

Easyclean

Nr. 1850-0000 / 1850-1000

Bedienungsanleitung
Instruction manual • Mode d'emploi
Istruzioni d'uso • Instrucciones para el servicio
Инструкция по эксплуатации
操作说明书 • 取扱説明書 • 사용 설명서



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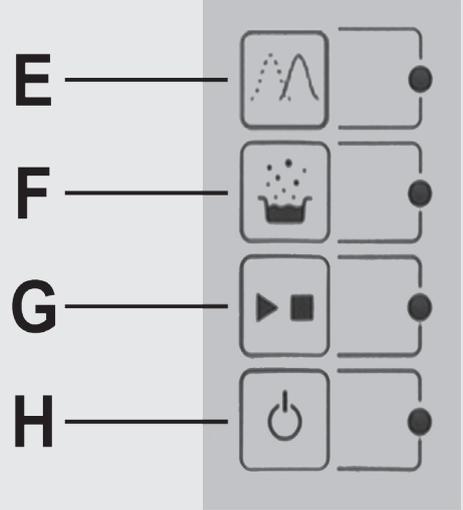
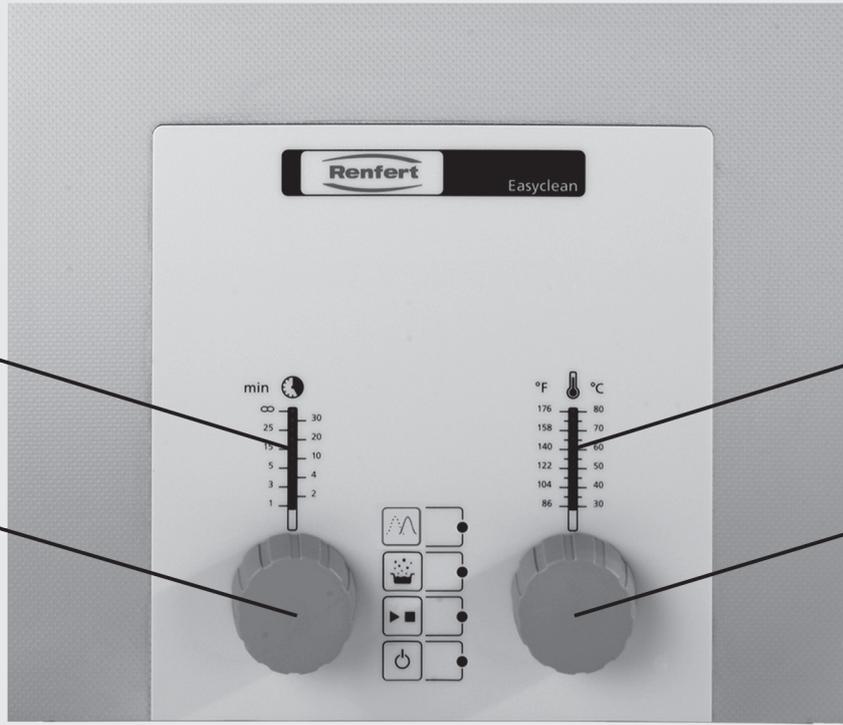
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Easyclean

1850-0000 / 1850-1000

ENGLISH

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1. General

The present Operating Instructions are part of the delivered equipment. They must be ready for use at any time and remain with the unit in case of resale. Carefully read the Operating Instructions before using of the unit and operate the electrical appliance according to the instructions.

We reserve the right to carry out technical modifications on the unit due to advanced development.

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The copy right remains with the editor.

2. Important safety warnings



Read before initial operation!

INTENDED USE

- **The present ultrasonic cleaning unit has been designed for the treatment of items and liquids only.**
- **No cleaning of living beings or plants!**

USER

- **The unit must be operated by instructed staff. Do not let children operate the unit.**

MAINS CONNECTION

- **For safety reasons, the present unit must be connected to a correctly grounded socket only. The technical details indicated on the nameplate must correspond with the available mains connection details, in particular those of the mains voltage and current connected value.**

PREVENTION OF ELECTRICAL ACCIDENTS

- **The unit must be opened by authorised specialised personnel only.**
- **For purposes of maintenance and care of the unit, in case of suspected humidity inside the unit or in case of malfunctions and after operation pull the mains plug.**
- **It is the responsibility of the operator that national regulations during operation and regarding a repeated safety inspection of electrical equipment are complied with. For Germany these are BGV A3 in relation with VDE 0701-0702.**

CLEANING LIQUID

- **Fill the unit with a sufficient quantity of cleaning liquid before switch-on. Flammable liquids must not be treated by ultrasound directly in the cleaning tank: risk of fire and explosion!**

HOT SURFACES AND LIQUIDS

- **Risk of burning and scalding! Depending on the operational period of the unit, unit surfaces, cleaning liquid, basket and cleaning items can heat up considerably.**

NOISE EMISSION

- **Ultrasonic units can produce annoying sounds.**
- **Wear personal ear protection devices when working close to an ultrasonic unit which is operated without cover.**

SOUND TRANSMISSION AT PHYSICAL CONTACT

- **Do not reach inside the cleaning liquid or touch sound-carrying parts (tank, basket, cleaning items, etc.) during operation.**

EXCLUSION OF LIABILITY

- **The manufacturer cannot be held liable for damages on persons, equipment or cleaning items caused by improper use. The operator is responsible for the instruction of the operating staff.**
- **Only spare parts and accessories supplied or authorized by Renfert GmbH may be used with this product. If other spare parts or accessories are used, this could have a detrimental effect on the safety of the device, increase the risk of serious injury and lead to damage to the environment or the device itself.**

3. Functioning

Today, cleaning by ultrasound is the most modern fine cleaning method.

The electric high-frequency energy created by an ultrasonic generator is transformed into mechanical energy by piezo-electrical transducer systems and is then transmitted into the bath.

This process creates millions of tiny vacuum bubbles which implode due to the variations of pressure caused by the ultrasonic activity. Highly energetic liquid jets are created. These jets remove dirt particles from surfaces and even from the smallest grooves and bores.

3.1 Ultrasonic cleaning factors



Basically, the cleaning result depends on four factors:

MECHANICAL ENERGY

Ultrasonic energy is probably the most important mechanical factor in the cleaning process. This energy must be transmitted through a liquid medium to the surfaces which are to be cleaned.

The present *Easyclean* unit is fitted with the innovative sweep function device: electronic oscillation of the sound field (sweep function) prevents the formation of zones of low performance in the ultrasonic bath.

CLEANING MEDIA

For saponification and removal of the dirt particles a suitable cleaning agent is required.

Use only cleaning agents which are specifically approved for the ultrasonic mode.

Cleaning chemicals are also necessary to reduce the surface tension. This increases considerably the efficiency of the ultrasonic activity.

TEMPERATURE

The effect of the cleaning medium is improved by the optimised temperature of the cleaning liquid.

For Renfert cleaning products please observe the instructions given on the label or the product information leaflets.

CLEANING PERIOD

The cleaning period depends on the degree and the kind of contamination and on the correct selection of ultrasonic energy, cleaning agent and temperature.

4. Product description

4.1 Product features

- Cleaning tank made of cavitation-resistant stainless steel.
- Casing made of stainless steel, hygienic and easy to clean.
- High performance sandwich transducer systems.
- Sweep function for an optimised sound field distribution in the cleaning liquid.
- Degas function for the efficient degassing of the cleaning liquid and for laboratory purposes.
- Auto degas function for automatic degassing cycles, i.e. with fresh cleaning liquids.
- Dry-run protected heating.
- Temperature-controlled ultrasonic operation: the cleaning process starts automatically when the set temperature is reached; the cleaning liquid is regularly mixed during the heating up so that the cleaning liquid is evenly heated.
- Automatic mixing during heating-up period.
- Plug-in mains supply.
- Electronical turning knobs.
- Display of both set values and actual values via LED settings.
- Splash-water-proof operating panel.
- Plastic carrying handles.
- Automatic switch-off after 12 h operation to prevent unintended permanent operation.

4.2 Delivered equipment

- 1 Ultrasonic cleaning unit
- 1 Mains cable
- 1 Operating Instructions

4.3 Unit front view / side view

Figure 1

- A Recommended fill level
Max Do not exceed this level when the items for cleaning have been added.
Min Never allow the level to fall below this mark.
- B Plastic carrying handles for the safe transportation of the unit even with hot casing.
- C Operating panel for the control of the operating functions. Description see section 4.5.

4.4 Unit back view

Figure 2

- A Mains supply socket for quick and easy removal of the mains cable e.g. for transportation purposes

4.5 Description of operating elements

Figure 3

- A Turning knob cleaning period *)
Setting options for short-period operation: 1; 2; 3; 4; 5; 10; 15; 20; 25; 30 min (with automatic switch-off).
Permanent position ∞ for continued operation. Here the unit must be switched off by hand. For safety reasons the unit is automatically switched off after 12h permanent operation.
- B LED display cleaning period indication of set period and remaining period.
- C Turning knob temperature *) temperature range variable in 5°C steps from 30° up to 80°C.
- D LED display temperature indication of set value and actual value of liquid temperature.
- E Key sweep function for an optimised sound field distribution in the cleaning liquid; Sweep LED.
- F Key degas function (manual and auto degas – see chart 4.6) Degas function for efficient degassing of cleaning fluid. Degas LED.
- G Key start/stop for ultrasonic operation and temperature-controlled operation. Ultrasonic LED
- H Key on/off for switching the unit on and off; on/off LED

*) for setting the value: turn knob clockwise
for resetting the value: turn knob anti-clockwise

4.6 Operating and display functions

see also Figure 3

| Action | Setting | Result | Display |
|---|---|---|---|
| switch on unit | <ul style="list-style-type: none"> press on/off key | <ul style="list-style-type: none"> unit is ready for operation | <ul style="list-style-type: none"> on/off LED is on |
| switch off the unit | <ul style="list-style-type: none"> press on/off key | <ul style="list-style-type: none"> unit is switched off | <ul style="list-style-type: none"> all displays are off |
| start ultrasound - now - | <ul style="list-style-type: none"> select period by turning knob for cleaning period press key ►■ (ultra-sound) | <ul style="list-style-type: none"> ultrasound is operating | <ul style="list-style-type: none"> ultrasound LED is on set period LED is on remaining period LED blinks (only in timer operation) |
| start ultrasound - temperature-controlled*); with mixing of cleaning liquid *) if set temperature > actual temperature | <ul style="list-style-type: none"> set period set temperature by turning knob for temperature keep key ►■ pressed for > 2 sec | <ul style="list-style-type: none"> heating operates ultrasound is started automatically after reaching the set temperature set period ultrasound runs down | <ul style="list-style-type: none"> ultrasound LED blinks set period LED blinks as soon as the set temperature is reached the ultrasound LED is on set period LED is on remaining period LED blinks |
| stop ultrasound before end of set period | <ul style="list-style-type: none"> turn set period to 0 or press key ►■ | <ul style="list-style-type: none"> ultrasound switched off | <ul style="list-style-type: none"> ultrasound LED is off set period LED is on |
| switch on heating | <ul style="list-style-type: none"> select set temperature | <ul style="list-style-type: none"> heating operates | <ul style="list-style-type: none"> set temperature LED is on actual temperature LED blinks and goes towards set temp. as soon as actual temp. = set temp., only the set temp. LED is on if actual temperature > set temperature, the temperature LED starts blinking again |
| switch off heating by hand | <ul style="list-style-type: none"> turn set temperature to position „0“ | <ul style="list-style-type: none"> heating switched off | <ul style="list-style-type: none"> set temperature LED blinks |
| switch on sweep function*) *) sweep and degas cannot be operated at the same time | <ul style="list-style-type: none"> select set period press key ►■ press key sweep | <ul style="list-style-type: none"> ultrasound operates in sweep mode | <ul style="list-style-type: none"> sweep LED is on ultrasound LED is on set period LED is on remaining period LED blinks |
| switch off sweep function | <ul style="list-style-type: none"> press key sweep | <ul style="list-style-type: none"> sweep function is switched off ultrasound continues in standard operating mode | <ul style="list-style-type: none"> sweep LED is off ultrasound LED is on set period LED is on remaining period LED blinks |
| switch on degas function*) *) sweep and degas cannot be operated at the same time | <ul style="list-style-type: none"> select set period press key ►■ press key degas | <ul style="list-style-type: none"> ultrasound operates in degas mode | <ul style="list-style-type: none"> degas LED is on ultrasound LED is on set period LED is on remaining period LED blinks |
| switch off degas function | <ul style="list-style-type: none"> press key degas | <ul style="list-style-type: none"> degas function is switched off ultrasound continues in standard operating mode | <ul style="list-style-type: none"> degas LED is off ultrasound LED is on set period LED is on remaining period LED blinks |
| switch on auto degas function*) *) sweep and degas cannot be operated at the same time | <ul style="list-style-type: none"> press key ►■ keep degas key pressed > 2 sec | <ul style="list-style-type: none"> ultrasound operates in auto degas mode for 10 minutes and then switches off | <ul style="list-style-type: none"> degas LED blinks ultrasound LED blinks |

5. Initial operation

PACKING

Please keep the original packing or dispose of it according to the relevant waste disposal regulations.

CHECK FOR TRANSPORT DAMAGES

Check the Ultrasonic Cleaning Unit for possible transport damages before initial operation. In case of visible damage do not connect the unit to the mains.

PLACEMENT

For operation, place the unit on a dry and solid surface. Ensure that the workplace is sufficiently ventilated!

Do not use a soft surface (e.g. a carpet) as this may impede the ventilation of the unit.



CAUTION

Risk of electrocution due to humidity inside the unit! Protect the unit from entering humidity. The unit inside is splash-water-proof. Keep workplace and casing dry in order to prevent electrical accidents and damages on the unit.

AMBIENT CONDITIONS

- Allowed ambient temperature during operation: +5°C - +40°C
- Allowed relative humidity of air during operation: max. 80%
- In-door operation only

5.1 Connecting the unit to the mains

REQUIRED MAINS CONDITIONS

Earth grounded socket:

- 1 phase (220-240 or 120 V);
- 1 N;
- 1 PE protective earth.

CONNECT MAINS CABLE

Use the plug-in mains cable delivered with the unit. Connect the unit to a grounded shockproof socket only. Ensure that the values indicated on the nameplate of the unit must correspond with the available connecting conditions.

6. Putting unit into operation

6.1 Filling of the unit

OBSERVE FILLING LEVEL

Fill the cleaning tank with a sufficient quantity of a suitable cleaning liquid before switch-on.



The optimum filling level is approx. 2/3 of the tank volume.

The marked maximum filling level of the tank indicates the recommended filling level with cleaning items in the bath (Figure 1 / A).



Never fill to lower than the recommended fill level (Figure 1 / Min).



Do not fill hot liquids into the cold ultrasound tank!

SUITABLE CLEANING AGENTS

Ensure that the chosen cleaning agent is suitable for treatment in an ultrasonic bath and observe the instructions on dosage and the compatibility of the material.

We recommend the use of the cleaning agents listed in section 8.3.

PROHIBITED CLEANING AGENTS

Flammable products are generally not allowed for use in an ultrasonic bath. Observe the safety warnings given in section 8.1.



CAUTION

Risk of fire and explosion!

Never use flammable liquids or solvents directly in an ultrasonic cleaning bath. Use the cleaning chemicals listed in section 8.3.

Ultrasonic activity increases the vaporisation of liquids and creates a very fine mist which can catch fire on any ignition source. Observe the instructions on limitations of use given in section 8.1.



Do not put the following directly into the stainless steel tank (Use cleaning glass, plastic container or acid bath insert, see Accessories):

- Cleaning agents containing hydrochloric acid, sulphuric acid, hydrofluoric acid, nitric acid.
- Aqueous cleaning agents in the acid range (pH < 7) with simultaneous entrainment of halides (fluoride, chloride or bromide) from contamination from cleaning parts or from cleaning fluid.
- Sodium chloride (NaCl) solutions
- Household detergents



See also the information on further restrictions in section 8.2.

i The stainless steel tank can deteriorate rapidly due to pitting corrosion. The above substances can also be contained in household cleaners. If in doubt, contact the manufacturer or supplier.

6.2 Placement of cleaning items

! **Caution!** The ultrasonic bath has been designed for the ultrasonic treatment of items and liquids only. Do not clean living beings or plants!

! **NOTE**
Do not reach inside the tank during ultrasonic operation!
Cell walls can be damaged by prolonged exposure to ultrasonic activity.
For placing and taking out the cleaning items always switch off the unit.

! Do not place any objects or containers directly onto the base of the tank!

- Use of:
 - cleaning glass,
 - plastic containeronly together with:
 - Stainless steel insert cover

! Keep a min. distance of 15 mm between cleaning jar and base of the tank!

! Use only the accessories listed in the instruction manual (chapter 11).

! Use cleaning basket
Place the cleaning items into the stainless steel cleaning basket (accessory equipment).

! Acid tank
For the use of cleaning chemicals which might destroy or damage the stainless steel tank use a separate container. e.g. cleaning glass, plastic container or acid bath insert (see Accessories).

! Do not clean the following deposits directly in the ultrasonic tank (Use cleaning glass, plastic container or acid bath insert, see Accessories):

- fluoride deposits (e.g. cement, polishing paste)
- chloride deposits (e.g. disinfection liquid)
- bromide deposits (e.g. solder paste, flux)

6.3 Degassing of liquid

Freshly mixed cleaning liquids are saturated with air which lessens the cleaning effect of the ultrasonic activity. By sonification of the liquid over a period of several minutes before the cleaning process the tiny air bubbles in the liquid are eliminated.

DEGAS KEY

Degas the fresh cleaning liquid for approx. 5 - 10 minutes. For switch-on and switch-off press the degas key.

AUTO DEGAS

The ultrasonic cleaning unit is equipped with an auto degas option. When the programmed period has finished, the degas function is automatically switched off (10 min).

HOW TO PROCEED

See chart chapter 4.6.

i Degas and sweep functions cannot be operated at the same time.

7. Ultrasonic cleaning process

Please observe the following instructions before starting the ultrasonic cleaning process. It is the user's responsibility to check the cleaning results.



CAUTION

Risk of scalding by hot surfaces and cleaning liquid!

Ultrasonic energy is physically transformed into heat. The unit and the cleaning liquid in the tank heat up during ultrasonic operation even with the heating switched off. During permanent operation with cover temperatures exceeding 60°C can be reached.

During permanent operation with cover and heating temperatures exceeding 80°C can be reached.

Do not reach inside the bath. If necessary touch unit and basket with protecting gloves!



NOTE

Ultrasonic units can produce annoying sounds.

Wear personal ear protection devices when working close to an ultrasonic unit which is operated without cover.

**NOTE**

Sensitive surfaces can be damaged when exposed to ultrasound over prolonged periods, particularly at low cleaning frequencies.
Ensure that sensitive surfaces are exposed to ultrasonic activity for a suitable period only.
If in doubt check the cleaning progress regularly and observe the state of the surface material.

**NOTE**

Ultrasonic energy is physically transformed into heat.
The unit and the cleaning liquid in the tank heat up during ultrasonic operation even with the heating switched off.
During permanent operation with cover temperatures exceeding 80°C can be reached.
For the cleaning of temperature-sensitive items please take into consideration the heating-up of the cleaning liquid.
Please observe that the temperature of the cleaning media remains below 42°C when cleaning parts contaminated with fresh protein or blood.

7.1 Heating up of the cleaning liquid

Depending of the degree and kind of contamination and on the cleaning medium used it might be required to heat up the cleaning liquid. For a quick heating-up process and in order to prevent unnecessary energy losses we recommend to use a cover (optional accessory equipment).



The ultrasonic energy is transformed physically into heat. Low set temperatures can be exceeded during ultrasonic operation.

The cleaning effect through ultrasonic cavitation is reduced when cleaning with high temperatures. We recommend not to exceed a temperature of 80°C inside the tank.

For the recommended cleaning temperature please observe the product information of the used *Easyfluid* cleaner.

**CAUTION**

High temperatures! Risk of burning and scalding!
Cleaning liquid, cleaning tank, casing, lid, basket and cleaning items can heat up considerably.
Do not reach inside the bath.
If necessary wear protective gloves when touching unit and basket!

**NOTE**

Cleaning temperature recommendations in the medical sector:
Please observe that the temperature of the cleaning media remains below 42°C when cleaning parts contaminated with fresh protein or blood.
Please observe the temperature even when using low or no heating.

HOW TO PROCEED

1. Press the on/off key to start the unit.
 2. Select the required cleaning temperature by turning the temperature knob.
- The set temperature is indicated by the permanently lighting LED.
The heating is operated until the set temperature is reached.
The LED display also indicates the actual temperature by a blinking light.
As soon as the actual temperature is equal to or higher than the set temperature, the heating switches off the corresponding LED lights permanently.

7.2 Temperature-controlled cleaning

FUNCTIONING

This Ultrasonic cleaning unit is equipped with an additional temperature-controlled cleaning function. The cleaning process is automatically started as soon as the required bath temperature is reached.

HOW TO PROCEED

1. press the on/off key to start the unit.
 2. select the required temperature.
 3. set the required ultrasonic cleaning period.
 4. keep the start/stop key pressed > 2 sec:
The unit starts heating up.
During the heating-up process the ultrasound is regularly activated to mix the liquid.
When the set temperature is reached the ultrasound is switched on for the duration of the set cleaning period.
- i* When the set cleaning period has run down, the ultrasonic activity switches off automatically. The heating continues operating at the set temperature.**

7.3 Automatic mixing of the liquid during heating up

Without mixing of the liquid the generated heat will rise to the surface of the bath. This will cause a strong gradient of temperature inside the cleaning tank. In order to ensure an even heating-up of the cleaning liquid, it makes sense to mix the liquid from time to time, e.g. by means of ultrasound.

This Ultrasonic cleaning unit is equipped with an additional mixing device which guarantees the optimum mixing of the cleaning liquid during the heating up process.

FUNCTIONING

The ultrasound is activated for operating periods of approx. 5 seconds each with one-minute breaks in between.

HOW TO PROCEED

1. press the on/off key to start the unit
2. select the required cleaning period (set period)
3. set the required temperature
4. to start keep the ►■ key pressed for > 2 sec (see chart chapter 4.6)

i Operation only when set temperature > actual temperature.

7.4 Starting the cleaning process manually

Press the on/off key to start the unit.

SELECT THE CLEANING PERIOD

Set the required cleaning period with the turning knob.

The LED display indicates the set period.

SHORT PERIOD OPERATION

For short period operation set the required cleaning period at the turning knob.

Press the ►■ key to start the ultrasonic operation.

The unit starts the ultrasonic cleaning process.

The remaining period is indicated in the blinking LED display.

The ultrasound is automatically switched off when the set period has run down.

PERMANENT OPERATION

For permanent operation turn the turning knob clockwise into ∞ position. In this operating mode there is no automatic switch-off. The ultrasonic activity must be switched off by hand after the cleaning process has been finished; press the ►■ key to switch of. Alternatively, turn the turning knob back into "0" position.

! **Caution: Do only turn the turning knob anti-clockwise into "0" position!**

i In order to avoid unintended permanent operation, the Ultrasonic cleaning unit is equipped with a safety switch-off automatically. The unit switches off completely after 12 h permanent operation. In case you wish to continue operation start the unit again.

7.5 Sweep function

This Ultrasonic cleaning unit is equipped with an optional sweep function.

FUNCTIONING

A more homogeneous sounding of the cleaning bath is achieved by the continued displacement of the sound pressure maxima in the cleaning liquid.

Particularly for large cleaning items it may be useful to switch on the sweep function.

HOW TO PROCEED

Press the sweep key to switch on or off.

i Sweep and degas functions cannot be operated at the same time.

7.6 After the cleaning

FOLLOW-UP TREATMENT OF CLEANING ITEMS

When the cleaning process is finished rinse the cleaning items, e.g. under the tap.

DRAIN THE UNIT



Caution! Electric shock hazard! Disconnect from the mains before emptying the tank! Make sure no detergent spills into the socket during emptying.

Drain the liquid as soon as it is dirty or when the unit is not operated over a prolonged period of time.

Certain residues and types of contamination may destroy or damage the stainless steel tank.



Advice: Empty by tipping the unit over the appliance side at the back right hand side.



Ensure that no abrasive residues (plaster, investment material, polishing residues, metals, etc.) remain in the ultrasound tank, danger of cavitation corrosion!

8. Cleaning media

! The cleaning chemical to be used must be suitable for the use in an ultrasonic bath to prevent damage to the tank or injuries to the user.

Use the recommended cleaners mentioned in section 8.3.

Observe the restrictions to cleaners containing solvents and aqueous cleaners mentioned in sections 8.1 and 8.2.

Always consult the safety data sheets supplied by the relevant manufacturers of the cleaning agents listed in sections 8.1 and 8.2.

For queries please contact the manufacturer or your supplier.

EXCLUSION OF LIABILITY

Damages caused by non-compliance with the instructions given in sections 8.1 and 8.2 will not be covered by the manufacturer's warranty!

8.1 Limitations of use of cleaners containing solvents



Caution! Never use flammable liquids or solvents directly in an ultrasonic cleaning tank. Risk of fire and explosion! Ultrasound increases the volume of vapourisation of liquids and creates a very fine mist that can catch fire on any ignition source at any time.

Do not fill potentially explosive substances and flammable solvents

- falling under the hazardous goods/material classification according to the Ordinance Regulating Flammable Liquids("Vfb"): A1, B, AII, AIII
- or marked in compliance with the EEC directives by symbols and safety warnings E or R 1, R2
- or R 3 for potentially explosive substances
- or F+, F or R 10, R 11 or R 12 for flammable substances

into the stainless steel tank for ultrasonic treatment.

EXCEPTION

In compliance with the general regulations on the protection of labour, certain limited volumes of flammable liquids (max. 1 litre) can be used in an ultrasonic cleaning unit under the following conditions: these liquids must be filled into a suitable separate vessel (e.g. beaker) with sufficient ventilation; this vessel (beaker) can then be put into the stainless steel tank which is filled with non-flammable liquid (water with a few drops of interlacing agent).

8.2 Limitations on aqueous cleaners

Do not use aqueous cleaning media with pH values in the acid range ($\text{pH} < 7$) directly in the ultrasonic tank if fluoride (F^-), chloride (Cl^-) or bromide (Br^-) ions can be taken in by the removed dirt or through the cleaning chemical. These can destroy the stainless-steel tank by crevice corrosion within a very short period of ultrasonic operation.

ACIDS AND ALKALINE SOLUTIONS

Other media which can destroy the stainless-steel tanks when used in high concentrations or with high temperatures during ultrasonic operation are: nitric acid, sulphuric acid, formic acid, hydrofluoric acid (even diluted). (Completeness of list not guaranteed.)

WASHING-UP LIQUID AND HOUSEHOLD DETERGENTS

Washing-up liquid and household detergents may contain small amounts of chloride.

Usually, the amount is so low, they need not be declared on the packaging and therefore go undetected. Nevertheless, this small amount is enough to damage the ultrasonic cleaner's stainless steel tank and basket by causing rust, pitting corrosion and deterioration.

Therefore, use only detergents specified in Chapt. 8.3.

ENTRAINMENT OF CHEMICAL SUBSTANCES

The above limitations for the use of chemicals in an ultrasonic bath also apply for the aforementioned chemicals when these are brought into an aqueous (particularly distilled water) bath through entrainment or from the removed dirt.

ACID-RESISTANT TANK

For the ultrasonic treatment with the above mentioned media use an acid-resistant tank (available as accessory equipment).

DISINFECTANTS

The limitations of use also apply to the standard cleaners and disinfectants if these contain the above mentioned compounds.

SAFETY REGULATIONS

Observe the safety warnings indicated by the manufacturer of the chemicals (e.g. goggles, gloves, R and S phrases).

8.3 Recommended cleaning agent

GO 2011

Plaster and Alginate Remover, ready for use
Easily cleans

- mixing bowls
- plastic prostheses
- impression trays
- casts
- instruments
- auxiliaries

for dental plasters, plaster-bonded investments and alginates – even in areas hard to get to. Adding ultrasound and keeping the bath temperature at 40–50°C speed up the cleaning process.

9. Maintenance

9.1 Maintenance / Care



Pull the mains plug before carrying out any maintenance works!



Rinse thoroughly with water after servicing, maintenance work and disinfection.

MAINTENANCE

The present ultrasonic cleaning unit is maintenance-free.

Check the casing and the mains cable for damage regularly in order to prevent electrical accidents.

CARE OF CASING

Residues of cleaning agents can be wiped off with a household cleaner or standard descaler depending on the nature of the residues.



Do not put the unit in or under water!

DISINFECTION

If the unit is used for medical and sanitary purposes it is necessary to disinfect the transducer tank and the surfaces regularly (standard surface disinfectants).

9.2 Service life of the transducer tank

The ultrasonic tank, and in particular the mechanical oscillations reflecting surfaces, are physically due to a certain degree of wear. The changes on the surfaces that occur after a certain operating period are visible first as grey areas and later on as material abrasions, the so-called cavitation erosion.

Renfert already uses a highly cavitation-resistant special steel. To prolong the service life of your ultrasonic unit even more we recommend to observe the following instructions:

- Regularly remove any cleaning residues, in particular metal particles and rust films.
- Use suitable cleaning chemicals, with particular caution concerning the kind of removed contamination (see instructions section 8.2).
- Exchange the cleaning medium before it is too heavily contaminated.
- Do not operate the ultrasound unnecessarily; switch off after the cleaning process.
- Do not allow the objects to come into direct contact with the base or side of the unit.

9.3 Repair

 **Opening by authorised specialised personnel only**

Repair and maintenance works which require the unit to be connected and opened must be carried out by authorised and specialised personnel only.

 **CAUTION**
Risk of electrocution due to live parts inside the unit!
Pull the mains plug before opening the unit!
The manufacturer cannot be held responsible for any damage caused by unauthorised maintenance or repair works on the unit.

You can find components subject to wear and the spare parts on the spare part list in the internet at www.renfert.com/p918.

In case of a break-down of the unit please contact the manufacturer or your supplier.

10. Technical details

| | |
|--|----------------|
| Tank max. volume (approx. litre): | 2,75 |
| Tank effective volume (approx. litre): | 1,90 |
| Tank internal dimensions W x H x D (approx. mm): | 240x100x137 |
| Unit external dimensions W x H x D (approx. mm): | 300x214x179 |
| Basket internal dimensions W x H x D (approx. mm): | 198x50x106 |
| Weight (approx. kg): | 3,3 |
| Mains voltage unit variants (Vac): | 120 220-240 |
| Frequency (Hz): | 50 / 60 |
| Ultrasound frequency (kHz): | 37 |
| Power consumption total (W): | 280 |
| Ultrasonic power effective (W): | 80 |
| Ultrasonic maximum peak power*) (W): | 320 |
| Heating power (W): | 200 |

*) Standard sine-wave modulation:

The choice of the waveform has been matched to the relevant tank size. The signal form of the wave results in a factor 4 or 8 for the ultrasonic peak max., depending on the modulation of the wave.

11. Accessories

| | |
|-----------|---|
| 1850-0001 | Plastic lid, grey |
| 1850-0002 | Stainless steel insert lid |
| 1850-0003 | Insert basket, stainless steel |
| 1850-0004 | Submersion basket, stainless steel, 59 mm |
| 1850-0005 | Acid insert pan, plastic (incl. special lid) |
| 1850-0006 | Cleaning glass, 600 ml, w. lid and rubber seal ring |
| 1850-0007 | Plastic cup with lid |
| 2011-0000 | GO 20111 |

12. Warranty

Provided the unit is properly used, Renfert **warrants** all components of the Easyclean for a **period of 3 years**. In particular, this warranty applies to the swivel pan. Presentation of the original bill of sale is required for all warranty claims.

Parts which are subject to natural wear and tear (wear parts) and consumables are excluded from the guarantee. These parts are marked in the spare part list.

The warranty is voided in case of improper use; failure to observe the operating, cleaning, maintenance, and connection instructions; in case of independent repairs or repairs by unauthorized personnel; if spare parts from other manufacturers are employed, or; in case of unusual influences or influences not in compliance with the utilization instructions. Warranty service shall not extend the original warranty.

13. Disposal instructions for countries in the EU

To conserve and protect the environment, prevent environmental pollution and improve the recycling of raw materials, the European Commission adopted a directive that requires the manufacturer to accept the return of electrical and electronic units for proper disposal or recycling.

Within the European Union units with this symbol should not therefore be disposed of in unsorted domestic waste:



For more information regarding proper disposal please apply at your local authorities.

14. Trouble shooting

| Fault | Possible cause | Remedy |
|--|--|--|
| Casing damaged | <ul style="list-style-type: none"> • damage by third party, transport damage | <ul style="list-style-type: none"> • return unit to supplier or manufacturer |
| Mains cable damaged | <ul style="list-style-type: none"> • damage by third party, transport damage | <ul style="list-style-type: none"> • obtain original spare mains cable from manufacturer or supplier |
| No operating functions; all LEDs dark | <ul style="list-style-type: none"> • mains cable not plugged in • socket dead • mains cable damaged/interrupted • fault of electronics | <ul style="list-style-type: none"> • plug in mains cable • check socket/fuse • replace mains cable • return unit to supplier or manufacturer |
| No ultrasonic function; LED ultrasound dark | <ul style="list-style-type: none"> • turning knob for ultrasonic operation in „0“ position • unit is switched off • key ►■ (ultrasound) not pressed • fault of electronics | <ul style="list-style-type: none"> • switch on the turning knob for ultrasonic operation • switch on the unit at key on/off • press key ►■ • return unit to supplier or manufacturer |
| No ultrasonic operation; LEDs of LED cleaning period blink alternately ("running light") = fault indication ultrasound | <ul style="list-style-type: none"> • adverse filling level • fault of electronics | <ul style="list-style-type: none"> • change filling level, switch unit and off and on • switch unit off and on • if fault is indicated again: return unit to supplier or manufacturer |
| Unsatisfactory cleaning results | <ul style="list-style-type: none"> • no or unsuitable cleaning medium used • cleaning temperature not sufficient • cleaning period too short | <ul style="list-style-type: none"> • use suitable cleaning medium • heat up cleaning liquid • repeat cleaning interval |
| Unit does not heat up; LED temperature dark | <ul style="list-style-type: none"> • turning knob temperature in „0“ position • unit is switched off • fault of electronics | <ul style="list-style-type: none"> • switch on turning knob temperature • switch on unit with key on/off • return unit to supplier or manufacturer |
| No heating function; LEDs of LED temperature blink alternately ("running light") = fault indication heating | <ul style="list-style-type: none"> • fault of electronics | <ul style="list-style-type: none"> • switch unit off and on • if fault is indicated again: return unit to supplier or manufacturer |
| Unsatisfactory heating-up period | <ul style="list-style-type: none"> • loss of heating energy • no mixing of cleaning liquid | <ul style="list-style-type: none"> • use cover (optional accessory equipment) • e.g. switch on ultrasound (see section 7.3) |
| Unit produces boiling noise during heating-up | <ul style="list-style-type: none"> • no mixing of cleaning liquid | <ul style="list-style-type: none"> • e.g. switch on ultrasound (see section 7.3) |
| Set temperature is exceeded | <ul style="list-style-type: none"> • temperature sensor does not measure the average temperature (no revolution) • set temperature too low, • ultrasonic energy heats up the liquid more than required (physical process) | <ul style="list-style-type: none"> • mix liquid manually or by means of ultrasound • for low set temperatures do not switch on heating • switch on ultrasound for short periods only |
| No operational functions; LEDs of LED ultrasound and LED temperature blink alternately ("running light") = fault indication programme control | <ul style="list-style-type: none"> • fault of electronics | <ul style="list-style-type: none"> • switch unit off and on • if fault is again indicated: return unit to supplier or manufacturer |

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