

High-power ultrasound

Use and application

Dental Practice and Laboratory



BANDELIN – The brand for ultrasonic baths in the dental field

Whether dental practices, orthodontics practices or dental laboratories – BANDELIN ultrasonic baths have been an integral part of their facilities for decades. The applications for the ultrasonic bath are as varied as they are useful: cleaning and chemical disinfection of instruments, dentures and other implements and removal of production residues, as well as inorganic materials of all kinds, such as plasters, alginates and cements.

BANDELIN ultrasonic baths make everyday life in the practice and laboratory easier thanks to effective, time-saving and thorough cleaning.

This dental guide provides an overview of the contemporary application options for BANDELIN ultrasonic baths in the dental field. It offers tips and tricks for application and provides assistance for selecting devices, useful accessories, and the right cleaning and disinfection agents. This complete overview enables the user to make the best choice of ultrasonic bath and process to suit their needs.



BANDELIN – Ultrasound since 1955

Company portrait

As a third-generation Berlin family business, we specialise in the development, manufacture and sale of ultrasound devices, corresponding accessories, and application-specific cleaning and disinfection agents.

We stand out for our high level of vertical integration, modern production facility, and motivated employees, all of which guarantee a constant stream of new, high-quality products. Our appliances contribute to our customers' success in the laboratory, medical, dental, pharmaceutical, industrial, trades and service sectors.

Our company began developing and manufacturing high-performance ultrasonic devices back in 1955. Constant expansion of the product range and a sharp rise in sales figures led to an expansion of the production area in 1985. In 1992, ultrasonic homogenisers and controllable, constant-power ultrasonic generators were launched on the market.

The period from 1996 to 2004 was shaped by the development and production of innovative ultrasonic cleaning baths and immersible transducers along with tube reactors for industrial applications.

In the years that followed, BANDELIN's product range was expanded with new ultrasonic devices for the laboratory. After the launch of the ultrasonic bath for simultaneous cleaning and

rinsing of MIS instruments, it was further developed for robotic instruments in 2016.

Today, the reputation of our brands SONOREX, SONOPULS, SONOMIC and TRISON represents the high quality awareness of our employees, and they have come to be synonymous with ultrasound in professional circles.

The most important product groups include:

- SONOREX – ultrasonic baths and reactors
- SONOPULS – ultrasonic homogenisers
- SONOMIC – an ultrasonic bath for rinsable MIS and standard instruments
- TRISON – an ultrasonic bath for robotics, rinsable MIS and standard instruments
- STAMMOPUR – cleaning and disinfection agents

We are innovators in the development of new ultrasonic devices and in opening up new areas of application, and have now registered 79 patents/utility models and 68 trademarks. Our involvement in various committees for the development of new standards and guidelines contributes to ensuring the highest standards for ultrasonic applications.

BANDELIN is the market leader as the only complete supplier of ultrasonic devices, accessories, and cleaning and disinfection agents with approvals and certifications in accordance with DIN EN ISO 9001 and DIN EN ISO 13485. We have already delivered more than one million devices to our customers.

1955



SONOREX E 250-12
Manufacture of high-performance ultrasonic cleaning devices

1967



SONADENT
Tartar remover

1971



SONOREX TRANSISTOR RK
Ultrasonic baths with transistor technology

1986

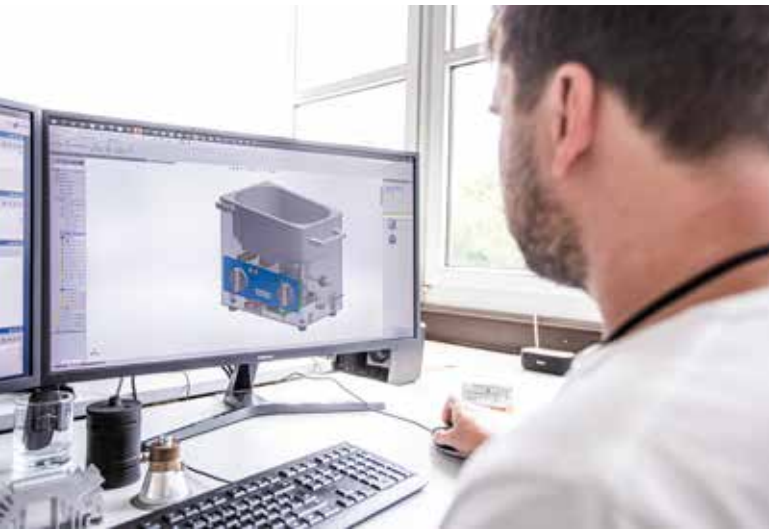


SonaJet TD 3
Tooth polisher and tartar remover

1990



SONOREX DIGITAL DK
Digital ultrasonic baths



1996



Initial certification in accordance with **DIN EN ISO 9001/ EN 46001**

2001



Cleaning in dental instrument trays
Even more efficient processing

2005



SONOREX DIGITEC DT
Ultrasonic baths with digital control

2025



SONOREX smart ST
Ultrasonic baths with modern touch screen operation and logging function

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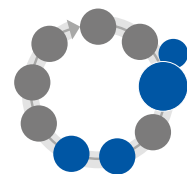
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Ultrasound in dental practices, implantology practices, laboratories and orthodontics practices



Classification of ultrasound- application in the instrument cycle

Use of an ultrasonic bath in the
instrument cycle in practice.

from page 12



Dentistry and implantology

Are you a dentist or part of the team? Find out more about cleaning and disinfection solutions in the reprocessing of dental instruments.

page 10



Orthodontics

Do you want thorough and hygienic cleaning of orthodontic appliances? That's no problem with an ultrasonic bath.

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Dental laboratories

Production residues on newly manufactured dentures? The solution is effective cleaning in an ultrasonic bath.

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What is ultrasound?

Discover the active principle of ultrasound and how ultrasonic baths work.

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Advantages of ultrasonic cleaning

Ultrasonic cleaning in the dental field offers many advantages. We present them to you here.

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Structure of an ultrasonic bath

Basic structure, including explanation of individual components.

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Requirements in dental practices and implantology practices

The reprocessing of medical products is an essential part of practice hygiene. Dental practices are confronted with high demands on the instrument reprocessing process: the aim is to ensure safe reprocessing according to national regulations (e. g., KRINKO/BfArM in Germany), to define lean and efficient workflows, and to ensure that dental instruments are quickly available again and retain their value.

The large number of different instruments and the variety of contaminants in a practice require efficient solutions.



Due to the variety of impurities present, such as blood, secretions, dentine, alginates, cements, tartar, impression materials, etc., thorough cleaning or pre-cleaning is essential for reprocessing. Pre-cleaning with an ultrasonic bath provides the perfect foundation for reprocessing in dental applications, because this process is very effective for most impurities – whether organic or inorganic – thus ensuring the desired results.



Requirements in orthodontics

The hygiene requirements in orthodontics practices do not differ fundamentally from the hygiene requirements in dental practices, meaning that all instrument reprocessing measures correspond to those of dental practices.

In addition to instrument reprocessing, the hygienic cleaning of orthodontic devices and appliances to rid them of the impurities that



accumulate in the oral cavity is of particular importance. Braces, retainers and functional orthodontic appliances (FOA) are cleaned of tartar, plaque and deposits.

The ultrasonic bath fulfils both purposes with the agents to be used and thus offers the ideal procedure to meet the hygienic requirements of orthodontic practices.



Requirements in the dental laboratory

Working in a dental laboratory is very different from working in a dental practice. There is no patient contact, so conventional instrument reprocessing is not relevant here. Different requirements arise in different working environments. In general terms, the work in the dental laboratory focuses on the production of dental prostheses, such as all forms



of dentures, orthoses, crowns and bridges. Final, thorough cleaning is essential in the manufacture of these workpieces.

The removal of waxes, polishing pastes and streaks, but also the removal of polishing residues by polishing metals, is ensured in the best possible way with the assistance of ultrasonic devices.



Classification of ultrasound application in the instrument cycle

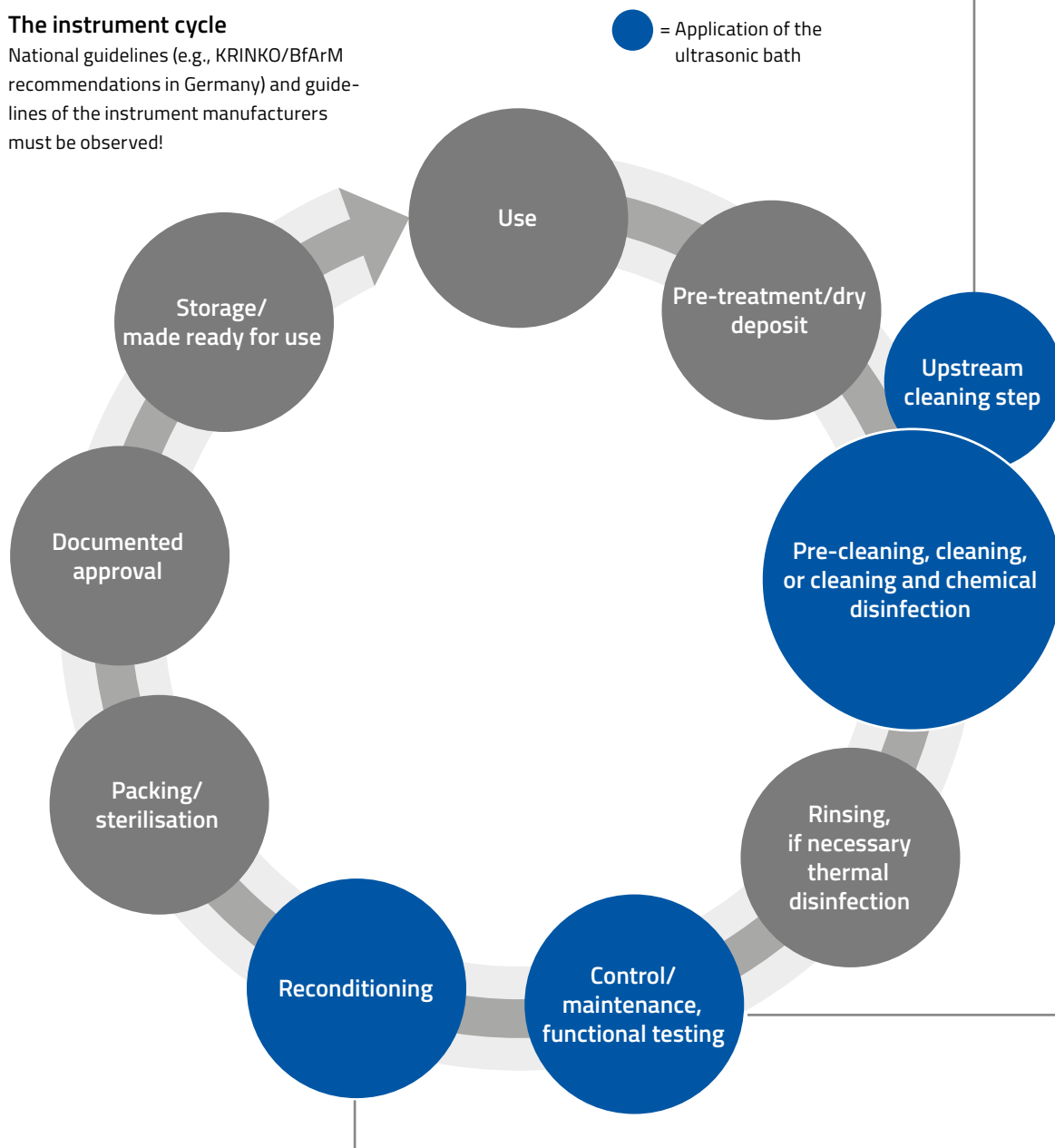
Ultrasound application is one of the most effective and thorough methods for cleaning dental instruments. Highly effective, successful cleaning of instruments is an essential requirement for safe and compliant instrument reprocessing.

The versatility of an ultrasonic bath results from the combination of ultrasonic application with the recommended agent.

That makes the use of an ultrasonic bath an important part of the instrument cycle in a practice.

The instrument cycle

National guidelines (e.g., KRINKO/BfArM recommendations in Germany) and guidelines of the instrument manufacturers must be observed!



Upstream cleaning step

Thorough cleaning of plasters and alginates in an ultrasonic bath with **STAMMOPUR AG**

Thorough pre-cleaning of dentures and cement removal in an ultrasonic bath with **STAMMOPUR Z**

Pre-cleaning and cleaning

Intensive pre-cleaning before the automated reprocessing process and manual cleaning in an ultrasonic bath with **TICKOMED 1**

Workpiece cleaning in a dental laboratory and instrument cleaning in an ultrasonic bath with **STAMMOPUR RD 5**

Cleaning and chemical disinfection

Cleaning and chemical disinfection as part of manual reprocessing in an ultrasonic bath with **STAMMOPUR DR 8**

Disinfection agent cleaning before automated reprocessing, also for user protection in an ultrasonic bath with **STAMMOPUR DR 8**

Cleaning, disinfection and final disinfection

Cleaning and chemical disinfection of drills and endodontological instruments, and final disinfection in an ultrasonic bath with **STAMMOPUR DB**

Secondary cleaning and repeat cleaning

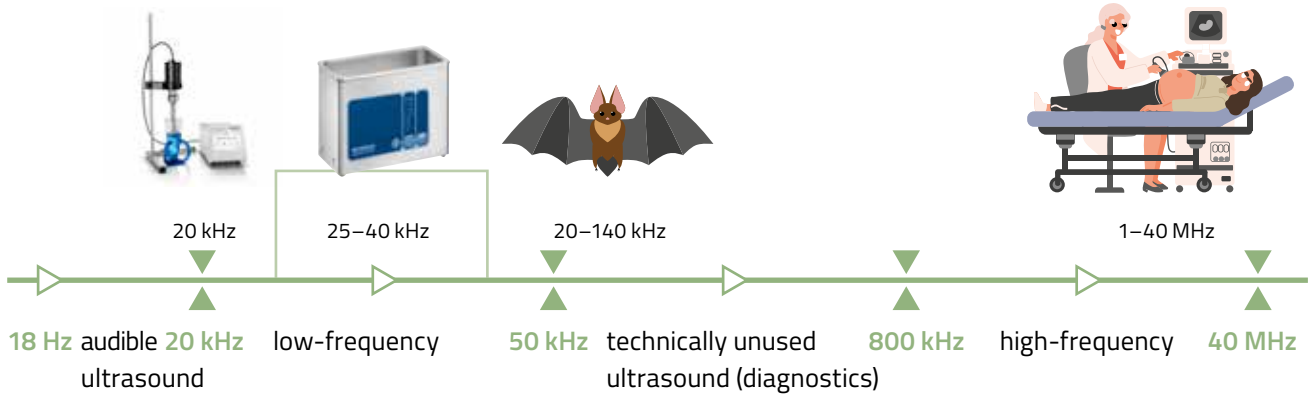
Secondary cleaning of residual impurities after thermal disinfection in an ultrasonic bath with **TICKOMED 1**

Reconditioning

Basic cleaning of instruments and accessories that have become unsightly in an ultrasonic bath with **STAMMOPUR GR**



What is ultrasound? How does it work?



What is ultrasound and how does it work?

Vibrations with frequencies above 20 kHz (20,000 vibrations per second) are referred to as ultrasound.

The range of low-frequency ultrasound is used in the laboratory, while a higher frequency range is used in medical diagnostics.

The low-frequency ultrasonic vibrations generate millions of tiny vacuum bubbles in all liquids, which immediately implode again, creating highly impactful pressure surges. This process is called cavitation. Low

frequencies of around 20 kHz produce larger bubbles with more intense pressure surges than higher frequencies around 35 kHz. Low-frequency ultrasound has been used in a wide variety of ultrasonic baths for decades.

The process of cavitation ensures that contaminants are blasted off the surfaces of the objects being cleaned in the liquid very effectively and gently, even from recesses and drilling holes.

Other applications include degassing or mixing liquids.

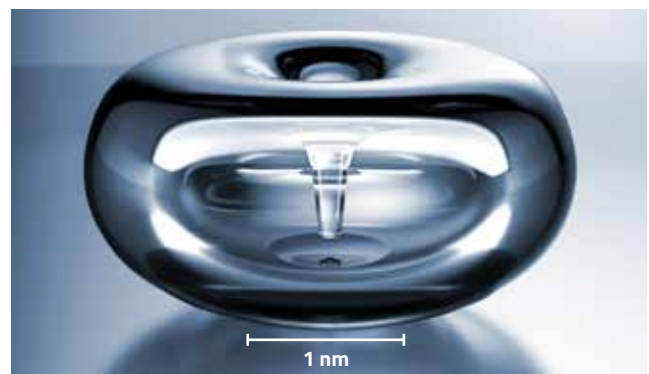
Cleaning with a SONOREX ultrasonic bath from BANDELIN

[youtube.com/watch?v=qmthTqxIOCY](https://www.youtube.com/watch?v=qmthTqxIOCY)



Cavitation

Ultrasound generates an intensive compression-tension cycle in the water, creating the finest cavitation bubbles, which grow over several cycles and then intensively implode. The resulting high shear forces and microjets of the implosions quickly blast off any adhering impurities from the surface.



Cavitation bubble

Advantages of ultrasonic cleaning



High cleaning effect in hard-to-reach areas, such as drilling holes, joints or gaps



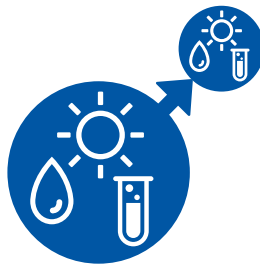
Protection of the instruments



Fast instrument circulation



No time-consuming manual pre-cleaning required



Economical use of water, chemicals and energy



Disinfection agent pre-cleaning for user protection

Ultrasound provides fast cleaning results

Sonication of dental forceps contaminated with blood residues in a SONOREX DIGITEC DT 102 H ultrasonic bath with the dental TICKOMED 1 instrument cleaner:

after just a few seconds, the contamination is removed from the instrument.



Start

3 seconds

5 seconds

8 seconds

10 seconds

Structure of an ultrasonic bath

Ultrasonic baths meet a variety of requirements that are placed on them by day-to-day life in dental practices and laboratories. This makes for a correspondingly wide range of devices. The basis for successful application is made up of understanding the technical structure of an ultrasonic bath and the resulting selection of equipment features and application parameters based on the application in question.



Oscillating tank

made of stainless steel 1.4301 (wrought),
SONOREX RK/DT 102 H: additionally hard chromium
plated, on some models stainless steel 1.4404 (welded),
2 mm material thickness

Heating

Surface heating elements, with automatic shutdown to
prevent excess temperature

Oscillating systems

Conversion of the high-frequency voltage supplied by
the generator by means of piezoelectric transducers
into mechanical resonant oscillations of the same fre-
quency. The connection between the oscillating sys-
tems and the stainless steel trough is made with a high-
strength adhesive.

It is crucial to understand that the dimensions of the
oscillating elements determine the operating frequency.
Once the dimensions have been defined, the operating
frequency can no longer be varied. The number of oscil-
lating elements determines the power in the bath.



Control unit

Preselection of the process parameters time and/or
temperature or DEGAS or power

Ultrasonic generator

Conversion of the low-frequency mains voltage of
50/60 Hz into a high-frequency voltage of 35 or 40 kHz

Applications in the **SONOREX** ultrasonic bath

02



Cleaning

Remove a wide range of impurities from your dental instruments.

from page 20



Cleaning and chemical disinfection

To provide greater safety for the practice team. Simultaneous pre-cleaning and chemical disinfection in one step.

from page 38

Cleaning



Dental practices



Orthodontics



Dental laboratories

- Removing organic residues – [page 22](#)
- Pre-cleaning instruments in trays – [page 24](#)
- Removing tartar and other deposits on dentures and functional orthodontic devices and appliances – [page 26](#)
- Removal of alginate residues from impression trays – [page 28](#)
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- Removal of dental plaster from stainless steel instruments, glass parts and newly fabricated dentures and orthoses – [page 32](#)
- Cleaning to remove production residues in dental laboratories – [page 34](#)
- Basic cleaning of instruments – [page 36](#)

Note: The large number of dental instruments is suitable for reprocessing in an ultrasonic bath. In principle, however, all instruments must be checked to ensure compatibility for reprocessing in an ultrasonic bath. The instrument manufacturer will provide precise reprocessing instructions.



Removing organic residues



Dental practices



Orthodontics

In dental practices, there are a large number of impurities and contaminants that must be removed during instrument reprocessing in accordance with the relevant specifications.

Due to the work being performed directly in the patient's oral cavity, it must be assumed that each instrument in use is potentially contaminated. Organic residues, such as adhering blood, saliva, tooth substance and

secretions, are sometimes hardly visible, but pose a hygiene risk. Thorough pre-cleaning is essential for proper reprocessing (e.g., thermal disinfection or sterilisation). Only completely clean instruments that have been disinfected or sterilised may be used on patients again.

An ultrasonic bath with the right accessories and a suitable cleaning agent therefore provides the best possible foundation for pre-cleaning contaminated instruments.

Contaminants

- Blood
- Secretions
- Saliva
- Tooth substance

Agent

- TICKOMED 1
3%, 3–10 min

Objects to be cleaned

- Instruments made of metal
e.g., tweezers, forceps, scalers, probes, surgical instruments, root canal instruments, drills

Application instructions

- Place the objects to be cleaned in the stainless steel insert basket or plastic insert tub, and insert the basket or plastic insert tub in the oscillating tank.

Example equipment

- Ultrasonic Bath ST 102 H
- Accessories: Insert Basket K 3 C, Lid D 100
- Agent: TICKOMED 1



Positioning of the instruments in the ultrasonic bath

The instruments to be cleaned are placed in the insert basket and cleaned with this directly in an ultrasonic bath. Care must be taken here to ensure that the instruments are stored safely in order to avoid damage to the instruments or to prevent poorer results. Articulated instruments are always opened to ensure effective cleaning. Multi-part instruments must be disassembled as far as possible. Additional accessories may be required for cleaning small parts, e.g., endodontic needles and various drills, in order to protect the sensitive instruments.

In general, ultrasound is effective wherever fluid can reach, meaning that overloading or incomplete coverage with the liquid will lead to poor cleaning results.



PRACTICAL TIP

Bath temperature

Ultrasound generates the desired cavitation in the bath liquid, which is what causes the cleaning effect during the process. Cavitation leads to the bath liquid heating up during operation.

When cleaning to remove organic residues, there is a risk that the proteins in these organic residues will denature if temperatures are too high ($> 40\text{ }^{\circ}\text{C}$). This leads to undesirable protein fixation (strongly adhering

protein contamination), which makes further reprocessing of the instruments more difficult.

That is why you should always pay attention to the bath temperature. We recommend that the bath be cold for cleaning baths, as is also intended for the disinfection agents for this reason. Operate the ultrasound device at room temperature ($18\text{--}25\text{ }^{\circ}\text{C}$).

Pre-cleaning instruments in trays



Dental practices



Orthodontics

The use of trays and the associated, task-specific, defined instrument sets speeds up the circulation of instruments. The standardisation of tray reprocessing ensures validated instrument reprocessing as required by regulations and leads to time-saving organisational processes.

The same instruments are used again and again for various surgical interventions, but also in the field of prophylaxis. This results in the set approach, in which a certain selection and number of instruments are always compiled. In this case, specific tray systems

can be used to transport, but also to reprocess, these instrument sets.

The entire set of instruments and tray is placed in the ultrasonic bath for pre-cleaning after use. The entire tray is then sent for thermal disinfection in the washing and disinfection unit, for example. The advantages of this reprocessing include rapid availability due to the simultaneous reprocessing of the instruments and tray as a standardised workflow.

Contaminants

- Blood
- Secretions
- Saliva

Agent

- **Pre-cleaning**
TICKOMED 1: 3% – 3–10 min
- **Disinfection agent pre-cleaning**
STAMMOPUR DR 8: 2% – 5 min

Objects to be cleaned

- Instruments made of stainless steel in dental instrument trays

Application instructions

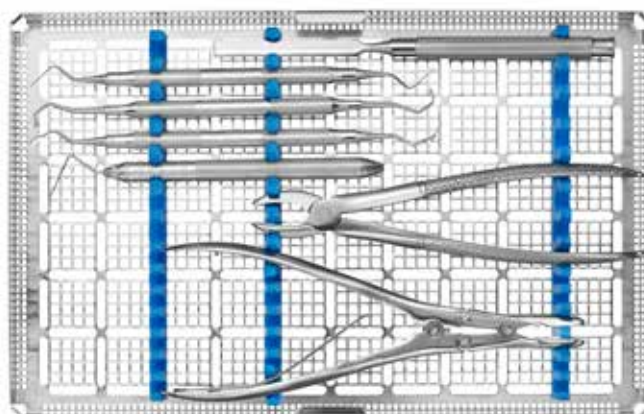
- The SONOREX DIGITEC DT 514 and SONOREX SUPER RK 514 H ultrasonic baths are intended for cleaning instruments in dental trays. Hang a maximum of three dental instrument trays in the oscillating tank using cassette holder KAH 14.3.

Example equipment

- Ultrasonic Bath DT 514 H
- Accessories: Cassette Holder KAH 14.3
- Agent: TICKOMED 1



- 1 Treatment of the patient**
The sterile instruments are removed from the tray and used on the patient.
- 2 Storage of the used instrument** in the tray after the treatment.
- 3 Safe transport of the trays** with the contaminated instruments into the reprocessing room.
- 4 Positioning of the filled trays** in the ultrasonic bath, without removal of the instruments, for thorough, gentle and time-saving pre-cleaning.



- 5 Rinsing of the pre-cleaned trays and transfer** to the subsequent reprocessing stage (e.g., into a cleaning and disinfection device and an autoclave).
- 6 They are used on patients** after complete reprocessing as confirmed by the regulatory authorities.



KAH 14.3 with dental instrument trays, ultrasonic bath RK 514 H

Removal of tartar and other deposits from dentures, orthoses and orthodontic appliances and devices.



Dental practices



Orthodontics

Tartar formation is essentially a process that can be intensified by inadequate oral hygiene. The cause of tartar formation is the inorganic composition of the saliva. These inorganic substances tend particularly to accumulate in the plaque, i.e., the soft deposits on the teeth. A chemical reaction occurs, and the coatings harden: fixed tartar forms. This tartar can form

on natural teeth but also on dentures, orthoses, and other dental prostheses. Thorough care is therefore also essential for dentures. However, if tartar has formed despite care, discolouration has developed, or other deposits are visible, intensive cleaning in an ultrasonic bath is recommended.

Contaminants

- Tartar
- Discolouration
- Deposits

Agent

- **STAMMOPUR Z**
5%, 3–10 min

Objects to be cleaned

- Dentures (tartar)
- Model casting
- Appliances, mouth guards, retainers, orthoses

Application instructions

- The application is performed in an ultrasonic bath with indirect sonication in inset beakers, e.g., in a plastic insert tub or in a beaker.

Example equipment

- Ultrasonic Bath ST 102 H
- Accessories: Positioning Lid DE 100, Insert Cup SD 06, Insert Basket KD 0
- Agent: STAMMOPUR Z
- For the contact liquid agent: TICKOMED 1



Active plates and functional orthodontic appliances (FOA)

In general, all aids for correcting tooth misalignments and jaw irregularities are defined under this term. In addition to their various applications, a distinction is also made between removable and fixed appliances.

Fixed appliances require very intensive care on the part of the patient personally. This also applies to removable objects, but these can also be hygienically reprocessed professionally in the practice in an ultrasonic bath if required.



Braces and retainers

Braces are used to correct misalignments of the jaw and teeth. A retainer is an aid in orthodontics that is intended to prevent the teeth from shifting again after braces treatment.

Long and intensive wearing of these objects results in certain deposits and impurities. An ultrasonic bath is the best choice for hygienic cleaning.



Space maintainers

If it is necessary to remove one or more baby teeth, a space maintainer is usually inserted at this point.

This prevents the neighbouring teeth from tipping into the gap and keeps the space free for the permanent tooth/teeth to come in.

Mouth guards

Mouth guards are used to prevent abrasion of the teeth during unconscious grinding at night.

Similar to with braces and other functional orthodontic appliances, deposits and impurities are produced, which are cleaned off in the ultrasonic bath.



Removal of alginate residue from impression trays



Dental practices



Orthodontics

In general, alginate is a specific material used by the dentist or orthodontist to create an exact impression of the patient's teeth or jaw. When this is carried out, an impression tray is usually used, which provides a supporting function during the impression process. For this usage, the usually powdered alginate is mixed with water to obtain an irreversibly elastic paste.

In addition to the positive properties of alginate, however, cleaning residues from, for example, impression trays, is a labour-intensive task that should not be underestimated.

Contaminants

- Alginates
- Impression materials
- Embedding materials

Objects to be cleaned

- Impression trays
- Instruments and aids for the production of impression material

Agent

- **STAMMOPUR AG**
Undiluted, 3–10 min

Application instructions

- Slide onto the impression tray holder and insert it in the oscillating tank. Some alginates swell during sonication and form a gelatinous mass that absorbs ultrasound. However, they are pre-softened by the acoustic irradiation and can be removed with a sharp jet of water.

Example equipment

- Ultrasonic Bath DT 102 H
- Accessories: Insert Basket K 3 C, Lid D 100
- Agent: STAMMOPUR AG



Examples of objects to be cleaned

An impression tray is a dental instrument used for taking an impression of the jaw or dental arch in order to make a dental prosthesis, dental bridge, or filling as accurately as possible. The impression material is deposited in the fine gaps. This is difficult to clean manually. Ultrasound reaches into the finest gaps and completely cleans even stubborn residues.



PRACTICAL TIP

Impression tray holder for impression trays

The impression tray holder ensures thorough cleaning of up to eight impression trays at the same time. The trays are hooked in for this, which optimises their positioning for ultrasonic cleaning.

The impression tray holder is available for the SONOREX RK/DT 100/H and SONOREX RK/DT/ST 102 H devices and is an ideal addition to your daily cleaning routine.



Impression Tray Holder
LT 102



Removal of cement residues from stainless steel instruments and glass parts



Dental practices



Orthodontics



Dental laboratories

In dentistry, cements are primarily used for the cementation of crowns, as underfillings, and as temporary fillings. Due to the high adhesion properties of dental cements, they are ideal for this purpose.

The components, e.g., zinc phosphate, zinc oxide or calcium aluminium silicate, are solids with a high

compressive and tensile strength. Phosphate cement is still primarily used in dentistry. This is mixed shortly before use from a cement powder and a liquid.

Hardened cements are quite difficult to remove. An ultrasonic bath with an acidic cleaning agent is ideal for effective cleaning.

Contaminants

- **Dental cements**
(except glass ionomer cement)

Agent

- **STAMMOPUR Z**
5%, 3–10 min

Objects to be cleaned

- **Instruments** made of stainless steel
- **Glass parts, e.g.,** glass mixing plates
- **Cement spatulas**

Application instructions

- The application is performed in an ultrasonic bath with indirect sonication in inset beakers, e.g., in a plastic insert tub or in a beaker.

Example equipment

- Ultrasonic Bath ST 102 H
- Accessories: Insert Tub KW 3
- Agent: STAMMOPUR Z
- For the contact liquid agent: TICKOMED 1



Glass mixing plate and cement spatula

Cement spatulas and glass mixing plates are generally used for the production of various cements.

This makes it very easy to produce the desired quantity of cement in the required consistency.

Both tools are suitable for cleaning in an ultrasonic bath.



PRACTICAL TIP

Cleaning immediately after use

Place the instruments and aids in the ultrasonic bath immediately after use and start cleaning. It is not recommended to soak the instruments in the solution

beforehand, neither for the cleaning result nor to preserve the instruments themselves. This way, you can clean your instruments effectively and save time.



Removing dental plaster from stainless-steel instruments, glass parts and newly fabricated dentures and orthoses



Dental practices



Orthodontics



Dental laboratories

Plaster is used in dentistry for two typical applications. Models of the dentition are produced to create so-called situation models. These models illustrate the entire initial situation, e.g., before a planned treatment.

Dentures, orthodontic appliances, orthoses, occlusal appliances, or mouth protection appliances are produced on the basis of plaster models for

further use. Before a plaster model can be made, an impression of the dentition or jaw is taken using an impression. Depending on the precision of the impression and the model, a corresponding, detailed dental workpiece is subsequently produced.

Contaminants

- Dental plaster

Agent

- **STAMMOPUR AG**
Undiluted, 3–10 min

Objects to be cleaned

- **Stainless steel instruments and glass parts**, e.g., functional orthopaedic plaster pliers, mixing spatula, plaster knife, glass vessels

Application instructions

- Place the objects to be cleaned in the stainless steel insert basket or plastic insert tub, and insert the basket in the oscillating tank.

Example equipment

- Ultrasonic Bath DT 102 H
- Accessories: Insert Basket K 3 C, Lid D 100
- Agent: STAMMOPUR AG



Dental plaster

There are five different types of dental plaster:

- **Impression plaster** – for the cementation of crowns after try-in, for moulding a functional impression.
Properties: fine-grained, coloured
- **Alabaster plaster** – suitable for repair embeddings, situation models, preliminary casts, plaster casts in the articulator, and also models for fabricating functional trays.
Properties: soft, porous
- **Hard model plaster** – for models on which no precision work is performed, for opposing jaw-models and cuvette embeddings
Properties: medium-hard
- **Super-hard plaster** – for dental work demanding precision, such as pinned and sectioned models, with low expansion.
Properties: hard
- **Super-hard plaster** – for total denture work, with high expansion
Properties: hard

All dental plasters can be easily removed with ultrasonic cleaning and the use of STAMMOPUR AG plaster and alginate remover, usually with virtually no residue.



The production of a plaster model requires a meticulous working method, with the aim of achieving a very high level of detail. The finest instruments are required to obtain an exact reproduction of the jaw. The instruments must be perfectly cleaned for reuse in order to guarantee this work. An ultrasonic bath is the ideal solution for this application.

The use of ultrasound accelerates the dissolution of the plaster. The agent STAMMOPUR AG was specially developed for the removal of plaster residues on dental models.

The use of STAMMOPUR AG causes the plaster to react, with the formation of air bubbles, and the layers of plaster are slowly removed automatically. Plaster residues on dental models are usually removed in the ultrasonic bath within 10 minutes. Loosely adhering plaster residues on tooth models are dissolved quickly and thoroughly due to ultrasound application.



Cleaning to remove production residues in dental laboratories



Dental laboratories

Dental laboratories primarily manufacture and repair various forms of dental prostheses and prosthetic aids. The manufacturing process for these materials must be very precise and customised. Equally important for a perfect fit of the dentures in the patient's mouth is that they undergo thorough and intensive final cleaning. The perfect fit is achieved

not only through detailed production but also through cleaning that leaves no manufacturing residues behind. Typical production residues include grinding and polishing paste residues, waxes, greases, and matting coatings. An ultrasonic bath can be used for all impurities.

Contaminants

- Grinding and polishing residues
- Greases
- Waxes

Agent

- **STAMMOPUR RD 5**
3%, 3–10 min

Objects to be cleaned

- Dentures and prostheses

Application instructions

- Place the objects to be cleaned in the insert cup – use an additional insert basket if necessary. Place the positioning lid on the oscillating tank and hang the insert cups in the positioning lid. Larger objects to be cleaned can also be placed directly in the insert basket and treated in an ultrasonic bath.

Example equipment

- Ultrasonic Bath DT 102 H
- Accessories: Positioning Lid DE 100, Insert Cup SD 06, Insert Basket KD 0
- Agent: STAMMOPUR RD 5



Cleaning applications

Dental laboratories manufacture an extensive range of products, such as prosthetics, inlays, implants, models, crowns, bridges, mouth guards, abutments and more. The associated large number of materials used and production residues requires thorough cleaning.

The use of an ultrasonic bath offers thorough, gentle, time-saving, and residue-free cleaning for all materials. Ultrasonic cleaning is mainly used for the intermediate, fine, and final cleaning of dentures before they are handed over to the dental practice.



Crowns



Mouthguards



Impression trays



Dentures



Partial dentures

Abutments

Particle-containing polishing pastes are used in dental laboratories to polish milled abutments. The polishing agents must be removed, without leaving residue, after the polishing work has been completed. This is not possible without ultrasound, especially with plastic abutments, e.g., made of PEEK. The threads of the screws must never be contaminated with polish particles, because if the screw gets tilted, this can damage the implant.

With ultrasonic cleaning, even the finest gaps can be thoroughly cleaned, and the polishing agents, completely removed.



Abutments

Take a look at our video: Cleaning polishing pastes off abutments with ultrasound



[youtube.com/
watch?v=VedeLqS7xuM](https://www.youtube.com/watch?v=VedeLqS7xuM)



Basic cleaning of instruments



Dental practices



Orthodontics



Dental laboratories

Over time, instruments can become externally discoloured, stained, or encrusted due to various influences. Instruments undergo soiling in everyday practice – both during treatment and during complex reprocessing. It is virtually impossible to remove temper colour or burnt-in soiling caused by sterilisation processes by hand,

and oxide or limescale deposits cannot be completely avoided either, despite the best care, which is why basic cleaning of the instruments in an ultrasonic bath is recommended to remove that soiling. With the right cleaning agent, old instruments will regain their lustre. The refurbishing process supports qualitative and ecological sustainability.

Contaminants

- Stains
- Encrustations
- Discolouration

Agent

- STAMMOPUR GR
5%, 3–10 min, 50–60 °C bath temperature

Objects to be cleaned

- Dental instruments made of stainless steel

Application instructions

- The application is performed in an ultrasonic bath with indirect sonication in inset beakers, e.g., in a plastic insert tub or in a beaker.

Example equipment

- Ultrasonic Bath DT 102 H
- Accessories: Insert Tub KW 3
- Agent: STAMMOPUR GR
- For the contact liquid agent: TICKOMED 1



Performing basic cleaning

Dental instruments made of stainless steel, precious metals, and titanium are suitable for basic cleaning with STAMMOPUR GR.

For basic cleaning, indirect cleaning must be used in order to protect the ultrasonic tank, since strongly acidic solutions such as STAMMOPUR GR can be corrosive to the components of the ultrasonic bath with long-term exposure. In contrast, the instruments do not corrode due to the short duration of use.

To prepare for basic cleaning, an insert tub or an insert beaker is filled with the dosed agent STAMMOPUR GR. The contact liquid, e.g., STAMMOPUR R, 2%, is filled into the ultrasonic tank. For degassing, the insert tub or insert beaker is inserted into the ultrasonic bath and the ultrasound is switched on in accordance with the operating instructions of the ultrasonic device. After degassing, the instruments – disassembled and



opened if necessary – are placed in the insert tub or insert beaker. During sonication, the lid must be kept on and, depending on the degree of discoloration, encrustation or stains, a process time of between 2 and 10 minutes in the ultrasonic bath should be selected.



PRACTICAL TIP

In contrast to the removal of organic residues, a high temperature is an important factor for success in basic cleaning. We therefore recommend an ultrasonic bath

with integrated heating to heat the cleaning solution to an optimum temperature of 50–60 °C. The best results are achieved in this temperature range.

Example equipment

- Ultrasonic Bath ST 514 H
- Accessories: Insert Tub KW 14
- Agent: STAMMOPUR GR
- For the contact liquid agent: TICKOMED 1



Cleaning and chemical disinfection



Dental practices



Orthodontics



Dental laboratories

- Cleaning and chemical disinfection of metal instruments – [page 40](#)
- Cleaning and chemical disinfection of rotating small instruments – [page 42](#)

Note: The large number of dental instruments is suitable for reprocessing in an ultrasonic bath. In principle, however, all instruments must be checked to ensure compatibility for reprocessing in an ultrasonic bath. The instrument manufacturer will provide precise reprocessing instructions.



Cleaning and chemical disinfection of metal instruments



Dental practices



Orthodontics



Dental laboratories

Thorough pre-cleaning is the basis for the subsequent steps for safe and compliant instrument reprocessing. Pre-cleaning in an ultrasonic bath is the most effective, quickest, and most thorough method for this.

However, the protection of dental or orthodontic practice staff must also be taken into particular consideration during pre-cleaning.

STAMMOPUR DR 8 can be used for chemical disinfection and intensive cleaning in an ultrasonic bath. This protects the user from contaminated material during pre-cleaning of the instruments and from the

potential risk of infection in the event of contact with this material, for example, if a minor injury occurs. Despite personal protective equipment in the form of gloves, there is a risk of injury due to the sometimes very pointed and sharp-edged instruments.

For optimal user protection, the agent STAMMOPUR DR 8 is bactericidal and levurocidal according to the VAH list of disinfection agents and also offers the advantage of limited virucidal activity. For full effectiveness, the dosage information and the duration of sonication must be observed.

Contaminants

- Blood
- Secretions
- Saliva

Agent

- **STAMMOPUR DR 8**
Certified by the German Association for Applied Hygiene (VAH), 2% – 5 min: bactericidal, levurocidal, limited virucidal, incl. H5N1 and SARS-CoV-2, 2% – 10 min: SV40, 3% – 15 min: Adeno

Objects to be cleaned

- Instruments made of metal and also light metal, e.g., tweezers, forceps, scalers, probes, surgical instruments, root canal instruments

Application instructions

- Place the objects to be cleaned in the stainless-steel insert basket and insert the basket into the oscillating tank.

Example equipment

- Ultrasonic Bath ST 102 H
- Accessories: Insert Basket K 3 C, Lid D 100
- Agent: STAMMOPUR DR 8

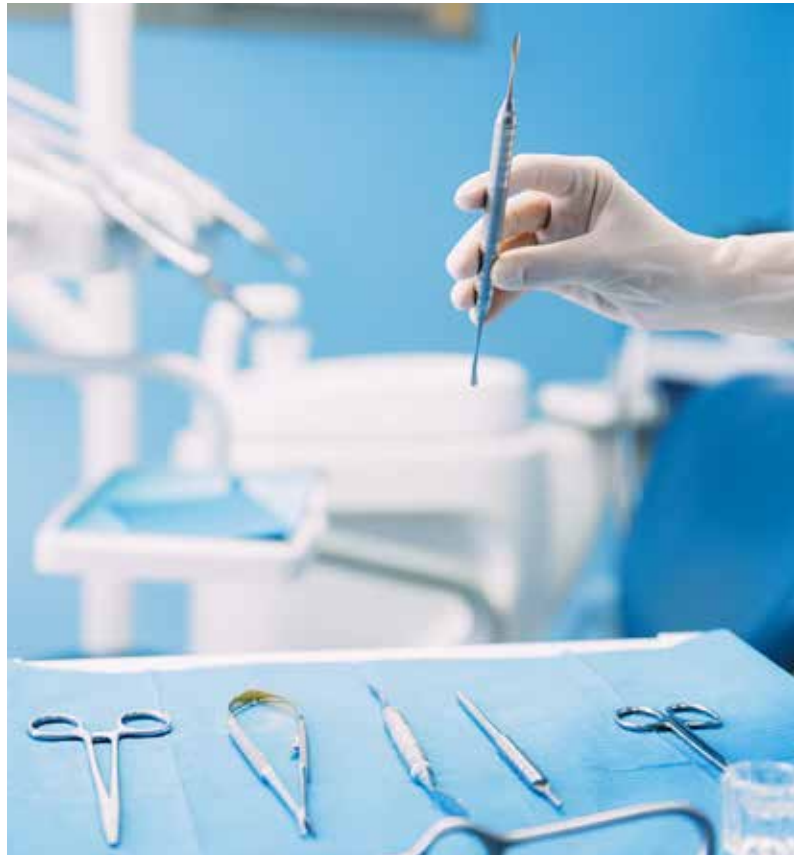


Ultrasonic cleaning and disinfection agents

Ultrasonic cleaning in combination with a disinfection agent offers many advantages in the practice workflow. With STAMMOPUR and TICKOMED, BANDELIN offers a comprehensive range of cleaning and disinfection agents.

Advantages of cleaning and chemical disinfection in an ultrasonic bath:

- High level of protection for staff
- No contamination of the cleaning solution
- Thorough removal of contamination
- Protection of the objects to be cleaned
- Protection of the ultrasonic components (oscillating tank and accessories)
- Reduced disinfection time in an ultrasonic bath, as verified by experts



The choice of the right accessories and preparation is crucial for optimum cleaning results. BANDELIN offers a wide range of accessories for various applications in the dental field. For a simple and efficient workflow.



Watch our video:
Cleaning and chemical disinfection
of dental instruments
[youtube.com/
watch?v=E-ukSAzm_dl&t=11s](https://www.youtube.com/watch?v=E-ukSAzm_dl&t=11s)



Cleaning and chemical disinfection of rotating small instruments



Dental practices



Orthodontics

Rotating dental instruments are usually clamped in turbines or handpieces and contra-angles. These fine instruments are used for a wide variety of purposes in dentistry and therefore also differ in the type of material used, size, and geometries. These are highly sensitive and at the same time very precise tools that can only be used in the best condition.

In addition to safe storage and transport, that means that suitable reprocessing is also essential.

Even though some of these rotary instruments are made of hardened materials, the fine joints and edges are sensitive to scratches and impacts. It is also sometimes difficult to remove soiling. Thorough cleaning and chemical disinfection is made possible by reprocessing in a BANDELIN ultrasonic bath.

Contaminants

- Blood
- Secretions
- Saliva
- Tooth substance

Agent

- **STAMMOPUR DB**
VAH-certified, undiluted, 5 min

Objects to be cleaned

- **Rotating and non-rotating small instruments**, e.g., drills and milling cutters, diamond grinders, endodontic needles, root fillers

Application instructions

- The application is performed in an ultrasonic bath with indirect sonication in insert beakers, e.g., in a plastic insert tub or in a beaker.

Example equipment

- Ultrasonic Bath DT 102 H
- Accessories: Positioning Lid DE 100, Insert Cup SD 06, Insert Basket PD 04
- Agent: STAMMOPUR DB
- For the contact liquid agent: TICKOMED 1



Examples of objects to be cleaned

In addition to small rotary instruments, like drills and milling cutters, other small parts are also used, such as various endodontic instruments. These often delicate small parts require particularly gentle cleaning and chemical disinfection.

Scientific studies show that the treatment of endodontological instruments in an ultrasonic bath is one of the most effective methods of reprocessing before sterilisation.

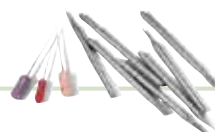


PRACTICAL TIP

Sensitive surfaces

For very sensitive surfaces, we recommend placing them in the plastic insert basket (PD 04) during cleaning in the ultrasonic bath.

This ensures thorough cleaning while protecting the instruments at the same time.



SONOREX

Compact ultrasonic baths



SONOREX series

The most important features
of the controls and functions.

from page 50



**Our favourites:
SONOREX ST/DT/RK 102 H**

High-performance compact devices
for the dental field.

from page 54

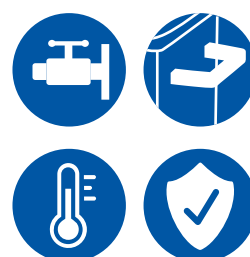
03



Criteria when purchasing an ultrasonic bath

What is the right ultrasonic bath for you? We can tell you!

from page 46



Advantages of the SONOREX series

Solid arguments in favour of an ultrasonic bath from BANDELIN.

from page 48



The all-rounder: SONOREX ST/DT/RK 514 H

Cleaning entire sets and other applications.

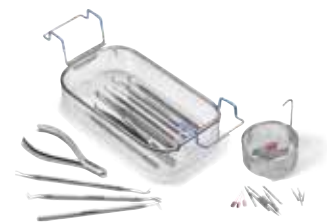
from page 56



SONOREX bath sizes and technical specifications

Overview of the smart ST, DIGITEC DT and SUPER RK device series.

from page 58



SONOREX accessories and configuration example

Combine our accessories to suit your applications.

from page 60

Criteria when purchasing an ultrasonic bath

Ultrasonic baths are available in many sizes and formats with different equipment features. Certain selection criteria should be taken into account in order to determine the ideal device for your own application.

Bath size

The choice of the right bath size depends on the applications and the objects to be cleaned. It is therefore primarily the objects to be cleaned that determine the choice of suitable accessories in which they must be placed, and thus the suitable ultrasonic bath.

It is therefore not the bath volume that is decisive but the space required by the objects to be cleaned. For example, an ultrasonic bath with a small base area and greater bath depth can have the same bath volume as a shallow ultrasonic bath with a larger base area.

The objects to be cleaned must be completely covered with the cleaning agent when being cleaned in an ultrasonic bath. Overlapping of the objects to be cleaned should also be avoided, so that the cleaning effect of the cleaning agent, in combination with the ultrasound, can fully take hold.

For indirect sonication, the vessels must be immersed at least 2 cm into the contact liquid so that the ultrasound is transferred into the cleaning agent for the vessels.

If various ultrasonic applications are to be performed, always ensure that the ultrasonic bath is suitable for each application. It can save a lot of time to carry out several applications in one operation. In a larger bath, for example, instruments can be cleaned in a basket, and two beakers with different objects to be cleaned can be sonicated in different cleaning agents at the same time.

Other aspects include the space required for the device on the work surface and the installation conditions.

Accessories

As already mentioned, selecting the right accessories is crucial for successful cleaning.

BANDELIN offers a wide range of accessories that are optimally adapted to the cleaning requirements and can be applied flexibly.

The cleaning task determines the type of sonication (direct or indirect) and the choice of accessories. The objects to be cleaned must never be placed directly on the tank bottom, to avoid damaging it and the objects to be cleaned.

For small parts, gentle cleaning in a beaker is recommended. For basic cleaning, a plastic insert tub is suitable for particularly gentle and efficient cleaning.

Special accessories, such as the LT 102 impression tray holder for cleaning impression trays, also facilitate the cleaning process and its success. This often means that a larger number of objects to be cleaned can be sonicated and cleaned. This ensures a higher throughput rate and thus an efficient working day.

The choice of cleaning agent depends on the degree of soiling and also influences the choice of accessories. Acidic cleaning agents, for example, may only be used for indirect sonication, in order to protect the oscillating tank from corrosion.

Cleaning by direct or indirect sonication

Direct sonication:

The objects to be cleaned are directly exposed to cavitation in the ultrasonic bath, which means that the entire bath volume is available for sonication of the objects to be cleaned.

Direct sonication is primarily used for the (pre-) cleaning and chemical disinfection of general dental instruments.



Indirect sonication:

The objects to be cleaned and sonicated are indirectly exposed to cavitation in an inset beaker, which enables the simultaneous sonication of different cleaning solutions or cleaning objects. Indirect sonication is used, for example, when acidic cleaners are required, or for the sonication of small parts.



Ultrasonic baths with and without heating

The choice of an ultrasonic bath with or without heating depends on the cleaning application. You should take the following into account:

Device without heating:

- For cleaning after dry deposit; at temperatures above 40 °C there is a risk of protein coagulation.
- Disinfection agent liquids must not be heated.

In ultrasonic devices with heating, this function can be switched on, which means that the bath fluid can be heated, or the heating can remain deactivated, depending on the application.

Ultrasonic baths from the SONOREX DIGITEC series with heating are equipped with temperature monitoring.

A temperature range between 20 and 80 °C can be set. If the set temperature range of 40 °C, for example,

Device with heating:

- For cleaning after wet deposit or for basic cleaning
- Contaminants such as grease and waxes are removed more quickly.

is exceeded during an application with a temperature-sensitive part or contamination, this will be signalled by the red warning LED. The user does not need an external temperature measuring device and will be able to intervene in the cleaning process in good time.



Installation requirements

The space required for the ultrasonic bath, the availability of a tap, and the capability to empty the bath should be checked before purchasing.

Does the ultrasonic bath fit on the work surface? Is there enough space above the bath to insert and remove the accessories? Is it possible to fill and empty the bath?

Further information on the installation conditions or technical specifications can be found in the operating instructions for the relevant device.

We will be happy to help you choose the right ultrasonic bath for you, with the suitable accessories and the right cleaning agent. **Simply call our friendly service team on +49 30 76880-0.**

Advantages of the **SONOREX** compact devices at a glance



SONOREX SUPER RK 102 H



SONOREX DIGITEC DT 102 H



SONOREX smart ST 102 H

Durable design

- Compact, easy-care, stainless-steel housing
- Oscillating tank: made of stainless steel 1.4301 (wrought) SONOREX ST/DT/RK 102 H: additionally hard-chromium plated, on some models stainless steel 1.4404 (welded), 2 mm material thickness
- High-performance oscillation systems made with highly stable ceramic piezoelectric materials
- Made in Germany



MADE IN GERMANY



Rounded tank edges

On the sides and on the bottom – making it easier to clean the oscillating tank. For hygienic handling of the ultrasonic bath.



Filling level mark

Easily recognisable embossing for the minimum filling level of the cleaning agent – makes filling the bath easier.





Welded outlet

With ball valve for emptying the ultrasonic bath (from ST/DT/RK 102 H)

The outlet elbow is welded to the tank bottom and is not screwed on. This prevents leaks in the device and makes cleaning easier.



Fixed mains cable

In contrast to the plug-in mains cables that are otherwise usually found, these are permanently installed in SONOREX ultrasonic baths. This rules out ingress of liquid at this connection and the associated danger of a short circuit.



Device feet (plastic)

For a secure footing on a smooth surface.



Handles

For easy and safe handling (except RK/DT 31, RK/DT 52, RK/DT 100, RK/DT 103 H, RK/DT 106, RK/DT 156, RK 170 H, RK 1040).



Heating

Depending on the model, with integrated heating. Adjustable temperature ranges:

- RK 30–80 °C, except RK 31 H: 65 °C fixed
- DT/DL 20–80 °C



Protection against overheating

Automatic switching off of the heating in the event of excessive temperature, e.g., triggered by an insufficient filling level.



Medical device class I

MDR-compliant

SONOREX – Control

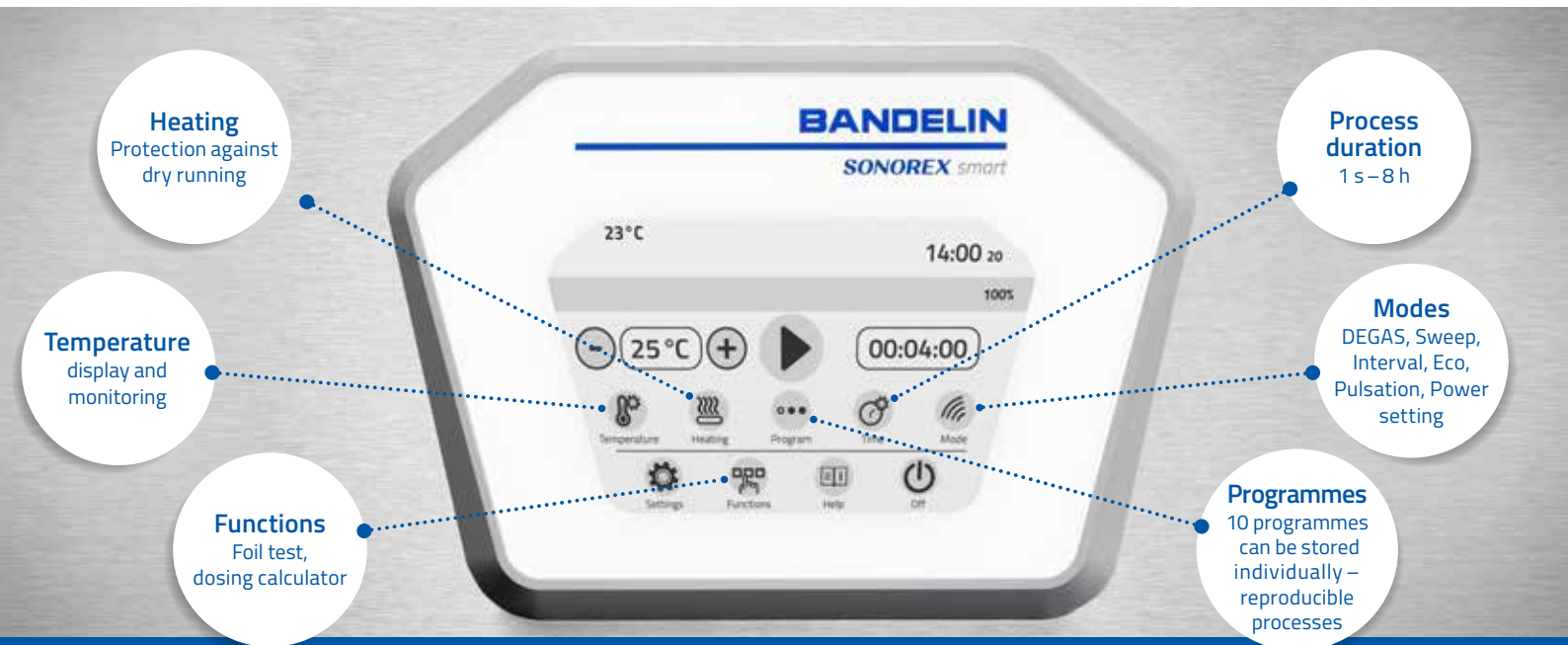
Ultrasonic baths with modern touch screen

SONOREX smart ST

Touch screen with intuitive operation

Bath sizes:

3,0–90,0 l



Ultrasonic baths with high-tech equipment, intuitively operated via a modern touch screen with a user-friendly interface.

Produktmerkmale



Clear display of the most important parameters during operation (time, temperature, power)



Power 10–100%, also for cleaning more sensitive parts



Continuous time setting 1 s – 8 h



Process logging (via optional USB/LAN DST 01 docking station, transferable to other media)



10 individual programmes can be stored for reproducible processes



Acoustic feedback



Rapid degassing function



Default language selection: de, en, fr, it, es
Other languages optional



Sweep function for a homogeneous
sound field



Help menu for each function



Eco programme with reduced energy
consumption



Dosing calculator for detergent



Drip-proof touch display (IP32) –
easy to clean



Class 1 medical device, MDR-compliant



Safety shut-down after 8 h



Heating with protection against dry
running



SONOREX smart ST 102 H

SONOREX – Control

Our classics

SONOREX DIGITEC DT

Membrane keyboard, with rapid degassing

Bath sizes:

0.9–90.0 l



Ultrasonic baths with digital controls, which enable temperature and/or time to be set and rapid degassing to be activated.

Four device sizes are available with an infrared interface: type DT ... H-RC. Convenient to control, with user-friendly process documentation.

Product features



Time setting: 1, 2, 3, 4, 5, 10, 15, 30 min and continuous operation, LED lamp display of the preset time and the remaining time



Data memory for 1 programme, DEGAS function – rapid degassing



Adjustable temperature range: for appliances with heating, 20–80 °C, adjustable in 5 °C increments, LED lamp display of set/actual temperature



Ultrasound



Excess temperature signal if the set temperature is exceeded – warning LED



Pulse function: continuous – increases the wave frequency and thus enhances the ultrasound effect



Easy and intuitive to control



Sweep – automatic frequency control ensures a homogeneous acoustic field



Membrane keyboard, particularly hygienic



Automatic safety shut-down after 12 hours without being operated



SONOREX DIGITEC DT 510 H

SONOREX SUPER RK

Conventional operation via a turning knob

Bath sizes:

0.9–90.0 l



Ultrasonic baths with turning knobs, including a user-friendly crossbar which allows the time and/or temperature to be selected.

Product features



Time setting: 1–15 min and continuous operation



Adjustable temperature range: for devices with heating, 30–80 °C, adjustable in 5 °C increments, with pilot lamps with the RK 31 H: permanently set at 65 °C



Easy and intuitive to control



Ultrasound



Pulse function: continuous – increases the wave frequency and thus enhances the ultrasound effect



Sweep – automatic frequency control ensures a homogeneous acoustic field



SONOREX SUPER RK 510 H

Our favourite in the dental field

The highest-performing BANDELIN ultrasound bath

Especially high performance

120 W ultrasonic nominal power,
480 W ultrasonic peak power

Hard chromium plated oscillating tank

Even more durable than stainless steel

Extremely versatile

Extensive accessories for direct and indirect sonication

The perfect size

For instruments up to 20 cm in length

3-year long-term warranty

Particularly high performance

The filling volume is 2 litres. With an ultrasonic nominal power of 120 W, this device offers a power density of 60 W per litre. This means that the compact ST 102 H, DT 102 H and RK 102 H devices are optimally designed for the diverse and challenging applications in the dental field.



Security through process documentation

In the ultrasonic baths of the Smart series, a digital log is created after each cleaning process. This log contains all the key operating parameters and provides evidence of correct operation.

As part of the overall instrument reprocessing process, this can close the gap in the digital documentation of pre-cleaning.

The DST 01 docking station is required for the documentation. This can be used for documentation either via USB output or by direct integration into the practice network (page 60).



Docking station DST 01

Versatile and flexible thanks to accessories

Due to its high performance and the wide range of versatile accessories, this ultrasonic bath is particularly suitable for the numerous applications in the dental field.

Whether direct sonication of instruments or small parts in an insert basket or indirect sonication of dentures and basic cleaning of instruments in insert tubs – this is the perfect all-rounder (page 64/65).



Alternatives – DT/RK 102 H

Just as powerful, versatile and durable as the SONOREX smart ST 102 H, but equipped with conventional operating elements (page 62/63).



SONOREX DIGITEC DT 102 H



SONOREX SUPER RK 102 H





SONOREX ST/DT/RK 514 H

One device – countless possibilities

Especially high performance

215 W ultrasonic nominal power,
860 W ultrasonic peak power

Extremely versatile

Suitable for direct and indirect sonication thanks to special accessories

Modern reprocessing

Cleaning with dental instrument trays

The perfect size

For all applications in the dental field

Extremely versatile

With the SONOREX smart ST 514 H, SONOREX SUPER RK 514 H and SONOREX DIGITEC DT 514 H ultrasonic bath, all direct and indirect sonication applications are possible with the appropriate accessories. The special thing about these devices is their ability to thoroughly and quickly pre-clean dental instrument trays. This spares you the time-consuming individual cleaning of instrument sets in the modern instrument workflow.

The
allrounders!



RK 514 H (left), DT 514 H (middle) and ST 514 H (right)



Cleaning and chemical disinfection with STAMMOPUR DR 8 of loosely inserted instruments in the K 14 insert basket.



Cleaning and chemical disinfection of instruments in two K 5 C insert baskets with STAMMOPUR DR 8, with TICKOMED 1 or with STAMMOPUR RD 5.



Cleaning and chemical disinfection with STAMMOPUR DB in insert cup SD 06 in positioning lid DE 255 and cement removal from dental prosthetics with STAMMOPUR Z.



Basic cleaning of dental instruments in the KW 14 insert tub and with STAMMOPUR GR.



Cleaning instruments by using dental instrument trays in the KAH 14.3 cassette holder with TICKOMED 1:

- up to 3 × 1/1 DIN dental instrument trays, for surgery
- up to 6 × 1/2 DIN dental instrument trays, for prophylaxis
- up to 12 × 1/4 DIN dental instrument trays, for diagnosis and prophylaxis



Preparation of instruments in the insert basket, drills and prosthetics with the aid of a positioning lid in two insert cups:

- Clean and chemically disinfect instruments in the K 5 C insert basket with STAMMOPUR DR 8.
- Cement residues from dental prosthetics in the SD 06 insert cup with STAMMOPUR Z.
- Clean and chemically disinfect drill holes in a second SD 06 insert cup in the insert basket KD 0 in STAMMOPUR DB.

SONOREX smart

Ultrasonic baths with modern touch screen



From front to back: ST 102 H, ST 255 H und ST 514 H

Type	Code no.	Internal dimensions Oscillating tank l x w x d [mm]	Capacity [l]	External dimensions l x w x h [mm]	Ultrasonic peakpower* [W]	Ultrasonic nominal power [W]	Heating power [W]	Features
ST 102 H	7100	240 x 140 x 100	3.0	260 x 160 x 250	480	120	140	Heating, outlet with ball valve G 1/4, Handles
ST 255 H	7104	300 x 150 x 150	5.5	325 x 175 x 300	640	160	280	Heating, outlet with ball valve G 1/4, Handles
ST 514 H	7106	325 x 300 x 150	13.5	355 x 325 x 300	860	215	600	Heating, outlet with ball valve G 1/2, handles

*Corresponds to 4 times the ultrasonic nominal power

DST 01

Docking station for SONOREX smart with USB-A, USB-B and Ethernet connection
Cable length: approx. 2 m
Code no. 7120





SONOREX DIGITEC

Ultrasonic baths with digital controls



From front to back: DT 31 H, DT 100 H, DT 102 H and DT 255 H

Type	Internal dimensions Oscillating tank l x w x d [mm]	Contents [l]	Code No.	External dimensions L x W x H [mm]	Ultrasound peakpower* [W]	Ultrasound nominal power [W]	Heating power [W]	Features
DT 31	190 x 85 x 60	0.9	3200	205 x 100 x 180	160	40	–	–
DT 31 H	190 x 85 x 60	0.9	3220	205 x 100 x 180	160	40	70	Heating
DT 100	240 x 140 x 100	3.0	3210	260 x 160 x 250	320	80	–	–
DT 100 H	240 x 140 x 100	3.0	3230	260 x 160 x 250	320	80	140	Heating
DT 102 H	240 x 140 x 100	3.0	3235	260 x 160 x 250	480	120	140	Heating, outlet with ball valve G ½, Handles
DT 255	300 x 150 x 150	5.5	3215	325 x 175 x 295	640	160	–	Outlet with ball valve G ½, handles
DT 255 H	300 x 150 x 150	5.5	3240	325 x 175 x 295	640	160	280	Heating, outlet with ball valve G ½, Handles
DT 514	325 x 300 x 150	13.5	3250	355 x 325 x 305	860	215	600	Outlet with ball valve G ½, handles
DT 514 H	325 x 300 x 150	13.5	3211	355 x 325 x 305	860	215	600	With heating, outlet with ball valve G ½, handles

*Corresponds to 4 times the ultrasonic nominal power

SONOREX SUPER

Ultrasonic baths with conventional operating elements



From front to back: RK 31 H, RK 100 H, RK 102 H and RK 255 H








Type	Internal dimensions Oscillating tank l × w × d [mm]	Capacity [l]	Code No.	External dimensions L × W × H [mm]	Ultrasonic peakpower* [W]	Ultrasonic nominal power [W]	Heating power [W]	Features
RK 31	190 × 85 × 60	0.9	329	205 × 100 × 180	160	40	–	–
RK 31 H	190 × 85 × 60	0.9	044	205 × 100 × 180	160	40	70	Heating, 65 °C fixed
RK 100	240 × 140 × 100	3.0	301	260 × 160 × 250	320	80	–	–
RK 100 H	240 × 140 × 100	3.0	312	260 × 160 × 250	320	80	140	Heating
RK 102 H	240 × 140 × 100	3.0	303	260 × 160 × 250	480	120	140	Heating, outlet with ball valve G ¼, carrying handles
RK 255	300 × 150 × 150	5.5	3066	325 × 175 × 295	640	160	–	Outlet with ball valve G ¼, carrying handles
RK 255 H	300 × 150 × 150	5.5	316	325 × 175 × 295	640	160	280	Heating, outlet with ball valve G ¼, carrying handles
RK 514	325 × 300 × 150	13.5	277	355 × 325 × 305	860	215	600	Outlet with ball valve G ½, handles
RK 514 H	325 × 300 × 150	13.5	207	355 × 325 × 305	860	215	600	With heating, outlet with ball valve G ½, handles

*Corresponds to 4 times the ultrasonic nominal power




SONOREX Accessories

The right accessories make application of ultrasound easier and, at the same time, protect the oscillating tank and the instruments.

Objects to be cleaned or containers must **not** be placed on the tank bottom, so you should always use a suitable basket or holder.

Accessories	Material	Function	
Lid D	Stainless steel	To cover the oscillating tank. Protects the bath liquid from external contamination – condensation water is drained into the oscillating tank. Recommended pursuant to the German Technical Rules for Biological Agents (TRBA) 250.	 D 100
Insert basket K	Stainless steel	For cleaning instruments such as probes, condensers, syringes, etc., directly in the oscillating tank. Optimal ultrasonic permeability.	 K 3 C
Insert basket K	Plastic	For cleaning sensitive surfaces. The basket is perforated.	 PK 2 C
Inset tub KW	Plastic	For cleaning in aggressive liquids. Tank with lid, temperature resistant up to 60 °C.	 KW 3
Cassette holder KAH	Stainless steel	For simultaneous sonication of max. 3 dental instrument trays 1/1 DIN.	 KAH 14.3
Impression tray holder LT	Stainless steel	With silicone spacers for securely affixing a max. of 8 impression trays.	 LT 102
Foil test frame FT	Stainless steel	The foil test is a simple method for visualising the intensity and distribution of cavitation in an ultrasonic bath (see also page 84).	 FT 1

Accessories for indirect sonication

Positioning lid DE	Stainless steel	For affixing the insert cups.	 DE 255
Insert cup EB, PD, SD	Stainless steel (EB) Plastic (PD) Glass (SD)	Indirect cleaning of small parts in aggressive liquids or solvents.	 EB 05 PD 06 SD 06
Insert basket KD, PD	Stainless steel (KD) Plastic (PD)	For insertion into the insert cups. For very small parts, e.g., drills, or very sensitive surfaces.	 KD 0 PD 04



	RK 31 / H DT 31 / H	RK 100 / H DT 100 / H RK 102 H DT 102 H	RK 255 / H DT 255 / H	RK 514 / H DT 514 / H	
Lid Code No.	D 08 218	D 100 3003	D 255 3007	D 514 3010	
Insert basket L x W x D [mm] Code no.	K 08 170 x 65 x 50 209	K 3 C 200 x 110 x 40 3025	K 5 C 260 x 110 x 40 3027	K 14 275 x 245 x 50 354	K 5 C (2 pcs) 260 x 110 x 40 302
Insert basket L x W x D [mm] Code no.	–	PK 2 C 187 x 90 x 56 3082	–	–	
Insert tub L x W x D [mm] Code no.	–	KW 3 195 x 115 x 88 715	KW 5 254 x 96 x 130 240	KW 14 280 x 215 x 145 613	
Cassette holder L x W x D (mm) Code no.	–	–	–	KAH 14.3 305 x 208 x 52 7501	
Impression tray holder Code no.	–	LT 102 371	–	–	
Foil test frame Code no.	FT 1 3190	FT 4 3074	FT 4 3074	FT 14 3084	

	DE 08 (2 holes) 278			DE 100 (2 holes) 3017			DE 255 (2 holes) 3028			DE 255 (2 pcs) (2 x 2 holes) 3028		DE 514 (4 holes) 3039
Insert cup Capacity [ml] Code no.	SD 04 400 168	KB 04 400 3000	SD 05 600 575	SD 06 600 330	PD 06 600 299	EB 05 600 340	SD 06 600 330	PD 06 600 299	EB 05 600 340	SD 06 600 330	PD 06 600 299	EB 05 600 340
Insert basket Code no.	PD 4 126			KD 0 370	PD 4 126		KD 0 370	PD 4 126		KD 0 370	PD 4 126	

SONOREX Accessories

Configuration example with the SONOREX ST 102 H

Cleaning of instruments and parts in the insert basket directly in the oscillating tank

Indirect cleaning of instruments and parts in the insert basket, e.g., during basic cleaning

Indirect cleaning of small parts in insert cups, ideal for using different cleaners in one work step

Cleaning of a maximum of eight impression trays simultaneously





Cleaning and disinfection agents



Cleaning and disinfection agents

Optimal cleaning and disinfection results in the ultrasonic bath are achieved by using special cleaning and disinfection agents that are customised for this process.

from page 68



Agents for cleaning and chemical disinfection

STAMMOPUR DR 8 and
STAMMOPUR DB

from page 70



Cleaning agents

TICKOMED 1, STAMMOPUR RD 5,
STAMMOPUR Z, STAMMOPUR AG
and STAMMOPUR GR.

from page 72

04



The use of agents in the instrument cycle

Practical application.

Seite 77



Dosing aids

Dosing pump and measuring cup.
Dosing calculator, dosing table and
hygiene plan supplement.

from page 78



Agents FAQ

Short answers to the
most important questions.

from page 80

Cleaning and disinfection agents

Developed for use in an ultrasonic bath

Optimal cleaning and disinfection results in the ultrasonic bath are achieved by using cleaning and disinfection agents that have been specially formulated for this process. The STAMMOPUR agents and TICKOMED 1 offer thorough removal of soiling and, depending on the agent, safe disinfection of the objects to be cleaned while, at the same time, protecting the objects to be cleaned and the ultrasonic components.

We offer a wide range of cleaning agents for the dental field for removing organic residues, cements, plasters, alginates, impression materials, tartar, plaque and manufacturing residues in dental practices, dental clinics, oral surgery practices, orthodontics practices, and dental laboratories.

We also offer cleaning and disinfection agents for cleaning and chemically disinfecting dental instruments and small rotary instruments.

Our agents are offered in the container sizes 1, 2, 5 and 10 l.



DR·H·STAMM – Quality

The many decades of successful co-operation between DR.H.STAMM GmbH Chemische Fabrik and BANDELIN electronic GmbH & Co. KG in the development of cleaning and disinfection agents has led to a wealth of expertise in all areas of ultrasonic cleaning.

The decades of experience and extensive knowledge of DR.H.STAMM GmbH Chemische Fabrik are reflected in our compliance with the **Medical Device Regulation (MDR)**, among others.

All STAMMOPUR agents as well as TICKOMED 1 are medical devices and are already certified pursuant to Regulation (EU) 2017/745, or the MDR for short. The agents fulfil all current regulatory requirements to ensure the long-term safety of your processes, both for instrument reprocessing and for cleaning and disinfection in dental technology.

All agents must be used in accordance with the **national guidelines (e.g., KRINKO/BfArM recommendations in Germany)**.

The German Association for Applied Hygiene (**VAH**) listing underlines the quality and reliability of the disinfection agents.

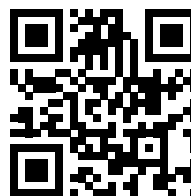


Dental programme overview

Agent	Application	Instrument cleaning	Disinfection	Final disinfection	Drill cleaning	Special application	Workpiece cleaning
STAMMOPUR DR 8 Instrument disinfection and intensive cleaning, concentrate, mildly alkaline		✓	✓		(✓)		✓
STAMMOPUR DB Drill disinfection and intensive cleaning, ready for use, strongly alkaline				✓	✓		
TICKOMED 1 Dental instrument cleaner, concentrate, mildly alkaline		✓					
STAMMOPUR RD 5 Instrument cleaner, concentrate, alkaline		✓					✓
STAMMOPUR AG Plaster and alginate remover, ready for use, mildly alkaline						✓	✓
STAMMOPUR Cement remover and denture cleaner, concentrate, strongly acid						✓	✓
STAMMOPUR GR Basic instrument cleaner, concentrate, strongly acid						✓	

Detailed information can be found on the following pages and additionally on the Internet at:

www.dr-stamm.de/produktinformationen/
www.dr-stamm.de/manuals/
www.dr-stamm.de/sicherheitsdatenblaetter/



STAMMOPUR DR 8

Instrument disinfection and intensive cleaning

Intensive cleaning and chemical disinfection of medical instruments and accessories

- Bactericidal, levurocidal, limited virucidal
- Effective against avian influenza virus H5N1 and SARS-CoV-2
- Very high cleaning effect in an ultrasonic bath
- Very short ultrasonic treatment times alongside low concentration in use
- Very high material compatibility
- Mildly alkaline
- Economical due to low concentration in use
- Free of aldehydes, chlorine and phenols
- VAH-certification, C€O483

STAMMOPUR DR 8 is a concentrate for manual chemical disinfection and disinfecting, non-fixing intensive cleaning in ultrasonic and immersion baths of medical instruments and accessories made of metal, including light metal, titanium, glass, ceramic, porcelain, plastic and rubber.

It is for **application** in the instrument reprocessing process for general, surgical, invasive and non-invasive medical instruments and accessories in the central sterile service department of dental clinics, in dental practices, orthodontics practices, oral surgeries, and dental laboratories.

Active ingredients: amines, propionates
Mildly alkaline, pH 9.4 at 1% in demineralised water, biodegradable.

Litres	1	2	5	10
Code no.	–	972	974	6028

Application in an ultrasonic bath (dosage ▪ treatment time)

- 2% ▪ 5 min: bactericidal¹, levurocida², limited virucida³ incl. H5N1 and SARS-CoV-2
- 2% ▪ 10 min: SV40³
- 3% ▪ 15 min: Adeno³

Application without ultrasound (dosage ▪ treatment time)

- 1% ▪ 60 min: bactericidal¹, levurocida²
- 2% ▪ 30 min or 3% ▪ 15 min: bactericidal¹, levurocida², limited virucida³ incl. H5N1 and SARS-CoV--CoV- 2; additionally SV40³

¹EN 13727, EN 14561, DGHM, high load; ²EN 13624, EN 14562, DGHM, high load; ³EN 14476, high load

Effectiveness reports are available and can be requested.



Dental laboratories



Orthodontics



Dental practices

STAMMOPUR DB

Drill disinfection and intensive cleaning

Drill disinfection and intensive cleaning of small dental and precision instruments

- Bactericidal, fungicidal, tuberculocidal, mycobactericidal, virucidal
- Suitable for final disinfection
- Very high cleaning effect in an ultrasonic bath
- Corrosion protection during application
- Very high material compatibility
- Strongly alkaline
- Free of aldehydes, chlorine and phenols
- Ready-to-use solution
- VAH-certification, C€ 0483
- Application exclusively with indirect sonication

STAMMOPUR DB is a ready-to-use solution for manual drill disinfection and intensive cleaning in both ultrasonic baths and immersion baths (bur cleaning stand) of **small rotating and non-rotating dental and precision instruments, along with small endodontic instruments**, such as steel, carbide and diamond instruments, e.g., drills, burs, diamond grinders and root canal instruments, including tools made of glass, porcelain and plastic.

It is for **application** in instrument reprocessing in dental practices and dental clinics.

This agent is not suitable for alkali- and alcohol-sensitive materials, e.g., light metals, such as aluminium and anodised parts, as well as resin-bonded instruments, applied colour coding, and ceramic abrasives. For these materials, we recommend **STAMMOPUR DR 8**.

Litres	1	2	5	10
Code no.	983	821	984	6033

Application in an ultrasonic bath (treatment time)

5 min: *bactericidal*¹, *fungicidal*², *tuberculocida*³, *mycobactericida*³, *virucida*⁴

Application without ultrasound (treatment time)

5 min: *bactericidal*¹, *fungicidal*², *tuberculocida*³, *mycobactericida*³, *virucida*⁴

¹EN 13727, EN 14561, DGHM, high load; ²EN 13624, EN 14562, DGHM, high load; ³EN 14348, EN 14563, DGHM, high load; ⁴EN 14476, high load

Effectiveness reports are available and can be requested.

Application exclusively with indirect sonication.

The corrosion protection is effective during the recommended application for corrosion-sensitive drills and is removed by rinsing. After rinsing, follow any further treatment steps recommended by the manufacturer for protecting against corrosion.

It has a high cleaning effect; however, this will only work in conjunction with the ultrasonic effect in the ultrasonic bath.

The application is performed exclusively with indirect sonication in the inset beaker (e.g., insert cup or tub). TICKOMED 1 (dosage: 3%), for example, can be used as a contact liquid.

Active ingredients: alcohol, alkalis, quats
Highly alkaline, pH 13.5, biodegradable.



Dental practices

TICKOMED 1

Dental instrument cleaner

Cleaning and pre-cleaning of dental instruments and accessories

- Very high cleaning effect in an ultrasonic bath
- High blood dissolving capacity
- Also removes stubborn, dried-up soiling
- Very short ultrasonic treatment times alongside low concentration in use
- Very high material compatibility
- Mildly alkaline
- Economical due to low concentration in use
- Also for light metals and anodised parts
- Also recommended for pre-cleaning
- Can be used as a contact liquid

TICKOMED 1 is a concentrate for manual cleaning and pre-cleaning of **dental, surgical, invasive and non-invasive medical instruments, rotating and non-rotating small and precision instruments, and also small endodontic instruments, accessories and components of medical devices** made of metal (including aluminium and anodised parts), titanium, glass, porcelain, ceramic and plastic in both ultrasonic baths and immersion baths.

TICKOMED 1 removes blood, secretions, sputum, dentine, bone substance and tooth substance.

It is for **application** in the instrument reprocessing process in dental practices, dental clinics, oral surgeries and orthodontics practices.

Base: tensides

Mildly alkaline, pH 9.0 at 1% in demineralised water, biodegradable.

Litres	1	2	5	10
Code no.	947	904	949	6035

Application in an ultrasonic bath
(dosage ▪ treatment time)
3% ▪ 3–10 min

Application without ultrasound
(dosage ▪ treatment time)

5% ▪ max. 12 h;
depending on the nature and persistence of the soiling

5% ▪ max. 60 min;
for aluminium and its alloys



Orthodontics



Dental practices

STAMMOPUR RD 5

Instrument cleaner

Cleaning and pre-cleaning of workpieces and medical instruments

- Very high cleaning effect in an ultrasonic bath, especially for waxes and polishing and grinding residues
- Formulated for cleaning crowns, implants, dentures and tools in the manufacturing process
- Also removes stubborn, dried-up soiling from instruments
- Very high material compatibility
- Very short ultrasonic treatment times alongside low concentration in use
- Alkaline
- Economical due to low concentration in use
- Also recommended for pre-cleaning

STAMMOPUR RD 5 is a concentrate for removing impurities from workpieces such as crowns, implants, and dentures from production, as well as medical devices and tools from processing in the dental laboratory.

STAMMOPUR RD 5 removes waxes, polishing residues, grinding residues, blood, secretions, sputum, and tissue residues.

Also for manual cleaning and pre-cleaning of dental, surgical, invasive and non-invasive dental instruments, accessories and

components of medical devices made of stainless steel, instrument steel, titanium, glass, porcelain, ceramic and plastic in both ultrasonic baths and immersion baths.

It is for **application** in the instrument reprocessing process in dental practices, dental clinics, oral surgeries and orthodontics practices.

Litres	1	2	5	10
Code no.	900	827	901	6034

Application in an ultrasonic bath
(dosage ▪ treatment time)
3% ▪ 3–10 min

Application without ultrasound
(dosage ▪ treatment time)
5% ▪ max. 60 min;

depending on the nature and persistence of the soiling

Not suitable for use on aluminium and alkali-sensitive materials, such as copper, brass, tin, zinc.

Base: tensides, phenols, alkalis
Alkaline, pH 10.9 at 1% in demineralised water, biodegradable.



Dental laboratories



Orthodontics



Dental practices

STAMMOPUR Z

Cement remover and denture cleaner

Pre-cleaning of instruments and accessories and cleaning of dental prostheses and orthoses

- Very high cleaning effect, though it will only work in conjunction with the ultrasonic effect in the ultrasonic bath
- This agent has a wide range of application
- Very high material compatibility
- Strongly acid
- Economical due to low concentration in use
- Application exclusively by indirect sonication

STAMMOPUR Z is a concentrate for denture cleaning and cement removal in the dental field, in an ultrasonic bath, for **instruments, accessories and components of medical devices, as well as new and worn dental prostheses and orthoses**

made of stainless steel, precious metal, titanium, glass, ceramic, porcelain and plastic.

This application is used as part of manual instrument re-processing to remove cement from dental instruments and accessories, as well as for thorough cleaning of dental prostheses and orthoses in dental practices, dental clinics, oral surgeries and orthodontics practices.

In dental laboratories, this **application** is intended for the removal of tartar, plaque, temporary fillings, oxides and flux residues from new and worn dentures and orthoses.

Litres	1	2	5	10
Code no.	927	822	928	6036

Application in an ultrasonic bath
(dosage ▪ treatment time)
5% ▪ 3–10 min

Application exclusively by indirect sonication.

Not suitable for acid-sensitive materials, such as light metals, and for damaged chrome plating. Acid-resistant cements, such as glass ionomer cements, are not removed.

The application is performed exclusively by indirect sonication in the inset beaker (e.g., insert cup or tub). TICKOMED 1 (dosage: 3%), for example, can be used as a contact liquid.

Base: phosphoric acid, tensides

Strongly acidic, pH 1.9 at 1% in demineralised water, biodegradable.



Dental laboratories



Orthodontics



Dental practices

STAMMOPUR AG

Plaster and alginate remover

Removal of plasters and alginates from impression trays, medical instruments and tools

- Very high cleaning effect in an ultrasonic bath
- Very high material compatibility
- Mildly alkaline
- Ready-to-use solution
- Dental plasters are dissolved with the development of oxygen (bubble formation).
- Alginates are partially dissolved and, after the treatment time, can easily be lifted off the instrument, e.g., impressiontray, or rinsed down with a strong jet of water.

STAMMOPUR AG is a ready-to-use solution for removing plaster and alginate from **medical instruments and accessories, tools, and components of medical devices made of metal**, including light metal, titanium, glass, porcelain, ceramic and plastic, both in ultrasonic baths and in immersion baths.

In dental practices and orthodontics practices, it is for **application** in the process of cleaning instruments and accessories, and in dental laboratories, for cleaning components, instruments and tools.

For stubborn and dried soiling, the solution can be heated up to 60 °C.

In the case of coated impression trays, make sure that the coating is not damaged, because the underlying material may react or tarnish after a very long treatment time.

Adhesives (bonding agents or glues) will not be removed.

Litres	1	2	5	10
Code no.	905	825	906	6032

Application in an ultrasonic bath
3–10 min

Application without ultrasound
15–120 min;

depending on the nature and persistence of the soiling

Base: complexing agent (EDTA salt), tensides, citric acid
Mildly alkaline, pH 7.7, biodegradable.



Dental laboratories



Orthodontics



Dental practices

STAMMOPUR GR

Basic instrument cleaner

Basic cleaning for the restoration of dental instruments and accessories

- Basic cleaning as a maintenance process before being returned to the instrument cycle
- Very high cleaning effect, though it will only work in conjunction with the ultrasonic effect in the ultrasonic bath at 50–60 °C
- Very high material compatibility
- Strongly acid
- Economical due to low concentration in use
- Application exclusively by indirect sonication

STAMMOPUR GR is a concentrate for manual basic cleaning in an ultrasonic bath of **dental instruments, accessories and components of medical devices** made of stainless steel, precious metal, titanium, glass, ceramic, porcelain and plastic.

This agent is intended for removing temper colours, oxides, stains, mineral residues and burnt-on residues.

It is for **application** in the restoration process for dental instruments, accessories and components of medical devices in the CSSD of dental clinics and dental practices.

In the process of basic cleaning during maintenance, **STAMMOPUR GR** supports qualitative and ecological sustainability.

Not suitable for acid-sensitive materials, such as light metals, or for damaged chrome plating.

Litres	1	2	5	10
Code no.	968	938	969	6031

Application in an ultrasonic bath
(dosage ▪ treatment time)

5% ▪ 3–10 min ▪ 50–60 °C

Application exclusively by indirect sonication.

The application is performed exclusively by indirect sonication in the inset beaker (e. g., insert cup or tub). TICKOMED 1 (dosage: 3%), for example, can be used as a contact liquid.

Base: phosphoric acid, tensides

Strongly acidic, pH 1.9 at 1% in demineralised water, biodegradable.



Dental practices

The use of agents in the instrument cycle

Upstream cleaning step

Thorough cleaning of plasters and alginates in an ultrasonic bath with **STAMMOPUR AG**.
Thorough pre-cleaning of dentures and cement removal in an ultrasonic bath with **STAMMOPUR Z**.

Pre-cleaning and cleaning

Intensive pre-cleaning before the automated reprocessing process and manual cleaning in an ultrasonic bath with **TICKOMED 1**.
Workpiece cleaning in a dental laboratory and instrument cleaning in an ultrasonic bath with **STAMMOPUR RD 5**.

Cleaning and chemical disinfection

Cleaning and chemical disinfection as part of manual reprocessing in an ultrasonic bath with **STAMMOPUR DR 8**.
Disinfection agent cleaning before automated reprocessing, also for user protection in an ultrasonic bath with **STAMMOPUR DR 8**.

Cleaning, disinfection and final disinfection

Cleaning and chemical disinfection of drills and endodontological instruments, and final disinfection in an ultrasonic bath with **STAMMOPUR DB**.

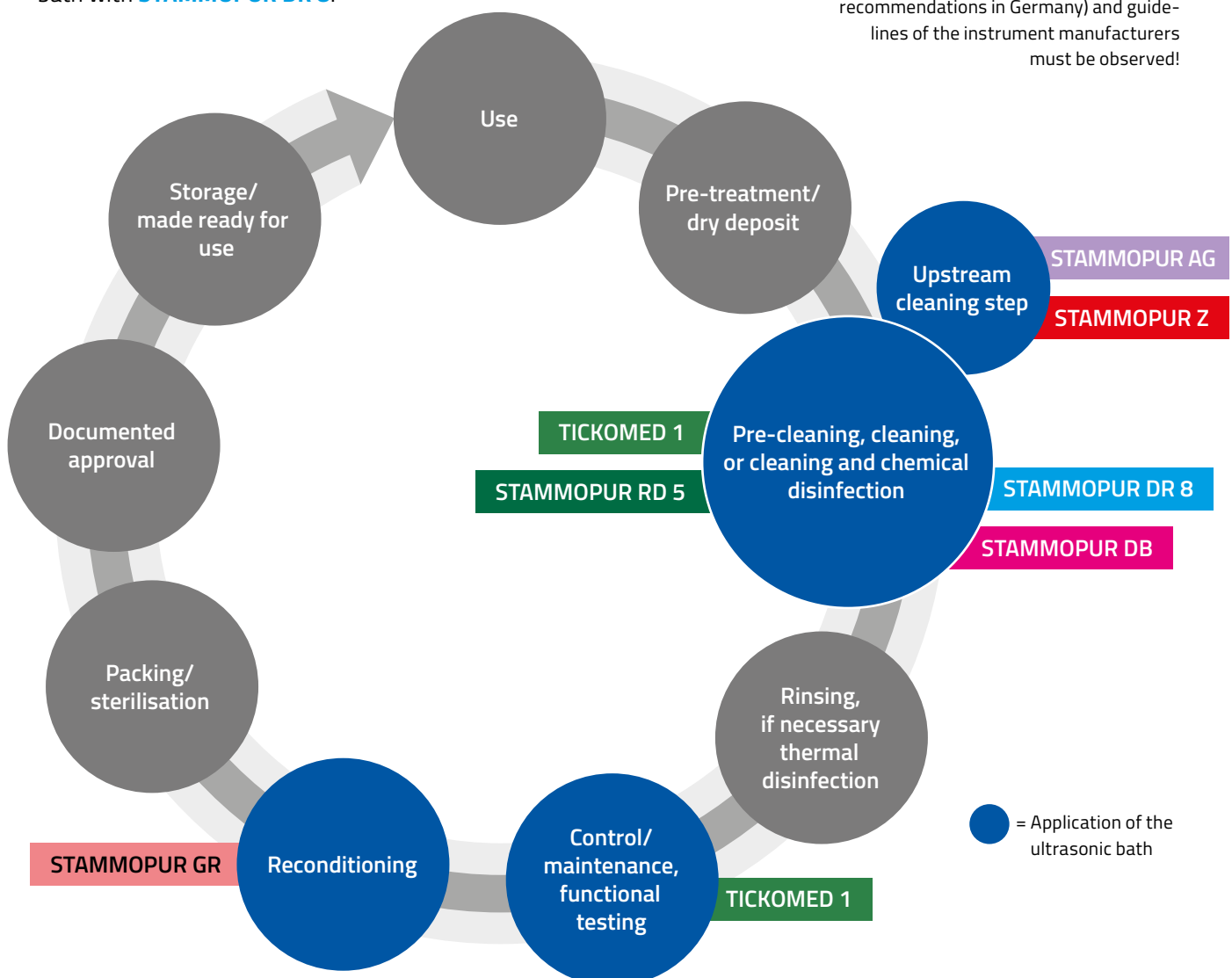
Secondary cleaning and repeat cleaning

Secondary cleaning of residual impurities after thermal disinfection in an ultrasonic bath with **TICKOMED 1**.

Reconditioning

Basic cleaning of instruments and accessories that have become unsightly in an ultrasonic bath with **STAMMOPUR GR**.

The instrument cycle
National guidelines (e.g., KRINKO/BfArM recommendations in Germany) and guidelines of the instrument manufacturers must be observed!



Dosing aids

Dosing pump

This makes it easy to remove cleaning and disinfection agent products from the jerrycans and reliably prevents spillage.

	For use with	Code no.
Dosing pump ①	5-l jerrycan	268
Dosing pump ①	10-l jerrycan	2660
Measuring cup ②	100 ml	294

Measuring cup

For precise dosing of the detergent and disinfection agent volumes taken from the dosing table.



Dosing calculator

The cleaning and/or disinfection agent used is key for a successful ultrasonic application. The correct dosage of the concentrate is crucial.

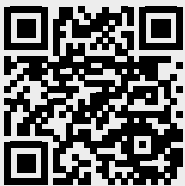
If the dosage is too low, this will prevent success and constitutes misuse. That is why dosages and treatment times must be strictly adhered to.

Overdosing also constitutes misuse, because that can have an effect on material compatibility.

After entering the desired concentration and the amount of working solution to be prepared, the dosing calculator will indicate how much concentrate and water are required.

The required concentration depends on the application to be performed. Detailed information can be found in the operating instructions for the agent in question.

The amount of working solution refers to the operating volume of the existing device. The operating volume refers to the filling volume of the tank up to the filling level mark. You can find it in the relevant operating instructions for the ultrasound device.



A safe and successful application can be determined by using the dosing calculator at bandelin.com/en/service/dosing-calculator/.



With the SONOREX smart ST series, the dosing calculator already included in the range of functions.

Desired concentration of the working solution (%)	<input type="text"/>
Desired quantity of working solution (l)	<input type="text"/>
Calculate	<input type="button" value="Calculate"/> <input type="button" value="Clear fields"/>

Agents FAQ

What is the shelf life of agents?

Disinfection agents

The shelf life of originally sealed agents from DR.H.STAMM GmbH Chemische Fabrik is three years from the date of manufacture if the generally accepted storage conditions are observed. The expiry date is indicated on the label in the form YYYY-MM below 🕒.

Cleaning agents

The shelf life of originally sealed cleaning agents from DR.H.STAMM GmbH Chemische Fabrik is at least six years from the date of manufacture, provided that the generally accepted storage conditions are observed. The expiry date is indicated on the label in the form YYYY-MM below 🕒.

Storage conditions

Store agents upright, closed, clean, dry and at normal storage temperatures between +5 °C and +40 °C.

Storage at the user's premises in the area of application should be at room temperature, which is between +12 °C and a maximum of +35 °C, depending on the working area.

How often does the bath liquid have to be changed in practice?

The following applies to **cleaning and disinfection agent solutions in dental practices and in CSSDs of dental clinics**:

STAMMOPUR DR 8 Instrument disinfection and intensive cleaning

The service life of the cleaning and disinfectant solution has been extended to three days based on expert opinion; it must be changed immediately in the event of visible contamination, otherwise after three days at the latest.

STAMMOPUR DB Drill disinfection and intensive cleaning

Change the working solution immediately in the event of visible contamination, or at least daily.

The following applies to the **cleaning solutions** TICKOMED 1, STAMMOPUR RD 5, STAMMOPUR AG and STAMMOPUR GR in dental practices and CSSDs of dental clinics:

For applications within instrument reprocessing, the cleaning solution must be changed at least daily, and immediately in the event of visible contamination (in accordance with the recommendation from the German Commission for Hospital Hygiene and Infection Prevention (KRINKO)/the German Federal Institute for Drugs and Medical Devices (BfArM). When using STAMMOPUR Z to clean dentures, the cleaning solution must be changed after each patient.

How often does the bath liquid have to be changed in dental laboratories?

The following applies to the **cleaning and disinfection agent solutions**

in dental laboratories:

STAMMOPUR DR 8

The service life of the cleaning and disinfectant solution has been extended to three days based on expert opinion; it must be changed immediately in the event of visible contamination, otherwise after three days at the latest.

The following applies to the **cleaning solutions**

STAMMOPUR RD 5, STAMMOPUR AG, STAMMOPUR Z and STAMMOPUR GR

in dental laboratories:

When cleaning technical workpieces and tools in dental laboratories, i.e., objects that don't come into contact with the patient, you can use the solution as long as the cleaning effect persists.

We recommend renewing the solutions every working week at the latest, even if the contamination load is low. If the bath liquid is too heavily contaminated, the cleaning effect is greatly reduced, and immediate replacement is recommended.

Further information on this topic can be found in the product information for the individual preparations, available at www.bandelin.com/en/docs/downloads/product-information-stammopur/.

Contact liquid for indirect sonication

For indirect sonication of objects to be cleaned, such as dentures or instruments and accessories contaminated with cement, use an ultrasound-compatible cleaning agent for the bath liquid to reduce the surface tension. This contributes to even propagation of the ultrasonic waves, leads to reproducible results, and extends the lifespan of the stainless steel tank.

To prepare the contact liquid, we recommend TICKOMED 1, dosed at 3%.

Further information on indirect sonication can be found on page 47.

Can I do additional/subsequent dosing?

The dosage for preparing the cleaning solution is taken from the label or from the hygiene plan, and subsequent re-dosing is not permitted.

Can I add additives to the solution?

No, because the agents are medical products whose effectiveness can only be guaranteed when they are unchanged.

Can I change the dosing and treatment times?

For the **disinfection agent solutions**, the values specified on the label must be strictly adhered to in order to maintain the effectiveness of the instrument reprocessing.

The **cleaning solutions** are specified together with ranges for dosage, treatment time and temperature. These parameters can be determined and applied by the user on the basis of their specific requirements within the specified framework.

How many parts can be cleaned at the same time?

If there are too many parts in the bath at the same time, the cleaning result will not be satisfactory. Instruments should not be stacked. Articulated instruments, e.g., forceps or scissors, must be opened completely or, if necessary, dismantled. The instruments must be completely covered with the solution.

Can I use one agent for all applications?

In dental practices and dental laboratories, a wide variety of contaminants are found on instruments and dental accessories. Everything from organic residues, such as blood, secretions, tissue residues and tartar, to a variety of inorganic contaminants, such as plasters, alginates, impression materials, cements, flux residues, grinding and polishing pastes, greases, waxes, and much more, must be removed from instruments and dental accessories in the course of a day's work. This variety of contaminants requires corresponding, special agents. The relevant agents and special agents, together with their specifications, can be found on page 68.

Which liquids can be used?

In general, only agents that have been approved for operation in an ultrasonic bath can be used. We recommend STAMMOPUR agents and TICKOMED 1, which have been specially developed for use in ultrasonic baths in the dental field. It should be noted that water without cleaning agent has no capacity to clean.

Household cleaners or pure demineralised water without an agent may not be used.

When working with acids or acidic preparations, plastic insert tubs or containers made of glass or plastic should be used depending on the objects to be cleaned (indirect sonication).



Service



The foil test

Performance testing of an ultrasonic bath using the foil test.

page 84



Dosing calculator

Avoid over- or underdosing with our convenient dosing calculator.

page 85



Dosing table

The full effectiveness of the agents is only guaranteed if dosing is performed according to the instructions.

page 85

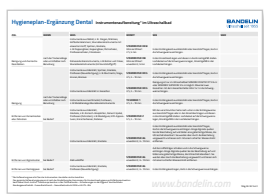
05



Quick start

The most important steps for a quick start with the SONOREX Ultrasonic Bath.

from page 82



The hygiene plan supplement

The hygiene plan supplement for the STAMMOPUR agents and TICKOMED 1 guides you safely through the steps in your hygiene plan.

page 85



Ultrasonic baths for hire

Hire one of our ultrasonic baths for a specific period only.

page 86



FAQs

Short answers to the important questions.

page 88



Quick start – For using appliances in the dental field



1 Setting up the ultrasonic bath

Follow the device's operating instructions.



2 Selection of accessories, suitable for the application

- The selection of accessories depends on the objects to be cleaned and on the contamination.
- Selecting the method – direct or indirect sonication.

Note: The objects to be cleaned must not be placed directly on the tank bottom!



3 Selecting the agent

- Selecting the appropriate agent (see pages 68–78)
- Determining the correct concentration. Use our dosage table for this and follow the usage instructions for the agent.

Note: With the STAMMOPUR agents and TICKOMED 1, BANDELIN offers a wide range of agents that are specifically developed for ultrasonic cleaning.



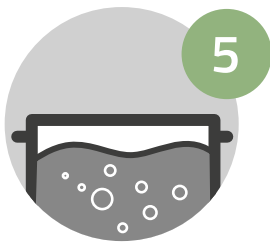
4 Filling the ultrasonic bath

- Fill the bath with tap water (or demineralised water) and an agent

Notes: Note the filling level mark. The filling level must not fall below the mark. Please note that the objects to be cleaned or inset beaker may also displace water and cause the bath to overflow.

Filling an ultrasonic bath
[youtube.com/watch?v=G-CkQtJxJ5wo&t=5s](https://www.youtube.com/watch?v=G-CkQtJxJ5wo&t=5s)





5

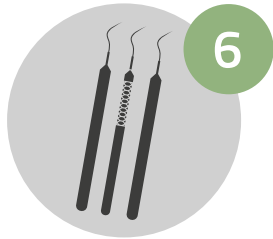
Degassing bath liquid

Remove the dissolved gases by switching on the ultrasound or using the DEGAS function on the SONOREX DIGITEC DT series.

Guide values for degassing times:

Bath volume up to 10 litres: approx. 10 min

Bath volume > 10 litres: approx. 30 min



6

Introducing objects to be cleaned

- Place the objects to be cleaned in the basket, the holder or the inset beaker.
- You can generally use the accessories of your choice, e.g., suitable for the activities before and/or after sonication, if you choose the device accordingly.

Notes: The objects to be cleaned must not overlap. Instruments with joints must always be inserted in an opened state. There should be no air-filled cavities. The objects to be cleaned must be completely covered with cleaning agent.



7

Setting the sonication parameters

Setting the temperature and sonication time:

- based on your own experience or
- in accordance with the application instructions or the usage instructions for the agent.

Notes: First select a low sonication time, e.g., 3 min for cleaning instruments. Ultrasonic cleaning is extremely effective in a very short time.



8

Starting the application

Notes: When cleaning instruments with organic impurities, ensure that the bath temperature of 40 °C is not exceeded, due to protein denaturation.




9

Completing the cleaning process

- Rinse the objects to be cleaned thoroughly and, if necessary, perform further reprocessing steps.
- Care of the ultrasonic bath (observe the operating instructions).

Notes: Correct operation and proper care of the ultrasonic bath will result in a long lifespan.

Degassing an ultrasonic bath

 [youtube.com/watch?v=ILALTC-Hm10](https://www.youtube.com/watch?v=ILALTC-Hm10)



The foil test – Functional testing of an ultrasonic bath

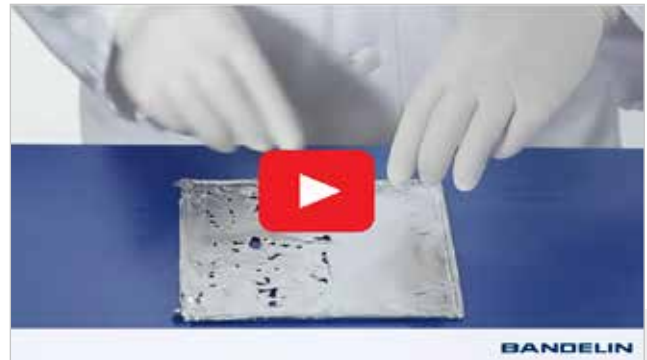
The foil test is recommended for the functional testing of an ultrasonic bath – when it is first put into service and then at regular intervals thereafter (e.g., quarterly). The user is responsible for how often it is performed.

The foil test is a simple method for displaying the intensity and distribution of cavitation in an ultrasonic bath. It is performed by inserting aluminium foil stretched over a foil test frame. Depending on the sonication time, the foil will be perforated or destroyed to a certain extent by cavitation.

In order to be able to reproduce the test results, it is important that the conditions are always the same:

- The oscillating tank is filled up to the filling level mark
- Temperature of the sonication fluid
- Duration of degassing
- Positioning of the frame
- Foil type (brand, thickness)
- Sonication time
- Type and concentration of the ultrasound agent

The foils can be archived in a suitable manner (as scans, photos, etc.). That makes it possible to compare the foils at any time.



The perforated areas of the foils should be of roughly the same size and distribution – they are never identical.

Regular foil tests are the only way to check the process, e.g., when reprocessing medical devices.

For the foil test, various FT foil test frames can be requested from the manufacturer BANDELIN.

The foil test frames are available for a wide range of tray dimensions. Aluminium household foil is also required for the test; this is not included in the scope of delivery.

Performing the foil test

[youtube.com/watch?v=5lvx-RsEz8Q&t=25s](https://www.youtube.com/watch?v=5lvx-RsEz8Q&t=25s)



Foil test documentation
Function testing of an ultrasonic bath

Detailed instructions for performing the foil test and a user video are available at www.bandelin.com/folientest/.

Company/institution: _____ Reference number: _____

Device type: Serial number:

Test conditions	Type and concentration of ultrasonic agent:	Temperature of sonication fluid:	Degassing time:	Foil properties (brand, thickness):	Position of foil testing frame:	Sonication time:		
		
Date	Oscillating tank filled to filling level mark	Ultrasonic agent added	Temperature of sonication fluid tested	Fluid degassed	Position of foil testing frame complied with	Sonication time complied with	Testing successful	Performed by (Name)
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> yes <input type="checkbox"/> no	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> yes <input type="checkbox"/> no	
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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> yes <input type="checkbox"/> no	
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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> yes <input type="checkbox"/> no	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> yes <input type="checkbox"/> no	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> yes <input type="checkbox"/> no	

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Zertifiziert nach
ISO 9001
ISO 13485

A website with information on the foil test with a download section



To document the foil tests you have performed, download the "Foil test documentation" template from bandelin.com/en/applications/folientest.

Dosing calculator

The cleaning agent and/or disinfection agent used is key for a successful ultrasonic application. The correct dosage of the concentrate is crucial.

If the dosage is too low, this will prevent success and constitutes misuse. That is why dosages and treatment times must be strictly adhered to.

Overdosing also constitutes misuse, because that can have an effect on material compatibility.



A safe and successful application can be determined by using the dosing calculator at bandelin.com/en/service/dosing-calculator/.

After entering the desired concentration and the amount of working solution to be prepared, the dosing calculator will indicate how much concentrate and water are required.

The required concentration depends on the application to be performed. Detailed information can be found in the operating instructions for the agent in question.

The amount of working solution refers to the operating volume of the existing device. The operating volume refers to the filling volume of the tank up to the filling level mark. You can find it in the relevant operating instructions for the ultrasound device.



With the SONOREX smart ST series, the dosing calculator already included in the range of functions.

Desired concentration of the working solution (%)	<input type="text"/>
Desired quantity of working solution (l)	<input type="text"/>
Calculate	<input type="button" value="Calculate"/> <input type="button" value="Clear fields"/>

Dosing table

In addition to ultrasonic power, temperature and time, the correct dosage of specially formulated cleaning and disinfection agents is also necessary for optimal cleaning and disinfection results. To make dosing easier, we provide an online dosing table at bandelin.com/chemie_Dr_STAMM/Dosiertabellen/Dosing_table_GB_BANDELIN.pdf, which is based on our ultrasonic baths.

Download the dosing table



Hygiene plan supplement

As a supplement to the hygiene plan of the practice or laboratory, we provide our hygiene plan supplement as a template.

The hygiene plan supplement can be accessed at bandelin.com/chemie_Dr_STAMM/Hygieneplan_Dental_BANDELIN.pdf for the dental field.

Download the hygiene plan supplement



Ultrasonic baths for hire



Would you like to see the performance of our ultrasonic baths for yourself? Certainly – You can hire a device.

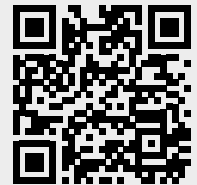
Whether you have a small or large dental practice, orthodontics practice, or dental laboratory – we can offer you the right ultrasonic bath and accessories for hire.



4 simple steps for hiring your device

- 1 Select the device type on the website or the information sheet.
- 2 Request a hire contract by phone or email, fill it in (specify desired accessories), and send it back.
- 3 The ultrasonic bath will be delivered at the agreed time and place.
- 4 After application, please return the device to us **together with the completed Certificate of Decontamination.**

For more information:
andelin.com/en/service/#miete



Download Certificate of Decontamination

bandelin.com/fragebogen/Dekontamination_GB_BANDELIN.pdf



Specially formulated detergents and disinfection agents are required to achieve optimal results. With STAMMOPUR agents and TICKOMED 1, BANDELIN offers a comprehensive range of detergents and disinfection agents.

All detergents and disinfection agents have been specially developed for ultrasonic applications.

Ultrasonic baths

Type	Internal dimensions of the oscillating tank L x W x D [mm]	Contents [l]	Code No.	External dimensions L x W x H [mm]	Ultrasonic peak power* [W]	Ultrasonic nominal power [W]	Heating power [W]	Outlet ball valve
SONOREX smart ST								
ST 102 H	240 x 140 x 100	3.0	7100	260 x 160 x 250	480	120	140	G ½
ST 255 H	300 x 150 x 150	5.5	7104	325 x 175 x 300	640	160	280	G ½
ST 514 H	325 x 300 x 200	13.5	7106	355 x 325 x 350	860	215	600	G ½
SONOREX SUPER RK								
RK 31 RK 31 H	190 x 85 x 60	0.9	329 044	205 x 100 x 180	160	40	– 70	–
RK 102 H	240 x 140 x 100	3.0	303	260 x 160 x 250	480	120	140	G ½
RK 255 RK 255 H	300 x 150 x 150	5.5	3066 316	325 x 175 x 295	640	160	– 280	G ½
RK 514 RK 514 H	325 x 300 x 150	13.5	277 207	355 x 325 x 305	860 860	215 215	– 600	G ½ G ½
SONOREX DIGITEC DT								
DT 31 DT 31 H	190 x 85 x 60	0.9	3200 3220	205 x 100 x 180	160	40	– 70	–
DT 102 H	240 x 140 x 100	3.0	3235	260 x 160 x 250	480	120	140	G ½
DT 255 DT 255 H	300 x 150 x 150	5.5	3066 316	325 x 175 x 295	640	160	– 280	G ½
DT 514 DT 514 H	325 x 300 x 150	13.5	3250 3211	355 x 325 x 305	860 860	215 215	– 600	G ½ G ½

The appropriate accessories can be found in the overview on pages 64 and 65.

We will also be happy to advise you personally on the optimal device, accessories, and agent for your application.

FAQs

What is ultrasound?

Vibrations with frequencies above 18 kHz (18,000 vibrations per second) are referred to as ultrasound. These vibrations lead to the generation of millions of tiny vacuum bubbles in all aqueous fluids, which implode again and generate highly effective pressure surges. This process is called cavitation.

Advantages of ultrasonic cleaning

Cavitation causes contaminants and germs to be blasted away from the objects to be cleaned in the liquid, even from recesses and holes – like an electronic brush. Ultrasonic cleaning takes just a few minutes and is more effective than manual cleaning. It is also a gentle cleaning process, in that it avoids mechanical damage, such as scratches.

Which ultrasonic bath should I choose?

SONOREX ultrasonic baths operate at 35 kHz, at an ultrasonic frequency that has an intensive cleaning effect. The size of the objects to be cleaned determines the size of the tank and thus the required type of device. The basket dimensions must be taken into account when selecting the device. To avoid overloading the device, it is advisable to choose a slightly larger device. This will also provide room for further applications.

In the dental field, the compact but very powerful SONOREX RK 102 H/DT 102 H is particularly recommended, because it is suitable for any application, e.g., for removing blood, secretions, cements, tartar, plaster, alginates and impression materials. If a tray system is used in the dental practice, the SONOREX 514 series is recommended, because, in addition to the applications listed, dental instrument trays can be accommodated here with a suitable holder.

Which accessories should I choose?

Ultrasonic baths should only be operated with the appropriate accessories, e.g., an insert basket. If parts come into direct contact with the tank bottom, the device and the objects to be cleaned may be damaged. Using a basket or holder protects the tank bottom and the objects to be cleaned from damage.

For direct sonication, the objects to be cleaned are placed in an insert basket. For so-called indirect sonication, the objects to be cleaned are placed in a vessel, which is then inserted in the ultrasonic bath. A typical example is the cleaning of dentures. The dentures to be cleaned are placed in a vessel with the corresponding cleaning agent. The vessel itself is inserted in the ultrasonic tank in a positioning lid designed for this purpose, so as to hang, without being placed on the tank bottom. The ultrasonic tank itself contains a water/agent mixture that transfers the cavitation into the tank and thus enables cleaning. For small parts, e.g., drills and burs, there are also small baskets to protect the sensitive surfaces.

Should a lid be on during operation?

Yes, this will reduce the noise level and protect the liquid in the oscillating tank from external contamination. Due to the lid's construction, the condensation water is returned to the oscillating tank.

Does an ultrasonic bath need to have heating?

For reprocessing dental instruments contaminated with organic residues, the bath temperature should not exceed 40 °C. Above this temperature, protein coagulation can occur, which makes cleaning and disinfection more difficult. However, there are also applications for which a high temperature is advantageous, such as basic cleaning of instruments that have become unsightly. There are also applications in the dental laboratory where an ultrasonic bath with a heating function is useful.

How can I test the function of the ultrasonic bath?

We recommend the foil test pursuant to IEC/TR 60886: an aluminium foil is stretched over a wire frame and sonicated for about 3 minutes. Perforation in the foil must be visible afterwards. Detailed instructions on how to perform the foil test can be found on our website at the link bandelin.com/en/applications/folientest and in this guide on page 88.

Does degassing need to be performed before the sonication process?

Yes, to expel dissolved gases. The degassing time depends on the size of the bath and the hardness of the water. Degassing is important for effective cleaning, because "useful" cavitation only occurs after gases have been removed. The process is finished once the noise has become quieter.

How many parts can be cleaned at the same time?

The more parts are in the bath at the same time, the less reliable the cleaning result will be. Instruments should not be stacked. Articulated instruments, e.g., forceps or scissors, must be opened completely or, if necessary, dismantled. The instruments must be completely covered with the solution.

Can I reach into the ultrasonic bath during operation?

Immersing your hands in the ultrasonic bath during ultrasound delivery should be avoided because it can lead to damage to the bone tissue. The sonication liquid can also be hot. Ultrasound heats the sonication liquid even without any heating.



Your contact person in the dental field

We will be happy to advise you personally!



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