RUCK®

Translation of the original operating instructions

english

Ultrasonic Med S

Ultrasonic cleaning unit

RUCK® Ultrasonic Med S
2603601

Manufacturer:

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Distribution:

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Subject to technical and visual modifications.

Contents

1 About this manual

IMPORTANT Please read the manual before using the product. This manual forms part of the contents supplied with the unit. Keep the manual in an accessible place close to the product, and keep it with the product if it is sold on.

Meaning of the symbols used:

● This symbol denotes lists.

✓ This symbol denotes requirements.

1. Numbers with a dot denote actions.

○ This symbol denotes individual actions.

⇨ This symbol denotes interim results.

➜ This symbol denotes the result of an action.

1 Numbers without a dot denote image labels.

1.1 User

In the manual, the term *User* refers to all persons who transport, set up, connect, operate and maintain the unit. The manual is aimed at persons with appropriate technical knowledge and experience in handling similar units.

Users must have read and understood the manual and be capable of following all notes and instructions.

All tasks that go beyond the pure operation of the unit within the scope described here must be performed by qualified and authorised specialists.

1.2 Other applicable documents

In addition to the specifications given in this manual, the following documents and directives also apply and may take precedence. This list is not exhaustive:

• Regional safety regulations and other locally applicable provisions.
• Safety data sheet and dosing instructions of the cleaning agents used.
• All serious incidents that occur in connection with the product must be reported to the manufacturer and the responsible authority of the member state in which the operator and/or the patient are resident.

1.3 CE mark

This unit fulfils CE marking requirements in line with EU (EC/EEC) directives. Details are stated in the EU declaration of conformity that can be obtained from the manufacturer.

Technical changes to the unit must be approved by the manufacturer.

2 Proper use

The unit is used exclusively to treat objects and materials submerged in cleaning fluid with ultrasound. The cleaning effect is produced by the purely physical action of the ultrasound generated by the unit. The cleaning power can be boosted by adding suitable cleaning agents [▶ 9] and by increasing the temperature and duration of the bath. The unit is also authorised for use in typical laboratory applications, such as the preparation of samples by degassing, emulsifying or dispersing fluids and solutions.

The unit is classified as a class I medical device in line with the EU Medical Device Regulation and is designed exclusively for use in commercial environments. Only original accessories manufactured for the unit are permitted to be used.

The following objects are considered to be appropriate cleaning goods as long as the object in question is approved for cleaning in an ultrasonic bath. The list is not exhaustive:

- Medical and surgical microinstruments/instruments.
- Other medical devices.
- Dental instruments and dental laboratory materials.
- Podiatry instruments.
- Instruments from the tattooing and piercing sector.
- Laboratory tools such as flasks, filters and plastic objects.
- Spectacles and objects used in timepiece and jewellery production.
- Industrial products and industrial objects.

Using the unit in any other way is considered improper use.
The operator is responsible for assessing the cleaning results.

2.1 Cleaning medical devices

The unit is used to clean and pre-clean medical devices. The following conditions must be fulfilled:

- The medical device is approved for ultrasonic cleaning and reprocessing (see information from the medical device manufacturer in line with EN ISO 17664).
- The medical device is only reused if downstream cleaning and preparation procedures ensure that it is properly cleaned, disinfected and sterilised.
- In cases of doubt, information on using and cleaning the device that is stipulated in the associated manual must be given precedence.

| **IMPORTANT** | Pre-cleaning medical products does not replace subsequent cleaning, disinfection or sterilisation using automated standard processes, e.g. washer-disinfectors or autoclaves. |

2.2 Misuse

Misuse refers to any use of the unit that deviates from proper use. Any misuse takes place at the user's own risk and incurs the following consequences:

- The warranty is invalidated if the unit is misused.
- All liability for personal injuries and damage to property is excluded.

Therefore, it is vital to prevent misuse. This particularly applies to foreseeable misuse that can, for instance, arise in the following circumstances:

- Operation by persons who are incapable of operating the unit safely due to their physical, sensory or mental abilities, due to inexperience or due to a lack of knowledge. Children, in particular, must be kept away from the unit at all times.
- Failure to observe safety and warning notifications and maintenance and repair regulations.

- Failure to observe the conditions and fluids defined in the manual during setup and operation.
- Operation using unapproved cleaning agents.
- Operation in areas with explosive atmospheres.
- Operation connected to a power supply without a fault-current circuit breaker.

Use for the following purposes is also considered misuse:

- Cleaning or hydrating contact lenses.
- Cleaning animals or plants.

3   Safety

The unit has been designed and manufactured in line with current technological standards and recognised technical safety regulations. Nevertheless, the unit can pose a hazard to the life and health of users or third parties throughout its entire service life and can cause damage to itself or other material assets.

This chapter provides information on the basic structure of warnings, possible residual risks when using the unit and on how to avoid the resulting hazards. This information must be supplemented by statutory provisions and locally applicable regulations, which can be very different depending on the place of installation and intended application.

3.1   The structure of warnings

SIGNALWORD
Type and source of the danger
Possible consequences of the danger if disregarded.
➢ Measures to prevent the danger.

Signal word	Meaning	Consequences if disregarded
DANGER	Immediate danger	Death or serious injury
WARNING	Possible dangerous situation	Death or serious injury
CAUTION	Possible dangerous situation	Slight injuries, damage to components or units
NOTICE	Useful advice or tip	No risk of personal injury, but possible damage to components or units

Table 1: Meaning of the signal words

3.2   Meaning of symbols on the unit

	Warning – hot surfaces, vapours and liquids

3.3   Meaning of symbols on the nameplate

	Attention

MD	Medical device
	Read the manual
	Manufacturer
	Date of production
REF	Order number
SN	Serial number
	Temperature limit
$C\,\epsilon$	CE mark
UK CA	UK Conformity Assessment marking
CH **REP**	Swiss authorised representatives for medical device manufacturers
	Disposal information

3.4 Safety information on specific types of hazard

Electrical power

Contact with live components can lead to serious
injury or death due to electrocution!
  • Do not connect the unit to the power supply if the connection cables or other components are visibly damaged.
  • Keep the enclosure and control elements clean and dry.
  • Protect the unit against penetrating moisture.
  • The mains voltage and the connected load on the nameplate must correspond to the on-site connection conditions.
  • Only operate the unit in power circuits that are protected by a fault-current circuit breaker.

Risk of fire and explosion

Critical injuries, burns
  • Do not fill the cleaning tank with flammable liquids.
  • Only use cleaning agents that are approved for this unit.
  • In case of doubt, ask the manufacturer or supplier.

Infections

Danger of possible infection due to poor cleaning results, dirty cleaning fluid and insufficient maintenance and disinfection of the unit.

  • Change the cleaning fluid when it becomes visibly dirty and at least once per day.

- Clean the tank and surfaces thoroughly after draining the fluid and disinfect, if necessary.
- Check the cleaning results. The operator is responsible for monitoring the cleaning results.

Hot liquids and surfaces

Danger of burns and scalds due to contact with hot fluids or surfaces caused by high operating temperatures or continuous ultrasound operation.

- Do not touch the surfaces, accessories or objects being cleaned.
- Danger of splashes caused by high temperatures, by switching on ultrasound operation or by careless insertion of the basket or objects. If necessary, wear suitable protective equipment.
- If work must be performed on hot components, switch off the unit and allow to cool. If necessary, wear suitable protective equipment.

Cleaning agents

Volatile, corrosive or aggressive cleaning agents can cause chemical burns to the skin and respiratory tract.

- Observe the safety data sheet when using cleaning agents.
- Wear the protective equipment stipulated in the safety data sheet.
- Where necessary, provide adequate extraction for the emitted vapours and regularly check that the extraction system is working correctly.
- Observe the information stipulated in the *Cleaning agents* chapter. In case of doubt, ask the manufacturer or supplier.

Ultrasound-conductive liquids and materials

Ultrasound damages the cell membranes and bone structure.

- Do not reach into the ultrasonic bath during ultrasound operation.
- During ultrasound operation, do not touch any parts that conduct ultrasound, such as the tank, basket or any accessories used.

Ultrasound noise emissions

Working with ultrasonic cleaning units for longer periods of time can damage your hearing.

- Use the lid or wear personal ear protection when working on ultrasonic units.
- Pregnant women must not be subjected to the noise emissions for longer periods of time.
- Keep animals away from the vicinity of ultrasonic devices.

Electromagnetic radiation

- No binding statement can be made for persons with active medical implants, such as pacemakers or implanted defibrillators. A binding statement can only be made for specific workstations and in consultation with the implant manufacturer.

4   Use of cleaning agents

A cleaning agent can be added to the liquid in the tank to improve the cleaning results.

If using cleaning agents, observe and apply the instructions stated in the safety data sheet and product information.

Also observe the following information:

4.1   Permissible cleaning agents

- Only use aqueous cleaning agents for ultrasonic cleaning.
- Only use cleaning agents that are suitable for ultrasonic cleaning.

4.2   Cleaning agents

Use of aggressive, corrosive cleaning agents:

Aggressive, corrosive cleaning agents can cause severe chemical burns if they come into contact with eyes or skin. Insufficient ventilation can result in severe chemical burns to the respiratory tract.

- Before using any cleaning agents, read the safety data sheet and product information and observe and apply the instructions.
- Where necessary, install an effective extractor system for the emitted vapours (e.g. at higher temperatures) and regularly check that the extractor system is working correctly.
- Never reach into the tank when filled with cleaning agent.
- Wear suitable protective equipment in line with the safety data sheet.

Danger of fire or explosion when using combustible cleaning agents

Ultrasound and heat increase the evaporation of liquids and form extremely fine mists that readily ignite on contact with sources of ignition. This can result in severe burns or death.

- Do not use cleaning agents that are labelled with the pictograms GHS01 (explosive), GHS02 (flammable) or GHS03 (oxidising) in line with the CLP regulation (EC no. 1272/2008). Do not use cleaning agents that have a flashpoint.
- If necessary, clarify the cleaning agents that can be used by consulting the manufacturer or supplier.

GHS01   **GHS02**   **GHS03**

Table 2: GHS pictograms for explosive, flammable or oxidising substances

Damage to stainless-steel tank caused by unsuitable cleaning agents

Unsuitable cleaning agents can cause pitting and therefore damage the stainless-steel tank within a short time.

- Consult the unit and cleaning agent manufacturers to clarify whether the cleaning agent is suitable.
- Do not use any cleaning agents in the acidic pH range at the same time as halides, such as fluoride, chloride, bromide or iodide.
- Only use cleaning agents that are suitable for ultrasound applications.

5   Technical data

Ultrasonic Med	Unit	S
Mechanical data		
Max. external dimensions W/D/H (unit with cover)	mm	235 / 130 / 200
Max. opening dimensions W/D	mm	190 / 85
Working height H	mm	30
Interior dimensions of basket W/D/H (original accessories)	mm	155 / 70 / 35
Max. basket loading (original accessories)	kg	1,0
Total volume	L	0,9
Recommended tank operating capacity	L	0,7
Weight	kg	2,0
Material (tank, enclosure)	–	Stainless Steel
Performance data		
Total power consumption	W	30
Ultrasonic power effective ±10 %	W	30
Ultrasonic peak performance max.	W	240
Electrical data		
Mains voltage ±10%	V~	220 - 240
Mains frequency	Hz	50 / 60
Ultrasonic frequency -2.5 / +5.5	kHz	37
Degree of protection	–	IP 20
Protection class	–	I
Ambient conditions		
Temperature (transport)	°C	-15 - +60
Temperature (operation, storage)	°C	+5 - +40
Air pressure (transport, storage)	hPa	500 - 1010
Permissible relative humidity (transport,	% r. h.	10 – 80, non-condensing
Permissible relative humidity (operation)	% r. h.	80; non-condensing under fluctuating temperatures
Max. perm. altitude (operation)	m above sea level	+2000
Overvoltage category	-	II
Degree of contamination	–	2

Sound pressure level LpAU*	dB	< 80

*Measured sound pressure level with cover at a distance of 1 m.

6   Product contents

IMPORTANT	Check delivery for damage to the packaging. Document any damage immediately (e.g. photo), and report it to the manufacturer or dealer.
	Check that all parts of the delivery are complete and undamaged.
	Never put a damaged unit into operation.
	Dispose of packaging materials that are no longer required in an environmentally friendly manner.

RUCK® Ultrasonic Med S
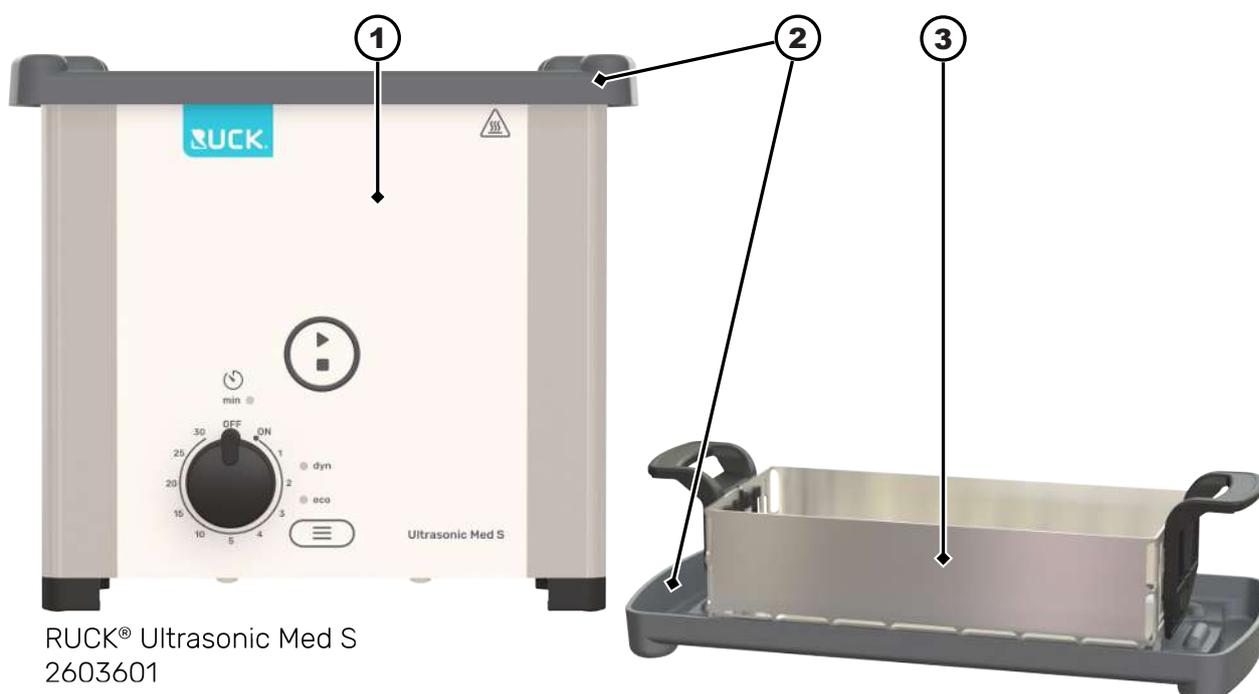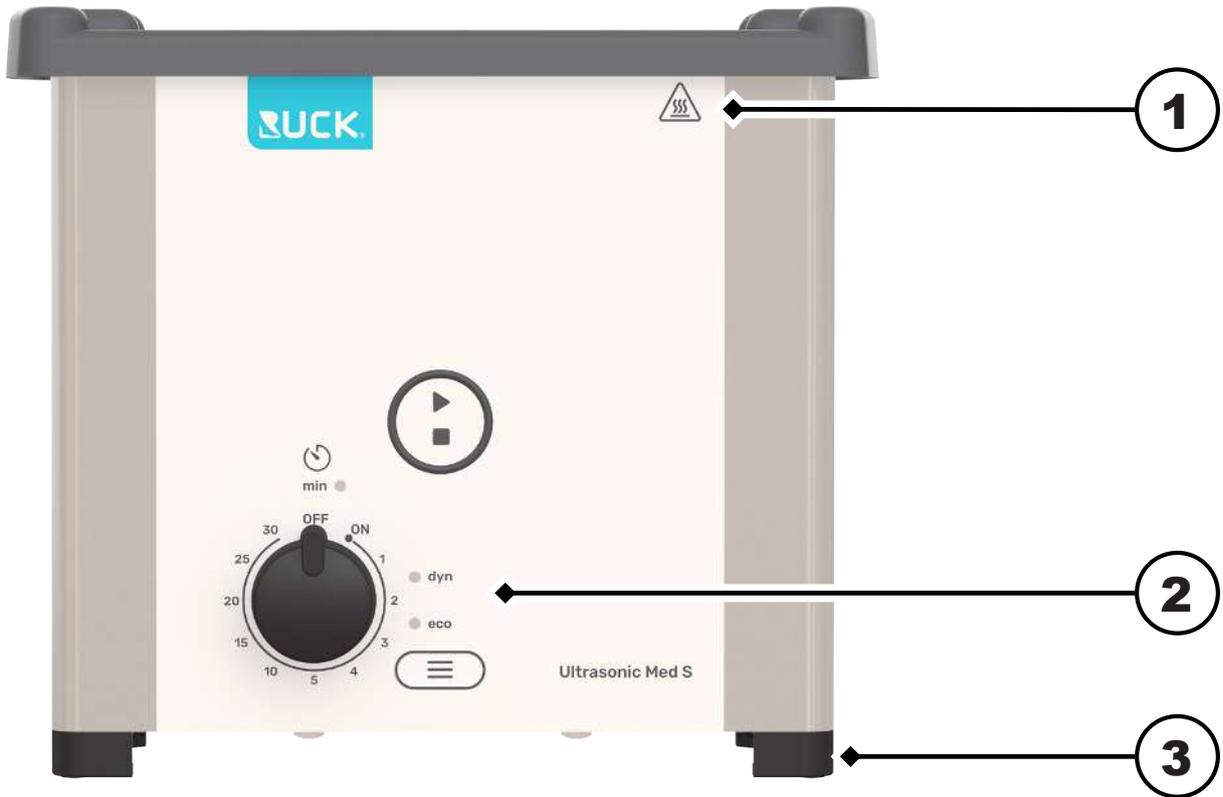2603601

Illustration 1: Included items (schematic diagram)

1	Ultrasonic unit
2	Cover or, turned over, usable as a drip tray for a basket
3	Basket
4	Network cable (not shown)
5	Manual (not shown)

7   Unit description

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Illustration 2: Unit description

1   **Warning** of hot surface

2   **Controls**

3   **Feet**, non-slip

4   **Mains connection** (not shown, unit rear)
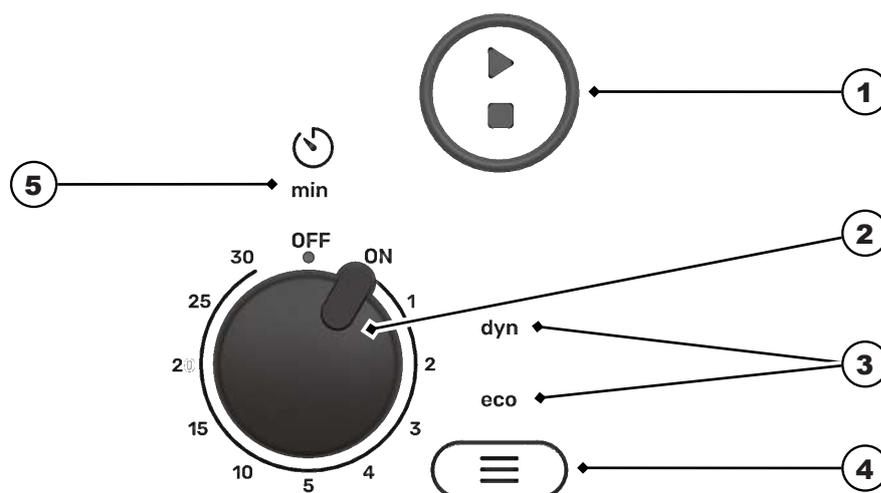
5   **Nameplate** (not shown, unit rear)

8 Controls

Illustration 3: Controls

1 **Start/Stop button,** switch ultrasonic cleaning on/off

2 **Cleaning duration rotary knob**
ON/OFF, switch the unit on/off;
set a **cleaning duration** of 1, 2, 3, 4, 5, 10, 15, 20, 15 or 30 minutes

3 **LED indicator** for ultrasound modes **dyn** and **eco**, die LED indicator of the set ultrasound mode lights up

4 **Mode button**, set the **dyn** or **eco** ultrasound mode

5 **LED indicator for cleaning duration;**
flashes green – for the duration of ultrasonic cleaning,
lights up green – when ultrasonic cleaning is complete,
flashes red – there is a fault, see Malfunctions/fault messages [▶ 20].

8.1 Operating modes

Operating mode	Description
Switched off	The cleaning duration rotary knob is turned to **OFF**. All LEDs are off.
Switched on	The cleaning duration rotary knob is turned to **ON**, or a cleaning duration of 1–30 minutes is set. The LED of the set ultrasound mode lights up.
Safety switch-off with wake-up function	The unit is switched on. Automatic safety switch-off occurs after 8 hours of inactivity or in case of a brief interruption of the power supply. The LEDs turn off. The unit can be switched on again by pressing a button or turning the rotary knob.
Ultrasonic cleaning	Ultrasonic cleaning was started by pressing the **Start/Stop** button. The LED for cleaning duration **flashes** during ultrasonic cleaning. You can press **Start/Stop** again to terminate ultrasonic cleaning at any time. The LED for cleaning duration is off.
Ultrasonic cleaning complete	A brief audible signal is emitted at the end of the cleaning duration. The LED for cleaning duration **lights up**.

9 Set up and connect the unit

9.1 Notes on installation site

The unit is designed to be set up in commercially used premises such as laboratories, medical practices, etc.

- The installation site must be well ventilated.
- The permissible ambient conditions are met.
- The unit must be installed on a sturdy, horizontal, non-slip, moisture-resistant work surface with the following characteristics:
  - The surface must be non-flammable.
  - There must be sufficient clearance above the unit to allow the cover and the objects being cleaned to be removed.
  - There must be an area available next to the unit for setting down the basket and inserts.
- Electrical connection conditions:
  - Splash-proof earthed socket near the unit
    (cable length approx. 1.5 m).
  - The power connection must be protected by a fault-current circuit breaker (RCD).
  - Ensure that the power supply required to operate the unit is available.
- Wastewater connection requirements:
  - **Units without drains:** select an installation site located close to a sink that can be used to empty the unit.
  - **Units with drains:** properly connect the unit drain to the on-site wastewater disposal system. If necessary, properly route the drain into a sink located nearby.
    ⚠ **CAUTION! Use heat-resistant material.**

9.2 Set up the unit

- ✓ Unpack the unit completely.
- ✓ Keep the cover and accessories, e.g. basket, inserts, etc. on hand.
- ◦ Place the unit on the selected surface.
  IMPORTANT The controls, such as the rotary knobs, buttons and, if applicable, discharge tap, must be clearly visible and easily accessible.
- ➔ The unit has been set up.

9.3 Connect the unit

Connect the drain

- ✓ Obtain the required connection materials, e.g. suitable heat-resistant hose and hose clips (the hose is not included).
1. Unscrew the yellow plug from the drain.
2. Screw the included hose nozzle into the drain.
3. Push the hose onto the hose nozzle and secure it using the hose clip.
4. Connect the hose to the wastewater disposal system. If necessary, properly route the hose into a sink.
5. Check the drain for leaks. To do so, fill the tank with cold water up to around 1/3 of the fill level. Then, open the discharge tap to test all joints for leaks.
6. Seal any leaks found.

- ➔ The drain is connected.

Connecting the network cable

✓ Ensure that the required power connection is available.

1. Plug the power cord into the IEC connector on the unit.

2. Route the power cord in such a way that it does not pose a tripping hazard, cannot be damaged and is not exposed to moisture. The power cord must not touch the unit housing, as the housing becomes hot during operation.

3. Connect the plug. The plug must be easily accessible so that it can be disconnected in emergencies.

➔ The power supply has been connected.

10 Fill the tank

Suitable cleaning liquids for ultrasonic cleaning are:

- Water
- Softened water
- Distilled water

Cleaning power can be improved by adding aqueous cleaning agents. See Metering cleaning agent [▷ 16].

✓ The unit and the tank are clean and, if necessary, disinfected.

✓ The recommended tank operating capacity for the relevant unit sizes is stated in the technical data. See Technical data.

✓ The unit is ready to use.

1. Add the fluid to the tank up to the fill level marking using, for example, a measuring jug. The fill level marking is the stacking collar (**1**). For unit sizes without stacking collars, the fill level is approx. 1.5 cm beneath the tank edge.
⚠ **CAUTION! An overfilled tank can cause the cleaning fluid to boil over at high temperatures.**

2. The process of adding cleaning agents is explained in chapter Metering cleaning agent [▷ 16].

3. Fresh liquid must be degassed approx. 10 minutes prior to ultrasonic cleaning. See Degassing the liquid [▷ 16].
IMPORTANT It is important to degas freshly inserted ultrasonic cleaning baths to remove any air bubbles and dissolved gases that may be present in the cleaning liquid. Failure to remove these gases will negatively impact cleaning power.

⇨ The tank has been filled.

Insert a basket:

1. Hang the basket filled with the items to be cleaned in the tank.
   IMPORTANT The fill level in the tank will increase once the basket or insert is placed inside. This may cause the tank to overflow in the case of full baskets or dosages > 5%. To avoid this, do not fill the tank right up to the fill level marking in such cases and fill the remaining space once the basket has already been inserted.

2. **IMPORTANT!** The objects being cleaned must be completely submerged in the fluid to achieve good cleaning results. If necessary, reduce the number of objects being cleaned.

➔ The tank is full, cleaning agent has been dosed (if necessary), liquid has been degassed and the basket has been inserted. Ultrasonic cleaning can be started.

10.1 Metering cleaning agent

Cleaning power can be improved by adding aqueous cleaning agents.

⚠ **WARNING! Please follow the safety instructions and instructions for use and observe the mixing ratio for the cleaning agent used!**

Dosing information for the different unit sizes and typical volume concentrations are shown in the following table.

Device size	Tank operating capacity	Dosing quantities in **ml** for following concentrations:			
Volume concentration in %		1%	2%	3%	5%
	1 l/1000 ml	10 ml	20 ml	30 ml	50 ml
Ultrasonic Med S	0.7 l / 700 ml	7 ml	14 ml	21 ml	35 ml
Ultrasonic Med M	1.6 l / 1600 ml	16 ml	32 ml	48 ml	80 ml
Ultrasonic Med XL	6.8 l / 6800 ml	68 ml	136 ml	204 ml	340 ml

✓ The aqueous cleaning agent is chosen based on the type of cleaning desired.
   ⚠ **WARNING! Do not use flammable cleaning agents!** See Use of cleaning agents [▶ 9].

✓ The unit is filled with liquid (e.g. water) up to the recommended tank operating capacity. See Fill the tank [▶ 15].

1. Find the dosing quantity for the required concentration in the table and add the liquid to the unit.

2. Stir the cleaning liquid to mix. Stirring is also achieved by degassing the cleaning liquid. See Degassing the liquid [▶ 16].

➔ The cleaning agent is dosed into the liquid. For further steps, see Fill the tank [▶ 15].

10.2 Degassing the liquid

Degassing of the liquid results in the following advantageous ultrasound effects:

- Improves the cleaning effect of the ultrasound.
- Stabilises the cleaning process.
- Ensures optimal mixing of the cleaning liquid.
- Improves the spatial temperature distribution in the liquid.

Procedure

✓ The unit is ready to use.

✓ Fresh liquid has been added to the tank.

✓ Cleaning agent has been added to the liquid, if applicable.

✓ The basket with the objects to be cleaned is not inserted.
   NOTICE! Always degas the liquid without the basket and objects.

1. Set the cleaning duration to 10 minutes. See Set the cleaning duration.
2. Start ultrasound mode *dyn* (dynamic). See Changing ultrasound mode [▶ 18].
   NOTICE! Degassing can also be carried out with another ultrasound mode if the unit does not have the dyn ultrasound mode.
   ⇨Let the unit run for at least 10 minutes in the set ultrasound mode.
➔ The liquid has been degassed.

11 Insert objects to be cleaned

✓ Ensure that all optional original accessories e.g., baskets or inserts for holding the objects being cleaned, are available.
IMPORTANT! Do not place objects on the bottom of the tank. The tank and the objects can be damaged by ultrasonic operation.

1. Position the basket or insert next to the unit. The cover can be used as a drip tray.
2. Place the objects inside the basket or insert without overfilling it. Arrange the objects being cleaned in such a way that fluid will be able to circulate around them without obstructions.
   IMPORTANT! Only clean objects that are suitable for ultrasonic operation, the set temperature and, where applicable, the cleaning agent in use. In case of doubt, contact the manufacturer or dealer.
3. Hook the filled basket or insert inside the tank.
➔ The objects being cleaned have now been inserted.

12 Operating the unit

WARNING
Damage caused by noise emissions
Hearing damage!
➢ When working with the unit in ultrasound mode, cover it with the lid or wear hearing protection.
➢ Pregnant women must not spend long periods of time near an ultrasonic unit in operation.
➢ Keep animals away from the ultrasonic unit.

CAUTION
Dry operation!
Damage to the tank and unit.
➢ Always fill the tank with liquid before operation.
➢ Never operate the unit without cleaning liquid.
➢ Regularly monitor the filling level.

There are two options for setting the cleaning duration for ultrasonic cleaning:

• **Ultrasonic cleaning in continuous operation, cleaning duration rotary knob ON:**

Ultrasonic cleaning can be started or stopped at any time by pressing the *Start/Stop button*.
Important! In the **ON** (continuous operation) rotary knob position, the cleaning duration automatically stops after a maximum of 6 hours.

• **Timed ultrasonic cleaning operation, cleaning duration rotary knob 1–30 minutes:**

Ultrasonic cleaning stops automatically after the set time or at any time by pressing the *Start/Stop button*.

12.1 Setting the cleaning duration

✔ The unit is ready to use.

✔ The unit is filled with liquid.

✔ The cleaning agent has been metered and added, if applicable.

✔ The liquid is degassed.

✔ The objects to be cleaned have been inserted.

✔ The unit is covered with the cover.

Turn the cleaning duration *rotary knob* to **ON** to switch on the unit for up to 6 hours.

Alternatively, turn the cleaning duration *rotary knob* directly to a time of 1, 2, 3, 4, 5, 10, 15, 20, 25 or 30 minutes to switch on the unit for a specific cleaning duration.

The LED indicator of the ultrasound mode ready for operation lights up.

➜ The cleaning duration is set. The cleaning duration stops automatically after the set time.

12.2 Changing ultrasound mode

Dyn (dynamic)   Used for more intensive cleaning with greater cleaning power.

eco   Used for gentle cleaning and quieter operation.

✔ The cleaning duration is set.

Press the *Mode button* to change the ultrasound mode.

○ **dyn**

The LED indicator of the set ultrasound mode lights up.

○ **eco**

➜ The ultrasound mode has been changed.

12.3 Starting/stopping ultrasonic cleaning

The cleaning liquid also heats up in ultrasonic operation without heating. Especially during continuous operation, the cleaning liquid can become hot due to ultrasonic operation.

✔ The cleaning duration is set.

✔ The ultrasound mode has been changed, if applicable.

✔ The cleaning temperature is set (for units with heating).

Press the *Start/Stop button* to begin ultrasonic cleaning. Ultrasonic cleaning stops automatically after the set time.

The LED indicator for cleaning duration flashes green during ultrasonic cleaning.

The LED indicator for cleaning duration lights up green when ultrasonic cleaning is complete. A brief audible signal tone also alerts you to the end of cleaning.

Press the *Start/Stop button* again to stop ultrasonic cleaning before the end of the set cleaning duration. The LED indicator for cleaning duration will go out.

Important! Check the temperature of the cleaning liquid regularly, especially when cleaning sensitive objects.

If the cleaning temperature is too high, allow the cleaning liquid to cool down or replace the cleaning liquid.

➜ Ultrasonic cleaning is complete. Check the cleaning result.

NOTICE! Automatic safety shut-off is activated after 8 hours of unit inactivity. The LEDs turn off. The unit can be switched on again by pressing a button or turning a rotary knob.

12.4 Remove cleaned objects

✓ The end of ultrasonic cleaning is indicated by the End of cleaning symbol or, where applicable, an acoustic signal.

1. Carefully remove the lid, and allow any dripping water to drip into the tank. Then, place the lid upside down next to the unit to use as a drip tray.
⚠ **CAUTION! If using high cleaning temperatures > 50 °C, allow the liquid to cool down first or use suitable heat-insulating protective gloves.**

2. Lift the basket or insert out of the tank, allow the excess fluid to drain briefly, and place it on the upturned lid.

   ⇨ The objects are now clean. Check the cleaning result.

➜ Check the fill level if you intend to start another ultrasonic cleaning process.

➜ Switch off the unit. If the fluid is dirty or will not be used again, empty out the liquid. See the section Draining the unit for information.

13 Drain the unit

✓ Ultrasound operation has finished.

✓ The basket or insert has been removed.

1. Disconnect the network cable.

2. Put the cover on.

3. Firmly take hold of the unit whilst holding the cover in place and carry it carefully to a sink.

4. Remove the cover.

5. Slowly tip the unit over the sink with one corner at the lowest point, and carefully pour out the cleaning fluid.

   ⇨ The tank has been drained.

6. Clean and, if necessary, disinfect the tank. See chapter Maintenance for more information.
⚠ **CAUTION! Never submerge the unit in water.**

➜ The unit has been drained, cleaned and, where necessary, disinfected.

14   Malfunctions/fault messages

14.1 Troubleshooting

Fault	Possible cause	Resolution
No LEDs are lit	Unit is not switched on, safety switch-off has been triggered or there is no power supply	• Turn rotary knob or press button • Switch on the unit • Check that the power cable is correctly connected and undamaged; replace if necessary • Check power supply
Buttons/rotary switches indicate no function	Controls defective	• Contact the manufacturer.
Ultrasonic operation does not start	Ultrasonic unit defective	• Contact the manufacturer.
Cleaning liquid does not heat up (applies for units with heating)	Heating defective	• Contact the manufacturer.

14.2 Fault messages

If a fault occurs, various different flashing patterns indicate the fault type. Ultrasonic operation always switches off if a fault occurs.

LED	Flashing pattern	Fault type	Possible remedies
min	Flashes red twice, pauses, repeats	Power supply faulty	Connect the unit to a socket of a different power circuit
min	Flashes red three times, pauses, repeats	Ultrasonic performance faulty (too high or too low)	Switch unit off, switch on again after 1 minute and restart cleaning Increase or decrease liquid level, if applicable
min	Continuously flashes red	All other faults	Contact service centre or manufacturer
°C	Continuously flashes orange (applies for units with heating)	Max. temperature > 90 °C reached	Switch unit off and allow the cleaning liquid to cool down, disconnect unit from the mains if necessary
°C	Continuously flashes red (applies for units with heating)	Faulty temperature sensor	Contact service centre or manufacturer

Contact the service centre or the manufacturer in the following cases:
• The measures described here do not remedy the fault.
• The fault recurs (repeatedly), even after performing the following measures:

– The unit was disconnected from the mains and plugged in again about 1 minute later, and cleaning started again.

• The unit must be repaired at the factory.

IMPORTANT   Empty the unit completely, and clean and disinfect it thoroughly before sending it for repair.

15   Servicing

> **CAUTION**
>
> **Faulty power cord**
>
> Electric shock or damage to the device
>
> ➢ Check the power cord regularly for damage.

IMPORTANT   Keep the unit and tank clean and dry to prolong its service life. Regularly remove all dirt residues and accumulated dust.

15.1   Replace the network cable

✓ The network cable or plug contacts are visibly damaged.

◦ Replace damaged network cables immediately.
   NOTICE! Removable network cables may not be replaced with insufficiently measured network cables!

➔ The network cable has been replaced.

15.2   Clean enclosure

✓ The enclosure is dirty.

✓ The network cable is unplugged.

◦ Wipe all surfaces using a damp cloth.
   ⚠ **WARNING! Do not spray the outside of the unit with water.**

➔ The enclosure has been cleaned.

15.3   Cleaning the tank

✓ The tank is full of limescale or dirty.

✓ The tank is empty.

1. Use a damp cloth to wipe out limescale and dirt residue. If necessary, rinse the tank using a shower set.
   ⚠ **CAUTION! Do not spray the outside of the unit with water.**

   ⇨The tank has been cleaned.

2. To descale the tank, fill the tank with warm tap water.

3. Add 4–10% of Elma clean 60 or Elma clean 115C.

   ⇨Leave the solution to work for approx. 12 hours.

4. Then switch on ultrasound mode for approx. 15 min.

5. Empty the tank.

6. Use a damp cloth to wipe out the remaining limescale and dirt residue. If necessary, rinse the tank using a shower set.
⚠ **CAUTION! Do not spray the outside of the unit with water.**

➔ The tank has been descaled and cleaned.

15.4 Disinfect

We recommend the following disinfectants for wiping the unit:

• 29666 RUCK ® alcohol spray and wipe disinfection.

✓ The unit is used in the medical and health sector.
NOTICE! Observe local directives and cleaning regulations. This particularly applies to the cleaning of medical units.

◦ Disinfect the tank and the housing using a commercially available surface disinfectant on a regular basis. ⚠ **CAUTION! Test the disinfectant on a small area first to ensure it does not affect the materials, particularly the controls.**

➔ The unit has been hygienically disinfected.

16   Disposal

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CAUTION

Once the unit has reached the end of its service life, ensure that the unit and accessories are disposed of safely and correctly:

➢ Clean and disinfect the old device and accessories before disposal.

➢ Do not dispose of old devices with household waste, but instead at the local collection and disposal points.

➢ Secure the old device against unauthorised access until removal; if necessary, dispose of the power cable separately.

➢ Observe regionally applicable disposal directives.

➢ Data protection notice: The end user is responsible for deleting personal and confidential data from the unit being discarded.

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