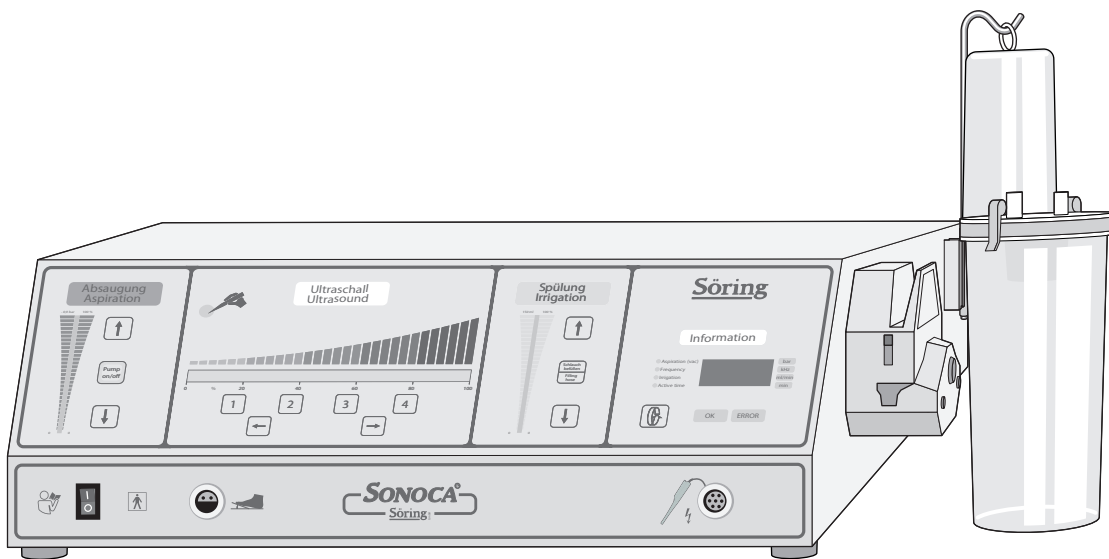


Söring Ultrasonic Generator Sonoca 300



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1 Introduction

1.1 Information About This User Manual

This user manual is intended to help you use the ultrasonic generator optimally. In particular, the installation, start-up and safe operation of the ultrasonic generator are described. The medical application is not described.

This user manual is included with the ultrasonic generator. Please read the user manual completely before using the ultrasonic generator. Please keep this manual for future reference.

The ultrasonic generator is intended for use with other instruments and accessories from Söring. Please also observe the instructions for use supplied with the instruments.

If you have further questions on the content of this user manual or use of the ultrasonic generator, please contact Söring GmbH (contact data on back page) or an authorised dealer.

1.2 Display Conventions

1.2.1 Safety Information and Warnings

In this user manual safety information and warnings are marked by symbols and signal words. Hazards are categorised into four levels.

⚠ DANGER

Names the source of the hazard

Describes the results of the hazard. This will result in death or severe personal injury.

- Specifies the steps that must be taken to eliminate the hazard.

⚠ WARNING

Names the source of the hazard

Describes the results of the hazard. This could result in death or severe personal injury.

- Specifies the steps that must be taken to eliminate the hazard.

⚠ CAUTION**Names the source of the hazard**

Describes the results of the hazard. This could result in minor personal injury.

- Specifies the steps that must be taken to eliminate the hazard.

NOTICE**Names the source of the hazard**

Describes the results of the hazard. This could result in material damage.

- Specifies the steps that must be taken to eliminate the hazard.

1.2.2 Additional Information

In this user manual special information is marked by the following symbol.

ℹ Information

Gives further information about the ultrasonic generator.

1.3 General Conditions

Take the following conditions into account when using the ultrasonic generator:

- The user manual must be read before the ultrasonic generator can be used.
- Before connecting an instrument to the ultrasonic generator, you must have read the user manual of the instrument.
- Any recurring faults or problems must be reported to Söring GmbH or an authorised dealer.

Söring GmbH does not accept liability for any damage or personal injury arising from:

- Modifications of the ultrasonic generator,
- improper use,
- use of non-recommended instruments,
- use of accessories other than the recommended ones,
- improper handling,
- non-compliance with this user manual.

2 Safety

2.1 Intended Use

The ultrasonic generator is solely intended for use in ultrasonic surgery and wound treatment on humans. The precise application is determined by the instrument connected. Only the instruments and the accessories which are specified in the system overview can be connected (see chapter 3.3 *System overview* on page 17).

This results in applications for

- the selective dissection of tissue,
- the cutting of tissue,
- the coagulation of tissue.

The ultrasonic generator may only be used in medical operating rooms.

Only surgeons may operate on patients with instruments which are connected to the ultrasonic generator. The ultrasonic generator may only be used by qualified specialists including OP staff, physicians, sterilisation department staff, medical technicians and medical technical assistants.

The ultrasonic generator is only intended for use with instruments from Söring.

Any other use is considered to be improper use.

The local health and safety at work, hygiene and safety regulations and the specifications in this user manual and the user manual of the instrument used must be complied with.

2.2 General Safety Information

⚠ WARNING

Insufficient qualification

Improper use of the ultrasonic generator can lead to severe personal injury, irreversible physical injury or death.

- Only deploy qualified specialists.
- Do not grant access to unauthorised persons.
- Contact the manufacturer if necessary for repairs and maintenance work.

⚠ WARNING**Magnetic fields**

Magnetic fields can affect the ultrasonic generator function and severely injure patients.

- Do not use the ultrasonic generator in the area of influence of magnetic fields.
- Ensure electromagnetic compatibility.

⚠ WARNING**Damaged cable**

Electric shock due to damaged mains cable insulation can lead to severe personal injury or death.

- Check the cable for damage.
- If a cable is damaged, immediately switch off the power supply (or do not switch it on).
- Replace the cable if damaged.
- Only use undamaged cables.

⚠ WARNING**Improperly connected instrument cable**

An improperly connected instrument cable can lead to malfunctioning of the ultrasonic generator and severely injure patients.

- Correctly connect the instrument cable.
- Prior to each use of an instrument, ensure that the instrument cable is properly connected.

⚠ WARNING

Damaged or improperly connected suction hose

The working area and the instruments can be contaminated due to a damaged or improperly connected suction hose. This can result in life-threatening injury to persons.

- Connect the suction hose correctly.
- Check the suction hose for damage.
- Only use an undamaged suction hose.

⚠ WARNING

Wrong instruments

Use of instruments that are not specified can lead to malfunctions and severely injure patients.

- Only use specified instruments (see chapter 3.3 *System overview* on page 17).

⚠ WARNING

Incorrect accessories

Use of accessories other than those recommended can lead to malfunctions and severely injure patients.

- Only use recommended accessories (see catalogues).

⚠ WARNING

Use with other medical devices

Use of the ultrasonic generator in combination with medical devices from other manufacturers can have incalculable consequences.

- Only use the ultrasonic generator in combination with suitable medical devices (e.g. a suitable suction container). The user bears the responsibility for use with any other medical devices.

3 Overview

3.1 Overview of the Ultrasonic Generator

The ultrasonic generator can be operated at three working frequencies (25 kHz, 35 kHz and 55 kHz) so that different treatments can be carried out. Both ultrasonic instruments for selective tissue separation and for wound treatment as well as ultrasonic scissors and ultrasonic hooks for cutting and coagulating as well as bone instruments for preparing bone tissue can be operated with the ultrasonic generator.

The function of the ultrasonic generator is process-controlled. Automatic instrument detection ensures preselection of performance parameters.

The performance parameters can be adjusted on the operator control panels to the requirements of the treatment. The working frequencies are determined by the instrument used; they cannot be altered.

A rinsing and suction device is also integrated in the ultrasonic generator. The tissue is suctioned off and collected in a suction container.

The ultrasonic treatment is triggered with a foot switch. At the same time – depending on the instrument connected – the rinsing and suction are activated.

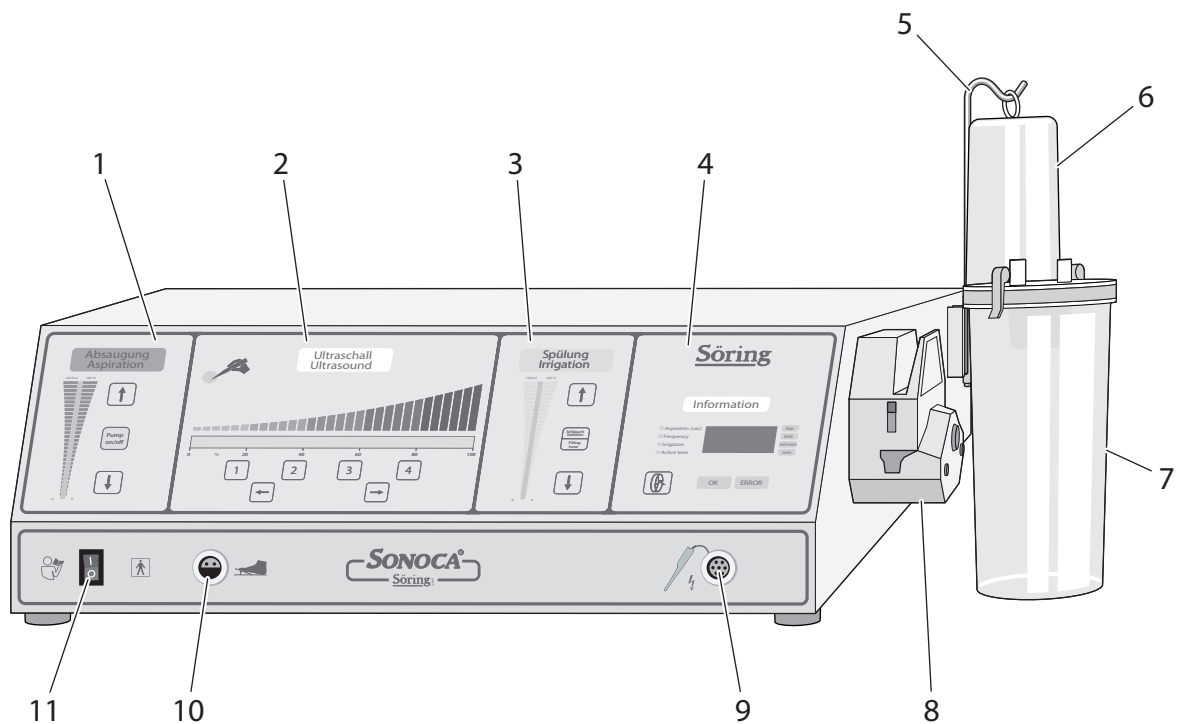


Fig. 3.1 Front side

- | | |
|---|---|
| 1 Operator control panel for suction | 7 Suction container (not part of the scope of delivery) |
| 2 Operator control panel for the ultrasonic treatment | 8 Hose pump for rinsing fluid |
| 3 Operator control panel for the rinsing | 9 Connector socket for an instrument |
| 4 Operator control panel for the settings | 10 Connector socket for a foot switch |
| 5 Boom for a rinsing bottle | 11 Mains switch |
| 6 Rinsing bottle (not part of the scope of delivery) | |

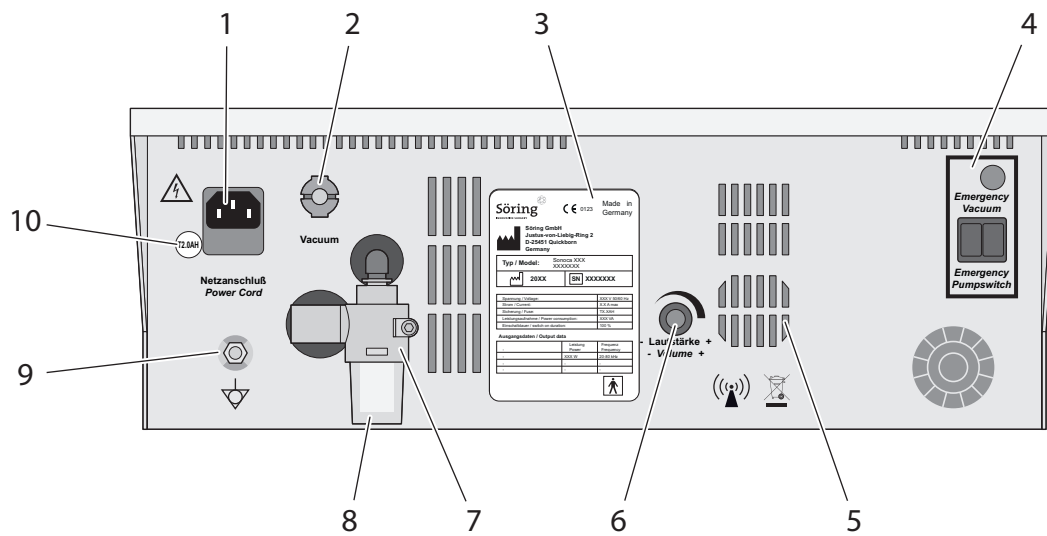


Fig. 3.2 Rear side

- | | |
|---|---|
| 1 Connector socket for the mains cable | 6 Volume regulator |
| 2 Connector socket for the vacuum hose | 7 Holder for the bacteria filter |
| 3 Type plate | 8 Bacteria filter |
| 4 Switch for the emergency pump (not part of the scope of delivery) | 9 Connection for the potential equalisation cable |
| 5 Loudspeaker | 10 Fuse holder |

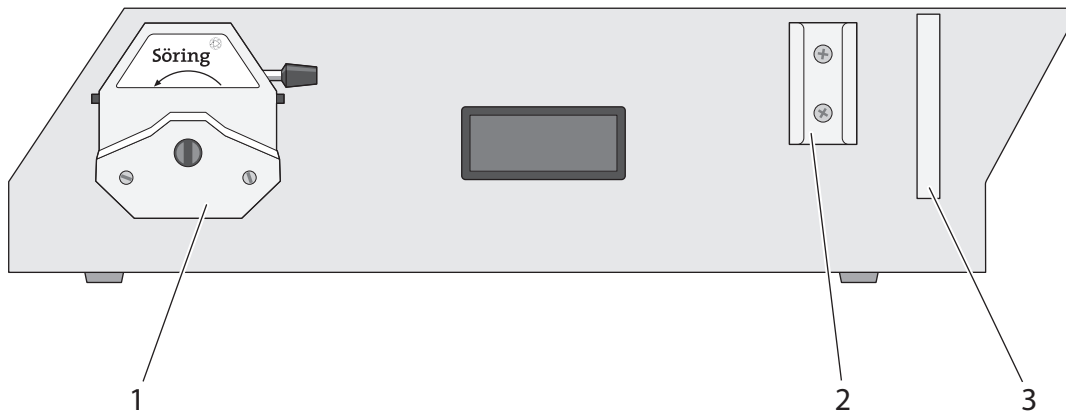


Fig. 3.3 Left side

- | |
|------------------------------------|
| 1 Hose pump |
| 2 Holder for the suction container |
| 3 Holding pipe for the boom |

3.1.1 Symbols on the ultrasonic generator

Symbol	Meaning
	Read user manual
	Type BF
	Instrument active
	Instrument
	Foot switch
	High voltage
	Potential equalisation
	Non-ionising radiation
	Hazardous waste

3.1.2 Type plate

The type plate is attached on the back of the ultrasonic generator.

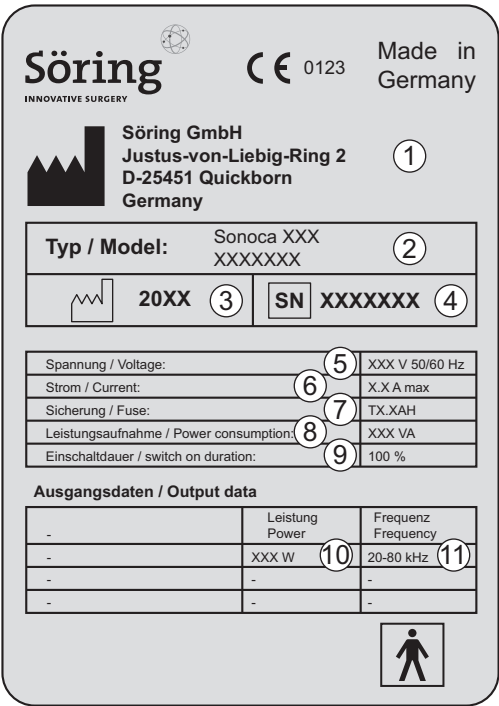


Fig. 3.4 Type plate

- 1 Manufacturer

2 Type

3 Year of construction

4 Serial number

5 Voltage

6 Current
- 7 Fuse

8 Power consumption

9 Duty cycle

10 Power output

11 Frequency

3.1.3 Operator control panels

Operator control panel for suction

The suction capacity can be increased and reduced on the operator control panel for the suction. The selected suction capacity is displayed. The suction pump can be switched on and off.

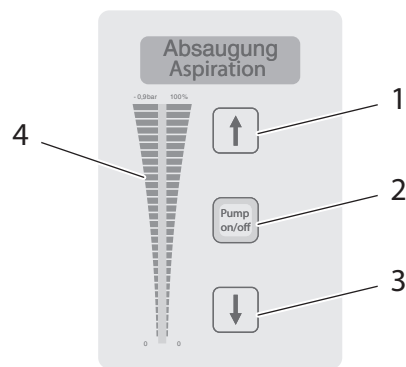


Fig. 3.5 Operator control panel for the suction

- | | |
|--|--|
| 1 Button for increasing the suction capacity | 3 Button for reducing the suction capacity |
| 2 Button for switching the suction pump on and off | 4 Display of the suction capacity |

Operator control panel for the ultrasonic treatment

The ultrasonic power can be increased and reduced on the operator control panel for ultrasonic treatment. Alternatively, four preset ultrasonic power values can be selected. The selected ultrasonic power is displayed. A display lights as soon as an instrument is active.

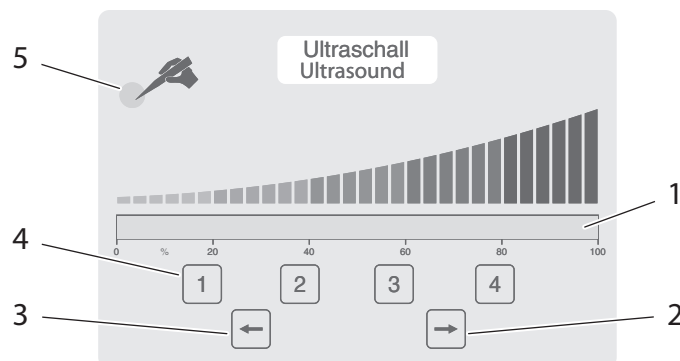


Fig. 3.6 Operator control panel for the ultrasonic treatment

- | | |
|--|---|
| 1 Display of the ultrasonic power | 4 Buttons for selecting four preset ultrasonic power values |
| 2 Button for increasing the ultrasonic power | 5 Display of the instrument activity |
| 3 Button for reducing the ultrasonic power | |

Operator control panel for the rinsing

The rinsing capacity can be increased and reduced on the operator control panel for the rinsing. The selected rinsing capacity is displayed. The rinsing hose can also be filled.

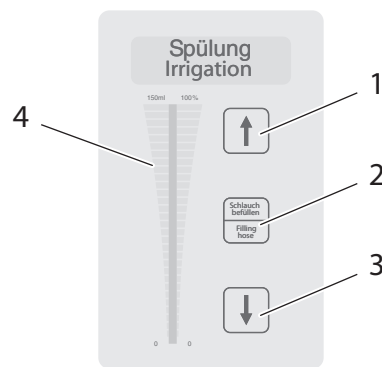


Fig. 3.7 Operator control panel for the rinsing

- | | |
|--|--|
| 1 Button for increasing the rinsing capacity | 3 Button for reducing the rinsing capacity |
| 2 Button for activating the hose filling | 4 Display for the rinsing capacity |

Operator control panel for the settings

Settings information can be called up at the touch of a button on the operator control panel for the settings.

Information is displayed of the following:

- The suction pressure [bar],
- the working frequency of the instrument used [kHz],
- the volume of rinsing fluid fed in [ml/min],
- the activation duration of the instrument [min].

In the event of a malfunction, a numerical code is displayed and the ERROR display lights.

If the ultrasonic generator is ready for use, the OK display lights.

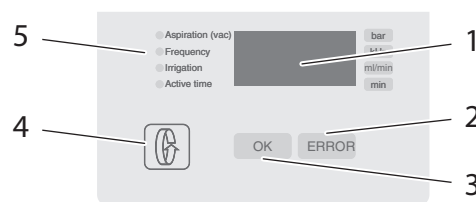


Fig. 3.8 Operator control panel for the settings

- | | |
|---|-------------------------------------|
| 1 Display for the information | 4 Button for calling up information |
| 2 ERROR display that lights upon a safety shutdown or an internal fault | 5 Type of information called up |
| 3 OK display that lights if the ultrasonic generator is ready for use | |

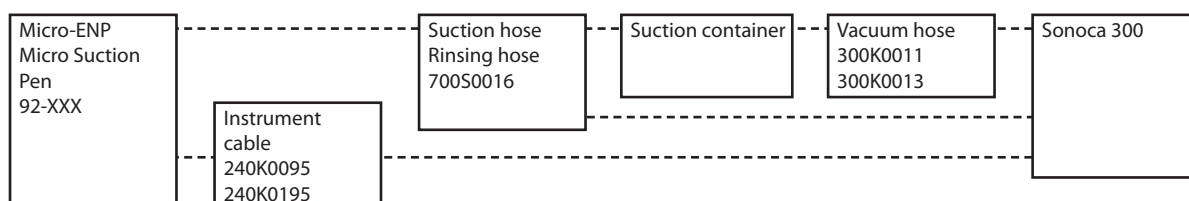
3.2 Scope of delivery

The ultrasonic generator is delivered without further accessories. Recommended accessories are listed in the catalogs. Only use recommended accessories.

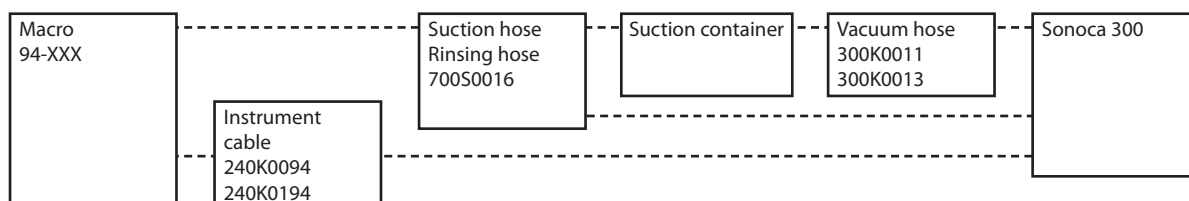
For the latest information regarding accessories, please visit our website at www.soering.com

3.3 System overview

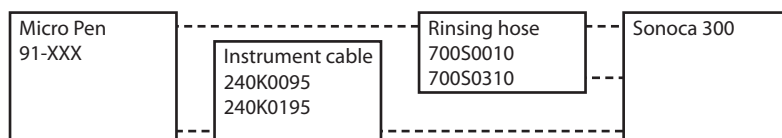
Use with a micro ENP handpiece or a micro suction pen handpiece



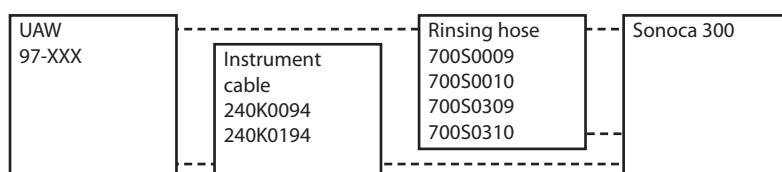
Use with a macro handpiece



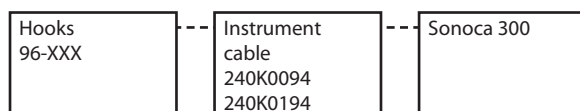
Use with a micro pen handpiece



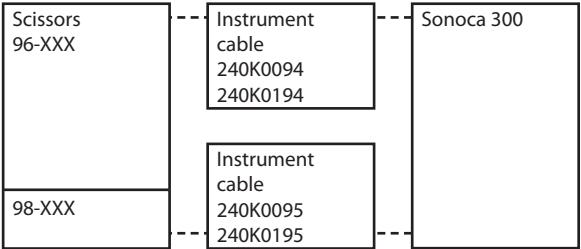
Use with a UAW handpiece



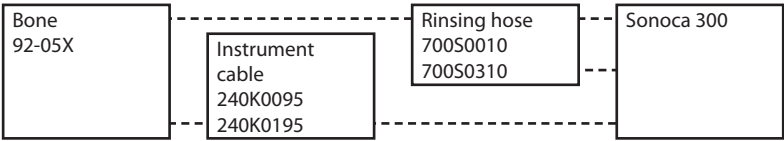
Use with an ultrasonic hook



Use with ultrasonic scissors



Use with a bone instrument



4 Transport and storage

The ultrasonic generator is supplied in packaging which protects it against damage and contamination.

Keep this packaging. Use the packaging if you want to transport the ultrasound generator again or put it in storage.

The storage environment must be dry, clean and dust-free.

- Storage temperature between –20 °C and 50 °C.
- Relative humidity: Maximum 85 %.

After any transport or after lengthy storage, the safety of the ultrasonic generator must be checked (see chapter 8.1 *Regular checks* on page 36).

5 Installation

The ultrasonic generator must only be put into operation by competent persons who are authorised by the manufacturer.

The ultrasonic generator must be installed on a suitable surface which is sufficiently load-bearing and easily accessible.

5.1 Connecting the ultrasonic generator to the supply network

The following accessories are required for connecting the ultrasonic generator to the supply network:

- a mains cable,
- a potential equalisation cable.

⚠ WARNING

Supply network without protective earth

Electric shock due to a missing protective earth in the supply network can lead to severe personal injury or death.

- Only connect the ultrasonic generator to a supply network with protective earth.

⚠ WARNING

Damages mains cable

Electric shock due to damaged mains cable insulation can lead to severe personal injury or death.

- Check the mains cable for damage.
- Replace the damaged mains cable.
- Only use an undamaged mains cable.

Requirements

- The actual mains voltage corresponds to the voltage shown on the type plate.
- The ultrasonic generator is switched off; the mains switch is set to 0.

Procedure

1. Insert the mains cable in the connector socket on the back of the ultrasonic generator (see Fig. 3.2 on page 12, position 1).
2. Connect the mains cable to the supply network.

3. Connect the potential equalisation cable to the connection on the back of the ultrasonic generator (see Fig. 3.2 on page 12, position 9).
4. Connect the potential equalisation cable to the potential equalisation rail in the operating room.

5.2 Putting the ultrasonic generator into operation

The following accessories are required for starting up the ultrasonic generator:

- A foot switch,
- a suction container with vacuum hose and suction hose (only for instruments with suction),
- a rinsing bottle with boom and rinsing hose (only for instruments with rinsing),
- an instrument with instrument cable.

Before starting up, observe the user manuals of the instrument and the accessories.

⚠ WARNING

Improper initial start-up

Improper initial start-up of the ultrasonic generator can lead to life-threatening situations or substantial material damage.

- Have the safety of the ultrasonic generator checked by a competent person prior to the initial start-up.
- Have the ultrasonic generator put into operation for the first time by a competent person who is authorised by the manufacturer.

5.2.1 Preparing the ultrasonic generator

⚠ WARNING

No instruction in the use of the ultrasonic generator

Improper use of the ultrasonic generator can lead to life-threatening situations or substantial material damage.

- Have a competent person explain the use of the ultrasonic generator to the qualified specialist who will use it.

Installing the foot switch

Requirements

- The ultrasonic generator is switched off; the mains switch is set to 0.

Procedure

1. Insert the foot switch cable into the connector socket on the front of the ultrasonic generator (see Fig. 3.1 on page 11, position 10).
 - The foot switch is installed.

Installing the suction container

The suction container, vacuum hose and suction hose must only be installed if an instrument with suction is used.

The suction container and the vacuum hose must be cleaned and disinfected. The suction hose must be sterile.

Requirements

- The ultrasonic generator is switched off; the mains switch is set to 0.

Procedure

1. Connect the vacuum hose to the suction container.
Observe the user manual of the suction container.
2. Connect the suction hose to the suction container.
Observe the user manual of the suction container.
3. Mount the suction container in the holder on the ultrasonic generator (see Fig. 3.3 on page 12, position 2).
4. Insert the vacuum hose in the connector socket on the back of the ultrasonic generator (see Fig. 3.2 on page 12, position 2).
 - The vacuum hose engages in the connector socket.
 - The vacuum hose is fully connected.
5. Connect the suction hose to the instrument.
Observe the user manual of the instrument.
 - The suction hose is fully connected.
 - The suction container is installed.

Installing the rinsing bottle

The rinsing bottle and rinsing hose must only be installed if an instrument with rinsing is used.

The rinsing hose must be sterile.

Requirements

- The ultrasonic generator is switched off; the mains switch is set to 0.

Procedure

1. Insert the boom for the rinsing bottle in the holding pipe (see Fig. 3.3 on page 12, position 3).
2. Stick the spike of the rinsing hose into the rinsing bottle.
Seal the drop chamber.
3. Hang the rinsing bottle on the boom.
4. Connect the rinsing hose to the instrument.
Observe the user manual of the instrument.

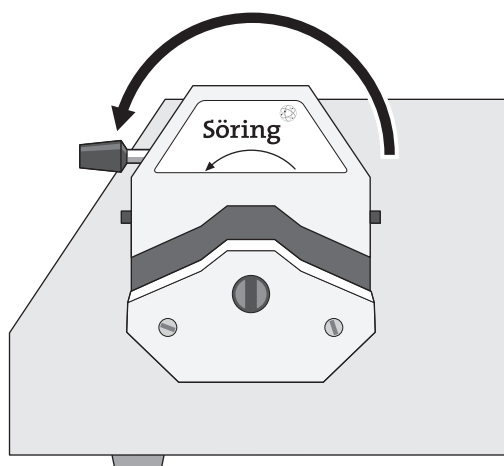
CAUTION

Activated hose pump

Danger of crushing the fingers if the hose pump is open when the ultrasonic generator is switched on. Rotating parts in the hose pump can injure the fingers when inserting the rinsing hose.

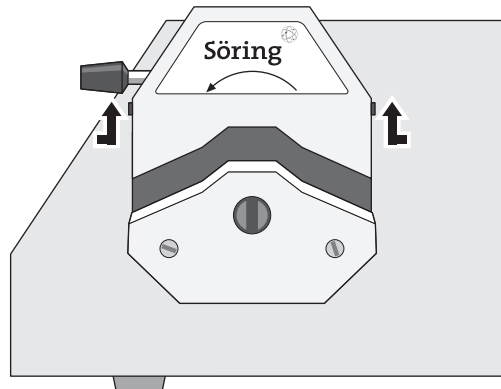
- Ensure that the ultrasonic generator is switched off before the hose pump is opened.

5. Open the hose pump.
To do this, push the lever to the left.

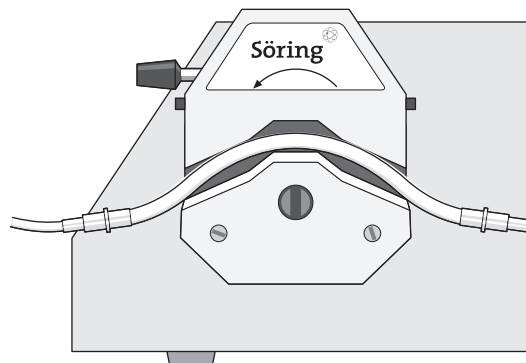


- The hose pump is open.
6. Move both locking clamps into the upper position.

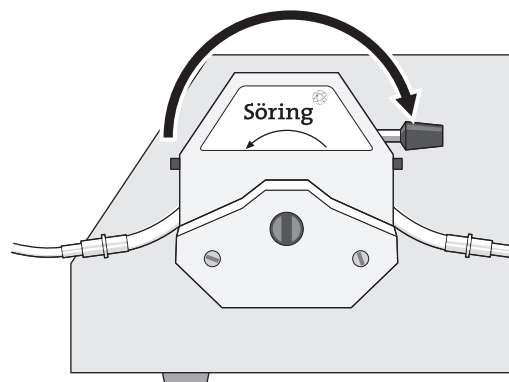
To do this, press on the locking clamps and slide them up.



7. Insert the reinforced part of the rinsing hose into the hose pump.
Make sure that the rinsing hose lies under the locking clamps.

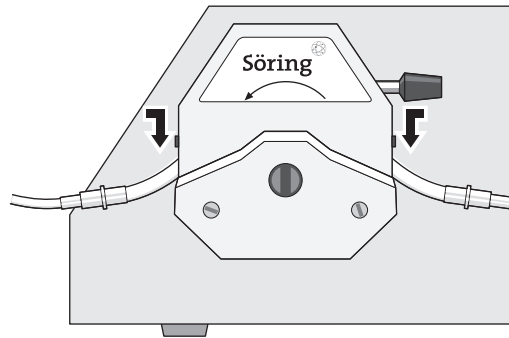


8. Close the hose pump.
To do this, push the lever to the right.



- The hose pump is closed.
9. Fix the rinsing hose with both locking clamps.

To do this, press on the locking ratchets and slide them down.



- The rinsing hose is fully connected and fixed.
- The rinsing bottle is installed.

5.2.2 Connecting the instrument

Observe the user manual of the instrument.

Only use sterilised instruments.

Procedure

1. Insert the instrument cable in the connector socket on the front of the ultrasonic generator (see figure Fig. 3.1 on page 11, position 9).
Observe the markings.
2. Insert the instrument cable into the connector socket on the instrument.
Observe the markings.
 - The instrument cable engages in the connector socket.
 - The instrument cable is fully connected.

5.2.3 Turning on the ultrasonic generator

Requirements

- The ultrasonic generator is connected to the supply network (see chapter 5.1 *Connecting the ultrasonic generator to the supply network* on page 20).
- The ultrasonic generator has been prepared (see chapter 5.2.1 *Preparing the ultrasonic generator* on page 21).
- An instrument is connected (see chapter 5.2.2 *Connecting the instrument* on page 25).
- The ultrasonic generator has reached the permissible temperature for use (between 10 °C and 40 °C).

Procedure

1. Turn the ultrasonic generator on with the mains switch.
 - The mains switch lights green.
 - The ultrasonic generator undergoes a self-test. All displays light briefly.
 - The ultrasonic generator recognises which foot switch is connected.
 - The ultrasonic generator recognises the connected instrument.
 - The performance parameters for the connected instrument are preselected.
 - The OK display lights as soon as the ultrasonic generator is ready for use.

6 Operation

Only qualified specialists may use the ultrasonic generator and carry out treatment with it.

The treating physician is responsible for assessing the risks of treatment against the benefits.

Observe the user manual of the instrument.

During the treatment, keep a second ultrasonic generator and a second instrument ready in case the first ultrasonic generator or instrument fails.

Before each use, the ultrasonic generator must be cleaned and disinfected (see chapter 7 *Reprocessing* on page 34). This also applies to the initial use.

Prior to each use the function of the ultrasonic generator and the instrument must be tested.

After use the ultrasonic generator, the instrument and the accessories must be re-processed (see chapter 7 *Reprocessing* on page 34).

6.1 Checking the settings

The settings are displayed on the operator control panels. The settings must be checked before each treatment.

Checking preselected performance parameters

Requirements

- The ultrasonic generator is turned on.
- The OK display lights.

Procedure

1. Request the information for the settings on the operator control panel (see Fig. 3.8 on page 16).
2. Check the settings.
 - Is the setting for the suction pressure selected properly?
 - Has the correct working frequency been detected for the instrument used?
 - Is the setting for the volume of rinsing fluid fed per minute properly selected?
3. Adjust the settings if the answer to a question is negative.
4. Check and, if necessary, adjust the suction capacity on the operator control panel for the suction (see Fig. 3.5 on page 15).
5. Check and, if necessary, adjust the ultrasonic power on the operator control panel for the ultrasonic treatment (see Fig. 3.6 on page 15).

6. Check and, if necessary, adjust the rinsing capacity on the operator control panel for the rinsing (see Fig. 3.7 on page 16).
 - All settings are checked and correct.

Adjusting the volume

The volume setting only affects the signal tone which reports the instrument activity. The setting does not affect the alarm tone.

Procedure

1. To reduce the volume, turn the volume regulator to the left.
To increase the volume, turn the volume regulator to the right.
 - The volume is adjusted.

Requesting the operating time

The operating time shows how many minutes the ultrasonic generator has been switched on so far.

The operating time is counted up to a period of 999 999 minutes. Counting then starts at zero again.

The information for the settings is displayed on the operator control panel in two blocks of numeric digits XXX and YYY, each of three digits.

Procedure

1. Press the button for reducing the ultrasonic power and keep it pressed (see Fig. 3.6 on page 15, position 3).
2. At the same time, press the button for increasing the ultrasonic power (see Fig. 3.6 on page 15, position 2).
3. Release both buttons.
 - The first block of digits XXX is displayed.
4. Press the button for reducing the ultrasonic power again and keep it pressed.
5. At the same time, press the button for increasing the ultrasonic power again.
6. Release both buttons.
 - The second block of digits YYY is displayed.
7. To return to the original display, press the button for increasing the ultrasonic power again.

6.2 Beginning treatment

⚠ WARNING

Contaminated instruments

Use of contaminated instruments can result in life-threatening infections in patients.

- Only used sterile reprocessed instruments.

⚠ CAUTION

Excessively high output power

If the output power is set too high at the beginning of the treatment, it can result in an unintentionally strong cavitation, cutting or coagulation effect and injure the patient.

- Start the treatment at a low output power.
- Slowly increase the power until the desired level is reached.

⚠ CAUTION

Excessive pressure on the tissue

Excessive pressure applied to the tissue can result in an unintentionally strong cutting or coagulation effect and injure the patient.

- Do not apply excessive pressure to the tissue with the sonotrode.

⚠ CAUTION

Wrongly set rinsing capacity

If the rinsing capacity is set too low or too high, this can cause damage to tissue, nerves, vessels and skin.

- Do not set the rinsing capacity too high as otherwise too much rinsing fluid escapes.
- Do not set the rinsing capacity too low as otherwise the ultrasonic effect is not achieved.
- Watch the fill level in the rinsing bottle.
- Continuously check the rinsing.

⚠ CAUTION**Incorrectly set suction capacity**

If the suction capacity is set too low or too high, this can cause damage to tissue, nerves, vessels and skin.

- Do not set the suction capacity too high as otherwise the tissue will be suctioned dry too quickly.
- Do not set the suction capacity too low so the suction hose does not clog.
- Watch the fill level in the suction container.
- Continuously check the suction.

⚠ CAUTION**Dangling cables and hoses**

Dangling cables and hoses can hinder the staff and cause tripping, increasing the danger to the patient. As a result, the treatment may have to be interrupted.

- Lay the cables and hoses in such a way that no one is hindered.

The instrument is activated by means of the foot switch. Rinsing and suction are activated at the same time. A tone signals the instrument activity.

As soon as the foot switch is no longer pressed, the ultrasonic treatment stops. The suction runs for a further 30 seconds.

Observe the OK and ERROR displays during use. The OK display flashes if there is an overload.

Watch the fill levels in the suction container and in the rinsing bottle during use.

6.2.1 Using an instrument with rinsing and suction

Both rinsing and suction are required for the following instruments:

- Micro ENP handpieces (suction only),
- Micro suction pen handpieces,
- Macro handpieces.

Procedure

1. Open the roller clamp on the rinsing hose.
2. Filling the rinsing hose.

To do this, keep the button for activating the rinsing hose filling (see Fig. 3.7 on page 16, Position 2) pressed until rinsing fluid escapes from the instrument.

- The rinsing hose is filled.
 - Treatment can begin.
3. Press the foot switch.
 - The ultrasonic generator is activated.
 - The rinsing and the suction begin.
 - The display for instrument activity lights on the operator control panel for the ultrasonic treatment.
 - A tone signals the instrument activity.

6.2.2 Using an instrument with rinsing

Rinsing is required with the following instruments:

- Micro pen handpieces,
- UAW handpieces,
- bone instruments.

Procedure

1. Open the drop chamber on the rinsing hose.
2. Filling the rinsing hose.

To do this, keep the button for activating the rinsing hose filling (see Fig. 3.7 on page 16, Position 2) pressed until rinsing fluid escapes from the instrument.

- The rinsing hose is filled.
 - Treatment can begin.
3. Press the foot switch.
 - The ultrasonic generator is activated.
 - The rinsing begins.
 - The display for instrument activity lights on the operator control panel for the ultrasonic treatment.
 - A tone signals the instrument activity.

6.2.3 Using an instrument without rinsing and suction

Rinsing and suction is not required with the following instruments:

- ultrasonic hooks,
- ultrasonic scissors.

Procedure

1. Press the foot switch.

Different ultrasonic powers can be called up by means of a double foot switch.

The red pedal supplies the maximum ultrasonic power for cutting. The black pedal supplies the ultrasonic power adjusted for coagulation.

- The ultrasonic generator is activated.
- The display for instrument activity lights on the operator control panel for the ultrasonic treatment.
- A tone signals the instrument activity.

6.3 Ending treatment

The ultrasonic generator must be switched off after use. The instrument must then be disconnected from the ultrasonic generator and the accessories dismantled.

Stopping the ultrasonic generator**Procedure**

1. Switch off the ultrasonic generator with the mains switch.
 - The ultrasonic generator is switched off.

Disconnecting the instrument from the ultrasonic generator**Procedure**

1. Disconnecting the instrument cable from the ultrasonic generator.

To do this, only pull on the grip sleeve.

Observe the user manual of the instrument.

 - The instrument is now disconnected from the ultrasonic generator.

Dismantling accessories**Procedure**

1. Disconnecting the mains cable from the supply network and the ultrasonic generator.

To do this, only pull on the grip sleeve.
2. Disconnecting the foot switch from the ultrasonic generator.

To do this, only pull on the grip sleeve.
3. Disconnecting the vacuum hose from the ultrasonic generator.

To do this, press the connector socket together and pull out the vacuum hose.
4. Disconnect the vacuum hose from the suction vessel.
5. Disconnecting the suction hose from the instrument and from the suction vessel.

6. Disconnecting the rinsing hose from the instrument and the rinsing bottle.
7. Open the hose pump.
To do this, push the lever to the left.
8. Pull out the rinsing hose and close the hose pump again.
To do this, push the lever to the right.
 - The accessory is now disconnected from the ultrasonic generator.

7 Reprocessing

The ultrasonic generator as well as the instrument and the accessories must be cleaned and disinfected after each use. The instrument and – where possible – also the accessories must then be sterilised.

Reprocessing of the instrument is not described in this user manual. Observe the relevant user manual for reprocessing the instrument.

Disposable accessories, such as rinsing hoses and suction hoses, must be properly disposed of.

The ultrasonic generator must be switched off and the mains cable pulled out before reprocessing.

Reprocessing of the ultrasonic generator and the accessories comprises three main steps:

- cleaning,
- disinfection,
- sterilisation (accessories only).

Only use disinfectants recommended by the Robert Koch Institute (see DGHM List).

7.1 Cleaning the ultrasonic generator and accessories

Requirements

- The instrument cable is disconnected from the ultrasonic generator.
- The mains cable is disconnected from the supply network and from the ultrasonic generator.
- The foot switch is disconnected from the ultrasonic generator.
- The vacuum hose and the suction container are disconnected from the ultrasonic generator.
- The rinsing hose and the rinsing bottle are disconnected from the ultrasonic generator.

Procedure

1. Take the boom for the rinsing bottle out of the holding pipe.

NOTICE

Incorrect cleaning agent

Excessive and incorrect cleaning agents can damage the ultrasonic generator.

- Clean the ultrasonic generator in such a way that moisture cannot penetrate.
- Do not use explosive or combustible cleaning agents.

2. Wipe off the ultrasonic generator.
3. Wipe off the accessories.
 - The ultrasonic generator and the accessories have been cleaned and are ready for disinfection.

7.2 Disinfecting the ultrasonic generator and accessories

To disinfect the ultrasonic generator and the accessories, only use disinfectants recommended by the Robert Koch Institute (see DGHM-List).

An automatic cleaning/disinfection system must be used for disinfecting the accessories which are then sterilised.

Observe the instructions for reprocessing the accessories and the user manual of the automatic cleaning/disinfection system.

Requirements

- The ultrasonic generator and the accessories have been cleaned (see chapter 7.1 *Cleaning the ultrasonic generator and accessories* on page 34).

Procedure

1. Subject the ultrasonic generator to a wipe disinfection.
2. Disinfect the accessories.
 - The ultrasonic generator and the accessories have been disinfected.

7.3 Sterilising the accessories

A steam steriliser and special packaging as per ISO 11607 must be used for sterilising the accessories.

Please observe the instructions for processing the accessories and the user manual of the steam steriliser.

Requirements

- The accessory has been cleaned and disinfected (see chapter 7.2 *Disinfecting the ultrasonic generator and accessories* on page 35).

Procedure

1. Place the accessories in the packaging.
2. Sterilising the accessories in the steam steriliser with fractionated pre-vacuum.
3. Allow the accessories to dry in the packaging.
 - The accessories have now been sterilised and can be used for treatment.

8 Maintenance

8.1 Regular checks

Prior to each use ensure that:

- The ultrasonic generator and the accessories are in perfect condition,
- the ultrasonic generator and the accessories have been cleaned and disinfected.

A safety inspection must be carried out on the ultrasonic generator once a year. The safety inspection must only be carried out by competent persons using suitable measuring and testing devices. The procedure and the results of this safety inspection must be reported.

8.2 Faults

Internal faults

The ultrasonic generator automatically detects internal faults. An internal fault is notified in three ways:

- a signal tone sounds,
- the ERROR display lights,
- a numerical code is displayed.

As soon as a numerical code is displayed, all functions are disabled.

Numerical code	Cause of the fault	Remedy
1.1...1.4	Internal computer module	Switch the ultrasonic generator off and back on again after 10 seconds.
2.1...2.6	Internal operating voltages	Switch the ultrasonic generator off and back on again after 10 seconds.
3.1...3.5	Power supply unit	Inform the manufacturer.
4.1	Foot switch detection	Pull the foot switch cable out of the connector socket. Switch the ultrasonic generator off and back on again after 10 seconds. If the ultrasonic generator functions properly, insert the foot switch cable back into the connector socket. Replace the foot switch if necessary.
4.2	Instrument detection	Pull the instrument cable out of the connector socket. Switch the ultrasonic generator off and back on again after 10 seconds. If the ultrasonic generator functions properly, check the instrument cable. Replace the instrument cable if necessary.

If the internal fault cannot be remedied or if it returns, notify the manufacturer.

Other faults

Other faults can occur during the treatment which are attributed to other influencing factors. The ultrasonic generator detects such faults in some cases. Detected faults are communicated in two ways:

- a signal tone sounds,
- the ERROR display lights.

Not all faults are detected by the ultrasonic generator.

As soon as you have noticed a fault, the cause must be remedied.

If a fault directly endangers the patient, you must immediately switch off the ultrasonic generator.

⚠ WARNING

Further treatment despite fault

The further treatment of a patient despite a fault can result in life-threatening injury to the patient.

- Immediately switch off the ultrasonic generator.
- Remedy the cause of the fault.
- Any recurring faults must be reported to the manufacturer.

Fault	Possible cause of the fault	Remedy
Instrument not working.	Instrument cable is defective.	Replace the instrument cable.
Instrument is not automatically detected.	The instrument transducer is defective.	Use another instrument.
Suction not working.	Lid of the suction container is not closed.	Close the lid.
	Filter on the suction container is clogged.	Replace the filter or disposable bag.
	Vacuum hose is not connected correctly.	Correctly connect the vacuum hose.
	Suction hose is bent.	Lay the suction hose again.
	Instrument is clogged.	Rinse the instrument. Use another instrument if necessary.
	Suction pump is switched off.	Switch on the suction pump on the operator control panel for the suction.
	Suction pump is defective.	Switch over the suction to the surgical aspirator.
	Suction is incorrectly adjusted.	Correct the adjustment for the suction. Pull off the instrument cable and reconnect if necessary.

Fault	Possible cause of the fault	Remedy
A signal tone sounds and the ERROR display lights during ultrasonic treatment.	The pressure of the sonotrode tip on the tissue is too high.	Stop the ultrasonic treatment. Re-apply the sonotrode tip.
The OK display flashes during ultrasonic treatment.	Instrument is overloaded.	Stop the ultrasonic treatment.
Rinsing not working.	There is no more rinsing liquid in the rinsing bottle.	Connect a new rinsing bottle.
	Rinsing hose spike not sitting correctly in the rinsing bottle.	Stick the spike correctly in the rinsing bottle. Check the drop chamber.
	Rinsing hose is not inserted correctly in the hose pump.	Open the hose pump and re-insert the rinsing hose.
	There is a vacuum in the rinsing bottle because the ventilation flap of the drop chamber is not open.	Open the ventilation flap of the drop chamber or remedy the vacuum with a syringe needle.
	Rinsing is not correctly adjusted.	Correct the adjustment for the rinsing.

8.3 Repairs

⚠ WARNING

Unauthorised repairs

Improper repairs can lead to malfunctions and can result in life-threatening injury to patients.

- Repairs must only be carried out by the manufacturer or individuals authorised by the manufacturer.

A defective ultrasonic generator can be sent to the manufacturer for repair. Only send in a cleaned and disinfected ultrasonic generator. Otherwise additional costs will be incurred.

Please send an irreparable ultrasonic generator to the manufacturer or a disposal company for proper disposal (see chapter 9 *Disposal* on page 39).

9 Disposal

If the ultrasonic generator has reached its end of life, it must be properly disposed of.

Send the ultrasonic generator to a disposal company or to the manufacturer.

Only a cleaned, disinfected and sterilised ultrasonic generator can be sent for disposal or returned to the manufacturer.

⚠ WARNING

Contaminated ultrasonic generator

Improperly disposed of contaminated ultrasonic generators can lead to life-threatening infections in people and/or damage to the environment.

- Only send cleaned and disinfected ultrasonic generators for disposal.
-

If the accessories have reached the end of their life, they must be properly disposed of.

Disposable accessories must be properly disposed of after use.

Send the accessories to a disposal company

Only cleaned and disinfected accessories must be sent for disposal.

⚠ WARNING

Contaminated accessories

Improperly disposed of contaminated accessories can lead to life-threatening infections in people and/or damage to the environment.

- Only send cleaned and disinfected and accessories for disposal.
-

10 Technical Data

Sonoca 300	
Dimensions (width, height, depth):	430 mm, 150 mm, 640 mm
Weight:	27.5 kg
Voltage:	230 V/115 V, switchable
Frequency:	50 Hz/60 Hz
Power consumption:	max. 1.5 A
Power consumption:	max. 300 VA
Mains fuse:	2 fuses: T 2.0 AH
Temperature:	Operation: 10 °C to 40 °C Transport and storage: -20 °C to 50 °C
Relative humidity:	Operation: Maximum 80 % Transport and storage: Maximum 85 %
Activation:	foot switch
Maximum activation duration:	depending on the instrument
Frequency range of the oscillator:	20 kHz to 80 kHz
Working frequencies:	25 kHz, 35 kHz, 55 kHz
Suction pressure:	Max. 0.9 bar
Suctioned fluid:	depending on the instrument, max. 250 ml/min
Supplied rinsing fluid:	depending on the instrument, max. 150 ml/min
Classification:	protection class I (in accordance with EN 60601-1), type BF (in accordance with EN 60601-1), class IIb (in accordance with German Medical Devices Act)

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