



Operating Manual

Translation of Operating Manual

SONOREX CNp

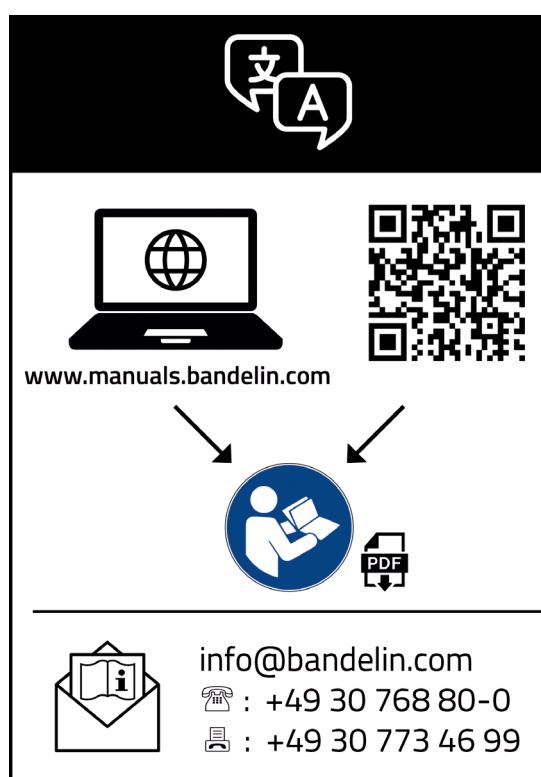
Ultrasonic baths with pulsed vacuum for aqueous fluids



Valid for:

SONOREX CNp 28-2

SONOREX CNp 28-2 L



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Certified in accordance with ISO 9001 and ISO 13485

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1 About these operating instructions

These operating instructions contain necessary and useful information on how to operate the device safely and efficiently.

- Read these operating instructions before using the device.
- Pay special attention to chapter **2 Safety**.
- If you pass this device on to others, please enclose these operating instructions.
- Contact your specialist dealer or BANDELIN if any of your questions are not answered in these operating instructions. Information on service can be found in chapter **6.3 Repair**.

The binding version of the document is the German-language original. Any deviations from it in the translation are not binding and have no legal effect. In the event of any discrepancy between the translation and the original version of this document, the original version shall prevail.

BANDELIN accepts no responsibility or liability for damages caused by improper handling or usage contrary to the intended purpose.

All images are provided as examples and are not true to size. Decorative elements are not included in the scope of delivery.

2 Safety

The device is built in accordance with the current state of technology and recognised safety regulations. In order to rule out danger to life and limb of the user, third parties or the device when using it, use the device only for its intended purpose and in a clearly flawless condition in terms of safety.

The device is for use in the commercial sector.

The operator is therefore subject to the legal obligations for occupational safety.

2.1 Use of the device

The device is intended for the sonication of aqueous fluids. The sonication of non-aqueous or flammable liquids is not permitted. The device works on the basis of low-frequency ultrasound and can be used in a variety of ways.

Their main application is the gentle and intensive cleaning of objects of diverse shapes, types and sizes, in particular suitable for small volumes with vacuum support.

A solution made from water and a special agent for ultrasonic applications is used as the sonication fluid. You will find information on the sonication fluid in chapter **5.2 Sonication fluid**.

Goods to be treated may not be placed on the bottom of the oscillating tank.

They must be placed in the sonication fluid in an inset basket or another suitable container.

An overview of suitable accessories can be found in chapter **10 Accessories**.

Do not operate the device while unattended.

2.2 Obligations of the operator

The operator is obliged to use and provide only safe devices. The operator has a duty to maintain the safety of the device throughout its entire lifespan. In order to ensure safety, the operator is obliged, among other things, to ensure the following:

- The device may only be operated by authorised personnel.
- Dangerous working methods must be prohibited.
- Check of the personnel's work procedures.
- Confirmation by the personnel's signature that the instructions for use have been read and understood.
- Complete and legible copy of the operating instructions must be available in the close vicinity of the device.
- Legible warning symbols and instructions on the device.
- Personnel must wear PPE during activities with an increased risk of injury.
- Detailed definition of the areas of responsibility of the personnel.

2.3 Keep out of reach of children

Children cannot identify hazards posed by the device.
Therefore, keep the device out of the reach of children.

2.4 Danger of electric shock

The device is an electrical device. Failure to follow safety rules can result in a life-threatening electric shock.

- Only transport the device when empty.
- Empty the device only after the cleaning programme has ended.
- Do not spray the device or expose it to splash water.
- Always disconnect the device from the mains before cleaning or maintenance.
- Only plug the device into a grounded mains socket that fits the ground contact on the device plug.
- If you notice a defect in the device, disconnect the mains plug immediately.
Do not connect a defective device to the mains.
- Repairs should only be carried out by qualified personnel or by the manufacturer. See chapter **6.3 Repair**.
- Position the device so that it is easy to unplug the mains connection at any time and without difficulty.

2.5 Harmful to health due to ultrasound noise

The ultrasound noise typical of the process can be perceived as very unpleasant.

Remaining within a radius of 5 m for an extended period of time may cause damage to health.

- Wear suitable hearing protection.
- Use the lid for noise reduction.

2.6 Hazards due to high temperatures

The device, the sonication fluid and the sonication objects can become hot during operation.

Contact with these products may cause burns. The temperature can be set at up to 75 °C.

Ultrasound energy warms up the sonication fluid even without additional heating.

Prolonged ultrasound operation can lead to very high temperatures.

In a device with heating, the set temperature can be significantly exceeded by the energy of the ultrasound.

- Observe the treatment times recommended by the manufacturer of the ultrasound agent. Do not leave the ultrasound switched on for longer than necessary.
- Do not reach into the sonication fluid with your hand. Remove sonication objects with the insert basket or forceps.
- Allow the sonication objects to cool before touching them.
- When lifting from the handles, the hands may touch the edge of the tank which could be very hot.

In the case of high-boiling liquids, the bath temperature can rise to over 120 °C due to the energy input of the ultrasound. This can lead to fires and severe burns.

- Do not use combustible, explosive, non-aqueous fluids (e.g. petrol, solvents) or mixtures with combustible liquids (e.g. alcoholic solutions) directly in the stainless steel oscillating tank.

2.7 Danger due to ultrasound

The strong ultrasound in the device destroys cell structures. If part of the body is immersed in the sonication fluid during operation, this can cause damage to skin and also damage to internal tissue. The periosteum of finger bones can be damaged.

- Do not reach into the sonication fluid during operation.
- Never sonicate living creatures.

2.8 Danger from agents used

Agents used in the device can be toxic or caustic. They can irritate the eyes, skin and mucous membranes. The vapours and aerosols can also be dangerous.

- Wear gloves and safety goggles when handling hazardous agents.
- Do not ingest the agents and do not allow them to come into contact with the eyes or skin. Do not lean over the device, in order to avoid vapours from coming into contact with the eyes or from being inhaled.
- Close the lid when operating the device. Use an extraction system if there are dangerous vapours.
- Observe the information on the label and in the safety data sheet for the agent.
- Keep the agents away from children and untrained persons.

2.9 Disposal of sonication fluid

Dispose of the sonication fluid in accordance with the specifications of the manufacturer of the ultrasound agent used. The recommended ultrasound agents in the TICKOPUR product line by DR. H. STAMM GmbH are biodegradable in accordance with the provisions of Regulation (EC) No. 648/2004 (Detergents Regulation). If necessary, the sonication fluid must be neutralised before disposal.

Depending on the type of contamination involved, water-polluting substances like oils or heavy metal compounds may be introduced to the sonication liquid during cleaning. If the threshold values for these substances are exceeded, the sonication liquid must be processed or disposed of as special waste.

Observe local waste water regulations.

2.10 Erosion of the oscillating tank

The surface of the oscillating tank is subject to erosion. How quickly this erosion takes place depends on the usage of the device. The erosion leads to leaks in the oscillating tank. Bath liquid can thus leak into the interior of the device. Moisture on electrical components can lead to an electric shock or fire.

- Stop using the device if you notice a leak. Disconnect the mains plug immediately. Empty the oscillating tank.

You can extend the lifespan of the oscillating tank by observing the following instructions:

- Replace sonication fluid that is visibly contaminated by particles.
- Only use demineralised water (DI water) with an ultrasound-compatible agent.
- Do not use chemicals that contain or release chloride ions in the oscillating tank. This is the case with some disinfectants, household cleaners and dishwashing detergents. Chloride ions will corrode stainless steel.
- Only use the device with accessories that are suitable for the device and the objects to be treated, e.g. a basket. Do not place any objects to be treated directly on the bottom of the oscillating tank. An overview of suitable accessories can be found in chapter **10 Accessories**.

2.11 Preventing damage to the device

- Replace contaminated sonication fluid immediately. Clean surfaces and wipe them dry.
- The use of highly acidic agents can corrode the ball of the ball valve. The ball valve will leak. If the use of a strongly acidic detergent cannot be avoided, use a stainless steel ball valve.
- Do not operate the device without sonication fluid in the oscillating tank. The fill level must always be at or slightly above the filling level mark.

2.12 Interference with wireless communication

The ultrasound bath may interfere with other wireless communication ultrasound baths in the immediate vicinity, such as:



- mobile phones,
- WLAN devices,
- Bluetooth devices.

If interference occurs with the operation of a wireless device, move it further away from the device.

The device satisfies the requirements for class B devices according to EN 55011.

2.13 Safety stickers on the device

- Observe all safety labels on the device.
- Keep the safety stickers in legible condition. Do not remove them.
Replace them if they are no longer legible. To do so, please contact our Customer Service.
See chapter **6.3 Repair**.

Symbol	Meaning	Explanation
	Danger	Denotes information that, if not observed, could pose a risk to life and limb, especially from electric shock.
	Warning	Warning of hot surface.

2.14 Do not overload accessories

Observe the specified load-bearing capacity or resilience of the accessory used.

- Accessories include baskets and holders.
- The relevant information can be found in the appendix or in the dimension sheet.
If you do not have this data, contact the manufacturer.

2.15 Reasonably foreseeable misuse

Reasonably foreseeable misuse that poses hazards to personnel, third parties, or the device are to be considered for all operating modes:

- Use of the device contrary to its intended use.
- Insertion of components that are not certified by the manufacturer.
- Operation of the device outside the physical limits of use.
- Changes to the device as well as attachments and conversions without prior consultation with the company BANDELIN electronic GmbH & Co. KG.
- Use of the device contrary to the provisions of the instructions for use.
- Bypassing or decommissioning protective and safety devices.
- Operation of the device with obvious faults.
- Operating the device with vacuum selection and open lid.

2.16 Safety features

The device is fitted with various safety devices.

The safety devices serve to prevent hazards for personnel and material damage to the device.

3 Design and function

3.1 Structure

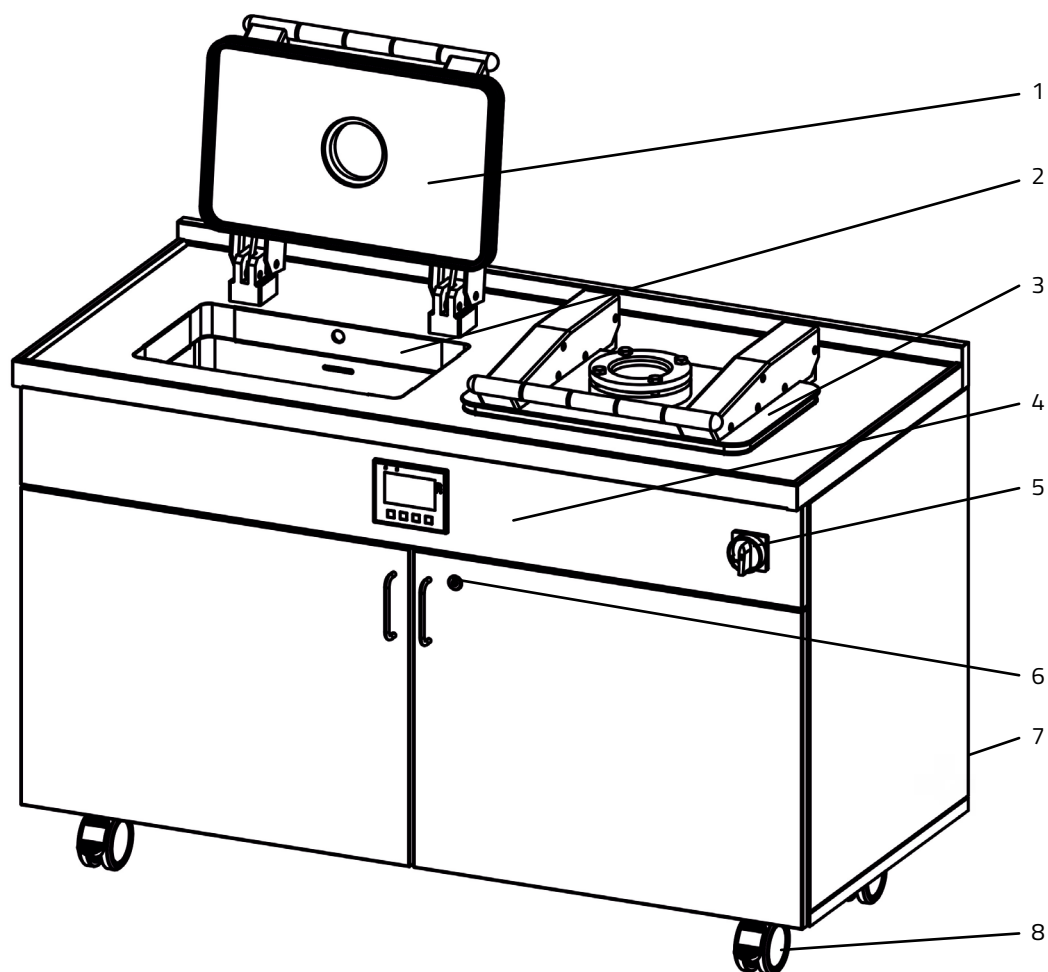


Fig. 1 Overview of the device - front

- 1 Lid with gas pressure damper
- 2 Cleaning tank (lid open)
- 3 Rinse tank (lid closed)
- 4 User interface
- 5 Main switch/EMERGENCY STOP
- 6 Lock/key
- 7 Mains cable connection (rear)
- 8 Swivel feet/two lockable

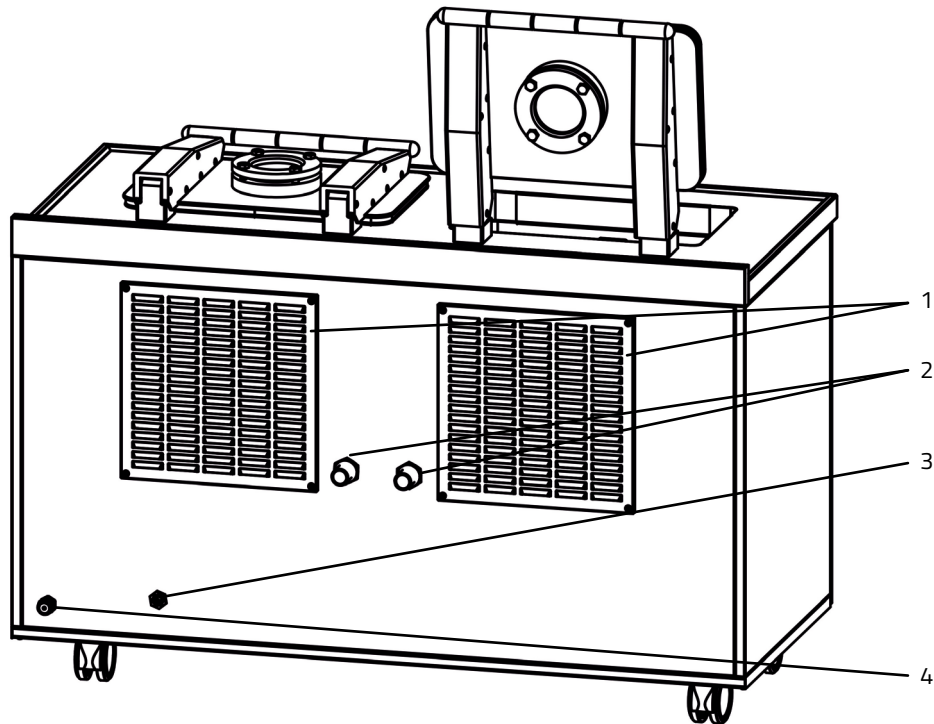


Fig. 2 Overview of the device - rear

- 1 Supply and exhaust air openings
- 2 Tank outlet
- 3 Compressed air connection
- 4 Mains cable connection

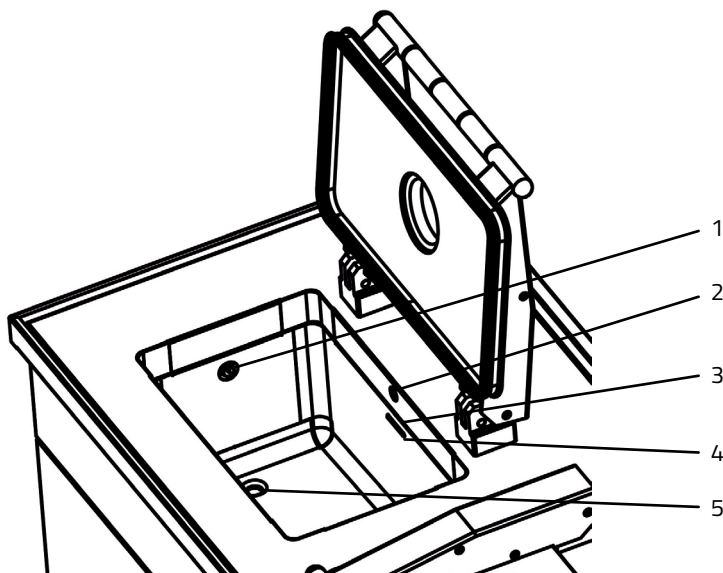


Fig. 3 Overview of tanks, interior

- 1 Level sensor
- 2 Suction opening/vacuum
- 3 Maximum fill level
- 4 Minimum fill level
- 5 Outlet

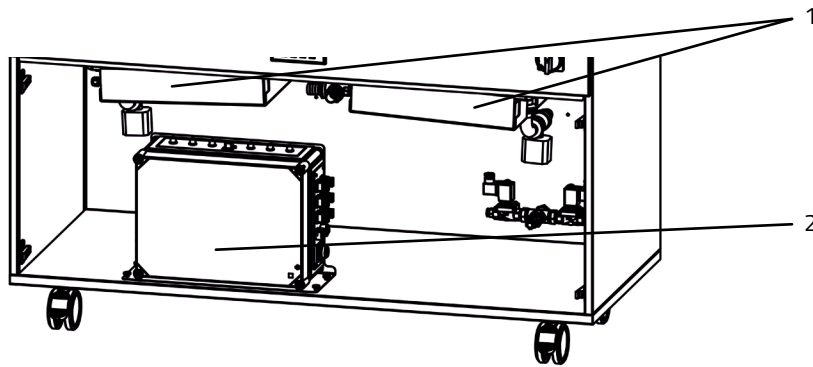


Fig. 4 Overview interior

- 1 Ultrasonic tanks
- 2 Control box

3.2 Control panel

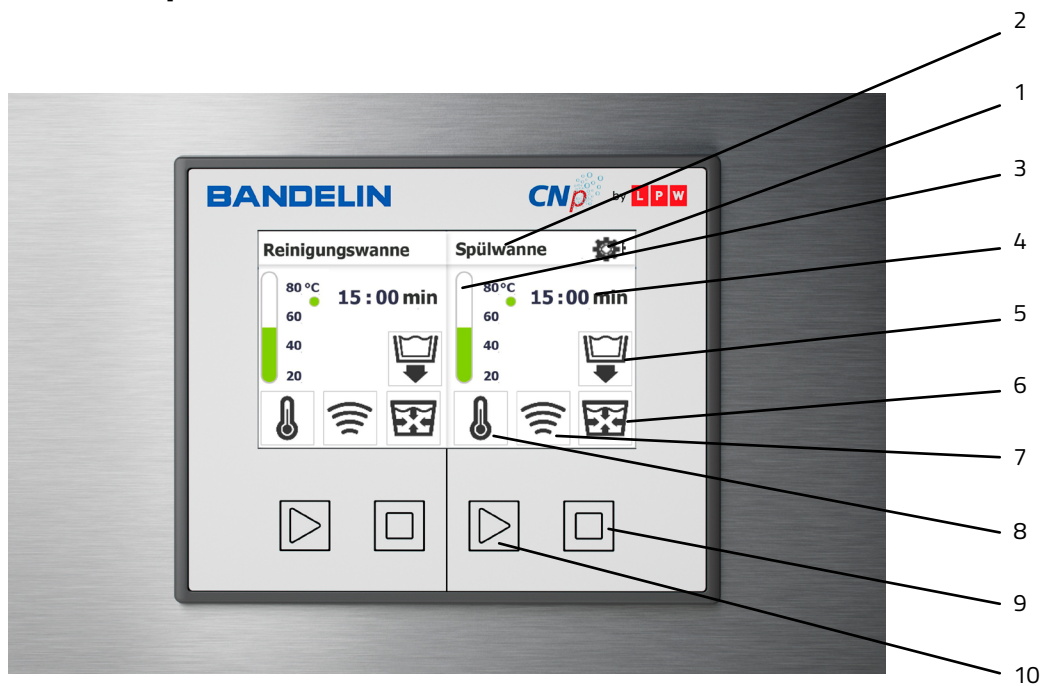


Fig. 5 Display

- 1 Settings menu (cogwheel)
- 2 Tank designation
- 3 Temperature display
- 4 Remaining program time
- 5 Emptying selection
- 6 Vacuum selection
- 7 Ultrasound selection
- 8 Heating selection
- 9 Stop button
- 10 Start button

3.3 Parameter settings

Parameter

Tub 1

Start vacuum duration20000 s/1000

Vacuum pulse length8000 s/1000

Ventilation length400 s/1000

Tub 2

Start vacuum duration20000 s/1000









Vacuum pulse length8000 s/1000

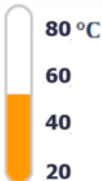
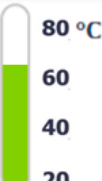




Ventilation length400 s/1000

Back

Fig. 6 Parameter settings

3.4 User interface icons (touchscreen)

Symbol	Meaning
	Heating deselected
	Ultrasound deselected
	Vacuum deselected
	Drain closed
	Heating selected Automatic heating to preselected temperature
	Ultrasound selected Operation with program start
	Vacuum selected. Operation with program start.
	Drain open.

Symbol	Meaning
	<p>Operating temperature not yet reached. Program start only possible with heating deselected. (Adjustable temperature range: 50- 75°C)</p>
	<p>Operating temperature reached. Program start possible via Start button. (Adjustable temperature range: 50- 75°C)</p>
<p>15 : 00 min</p>	<p>Program time remaining</p>
	<p>Settings menu</p>
	<p>Language selection menu</p>
	<p>Operating hours display</p>
	<p>Parameters</p>

3.5 Function

Ultrasonic system for cleaning using CNp procedure. Double tank version, each with a cleaning tank and rinsing tank. Ultrasonic transducers at the bottom of the tanks generate cavitation in the aqueous solution. The additional use of negative pressure in the cleaning bath leads to the generation of bubbles, which amplify the cleaning effect of the ultrasound.

The SONOREX CNp 28-2 transfers the outstanding cleaning effect of the CNp process into a compact, mobile cleaning system. The main component of the Plug and Clean system is the powerful cleaning tank, which is filled with a suitable cleaning solution. Residue-free rinsing of the cleaned components using the CNp process takes place in the adjacent, identical rinsing tank, which can be filled with tap water or demineralised water. Easy-to-use lids with large inspection glasses allow for easy loading and optional process monitoring during cleaning and rinsing. The size of the two tanks is designed so that standard 1/1 DIN insert baskets can be easily positioned and components with a length of up to 570 mm can be cleaned.

3.6 Design and function of the safety device

In the event of a malfunction of the heating control and failure of the fill level sensor, the attached heating elements must be safely switched off in order to avoid the tank surface overheating by more than 150°C. To ensure reliable switch-off in the event of permanent control of the heating elements and evaporation of the bath liquid, the heating foils are provided with thermal fuses, which interrupt the power supply to the heating elements from a temperature of 150°C.

4 Preparation for operation

4.1 Installation site requirements

The installation location of the device must meet the following conditions:

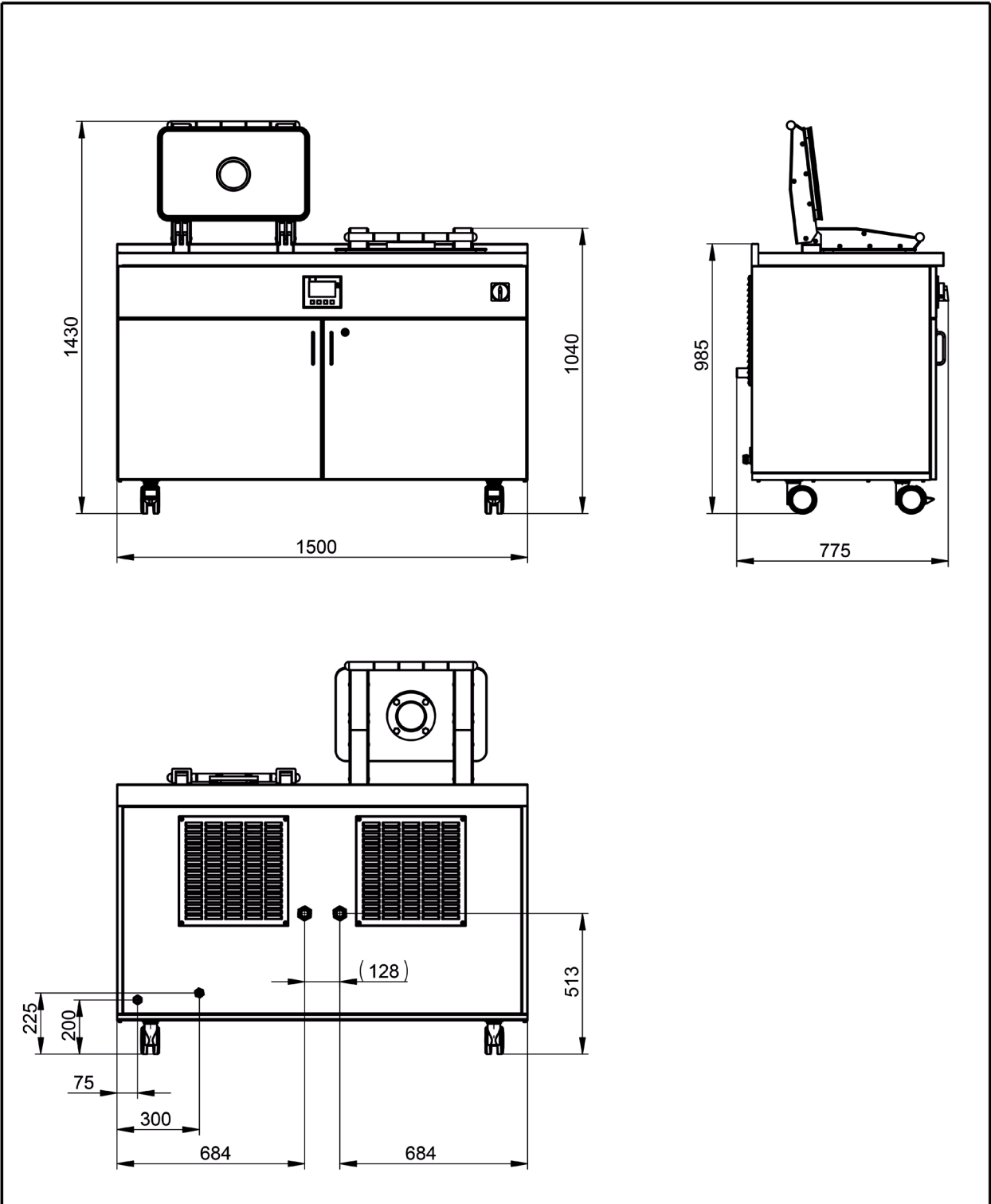
- The installation surface must be horizontal, firm and dry.
- The load-bearing capacity must be sufficient for the device with sonication fluid. For weight and work content, see chapter **9.1 Technical data**.
- Adequate ventilation must be ensured. Maintain a minimum distance of 10 cm between the device and surrounding objects. The supply and exhaust air openings must not be obstructed.
- A water connection should be available nearby to fill the device. A basin or drain for draining the sonication fluid must be available.

Procedure

1. Remove all transport aids, such as pallets and transport locks.
2. Check the minimum distances to adjacent objects or furniture.
3. Apply the locking brakes on the castor feet.
4. Mount the drain. Bracket, hose socket and PVC hose are included for this purpose.

Results

- » The device is set up.



Diese Zeichnung darf weder kopiert, noch dritten Personen mitgeteilt, noch anderweitig missbräuchlich benutzt werden. Technische Änderungen vorbehalten.

				Allgemeintoleranzen		Masse [kg]	BANDELIN <i>electronic GmbH & Co. KG</i>	
				DIN ISO 2768 - mK		195.63		
				Werkstoff:		Maßstab	Benennung SONOREX CNp 28-2 komplett	
						1:20		
						A4		
							Zeichnungsnr.	
000	erstellt	30.01.2023	hn		Datum	Name	F100298	
001	Maße gerundet	20.02.2023	hn	Erstellt	30.01.2023	Haesen		
Index	Änderung	Freig. Dat.	KZN	Freig.	20.02.2023	Haesen		
						SW	Ersatz für	Ersetzt durch

4.2 Connecting the device

Requirement

- The device has adapted to the climatic conditions at the setup location for at least 2 hours.
- Check that the customer's waste water pipe has sufficient ventilation. If a lifting system is available on site, ventilation of the lifting system chamber must be ensured. The waste water and suction air outlet must always be open.
- Check that the device is turned off (main switch set to "0").
- Take note of the connection data and circuit diagrams, and ensure the existing mains voltage conforms to the mains voltage specified for operating the device. See chapter **9.1 Technical data**.



CAUTION

Blockages

- No accumulation points may form in the waste water pipe.
Ensure that the pipe from the device to the waste water system has a constant decline.

Procedure

1. Mount the pipe bracket on the waste water and suction air outlet.
2. Connect the waste water and suction air outlet to the customer's waste water pipe using the connecting hose provided.
3. Route the connecting cable, ensuring there is no tension.
4. Only plug the device into an earthed mains socket compatible with the earthing contact on the device plug.
5. Connect the compressed air line to the building mains.

Results

- » The device is ready for operation.

4.3 Rinsing the tank

Thoroughly rinse the device's tank with water before first use.

In order to protect the surface during transport and storage, the ultrasound bath is covered with an oily preservative. Before the device is put into service, this preservative must be removed with a suitable cleaning agent.

5 Operation

5.1 Ultrasonic operation

The objects to be treated are introduced in the oscillating tank with suitable accessories, e.g. a basket. There they have direct contact with the sonication fluid.

For suitable accessories for sonication, see chapter **10 Accessories**.

5.2 Sonication fluid

A solution made from water and a special ultrasound agent is used as the sonication fluid. Drinking water or demineralised water can be used for the water.

Water without any additives is unsuitable for sonication. Use of demineralised water without an ultrasound agent leads to increased erosion of the ultrasonic oscillating tank.

The ultrasound agent used must be low-foaming, cavitation conducive and be biodegradable, easy to dispose of, gentle to material and long-lasting. BANDELIN recommends ultrasound agents from the TICKOPUR product range by DR. H. STAMM GmbH, see chapter **11 Agents**.

- Telephone consultation: +49 30 76880-280
- Internet: www.dr-stamm.de

Observe the information on dosing provided by the ultrasound agent manufacturer. You can calculate the required quantities of ultrasound agent and water yourself:

28 l ready-to-use solution, 2%

Calculation of agent:

$$\frac{28 \text{ l} \times 2 \%}{100 \%} = 0,56 \text{ l}$$

Calculation of water volume:

$$28 \text{ l} - 0,56 \text{ l} = 27,44 \text{ l}$$



CAUTION

Agents must be ultrasound-compatible

- Only use cleaning and disinfecting agents approved by the manufacturer for use in the CNp cleaning system. Do not expose the device to corrosive influences. Do not operate the device without fluid.
- Do not use chemicals containing chloride ions. Damage to the device caused by the use of unsuitable disinfection agents or detergents will not be covered by warranty.

5.3 Filling with sonication fluid



CAUTION

Risk of scalding

- Do not pour hot water into the oscillating tank.
- Maximum filling temperature: 50°C.

NOTICE

Damage due to condensation in the device

At high humidity, condensation forms inside the device if you fill it with cold water.

- Do not pour cold water into the oscillating tank when humidity is high.

NOTICE

Risk of damage to the objects to be treated

If you use an agent in powder form, do not pour it directly into the ultrasonic oscillating tank.

- Mix agents in powder form in another container before pouring them into the oscillating tank.
- Only pour the agent into the oscillating tank when it has dissolved completely.

Requirements

- Drain must be closed.
- The vacuum, ultrasound and heating must be turned off.

Procedure

1. Fill the oscillating tank one third full with water.
2. Dose the agent into the oscillating tank.
3. Fill the tank with water up to the filling level mark while avoiding foam formation.

Results

- » The device is ready to switch on.

5.4 Switching the heating on and off



WARNING

Risk of scalding

During heating, vapour bubbles can rise explosively under certain conditions (retardation of boiling).

- Stir the sonication liquid occasionally during heating or switch on the ultrasound.

Heated sonication fluid intensifies the effect of the ultrasound. Based on experience, the best results are achieved at working temperatures between 50 and 60 °C. This allows the sonication time to be reduced. At higher working temperatures, the effect of the ultrasound decreases again. As the temperature increases, the intensity of the cyclic nucleation (CNp) increases to the saturation point. However, the evaporation of the sonication fluid also increases.

Ultrasound also heats the sonication fluid. During continuous operation, the working temperature of the sonication fluid can rise above the set value – particularly if the oscillating tank is covered. Therefore, check the working temperature when processing temperature-sensitive objects.

- Please heed the specifications of the agent manufacturer on optimum temperature.
- Pre-heating during degassing of the sonication fluid is ideal.
- Before pre-heating, remove the basket or other accessories from the oscillating tank. Cover the oscillating tank with the lid.

Requirements

- The oscillating tank is filled.
- The mains plug has been connected to a grounded socket.

Procedure

1. Close the lids.
2. Turn the main switch to "I".
3. Turn on the heating by pressing the heating button of the respective tank. Set the desired setpoint temperature by tapping the temperature indicator bar.
 - » The heating is on. The operation of the heating elements is indicated by the flashing green dot on the display.



Information

- When the heating function is activated, the program start is only enabled once the set temperature has been reached.
- The password to enter in the query is "12345". The configuration is saved permanently.

5.5 Duration of sonication and cyclic vacuum

NOTICE

Risk of damage to the objects to be treated

Prolonged sonication can damage the surface of sonication objects.

- Select the shortest possible sonication time.

The optimum sonication time depends on a number of factors:

- Type and concentration of the agent
 - Temperature of the sonication fluid
 - Type of contamination
 - Type of objects to be treated, in particular the materials
- Observe the specifications of the agent manufacturer regarding the recommended sonication time.

To protect the objects to be treated and the oscillating tank, select at the start the shortest possible sonication time. Check the result. Extend the sonication time if the result is inadequate.

Requirements

- The oscillating tank is filled.
- The mains plug has been connected to a grounded socket.
- The device is switched on.

Procedure

1. Tap on the time of the oscillating tank in question.
2. In the input window, you can enter the desired time.

Results

- » The device is ready to switch on.

5.6 Switching the ultrasound on and off

Switch the ultrasound function on and off by pressing the Start button.

When prompted, the password to enter is "12345". The configuration is saved permanently.

Requirements

- The oscillating tank is filled.
- The mains plug has been connected to a grounded socket.

Procedure

1. Close the lids.
2. Turn the main switch to "I".
3. Press the Start button of the respective tank
 - » The ultrasound is switched on.
4. To stop the ultrasound early, press the Stop button.
 - » The ultrasound noise can no longer be heard.

5.7 Starting and stopping the cleaning process

Requirements

- The oscillating tank is filled.
- The mains plug has been connected to a grounded socket.
- The program start was enabled when the heating function was activated.

Procedure

1. Close the lids.
2. Turn the main switch to "I".
3. Press the Start button of the respective tank
 - » The ultrasound is switched on. The cleaning process has started.
4. To stop the process early, press the Stop button.
 - » The ultrasound noise can no longer be heard.

Ultrasound and vacuum are switched off after the program has finished.

- » The cleaning process is stopped and the time is set back to the initial position.

i Information

- When the heating function is activated, the program start is only enabled once the set temperature has been reached.
- The password to enter in the query is "12345". The configuration is saved permanently.

5.8 Switching the cyclic vacuum on and off

Requirements

- The oscillating tank is filled.
- The mains plug has been connected to a grounded socket.

Procedure

1. Close the lids.
2. Turn the main switch to "I".
3. Switch on the vacuum by pressing the vacuum button of the respective tank.
 - » The cyclic vacuum is switched on.

i Information

- When the heating function is activated, the program start is only enabled once the set temperature has been reached.
- The password to enter in the query is "12345". The configuration is saved permanently.

5.9 Insert objects to be treated



WARNING

Overloading

Do not overload baskets or accessories. Moving heavy baskets can cause physical injury.

To achieve good results, observe the following instructions when inserting objects for sonication:

- Before each round of sonication, check that the sonication fluid is not contaminated. If contamination is visible, replace the sonication fluid.
- The sonication fluid must be pre-heated to the desired temperature before objects are inserted.
- Use suitable accessories, e.g., a basket. Do not place objects directly on the bottom of the oscillating tank. See chapter **10 Accessories**.
- Distribute the objects evenly. Do not stack them. Make sure that delicate objects do not touch other objects.
- The ultrasound must be switched off while objects are inserted.
- Check the fill level. Make sure the liquid completely covers all objects undergoing sonication.
- Remove air bubbles from cavities. Rotate the objects accordingly. The ultrasound process will only be effective in places where the liquid comes into contact with the object undergoing sonication.
- Place the more heavily soiled side facing down. Place objects with joints (e.g. scissors, forceps) into the container open so that the sonication fluid reaches the entire surface optimally.

5.10 Remove treated objects



WARNING

Risk of burns

The sonication fluid, objects to be treated, the surface of the device and accessories may be very hot.

- Do not touch the surface of the device or accessories such as the lid.
Do not reach into the sonication fluid.
- Allow the sonication objects to cool before touching them.

Switch off the ultrasound before removing the treated objects.

Do not remove sonication objects by hand. Carefully remove e.g. the insert basket with the sonication objects and place it on a level surface.

Rinse sonication objects with clean water.

Do not leave sonication objects in the sonication fluid for too long.

This can damage the objects.

5.11 Emptying the oscillating tank

Contamination on the bottom of the oscillating tank reduces the ultrasonic output.

Empty and clean the oscillating tank if the sonication fluid is visibly contaminated.

Also, observe the specifications of the manufacturer of the agent regarding the service life of the sonication fluid.

Replace used sonication fluid completely. Do not freshen the fluid by topping it up.

Procedure

1. End the cleaning program in both tanks.
2. Press the Drain button.
3. Rinse the oscillating tank thoroughly.
4. Wipe the ultrasonic bath dry with a soft cloth.
5. If necessary, disinfect the ultrasonic bath with a suitable surface disinfectant.



Information

- The entire device may become hot.

5.12 Troubleshooting a malfunction

Problem	Troubleshooting
Display is off	<ul style="list-style-type: none"> - Check mains voltage - Check the fuse of the control unit - Check the plug for the power supply of the display on the electrical cabinet
Display shows hash symbol (#)	<ul style="list-style-type: none"> - Check the LAN connection of the display to the electrical cabinet
Tank does not heat up	<ul style="list-style-type: none"> - Check program activation - Check fuses of the heating system - Check the fill level in the tank - Check plug on the electrical cabinet
Tank does not generate vacuum	<ul style="list-style-type: none"> - Check program activation - Check compressed air - Check operation of valves - Check the tightness of the lid - Check plug on the electrical cabinet
Tank does not generate ultrasound	<ul style="list-style-type: none"> - Check program activation - Check fuses of the ultrasound - Check plug on the electrical cabinet
Lid cannot be opened	<ul style="list-style-type: none"> - Start and stop the program
Display shows error message Water low	<ul style="list-style-type: none"> - Fill with water - Check plug on the electrical cabinet
Tank cannot be emptied	<ul style="list-style-type: none"> - Stop all programs - Check drain valve - Check plug on the electrical cabinet
Display shows error message Compressed air low	<ul style="list-style-type: none"> - Check air pressure in the building's mains supply - Check compressed air line - Check pressure switch

6 Maintenance

6.1 Maintenance

The unit is maintenance-free.

6.2 Cleaning and maintenance of the device

Cleaning the housing

- Wipe the housing with a damp cloth. Wipe dry with a soft cloth.
- Do not use abrasive cleaning agents, only care products without scouring additives.
- If necessary, disinfect the housing with a suitable surface disinfectant.

Care of the oscillating tank

Impurities in the oscillating tank accelerate the tank's wear, can lead to corrosion and reduce the ultrasound effect. Therefore, please observe the following instructions:

- Rinse the oscillating tank thoroughly with water after each use.
Wipe dry with a soft cloth.
- Clean edges and remove residues with a stainless steel cleaning product without abrasive additives.
- Do not use steel wool, scrapers or shavers to clean the oscillating tank.
- Metal parts and rust particles in the oscillating tank cause corrosion.
Therefore, do not leave any metal parts in the oscillating tank.
If rust stains are visible, remove them immediately with a soft cloth and a stainless steel cleaning product without abrasive additives.

Device lifespan

The expected lifespan of the device is 10 years.

The lifespan of your device depends on the following factors, among others:

- Operating environment
- Usage intensity

6.3 Repair

Contact your dealer or the manufacturer during the warranty period.
Have repairs carried out only by qualified personnel or by the manufacturer.
The manufacturer accepts no liability for unauthorised tampering with the unit.



WARNING

Health risk due to contaminated device

- Decontaminate the device before shipping if it has come into contact with hazardous substances.
-

If the device needs to be repaired, send it to the manufacturer.
Clean and decontaminate the device and accessories before shipping.
The "Certificate of Decontamination" is intended to protect the occupational health and safety of our employees pursuant to the German Protection against Infection Act and the trade association accident prevention regulations.
Before sending the device back to us for inspection/repair, the device and accessories must be cleaned pursuant to current laws and regulations and, if necessary, must also be disinfected with a surface disinfection agent listed by the VAH (Alliance for Applied Hygiene). Please understand that we cannot start work until this Certificate is completed in full and submitted. Download the "Certificate of Decontamination" from:

<https://www.bandelin.com/downloads>

Fill out the form and attach it to the outside of the packing so that it is clearly visible. We will refuse acceptance without a completed form.



Send the device to the following address:

BANDELIN electronic GmbH & Co. KG

Heinrichstr. 3–4

12207 Berlin

Germany

+49 30 76880-13

service@bandelin.com

7 Decommissioning

7.1 Switch off device

Procedure

1. Remove the items to be cleaned from the device.
2. Empty both tanks via the built-in drain.
3. Rinse the tank to remove any dirt particles.
4. Leave the device at least 15 minutes after the last program run with the main switch switched on.
5. Turn the main switch to 0.

7.2 Shutting down the device (longer period)

Procedure

1. Remove the items to be cleaned from the device.
2. Empty both tanks by activating the emptying selection.
3. Rinse the tank to remove any dirt particles.
4. Leave the device at least 15 minutes after the last program run with the main switch switched on.
5. Turn the main switch to 0.
6. Unplug the mains plug.
7. Cover the device to protect it from contamination.
8. Store the device on a suitable surface.

8 Disposal



WARNING

Health risk due to contaminated device

- Decontaminate the device before disposal if it has come into contact with hazardous substances.
- Also decontaminate accessories before disposal.

Dispose of the device appropriately as electronic waste if it can no longer be used.

Do not dispose of the device with household waste.

Observe the locally applicable regulations for the disposal of electronic waste.

The vibrating elements contain sintered ceramics made of lead titanium zirconium oxide.

- EC No. 235-727-4
- CAS No. 12626-81-2



This use is authorised in accordance with RoHS Directive 2011/65/EU, Annex III, exception 7c. I.

Dispose of accessories as scrap metal or as plastic waste, depending on the material used.

9 Device information

9.1 Technical data

Device identification	SONOREX CNp 28–2 or SONOREX CNp 28-2 L
Weight (net)	285 kg
Country of origin	Germany

Protection class	I
Degree of protection	IP 32

Compressed air connection	
Compressed air requirement	Min.: 5 bar, 344 NI/min (short-term)
Compressed air pipe	5 m, coupling plug: NW 7.2

Dimensions	
External dimensions, L × W × H	1500 × 775 × 1040 (lid closed)
Height with lid folded open	1430 mm
Outlet height	513 mm
Mains connection (rear), height	200 mm
Space requirement, total (L × W)	1600 × 1000 mm

Power supply	
Mains supply	400 V 3N~ (± 10%), 50/60 Hz
Power consumption	6.6 kW
Current consumption	max. 13 A per phase
Fuse	16 A
Mains cable	3 m, connected to the device

Oscillating tank	
Quantity	2 pieces:
Internal dimensions, L × W × D	510 × 300 × 260/280 mm
Filling level mark	185 mm
Level sensor	Yes
Contents	2 × 40 l
Operating volume	2 × 28 l
Tank material	AISI 316 L, 2 mm welded
Outlet	2 × G 1

Ultrasound per oscillating tank		
Ultrasound generator	TG 300 CNp	TG 300-S CNp
Ultrasonic peak power	1200 W	240/480/960/1200W
Rated ultrasonic output	300 W	60/180/240/300W
Power density	11 W/L	2-11 W/l
Power setting	100%	20/40/60/80/100%
Ultrasonic frequency	35 kHz	35 kHz
Sweep	Yes	Yes
Oscillating systems	8 pieces	8 pieces

Heating	
Adjustable temperature range	50- 75°C
Heating output	2,600 W

9.2 Ambient conditions

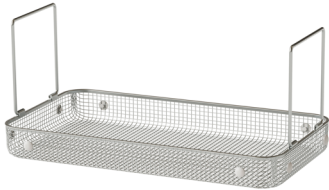


Overvoltage category:	II
Degree of contamination:	1
Permissible ambient temperature:	5-40°C
Permissible relative humidity up to 31°C:	80% (non-condensing)
Permissible relative humidity up to 40°C:	50% (non-condensing)
Altitude	< 2000 m above sea level
Only for indoor operation.	

9.3 CE conformity

The device satisfies the CE-marking criteria of the European Union:

- 2014 / 30 / EU - EMC Guideline
- 2006/42/EC – Machinery Directive
- 2011 / 65 / EU - RoHS Directive

10 Accessories

	Insert baskets K 28 EM stainless steel and POM Maximum load up to 10 kg
	Basket holder KT 28 made of stainless steel and PTFE Maximum load up to 10 kg
	Vacuum measurement adapter Bourdon tube pressure gauge for gaseous and liquid media. Pre-assembled in acrylic glass pane. Connection made of stainless steel AISI 316 L.

11 Agents

Recommended agent – TICKOPUR R 36

The TICKOPUR R 36 agent achieves the optimal cleaning effect for a large number of cleaning applications.

It has been developed especially for ultrasonic cleaning, promotes cavitation, is environmentally sound since biologically decomposable and thus easy to dispose of.

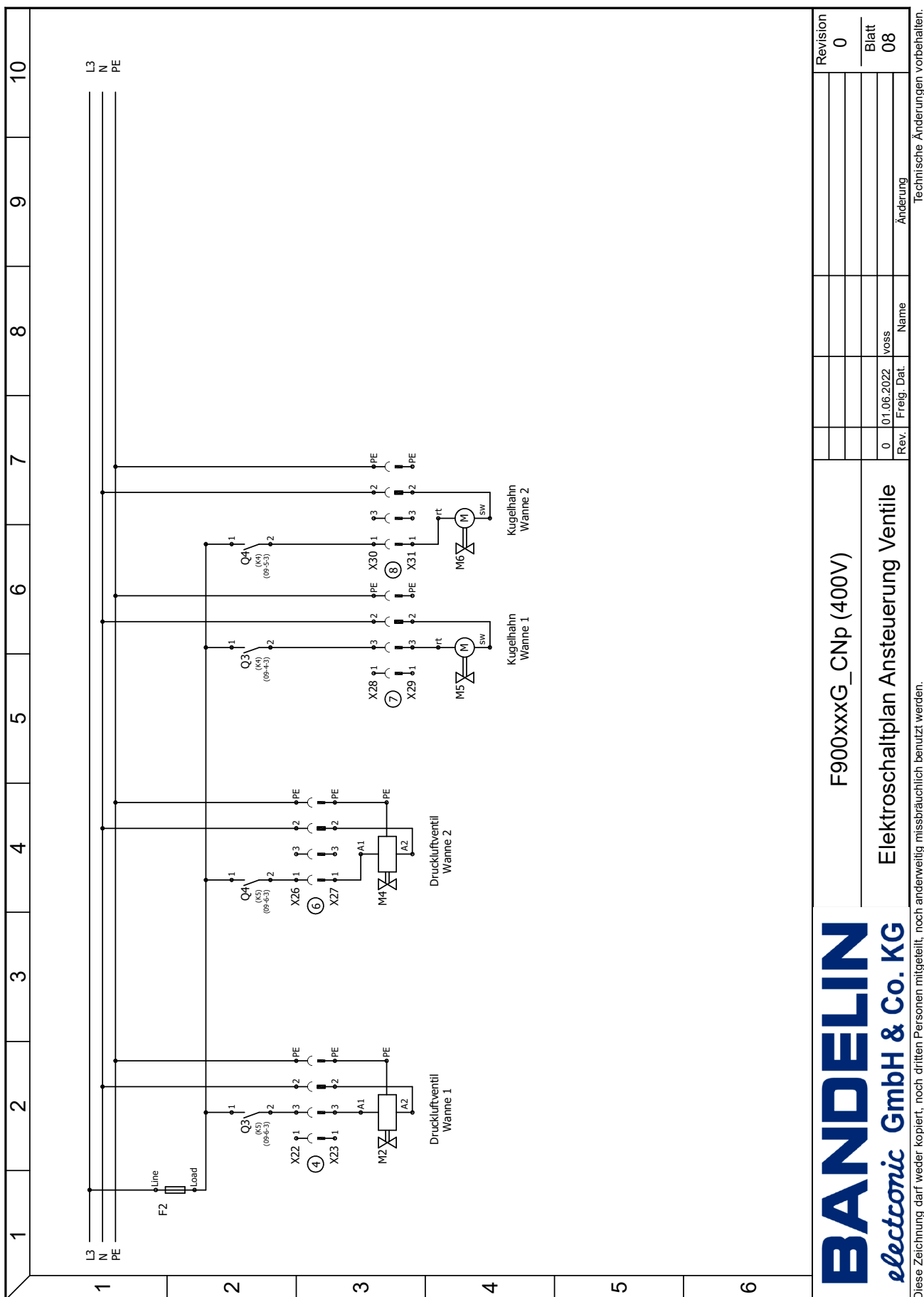
TICKOPUR R 36

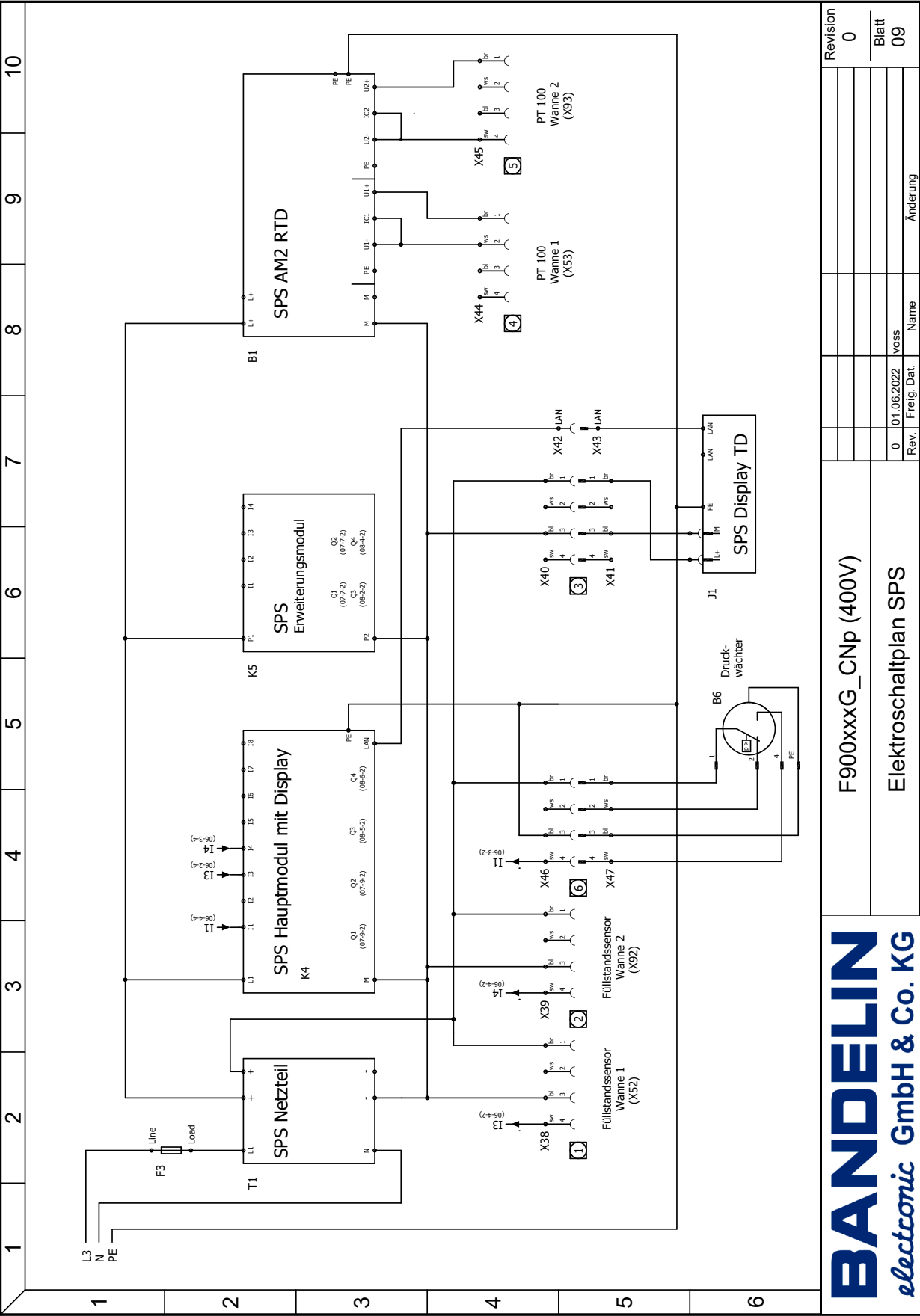
Special cleaner, tenside-free, gentle to material, non-foaming, mildly alkaline, pH 9.9 (1%) application 0.25-5%

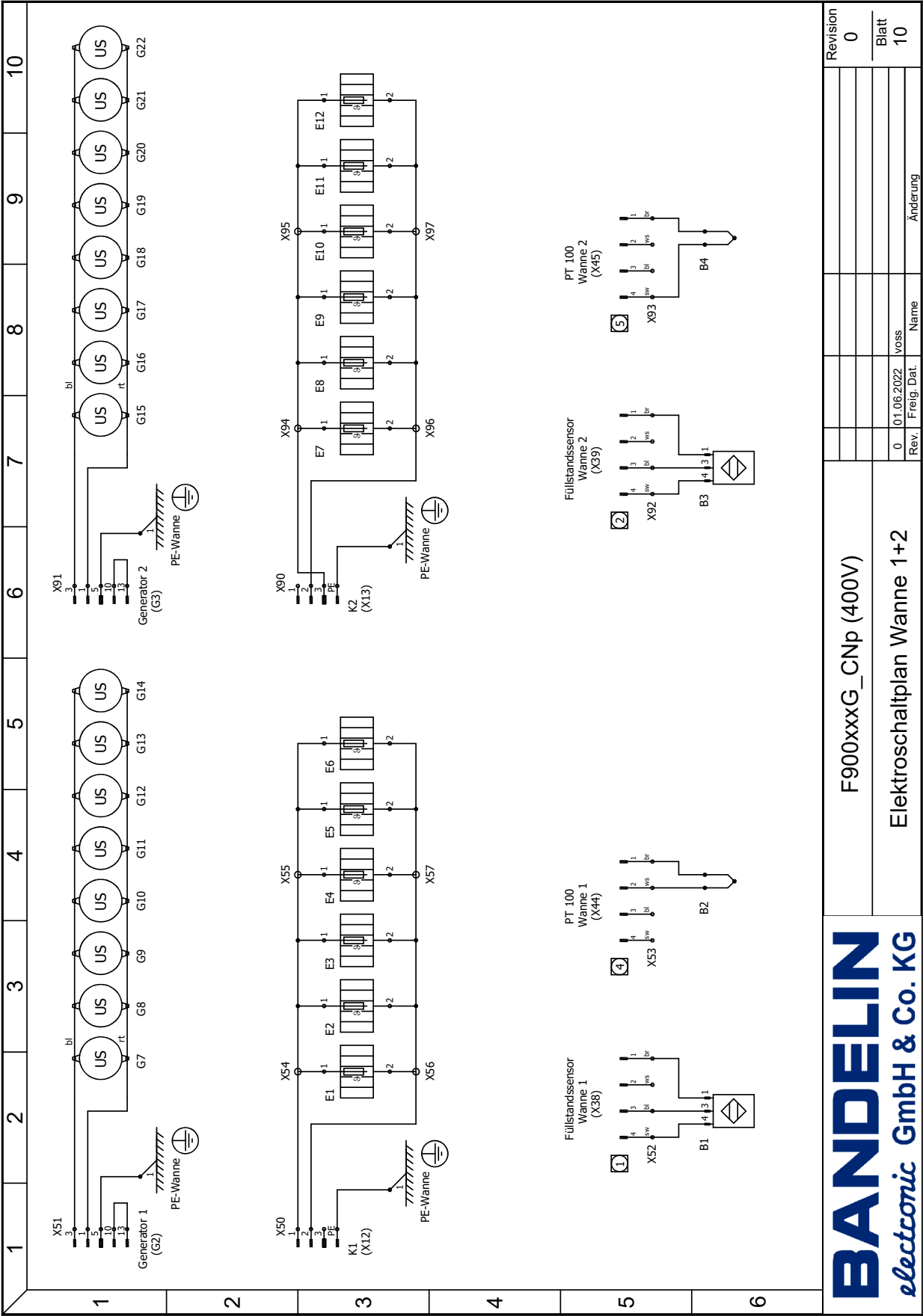
Removes general soiling, oils, greases, distillation residues, organic and inorganic residues.

From steel, light and precious metals, ceramics, plastics, rubber, glass, optical glasses, vertical and horizontal blinds. Caution with tin and zinc.

[illegible]







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