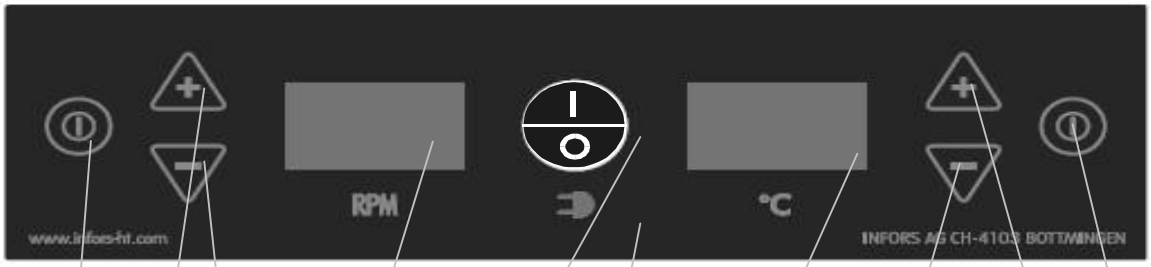
**Without User Intervention**
n the normal operational state, the display shows both the temperature and shaker speed paramters permanently.

If the parameter control is switched on, the current actual value is displayed. For temperature, the display will also indicate a warning of either "hi" or "lo" if the actual value deviates from set point by more than 1.5 °C.

If the parameter control is switched off, the display alternates between the set-point value and OFF.

1. Türgriff/ Door handle
2. Bedienungspanel/ Operating panel
3. Ablassstopfen/ Drain plug
4. Anschluss Netzspannung/ electric supply
5. Erweiterungsschacht/ Extension port
6. Rückwand (Kühlerverbindung)/ Backwall/ (Colling adaption)


*Fig 4*




1. Haupt/Notschalter Powerswitch
2. Netzsteckersymbol Power plug icon
3. Drehzahlanzeige Speed indicator
4. Temperaturanzeige Temperature indicator

5. Schüttelbetrieb (Ein/Aus) Shaking operation (on/off)
6. Drehzahl erhöhen Increase speed
7. Drehzahl senken Reduce speed

8. Temperaturregelung (Ein/Aus) Temperature control (on/off)
9. Temperatur erhöhen Increase temperature
10. Temperatur senken Reduce Temperature

*Fig 5*

It is possible to use the ECOTRON housing without the shaker if only temperature control is needed. For mounting/dismounting of the shaker hood please refer to chapter 7.8.

### 6.2.3 Operation

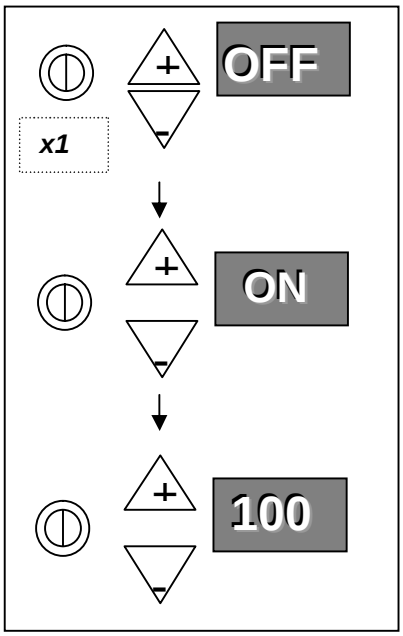
Switching the shaker operation ON and OFF.

With the Ecotron®, loads can be shaken from 20-450 RPM (with optimum loading).j

Check that the main power switch in the middle oof the operating panel is ON (see Chapter. 7.1).

The incubation chamber light is switched on for 2 minutes at the first touch of any key.

Press the left hand ON/OFF key to turn on the shaker drive. After pressing the key, the shaker speed display will briefly show if this function is switched on or off.
The drive first begins to work after the incubation chamber door has been closed.
If the door is open, the speed display will show “OPn“.
While the shaker drive is switched on and operational (door closed), the actual shaker speed is displayed. If this function is switched off and the door is closed, then the display alternates between OFF and the set point value.




*The set point display changes after 2 seconds to either show on or off, depending on the contoller status.*

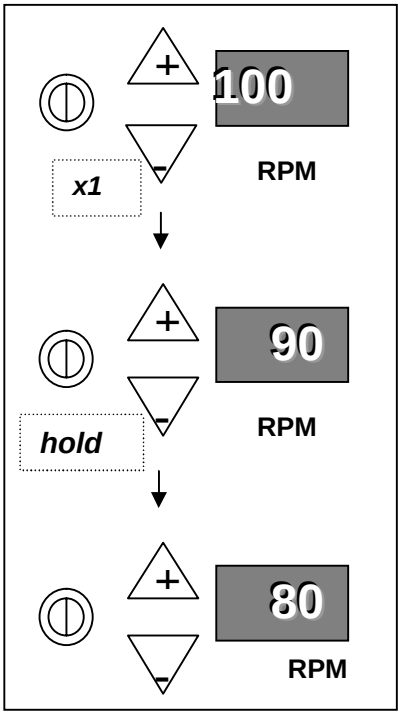
**Adjusting the set point.**

The incubation chamber light is switched on for 2 minutes at the first touch of any key.

Briefly press either the + or – key and the set point will be displayed.

The set point can be increased or reduced in steps of steps of 10 rpm using repeated single presses of the + or – keys.

Hold down the left hand + key for a time and the set point will increase continuously or hold down the left hand – key instead and the set point decreases continuously.



*NOTE:: Entered set points are not validated and no direct confirmation of the input is provided. Don't forget that the parameter must be switched ON for the control lfunction related to a set point to be activ*

Switching the temperature control ON and OFF

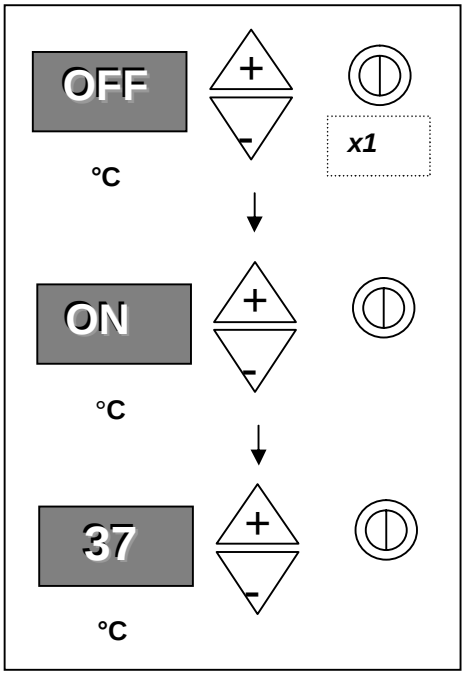
You can control the temperature of the incubation chamber of the Ecotron®, from approximately 5 °C above room temperature up to 65 °C. If the optional cooling is available, temperatures down to approximately 10°C under room temperature can be attained.

Check that the main power switch in the middle of the operating panel is ON (see Chapter. 7.1).

The incubation chamber light is switched on for 2 minutes at the first touch of any key.

Press the right hand ON/OFF key to turn on the temperature control. After pressing the key, the temperature display will briefly show if this function is switched on or off.
The controller begins to work after the incubation chamber door has been closed..
If the door is open, the temperature display will show "OPn".
While temperature control is switched on and operational (door closed), the actual temperature is displayed. If this function is switched off and the door is closed, then the display alternates between OFF and the set point value.

On pressing the ON/OFF key, the machine is lit for 2 minutes.




*The set point display changes after 2 seconds to either show on or off, depending on the contoller status.*

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The incubation chamber light is switched on for 2 minutes at the first touch of any key.

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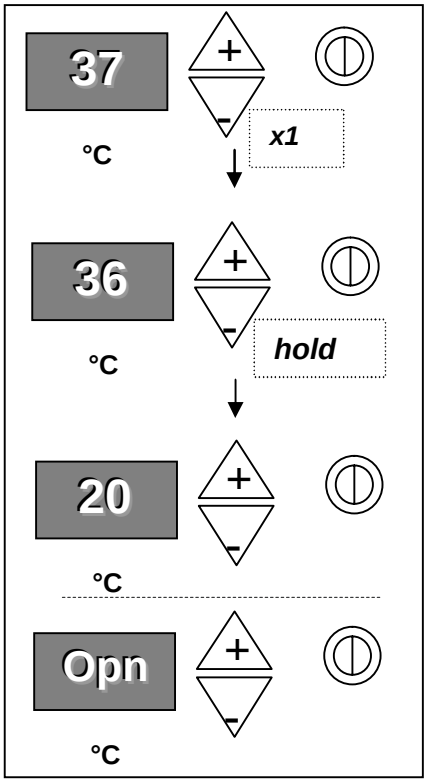



The set point can be increased or reduced in steps of steps of one unit (e.g. 10 rpm / 1.0 °C) using repeated single presses of the + or – keys.

Hold down the right hand + key for a time and the set point will increase continuously or hold down the right hand – key instead and the set point decreases continuously.

If the door is open, the temperature display will show “OPn“.

*NOTE:: Entered set points are not validated and confirmation of the input is not necessary. Don´t forget that the parameter must be switched ON for the control lfunction related to a set point to be active*

The housing of the ECOTRON can be used without the shaker meachanism to provide temperature control. . For mounting/de-mounting of the shaker mechanism see Chapter 7.8.

### 6.3 Over-temperature Cut Out

The ECOTRON ® has a temperature “watchdog” to prevent uncontrolled overheating of the machine. Maximum temperature in normal operation is 65 °C, in case of a malfunction the temperature is limited to 95 °C.

## 7. Operation

If the unit is set properly (see chapter 6. ‘Putting into Operation”) there will not be many alterations necessary during the ordinary operation of ECOTRON ® apart from the tray loading and unloading. ECOTRON ® operates without any emissions of any kind apart from the operational sound. Sudden noise, smell, abnormal strong vibrations and so on are indicators of a problem and have to be examined immediately.

*IN THE EVENT OF SUCH EMISSIONS, TURN OFF AT THE MAINS SWITCH IMMEDIATELY.*

## 7.1 Loading the Tray

A counterweight works to compensate the centrifugal forces of the moving tray.
For physical reasons this counterweight has to be balanced for a certain tray weight.
Equally important is the height of the centre of gravity of the shaken load above the tray (high load = higher centre of gravity, low load = lower centre of gravity). The higher the total height of the load, the more the unit can vibrate.
Although INFORS has optimised the band width of the possible loading, the following points should be respected in order to minimise possible wearing:

- Always load the tray as evenly as possible, so that the weight of the flasks is spread over the whole tray.
- Flasks with an extraordinary height and an extremely high centre of gravity should not be shaken at too high a speed.
- The allowed loading should generally not exceed or remain under the values stated in the next chapter.

An under or over loading around these values does not have an acutely damaging effect on the unit (especially at low speed) but should be avoided if possible.

A constantly higher or lower loading is possible but you have to contact a representative of INFORS first in order to obtain the necessary advice.

*Incorrect loading can lead to vibration and could, for example, lead to the equipment falling from the bench.*

## 7.2 Shaking speed

The maximum rotation speed allowable depends on the position and the loading.

### 7.2.1 Single unit (universal tray with clamps)

| Load with clamps | Safe | Critical |
|---|---|---|
| 25 x 300 mL | 300 rpm | 400 rpm |
| 16 x 500 mL | 300 rpm | 400 rpm |
| 9 x 1000 mL | 250 rpm | 380 rpm |
| 4 x 2000 mL | 200 rpm | 280 rpm |
| 2 x 5000 mL | 200 rpm | 260 rpm |

| Load with «Sticky Stuff» | Safe | Critical |
|---|---|---|
| 25 x 300 mL | 200 rpm | - |
| 16 x 500 mL | 200 rpm | - |
| 9 x 1000 mL | 250 rpm | - |
| 4 x 2000 mL | 200 rpm | 250 rpm |
| 2 x 5000 mL | 200 rpm | 250 rpm |

### 7.2.1 Stacked units

Upper deck

| Load with clamps | |
|---|---|
| Safe | 200 rpm |
| Critical | 240 rpm |

| Load with «Sticky Stuff») | Safe | Critical |
|---|---|---|
| 25 x 300 mL | 200 rpm | - |
| 16 x 500 mL | 200 rpm | - |
| 9 x 1000 mL | 200 rpm | 240 rpm |
| 4 x 2000 mL | 200 rpm | 240 rpm |
| 2 x 5000 mL | 200 rpm | 240 rpm |

### Lower deck

Same as single unit.

The following standard values must be observed:
If vibration occurs, reduce the speed until the equipment runs quietly. Alternatively, raise or lower the loading until the equipment runs quietly.
The normal operating range lies between 200 up to 400 rpm. To reach higher rotational speeds (up to 500 rpm) is perfectly possible; however the customer must communicate this wish to an INFORS supplier beforehand so we can advise accordingly.

### 7.3 Starting the Equipment

see chapter 6. 'Putting into Operation'

### 7.4 Opening the Door, Pause

When the door opens, the shaker brakes gently and comes to a complete stop (unless the brake function has been deliberately de-activated by the user). The working light goes on. As soon as the shaker platform is still, the culture vessels can be handled.
The temperature control and the blowers stop working when the incubation chamber is opened in order to avoid an internal environment change and reduce energy costs. The operational lights also go out automatically.
If you close the door the blower, and the set-point control, will automatically start working again after a brief delay.

*The door should always be closed using the handle to prevent catching your fingers in the mechanism.*

### 7.5 Handling of the Shaking Load

- Stop the Shaker temporarily (open door slightly)
- Wait until the motor has come to a complete stop
- Open the door
- Manipulate the shaker contents
- Close the door again
- The shaker starts operating again automatically

*ATTENTION: The moving shaker table can cause injuries because of the considerable torque. The tray is therefore only to be handled in state of rest. If an error occurs with the door switch, the equipment is to be stopped with the door closed and the main switch turned off.*

### 7.6 Inserting and Removal of the optional adhesive matting tray

With the standard product, the shaker platform can accept clamps and reagent tube holders, but an optional tray with adhesive matting can be fitted.

- Place the tray on the shaker table, so that a small edge can be seen.
- Fasten the table into place with the 4 cross-head screws supplied.

*ON NO ACCOUNT START THE SHAKER IF THE TRAY IS NOT CORRECTLY MOUNTED!*

For the mounting, remove the four cross-head screws and lift the tray out.

### 7.7 Installation of the optional shelf

A shelf for static incubation is available as an option. The weight-bearing capacity is a maximum of 5 kg. In order to avoid drying out when incubating for longer periods of time, we recommend sealing agar slants with an appropriate sealing film (e.g. Parafilm) or placing them in an open plastic bag.
The shelf can be used in either one of two positions by flipping it over:

- Lower position: allows incubation of Erlenmeyer flasks up to 1 L volume on the shaker (depending on the height of the stopper)
- higher position: allows incubation of Erlenmeyer flasks up to 2 L volume on the shaker (depending on the height of the stopper)

Mounting the shelf:

- Open the door
- Insert the shelf in the desired orientation at an angle and then place it onto the rests which are integrated into the housing of incubation chamber.

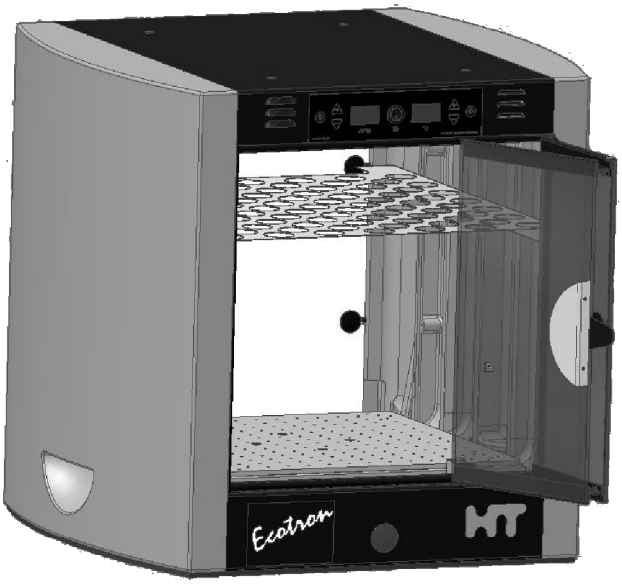



*Fig. 6: Installation of the optional shelf, shown in the "high" position*

### 7.8 Application of ECOTRON as incubation hood

By dismantling the shaker mechanism, the Ecotron can be used as an incubation hood.

Dismantling:

- Switch off the equipment and withdraw the mains cable.
- Open the door of the incubation chamber
- Remove the table (incl. tray with adhesive matting), spill tray and drip tray (see Chapter 10.4)
- Remove the two crosshead screws on the top of the chamber near the fan.
- Remove the two screws on the side walls holding the cable fixing.
- Remove the cable from the shaker motor to the electronics box and pull out the flex.

*CARE: to remove the cable plug the small latch under the plug must be depressed!*

- Remove the 4 large M8 screws (SW 13) linking the housing to the shaker X-frame.
- Raise the housing using the two side handles, grasp it underneath and fully lift it from the shaker.

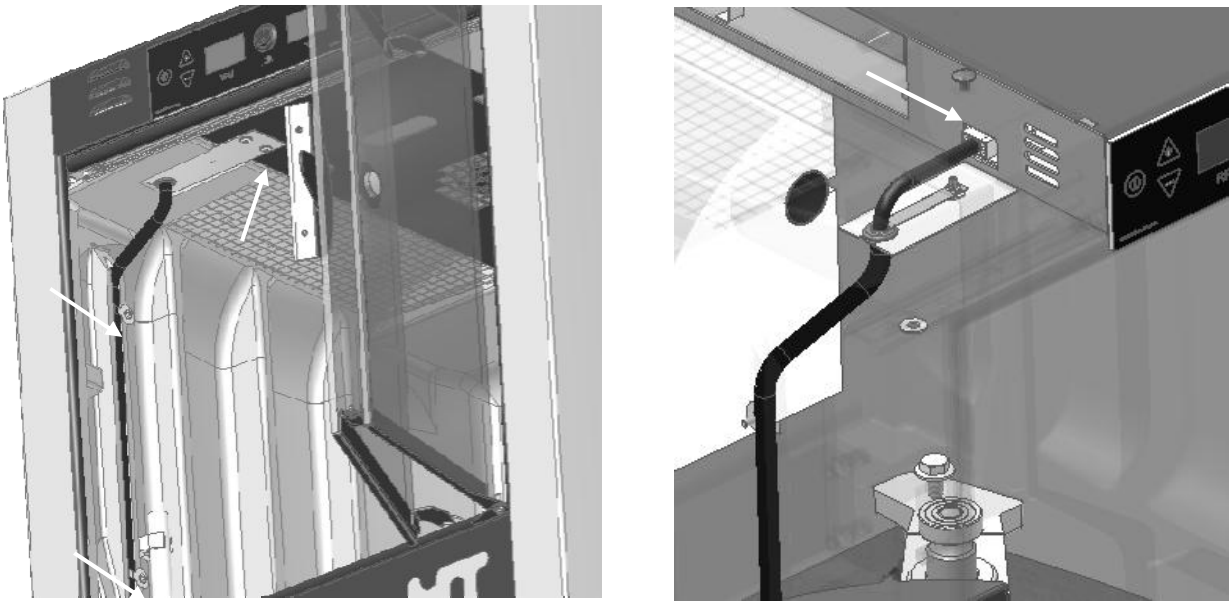


*Fig. 7: Dismantling the cables from the shaker.*

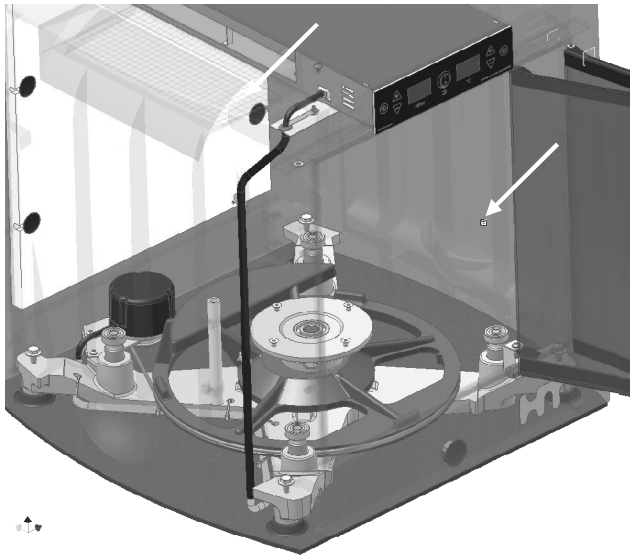


*Fig. 8: Removing the 4 large screws which hold the housing onto the shaker.*

*CAUTION: The handles left and right are only for lifting the machine and not for transport (danger of tipping).*

The housing now becomes a free—standing temperature-controlled hood.
Mounting takes place in the reverse order.

### 7.9 Working light

A single press of any key on the operating panel will switch on the working light in the incubation chamber. This light only has an observation function. The working light automatically goes out after approximately 2 minutes.

### 7.10 Power failure

As soon as the power is restored, the machine immediately re-starts using the previous set-point values.

## 8. Putting out of Operation

### 8.1 Stopping the Shaker

Depending on the time the unit is to be left switched off, the following options are available

- A short stop intending to allow access to the incubation chamber (see Section 7.4
- Switching off for some hours, up to a day
  - In addition to Pause
  - Switch off parameters
  - Switch off at the main switch
- Switching off for a longer time:
  - In addition to switching off at the main switch
  - Clean the inside of the unit, (liquids can accumulate at the bottom over time)
  - Withdraw the mains plug, especially if the unit will be unused for some weeks or months.

*Always switch off parameters before switching off the equipment on the main switch to avoid immediate restart of the unit when switching on again.*

### 8.2 "EMERGENCY"-Stop

*Should there be danger for humans and /or the shaker turn off the main switch immediately or interrupt the power supply!*

Danger may especially arise when there are sudden unusual emissions (loud noise, smoke, smell, strong vibrations).

After an "EMERGENCY"-stop please note the following:

- Avert the danger (in case it still exists)
- If a repair is necessary to the shaker or if the cause of the emergency cannot be found, please contact your nearest INFORS representative.

## 9. Trouble Shooting / Fault Rectification

In case of trouble, please read the following list and follow the instructions.
If your shaker still does not work correctly or the fault is not listed please contact your supplier or the next INFORS representative.

**The Large Display Stays Dark**

- Check if the working light still functions
  if NO continue, if YES please contact your nearest INFORS supplier
- Check if the main switch is turned on
  if NO: turn it on and try again, if YES continue
- Check the power cord
  if the power cord is plugged in: continue, otherwise plug it in and try again
- Check the socket
  if the socket supplies current: contact an INFORS supplier, otherwise eliminate the fault and try again

**The Heating/Cooling Does Not Work**

- Check if the heating/cooling control is activated
  if YES: continue, if NO: turn it on and try again
- Check if the set point is correctly adjusted
  if YES: continue, if NO: adjust it and try again
- Check the ventilator fans are operating
  if NO: continue, if YES: contact INFORS representative
- Contact an INFORS representative

**The Shaker Drive Does Not Work**

- Check if the large display shows "ERR" and the icon for RPM is lit
  if NO: continue, if YES: contact INFORS representative
- Check if the motor control is activated
  if YES: continue, if NO: turn it on and try again
- Check if the set point is correctly adjusted
  if YES: continue, if NO: adjust it and try again
- Check if you can manually turn the shaker table
  YES it is possible to turn it: continue
  NO it is not possible: dismount the shaker table (see Section. 11.5) and search the interior for mechanical obstacles and foreign matter. Remove the foreign matter. In case a new test results in no improvement or no foreign matter is found: continue
- Check if the RPM display shows “Error”
  if NO: continue, if YES: contact an INFORS representative
- Contact an INFORS representative

**The incubation illumination does not work**

- Exchange the light bulbs (see chapter 11.6)

**The Parameter Values Cannot Be Reached**

Check if the control of the concerned function (temperature, speed) has been activated (see Section 7). The °C and/or the RPM-LED light up if the control is activated. (see chapter 6)

## 10. Maintenance / Service

*Withdraw the mains cable before beginning any maintenance or service work!*

### 10.1 Service

ECOTRON ® is designed as a service-free shaker and does not need any regular services. The shaker table works with closed bearings, the electronic system needs no maintenance.

After approx. 10.000 hours of operation however, we would recommend an overhauling of the shaker by the specialists of INFORS. You are invited to contact your INFORS representative when your shaker reaches this operation time.

### 10.2 Cleaning the equipment

You can clean the equipment with a damp cloth and a normal neutral cleaner without any difficulties. We recommend to take off the shaker platform only if liquids were spilled on the bottom of the equipment e.g. from a broken flask. In this case, remove the platform and clean the base accordingly.

*Please observe the instructions in chapter "4.2 Chemical Resistance".*

### 10.3 Cleaning of the Tray and Shaker Table

The tray and the table can be cleaned in the same way as the rest of the equipment. For cleaning of the optional tray with adhesive matting, observe the point in Chapter 13.2.

Cleaning of the spill tray can be achieved using water (max. 2 L) and a mild detergent. In the event of a flask breakage, all organic material in the equipment can be removed from the spill tray by rinsing thoroughly with hot water. The washing water can be removed via the drain port on the front underside of the housing:

- Take out the cap on the front of the housing under the door.
- Take out the pipe from the support on the incubation chamber wall and stick it into the drain point of the spill tray.
- Place a suitable flask under the outlet. (min volume 3 L)
- Pull the red stopper from the drain point (see arrow in figure) and the spill tray empties out.
- Replace the stopper in the spill tray.
- Pull out the drain pipe and replace it in its holder
- Replace the cap over the drain point.

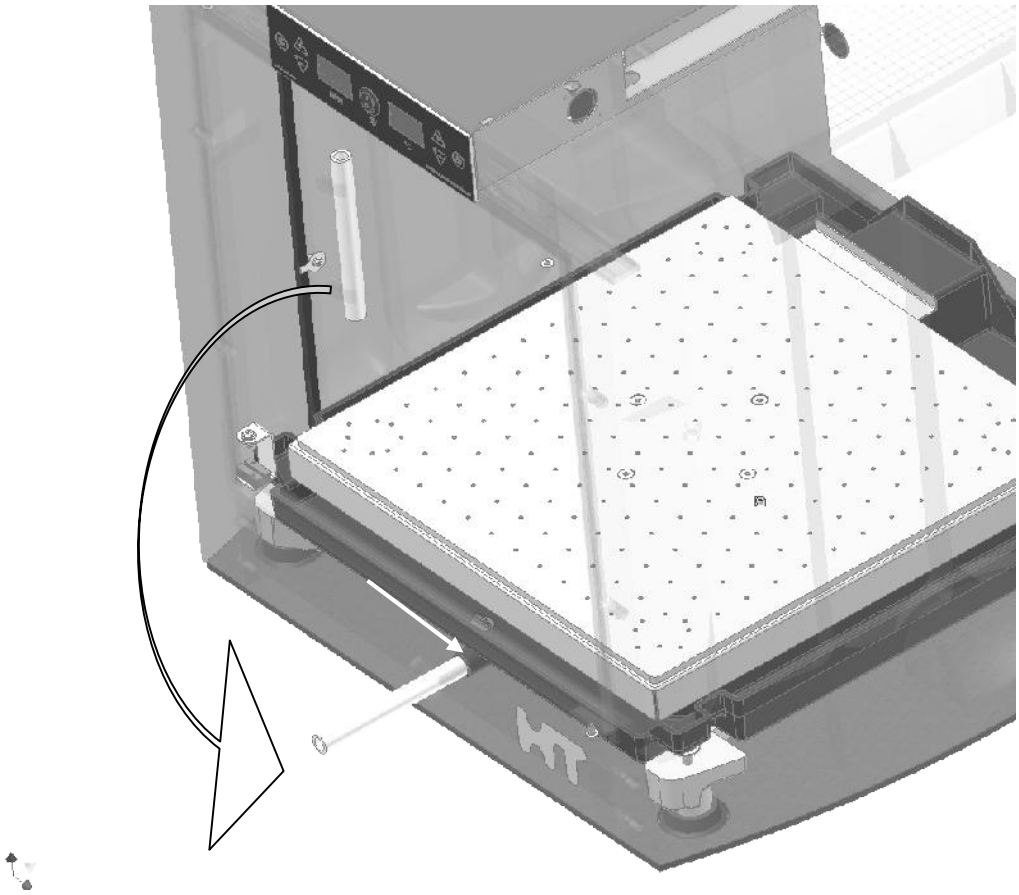


*Fig. 9: Mounting the outlet drain pipe.*

The spill tray is NOT suitable for steam sterilization in an autoclave. In the case of heavy contamination, it's cost effective to dispose of this component and replace it (Mounting: see Chapter 10.4).

### 10.4 Opening of the Shaker Table and spill tray

- Switch off at the mains switch and withdraw the power cable.
- In the case of the optional tray with adhesive matting being fitted, remove the 4 crosshead screws (see Chapter 7.6) to release the tray.
- Remove the 4 screws (sunken head with inner hexagon M6 x 12) in the shaker table (see chapter 9).

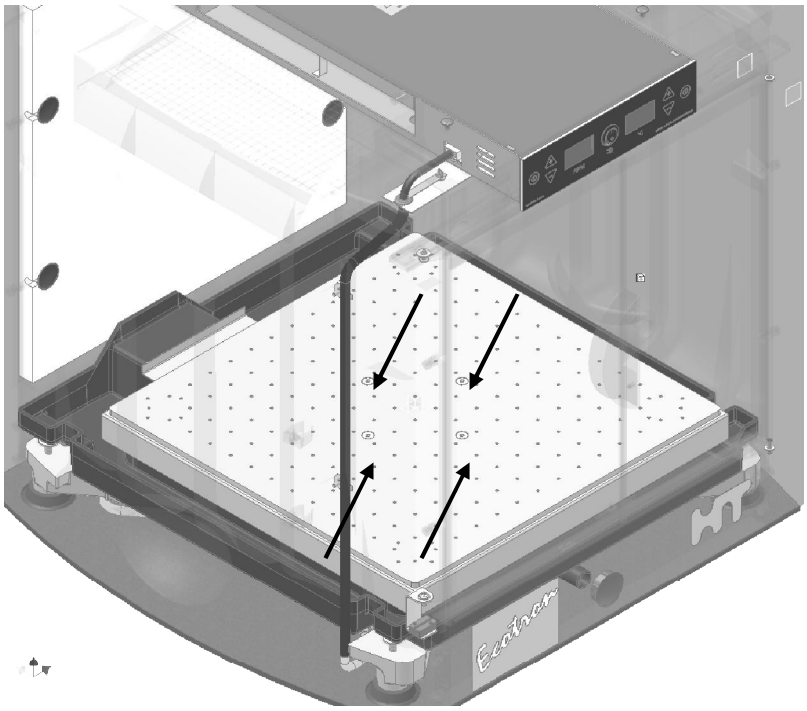


*Fig. 10: Removing the 4 screws on the shaker table- inside hexagon (M6 x 12).*

- Take out the table and drip tray.
- Eventually remove any liquids from the spillage tray (see Chapter 10.3)
- First lift the back of the spillage tray until it slopes at about 45°, then pull up the front until it clears the rear guides.
- Tilt the tray laterally in the chamber and pull it out of the chamber via the door.
- Remove any foreign bodies and clean the spillage tray.

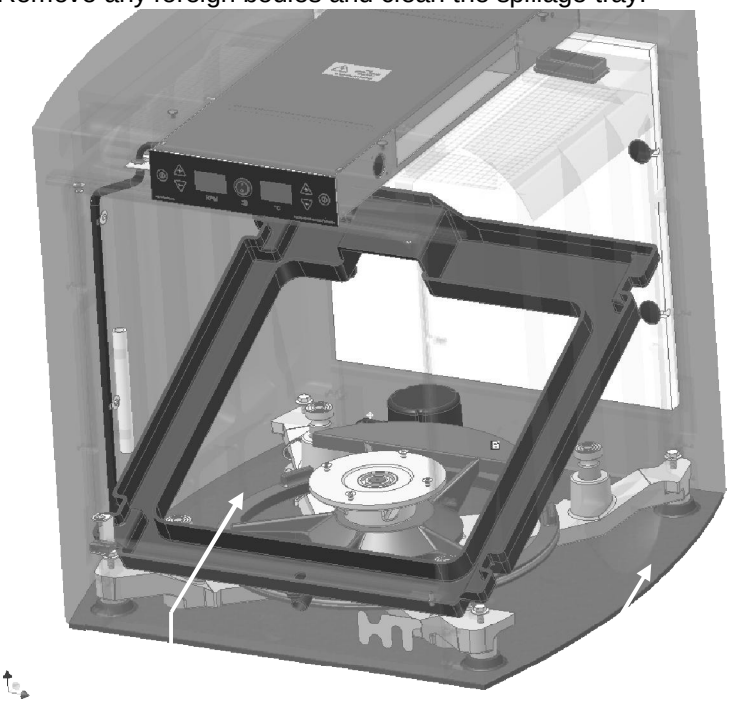


*Fig. 11: First lift the spillage tray up at the back and then at the front.*

The mechanical parts can be readily cleaned with a damp cloth and a neutral detergent. The drive motor is in a waterproof capsule so this can be treated in a similar way without damage. After cleaning, all parts should be dried off thoroughly.

Mounting the spillage tray:

- Replacing the spillage tray is the reverse of the instructions above.
- Replace the table and drip tray, then insert and tighten the retaining screws*.

*IMPORTANT: Tighten the screws * alternating crosswise (as for the wheels of a car). One-sided tightening of the screws may cause poor fixing of the table and thus considerable damage to the equipment.*

## 11. Spare Parts

Should your shaker suddenly show defects please contact your dealer or the nearest INFORS representative. The exchange of the usual spare parts is so easy that it can be done by the customer himself.
In case you will ask one of our INFORS representatives for advice please give type and serial number of the shaker. Both are written on the identification plate (see point 15.1).

### 11.1 Exchange of the electronics-box

In the case of a defect with the electronics (control of the shaker drive or temperature) as well as any problem with the display, power supply or fans, a simple replacement of the electronic box as a single component is all that is needed. This exchange can be carried out by the user themselves, if necessary. An order can be placed for this component using our proven and cost-effective INFORS exchange system.

Exchange of the electronics box takes place in the following way:

- Switch the equipment off at the mains and withdraw the power cable.
- Open the door of the incubation chamber.
- Remove two crosshead screws on the ceiling of the chamber, near the fan, see. Fig. 11.
- Remove the cable from the left side of the electronics box, pressing the catch to release!
- Push the electronic box out a little way from the back of the unit.
- Now pull out the electronic box completely from the front of the unit.

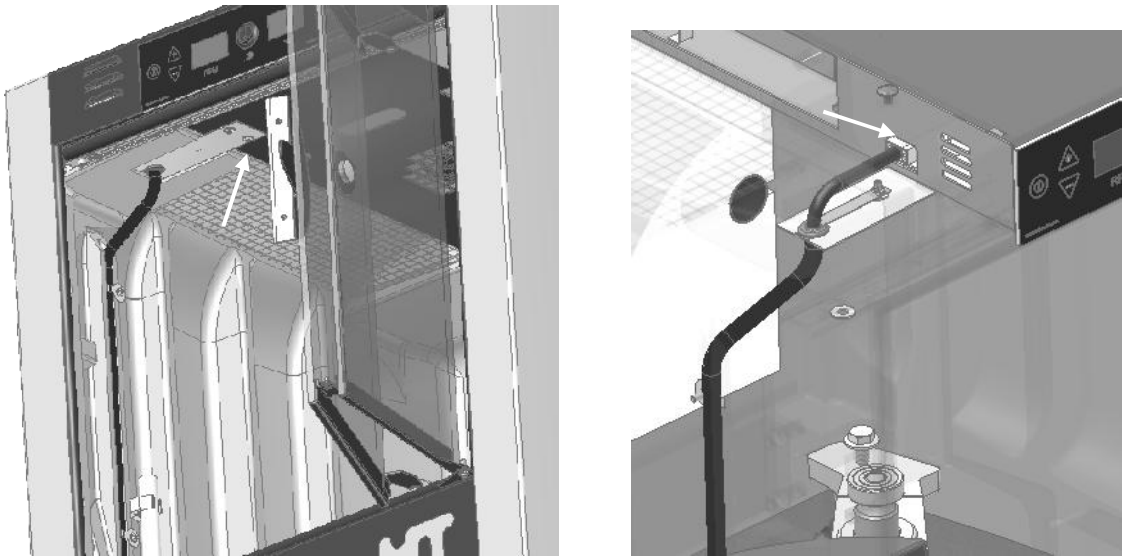


*Fig. 12: For removal of the electronic box the 2 screws near the fan must be removed and the cable on the underside disconnected (the catch under the plug must be pressed down).*

Mounting is the reverse of this procedure.

### 11.2 Exchange of the drive belt

- Switch the equipment off and withdraw the mains power cable
- In the case of the optional tray with adhesive matting being fitted, remove the 4 crosshead screws (see Chapter 7.6) to release the tray.
- Remove the 4 screws (sunken head with inner hexagon M6 x 12) in the shaker table (see chapter 8).
- Take out the table
- Remove the cap from the drain point at the front of the unit under the door
- Use the tubing to remove any liquid from the spillage tray. (see Chapter 10.3)
- Lift out the spillage tray (see Chapter 10.4)
- Take off the old drive belt from the counter-weight and pulley, then check for any fragments of belt in the drive mechanism.
- Fit the new belt over the counter-weight and the rive pulley.
- Mount the spillage tray and shaker table in the reverse manner to that described above.

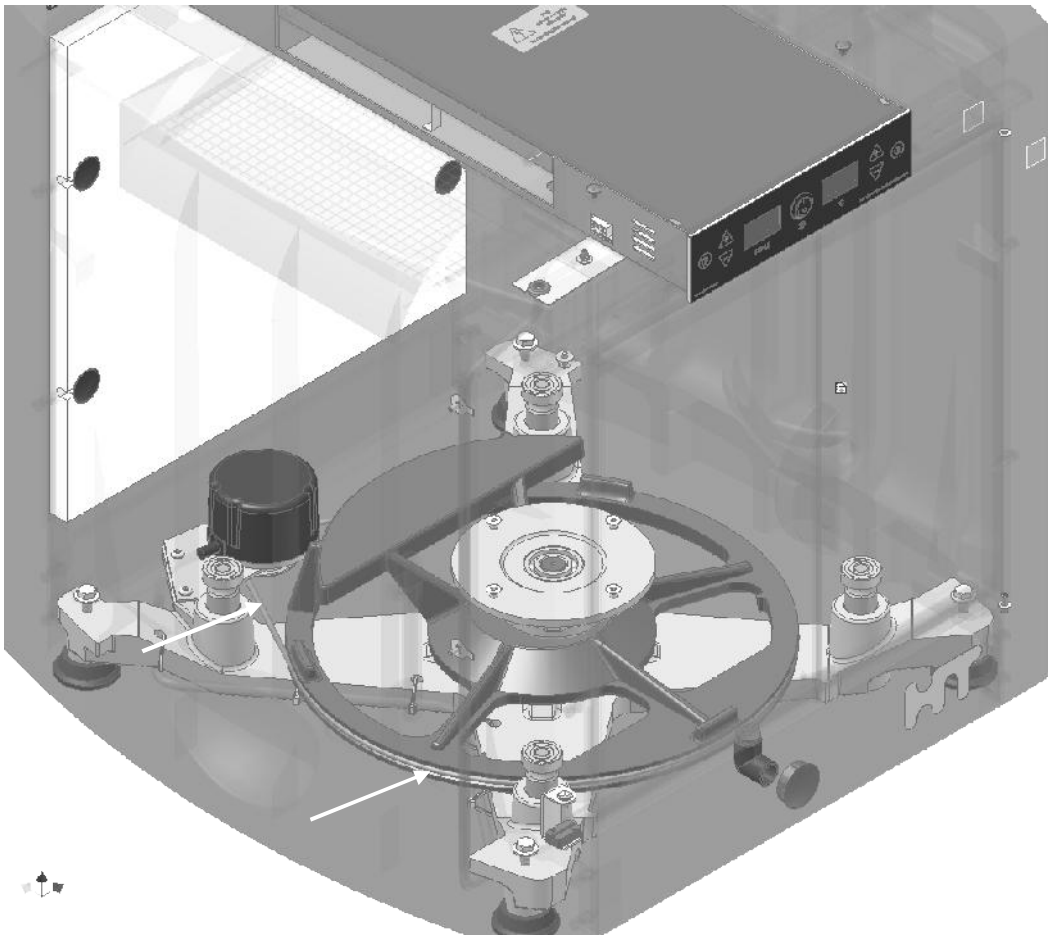


*Fig. 13: Mounting the drive belt*

### 11.3 Exchange of the shaker guides

- Switch the equipment off and withdraw the mains power cable
- In the case of the optional tray with adhesive matting being fitted, remove the 4 crosshead screws (see Chapter 7.6) to release the tray.
- Remove the 4 screws (sunken head with inner hexagon M6 x 12) in the shaker table.
- Takeout the shaker table (see Chapter 10.4).
- Turn around on the table to demount the guides held by 4 cross-head screws ( M4x10)
- The new guides are mounted in the reverse manner to the instructions given above.

## 11.4 Retro-fitting cooling

A cooling system can be retro-fitted with relatively little difficulty. This first involves dismantling the rear wall of the housing:

- Switch the equipment off and withdraw the mains cable.
- Open the incubation chamber door
- Remove the four caps covering the holders in the back wall.
- Remove the four holders by turning them 90° anti-clockwise using a flat-head screwdriver until the embossed arrows point outwards.
- The back wall is now pushed outwards, so releasing the holders. Eventually, the holders can be loosened with a screwdriver.

*IMPORTANT: NEVER WORK ON THE EQUIPMENT WHEN IT IS STILL CONNECTED TO MAINS POWER!*

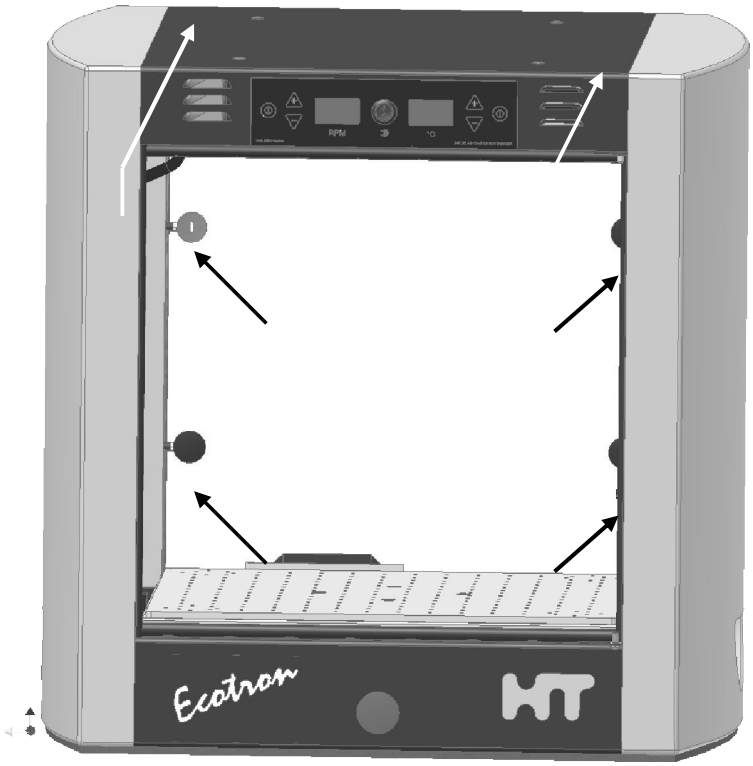



*Fig. 14: Removal of the back wall involves uncovering 4 holders by removing their covers and turning them anti-clockwise. The back wall can then be pushed out.*

### 11.4.1 Retro-fitting an external cooling cool

After removal of the back wall (see Chapter 11.4) fit the new back wall with the cooling coil and control valve already mounted in position.

- Put in the new back wall with cooling coil, taking care not to trap the connecting cable to the control valve.
- Use a flat-head screwdriver to turn the 4 holders for the back wall 90° to the right to lock it into place.
- Plug the connection cable from the control valve into the electronics box (see wiring diagram).
- Insert the “cool print”.

### 11.4.2 Retro-fitting compressor cooling

After removal of the back wall (see Chapter 11.4) fit the new back wall with the cooling unit and already mounted in position.

- Put in the new back wall with cooling coil, taking care not to trap the connecting cable from the cooling unit.
- Use a flat-head screwdriver to turn the 4 holders for the back wall 90° to the right to lock it into place.
- Plug the connection cable from the cooling unit into the electronics box (see wiring diagram).
- Insert the “cool print”.

*The servicing of the cooling unit (230 V) may only be carried out by an authorised expert in refrigeration systems!*

*IMPORTANT: The retro-fitting of compressor cooling increases the depth of the housing by 18cm.*

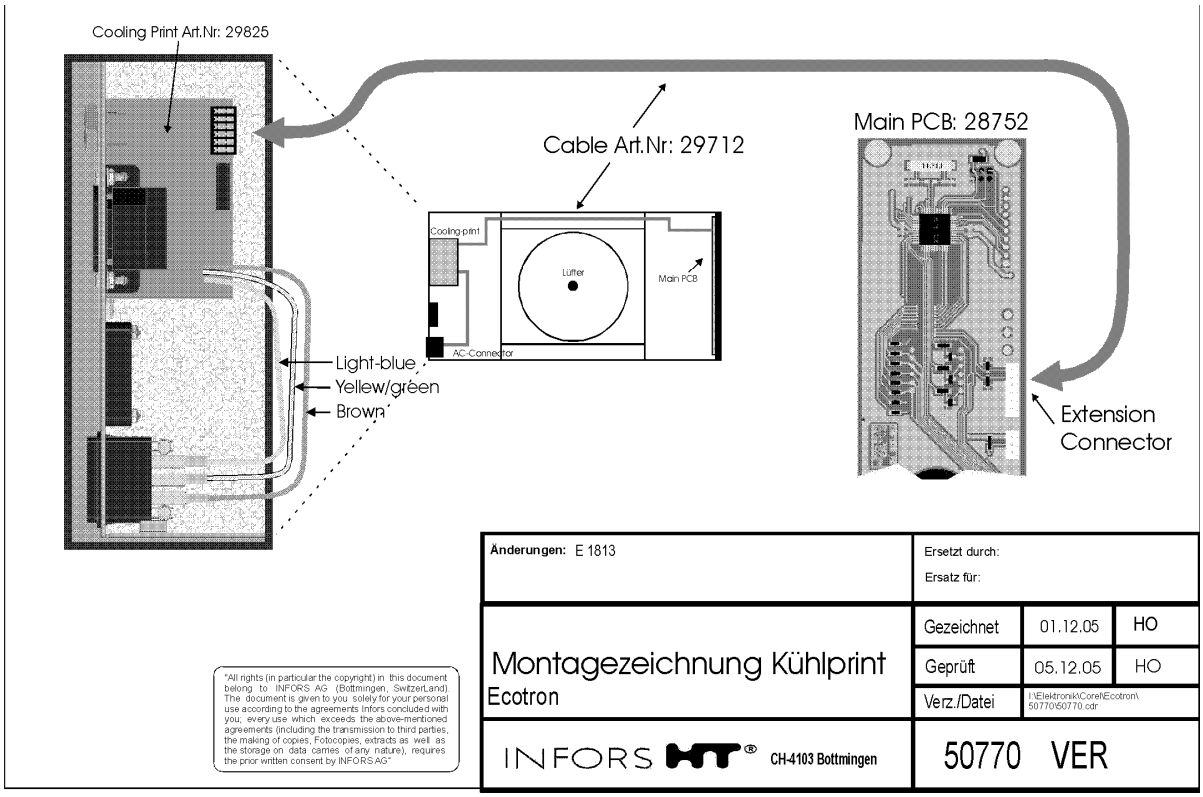



*Fig. 15: Mounting instructions for “Cool print”*

### 11.5 ECOTRON ® Fuses

Fuses are exchanged in the following way:

- Switch the unit off and withdraw the power cable
- Withdraw the fuse holder located in the power socket on the back of the unit using a screwdriver.
- Replace the fuses (2 quick-blowing 250 V; T 5 A or. 2 quick-blowing 115 V; T 8 A)

*In the event that the fuses blow again, the user MUST contact their nearest Infors supplier*

### 11.6 Incubation chamber lighting: Exchanging the bulb

In the event of a problem with the incubation chamber lighting, you must take the following steps:

- Switch off and withdraw the power cable
- Remove the electronics box (see Chapter 11.1)
- Remove the bulb(s) through the ventilation slits on either side of the electronics box.
- Insert a new bulb (12, 10W), without touching it with your bare hands as this will considerably reduce its working life!
- Replace the electronics box.

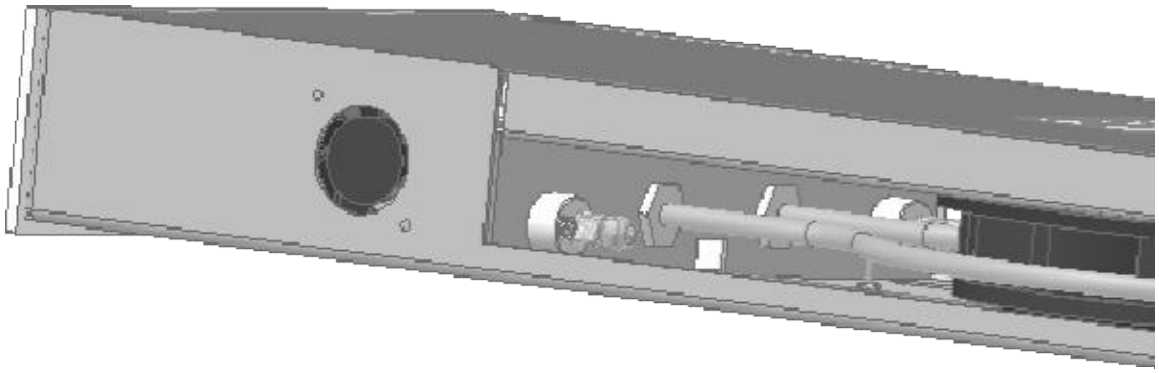


*Fig. 16: Removing the bulb(s) for incubation chamber lighting through the side ventilation slots.*

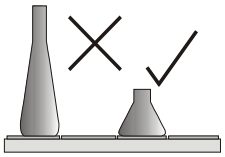
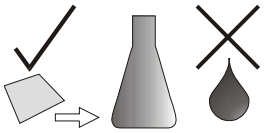
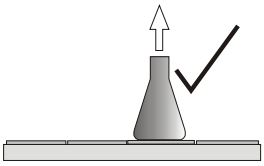
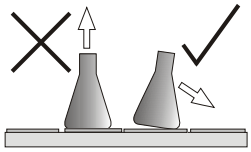
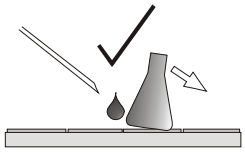
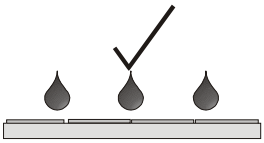
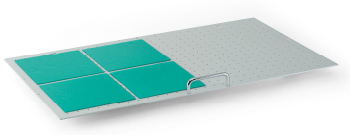
*CAUTION: When temperature control has been switched on, the bulb and heating element can become hot! In this case, the electronics box must first be allowed to stand for a time to cool.*

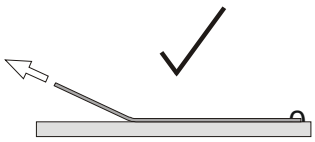
*The bulbs are connected in series, therefore when one bulb is defective the other will not light also.*

## 12. Additional equipment, Options

A detailed list of all possible options and accessories can be obtained from your nearest INFORS dealer.

## 12.1 Points for using INFORS Adhesive Matting «Sticky Stuff»

| | |
|---|---|
|  | Always use protective goggles and gloves while handling glassware! |
|  | • Only use containers with a wide, flat base. Large Erlenmeyer flasks (e.g. 3000 mL) will stick stronger than small ones (e.g. 100 mL).<br>• Before putting on the INFORS reagent tube holders, clean the Sticky Stuff to ensure the maximum adhesive power. |
|  | Before putting on containers:<br>• Check that bottom is dry and clean<br>• Check flask for any damages: **never use damaged flasks!** |
|  | Before shaking:<br>• Tug gently to ensure each flask is stuck.<br>Keep in mind that **formation of condense water** might occur at low temperatures or using the timer function, possibly causing accidental release of containers. |
|  | To remove flask:<br>• Push or pull neck gently and evenly and wait a few seconds. **Do not use much power!**<br>With large containers, it can take up to 30 seconds until flask is released. |
|  | Flasks which are firmly attached can be released with water:<br>• Simply apply water with a syringe to the bottom.<br>Especially Fernbach-flasks are difficult to remove because of their geometry (large bottom, short neck), therefore cover the adhesive matting partly with the protective foil supplied with each new tray. |
|  | The adhesive power will diminish gradually, due to dust and dirt sticking on the surface. To regenerate proceed as follows:<br>• Clean regularly with water and mild detergent. Shrub vigorously with a brush or hard sponge. **Do NOT use solvents!**<br>• Let dry over night<br>• Disinfect with 70% ethanol or usual disinfectants.<br>Do not exceed specified treatment times and rinse thoroughly with water. If disinfection is done routinely, it might be necessary to replace the Sticky Stuff earlier. |
|  | It is possible to apply the Green Adhesive Matting “Sticky Stuff®” to universal trays. |

<table>
<tr><td>  </td><td>Changing the adhesive matting:<br>• Thoroughly wet the tray<br>• Release Adhesive Matting on a side and pull obliquely away from the tray. Degrease tray with Acetone and apply new matting with water (see installation instructions). Do not remove protective foil until first use.<br>The Adhesive Matting is reusable and can be applied again after regeneration in water.</td></tr>
<tr><td>Max shaking speed<br><table><tr><th>Angabe</th><th>Wert</th></tr><tr><td>25 up to 750 mL</td><td>Max. 200 rpm</td></tr><tr><td>1000 mL</td><td>Max. 250 rpm</td></tr><tr><td>2000 mL</td><td>Max. 250 rpm</td></tr><tr><td>3000 mL</td><td>Max. 300 rpm</td></tr><tr><td>5000 mL</td><td>Max. 250 rpm</td></tr></table></td><td>Maximum shaking speeds are only valid on condition that:<br>• Only original Schott Duran Erlenmeyer flasks with 20% filling volume and paper- or cotton stoppers are used. Plastic Erlenmeyer flasks are not appropriate for use with the adhesive matting.<br>• Glass and Adhesive matting must be totally undamaged, clean, dry and free of grease.<br>All information supplied without liability.<br>Data in the left column are valid for 50 mm shaking diameter. With 25 mm shaking diameter, slightly higher shaking speeds are possible</td></tr>
</table>

## 13. Components from Suppliers

All the components from suppliers have been tested before the constructional implementing into the INFORS product. As a general rule INFORS uses only proven components.

In exceptional cases faults may still occur in suppliers' products. In such cases INFORS cannot take any liability leading further than the normal warranty. We kindly ask the customer for understanding and will of course do our best to keep the highest quality standard possible.

The above mentioned exclusion of liability is not effective for safety issues.

## 14. Graphics, Overview

### 14.1 Identification Plate

The identification plate is located at the back on the equipment, on the top right near the mains power socket.

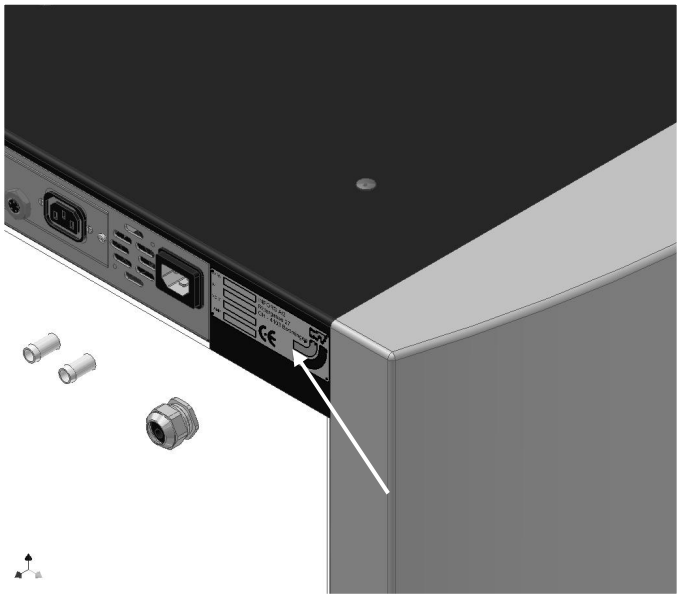


*Fig. 17: Location of the identification plate*

## 14.2 Wiring

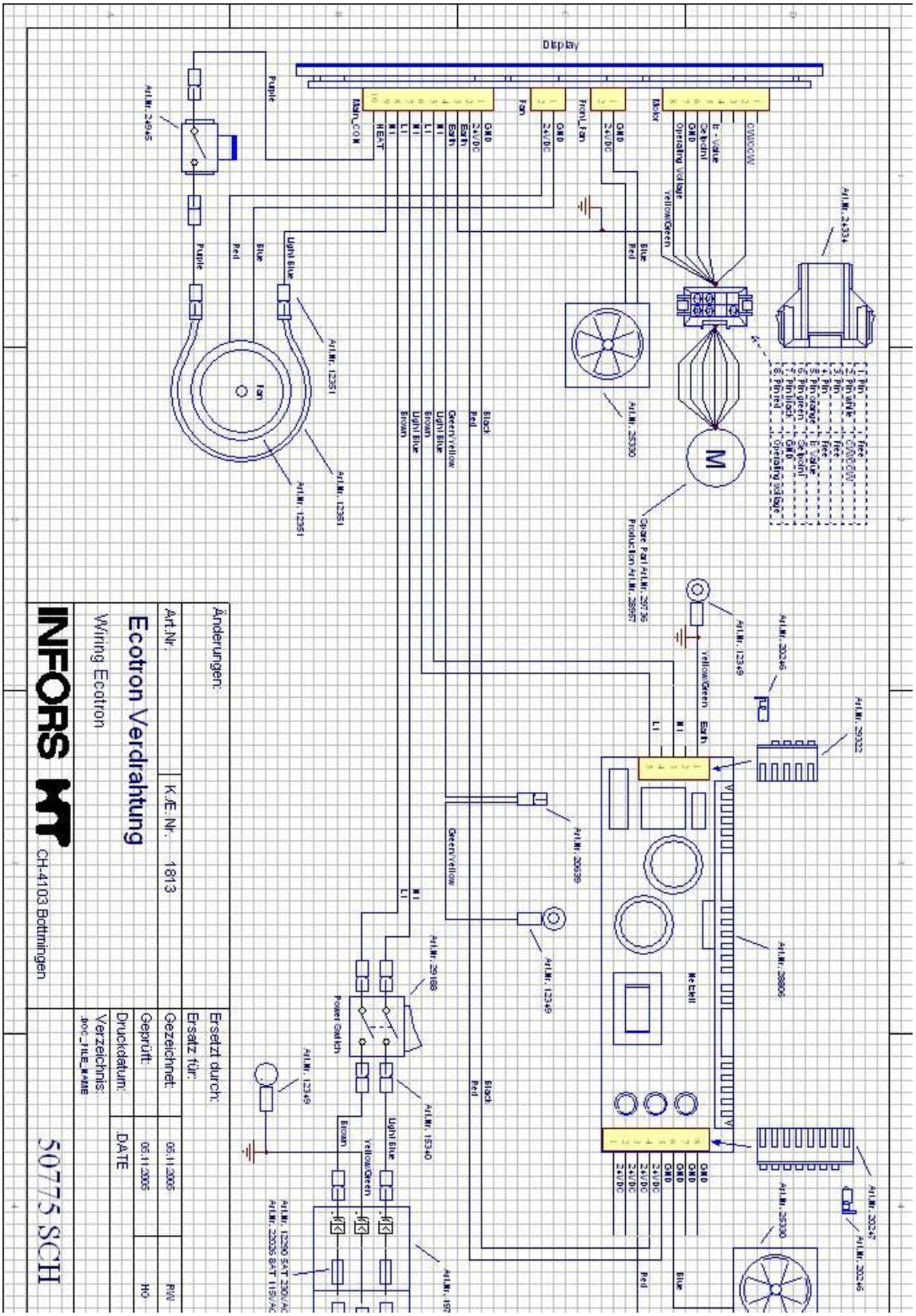



*Fig. 19 Wiring*

## 15. Reselling

For reasons of operating reliability, for legal reasons, in order to ensure a smooth maintenance and supply of replacement parts and to protect the intellectual property of INFORS the customer is obliged to inform INFORS in case of resale or change of the owner.

As a service in return for this information INFORS offers, if necessary, support for the new installation as well as the training of the new operator.

Should a customer not fulfil this duty INFORS reserves the right to henceforth refuse any possible maintenance or supply of replacement parts.

## 16. Disposal

The plastic housing of ECOTRON ® is produced without CFC elements. It consists of polyurethane and a normal disposal is possible.

Also elements like the motor, blower, flywheel etc. may be treated the same way.

Please make sure that the coolant will be handled correctly (freezing mixture R 134 a) in the event of disposal of the refrigerator. The whole cooling or at least the cooling fluid should be handed over to an official handler.

## 17. INFORS Agencies, guarantee regulations

### 17.1 INFORS Agencies

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QUALITY MADE IN SWITZERLAND

**Engineering and production in Switzerland**

## 17.2 Guarantee

The perfect functioning of our equipment is warranted, as long as it has been installed and handled correctly, according to our instructions (Glass equipment excluded).

Our warranty becomes invalid, if, without our specific permission, the customer or a third party interferes with or makes changes on the equipment. The warranty is valid for 2 years from the date of delivery.

If Production or Material faults can be proved, the defective parts will be repaired or replaced free of charge at our discretion. The duration of the warranty is not influenced through making a claim on the warranty service.

## Uddrag af manual for ECOTRON

Ingen dæksler må fjernes af andre end specielt uddannet personale, da disse daeksler dækker for sikkerhedskritiske områder på apparatet.

Rystebordet kan under bevægelse udØve personskade på grund af dets store moment. Rystepladen må derfor kun håndteres ved stilstand.

Ventilationsportene på bagsiden og i bunden af apparatet skal holdes rene og må Ikke tildækkes, da elektrisk overgang kan opstå.

Tildæk ikke ventilationshullerne i kØleenheden på oversiden af apparatet, da dette kan medfØre overophedning.

Sæt under ingen omstændigheder objekter i klemme i dØrens fØreskinner.

Minimum afstanden skal overholdes ued installation af rysteapparatet.

Transportsikringen skal fjernes fØr brug.

Hvis der er hjul på rysteapparatet, skal de forreste hjul hæves ca. 2 – 3 mm over gulvet, når apparatet hviler på de stationære ben placeret tæt ved hjulene.

Ved lange perioder uden brug af apparatet, tilrådes det at tage stikket ud af kontakten af sikkerhedsmæssige årsager.

Apparatet må ikke tages i brug uden at rystepladen er monteret.

Specifikationerne i kapitel 4.2 “Kemisk resistens” skal fØlges nØje.

## ECOTRON käyttöohjeen tiivistelmä

Ravistelukoneen koteloa ei saa avata, koska se suojaa jännitteellisiä osia.
Laitteen saa avata ainoastaan INFORS AG:n valtuuttama henkilö.

Liikkuvaa ravistelulevyä tulee varoa ravistelukoneen korkean vääntömomentin johdosta; tästä syystä levyä tulee käsitellä vain kun se ei liiku.

Tuuletusaukkoja laitteen sivuilla ja takana ei saa peittää eikä ilmanvaihtoa muutenkaan estää koska se saattaa aiheuttaa laitteen ylikuumenemisen. Sähköiskuvaaran takia ei tuuletusaukkoihin saa työntää mitään esineitä.

Poista kuljetustuet ennen laitteen käyttöönottoa.

Jos laitteeseen on asennettu pyörät, tulee kääntyviä etupyöriä vetää noin 2-3 mm irti lattiasta. Tällöin laite seisoo pyörien alla olevien kiinteiden jalkojen varassa.

Jos laitteen käytössä tulee pidempi tauko, on hyvä irroittaa laite sähköverkosta jotta vältyttäisiin mahdollisilta vahingoilta.

Laitetta ei saa koskaan käyttää ilman levyä.

Ohjeita kohdassa ”4.2. Kemikaalikestävyys” tulee noudattaa tarkasti.

## Extrait du mode d'emploi ECOTRON

Toutes les parties démontables du boîtier de l'appareil, peuvent couvrir des zones critiques pour la sécurité et ne doivent donc être enlevées que par la personnel explicitement autorisé par la société Infors.

La table l'agitation en mouvement peut provoquer des blessures à cause du couple moteur élevé. Le plateau ne doit donc être manipulé ou chargé qu'à l'arrêt total de l'appareil.

Les fentes de ventilation situées sur les côtés et à l'arrière de l'appareil doivent être maintenues dégagées. Aucun objet ne doit être inséré dans ces fentes à cause du risque de choc électrique.

La distance minimum doit être maintenue lors de l'installatiion de l'appareil.

Retirer la sécurité de transport bloquant la table d'agitation avant toute mise en route.

Si l'incubateur agité est fourni avec un châssis à roulettes, les deux roulettes avant doivent être abaissées afin qu'ils soient 2-3mm au-dessus du niveau du sol, avec l'appareil reposant sur deux pieds fixes.

Pendant les périodes d'arrêt prolongé et suivant remplacement de l'appareil dans le laboratoire (ex: zone humide ou non protégée), il est recommandé de débrancher la prise secteur pour éliminer toute possibilité d'accident.

L'appareil ne doit pas fonctionner sans plateau.

*Les instructions données au paragraphe "4.2 résistance chimique" doivent être absolument suivies.*

## Uittreksel uit de handleiding van „ECOTRON“

De behuizingsafdekplaten van de schudder, die, uit het oogpunt van veiligheid, kritische plaatsen afdekken, mogen uitsluitend door personeel verwijderd worden dat hiervoor door INFORS uitdrukkelijk gemachtigd is.

De bewegende schudtafel kan door de grote kracht lichamelijk letsel veroorzaken. Aan het plateau mag daarom uitsluitend in stilstand gewerkt worden.

De ventilatieopeningen in de achterwand en de zijwanden dienen vrijgehouden te worden en vanwege het gevaar voor elektrische schokken mogen er geen voorwerpen doorhen worden gestoken.

Er mag nooit iets in de ventilatieopeningen van de koeling worden gestoken, die boven op de machine staat, want dit kan oververhitting veroorzaken.

Bij de installatie van de schudder moeten de volgende minimale afstanden in acht worden genomen.

Voordat de machine in bedrijf wordt gesteld dient de transportblokkering verwijderd te worden.

Wanneer de schudder voorzien is van draaibare wielen, dienen de voorste wielen
2 - 3 mm. ingetrokken te worden zodat het systeem op de vaste poten rust.

Afhankelijk van de lokatie waar de machine geplatst is (vochtig laboratorium of in een vrij toegankelijke ruimte) is het uit veiligheidsoverwegingen aan te bevelen om bij langdurige afwezigheid of uitschakeling de stekker uit het stopcontact te verwijderen.

De apparatuur mag nooit zonder een goed vastgezet plateau worden ingeschakeld.

De instructies die in Artikel „4.2 Chemicalienbestendigheid“ vermeld staan, moeten strikt opgevolgd worden.

**Norme de Sicurezza (dal manuale del mod. ECOTRON)**

Tutti i coperchi della struttura esterna dell'apparecchio devono essere necessariamente rimosse da personale autorizzato della INFORS, in quanto possono proteggere zone critiche per motivi di sicurezza.

Data l'alta torsione, il movimento del tavolo di agitazione può causare danni. Pertanto il vassioio deve essere maneggiato solo quando l' apparecchio è in posizione di fermo.

Le aperture di ventilazione nella parte laterale e posteriore dell'apparecchio devono esssere libere (sgombre) e, onde evitare il rischio di scosse elettriche, nessun oggetto deve essere messo in tali aperture.

Non inserire alcun oggetto nelle aperture di ventilatione dell'unità di refrigerazione, nella parte superiore del corpo dell'apparecchio, in quanto ciò può causare un surriscaldamento.

Per nessun motivo inserire oggetti nella guida laterale dell'albero selettore dei supporti curvi della porta.

## Prima di metterein funzione l'apparecchio, togliere la protezione di sicurezza per il trasporto.

Se c'è un sistema di illuminazione per colture nella camera di incubazione, prestare molta attenzione a non toccare alcun contatto elettrico delle lampade.

Se vi sono delle ruote fissate sotto l'apparecchio, le due ruote frontali devono essere tolte in ogni caso prima di mettere in funzione l'agitatore e il basamento deve essere collocato sugli appositi piedini.

Durante periodi prolungati di assanza o non funzionamento, si raccomanda di staccare la spina per evitare il rischio di incidenti.

L'apparecchio non deve mai essere messo in funzione senza un vassoio.

Devono essere assolutamente seguite le istruzioni al par. "4.2 Resistenza chimica".

## Utdrag fra bruksanvisning for ECOTRON

Av sikkerhetshensyn må maskinens deksel-plater kun fjernes/ demonteres av personell som er godkjent av Infors, fordi de kan beskytte spesielt sikkerhetskritiske områder i maskinen.

Maskinens rystebord kan, når den er i bruk, forårsake skade på grunn av styrken. Rysteplattformen bØr derfor betjenes kun når maskinen står stille.

Ventilasjonsåpningene på sidene og på baksiden må ikke tildekkes, og for å unngå elektro-sjokk må under ingen omstendighet objekter fØres inn i viften eller gjennom disse åpningene.

Minimumsavstand må fØlges ved installasjon av rysteinkubatoren.

Fjern transport-sikring fØr maskinen startes.

Hvis hjul er montert under maskinen, må de to front-hjul erstattes med fØtter som medsendes maskinen, fØr start av maskinen. FØttene må justeres til ca. 2-3 mm over gulvnivå.

Ved lengre tids avbrudd i bruk av maskinen bØr maskinens stØpsel dras ut av kontakten.

Rystemaskinen må aldri brukes uten rysteplattform.
Spesifikasjonene i kap. “4.2 Kjemisk motstand” må fØlges nØyaktig.

## Utdrag ur handboken over ECOTRON

Alla skyddskåpor på skaken får, då de kan täcka känsliga områden, endast avlägsnas av personal med särskilt tillstånd från INFORS.

Skakbordet kan under användning orsaka skador pga den kraftiga rotationsrörelsen. Bordet får därför endast hanteras då maskinen står still.

Ventilhålen på sidorna och på baksidan måste lämnas öppna och fria från hinder. Inga främmande föremål får införas i apparaten pga hög risk för kraftiga elstötar.

Ventilations öppningarna på ovansidan av kyldelen får ej övertäckas då detta kan orsaka överhettning.

Minimiavstånd till vägg måste beaktas vid installation.

Avlägsna ”transport säkringen” innan användning.

Om det finns rullar/valsar fastsatta under skaken måste de två främre rullarna/valsarna avlägsnas innan användning och hyllan måste placeras på de medföljande fötterna.

Under långa peroder av overksamhet är det rekommenderat att dra ur elkontakten för att undvika olyckor.

Skaken får aldrig användas utan bricka.

Instruktionerna i kapitel ”4.2 Kemiskt motstånd” måste följas minutiöst.

## Extracto del manual del ECOTRON

“La carcasa y las tapas del agitador nunca deben ser abiertas por personal no autorizado por INFORS, ya que aquellas pueden ocultar elementos peligrosos.

El movimiento de la plataforma de agitaci**Ó**n puede causar lesiones, debido a la alta fuerza con que gira mientras el equipo está en functionamiento, por ello la bandeia s**Ó**lo debe manipularse con el equipo completamente parado.

Nunca deben obtruirse las salidas de ventilaci**Ó**n situades a los lados y en la cara posterior del equipo, tampoco debe permitirse que objetos pequeňos senn succionados por los ventiladores o por las tomas de aire.

Debe respetarse la distancia minima de seguridad, en la installaci**Ó**n del equipo.

Retire todos los elementos de transporte del equipo, antes de ponerlo en functionamiento.

Si el agitador lleva rodillos incorporados, debe empujarse los rodillos frontales hasta que queden aproximadamente a unos 2 o 3 mm. sobre el nivel del suelo, con el aparato apoyado sobre los pies estáticos situados tras las ruedas.

Durante largas ausencias o periodos sin operaci**Ó**n, de acuerdo a las condiciones del lugar (ej. humedad en el laboratorio o positi**Ó**n poco protegida) se recomienda no s**Ó**lo apagar, sino desenchufar el equipo, para evitar riesgo de accidentes.

Nunca debe hacerse funcionar el agitador sin bandeja.

Las especificaciones del capitulo “4.2 Chemical Resistance (Reistencia Quimica)” han de ser seguidas estrictamente.