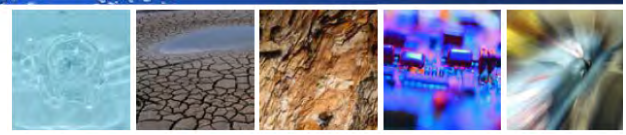
www.sonixiv.com



SS-Series &
SR-Series Manual

Content

Congratulations on your purchase of a Sonix 4 ultrasonic cleaner for precision cleaning.

What is Ultrasonic Cleaning?

Ultrasonic Cleaning is a process created by high frequency sound waves. The sound waves, enhanced by specially formulated, neutral, and environmentally friendly cleaning solutions, create high-energy cavitation. During cavitation, millions of tiny bubbles form and then collapse, or “implode”, releasing enormous amounts of heat and producing shock waves which yield extreme pressures that scour the surface of instruments, and other devices placed in the cleaning solution. This powerful scouring action reaches into minute crevices, which manual brushing cannot reach. The combination of energy and specially formulated solutions make ultrasonic cleaning the most efficient and sustainable method for debris removal and disinfecting processes.

I. Summarization

SS-Series Table Top Ultrasonic System
Specifications:

Product	Tank Dimensions in Inches	Liquid Capacity	Max Set-Ups
ST 144	9.5 x 5.5 x 4.0	3.6 Qt / .90 Gal	
ST 136 & SE 136	11.5 x 5.5 x 6.0	6.4 Qt / 1.6 Gal	
ST 126 & SE 126	11.5 x 9.5 x 6.0	10.8 Qt / 2.7 Gal	16
ST 236 & SE 236	11.5 x 12.8 x 6.0	14.4 Qt / 3.6 Gal	24
ST 128 & SE 128	11.5 x 9.5 x 8.0	13.8 Qt / 3.4 Gal	24
ST 118 & SE 118	19.5 x 11.5 x 8.0	3.1 Qt / 7.8 Gal	48

SR-Series Recessed Ultrasonic System

Specifications:

Product	Tank Dimensions in Inches	Liquid Capacity	Max Set-Ups
SR 126 A	11.5 x 9.5 x 6.0	10.8 Qt / 2.7 Gal	16
SR 236 A	11.5 x 12.8 x 6.0	14.4 Qt / 3.6 Gal	24
SR 128 A	11.5 x 9.5 x 8.0	13.8 Qt / 3.4 Gal	24
SR 118 A	19.5 x 11.5 x 8.0	31.2 Qt / 7.8 Gal	48

Recessed System Installation Instructions:

1. Download and print the cut-out dimension templates from www.sonixiv.com/educational-resources/. Note: All diagrams contained herein can also be downloaded from this page.
2. Carefully cut holes in the counter-top for both the Vessel and the control unit allowing room for both to be fit properly. (Fig. 1)

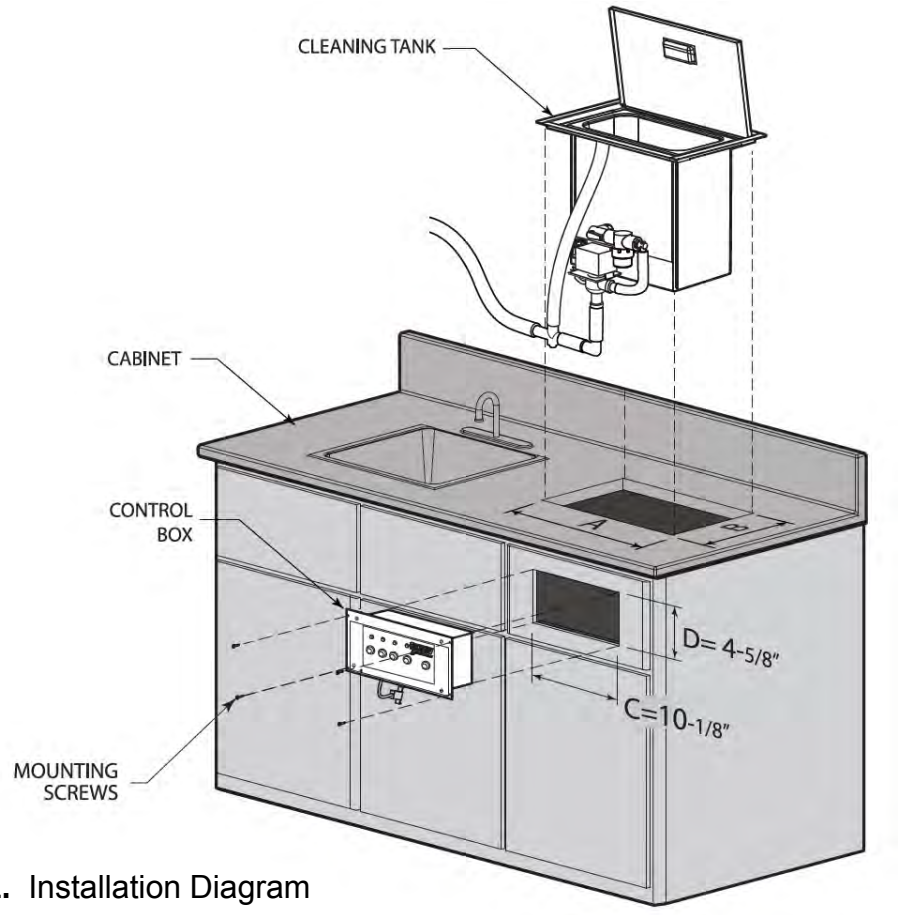


Figure 1. Installation Diagram

3. Apply a continuous bead of plumber putty to the underside of the flange prior to placement.
4. Install vessel and control unit.
5. Make system connections to the drain line by installing a hose (3/8 in. – *not supplied*) using Figure 2 A and B. Note: The drain tubing requires an upward rise at the drain valve for proper draining (see figures).

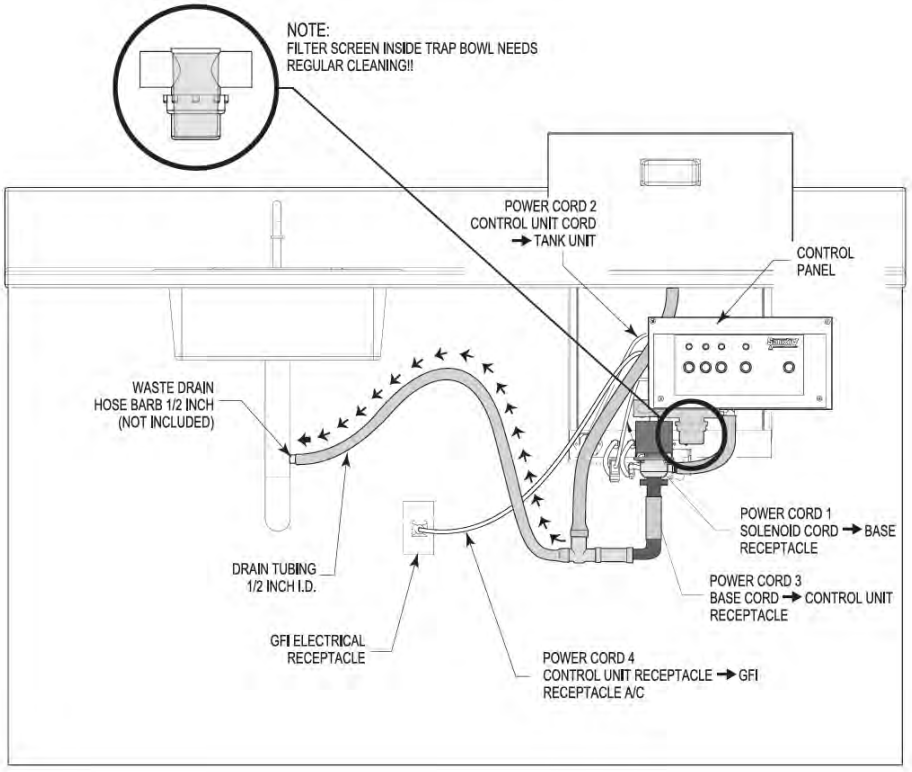


Figure 2A. Plumbing Installation Diagram

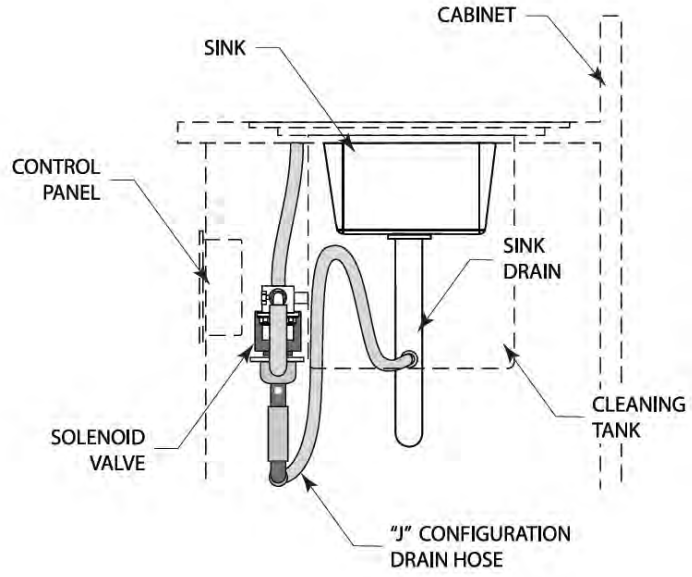


Figure 2B. Plumbing Installation Diagram Sideview

6. Make system electrical connections (see Figure 3).
7. Plug system into 120V outlet.

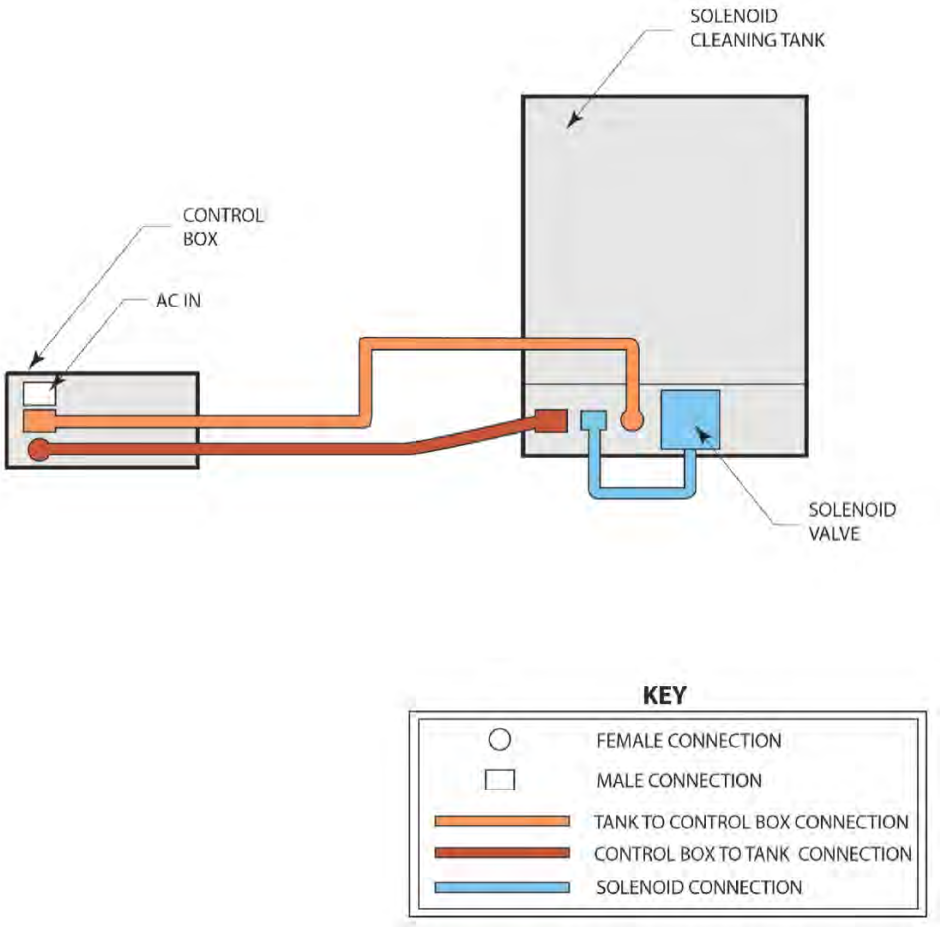


Figure 3. Electrical Installation Diagram

II. Operating Instructions

Introduction:

Before operating an ultrasonic cleaner it is important to understand the factors that contribute to cavitation in a sonication vessel. The liquid contained in the vessel must posses several attributes to ensure that cavitation is occurring at an optimal level that destroys harmful protozoa and removes bio-debris.

Cavitation occurs under ideal conditions with pure water at room temperature. The factors contributing to cavitation in a liquid include the temperature, pressure, pH, volume, and viscosity. When a surfactant cleaning solution is added to water all of these factors change. This is why we recommend our specially formulated, neutral, and environmentally friendly Eco4 solution. It has

optimal cavitational properties, and our units are tested before shipment with this solution in the vessel. If our 4i technology continues to function properly, and our Eco4 solution is used, we can ensure that cavitation is occurring at a level that yields powerful temperatures and pressures capable of destroying harmful protozoa and removing stubborn bio-debris.

Before Sonication Cycle:

1. Read and understand all instructions.
2. Follow all warnings and instructions on the equipment.
3. Plug the power cord into a grounded GFI receptacle only.
4. This product should only be operated from the type of power source indicated on the equipment.
5. Keep the work area clean and dry.
6. Do not place the equipment on an unstable cart, stand, or table.
7. Slots and opening in the cabinet are provided for ventilation to protect the device from overheating. Do not cover or block these openings.
8. Do not allow anything to rest on the power cord. Do not locate the product in a place where the cord can be abused, or where a person can walk on it.
9. Do not overload wall outlets and extension cords as this can result in fire or electrical shock
10. Do not operate the unit without adequate amounts of liquid. A minimum liquid level in 2/3 full. Failure to maintain adequate liquid levels can decrease cavitation, and cause serious damage to the ultrasonic transducers.
11. Do not use flammable or acidic liquids
    a. Neutral pH of 7 is ideal for cavitation.
    b. Refer to Chemicals list for more information.
12. Do not place instruments directly on bottom of tank. This will overload the transducers causing failure. Accessories are available.
13. Do not use excessively large batch sizes. This will overload the ultrasonic transducers; resulting in ineffective disinfection, and cause damage to the device. Vessels are offered in a range of sizes to accommodate any cleaning application.
14. The operating cycle is not to exceed the limits of the timer. A 10 minute cycle is sufficient for sterilization when all instructions are followed properly. Do not modify the timing device.
15. Do not disassemble the equipment.
    a. This can expose electrical components and places you at risk for shock.
    b. This will void the warranty.
16. Unplug the device and contact a customer service representative if:
    a. The power cord is damaged or broken.
    b. The device is dropped, or the cabinet is damaged.
    c. 4i technology fails, device fails maintenance tests, or cavitation appears weak.

Cleaning Procedures:
There are generally two methods for cleaning in a sonication vessel. The direct and indirect methods.

1) The Direct Method-
    a. Load instruments into a basket or other device that will prevent items from resting on the tank bottom.
    b. Fill tank with clean water and optional eco-friendly solution being careful to follow safety instructions (above).
    c. Place basket into tank assuring that nothing contacts the bottom of the tank. Note: This will prevent ultrasonic transducers from overheating.
    d. After the cleaning cycle is complete instruments are typically rinsed and dried.
        i. Rinsing should be accomplished with pure water baths to ensure that contamination does not take place. Please consult the accessories section of this manual for options available from Sonix4 pursuant to pure water rinsing procedures.
        ii. Drying can be accomplished by air drying or processing items through a drier unit.
2) The Indirect Method-
    a. This method utilizes accessories like beakers to act as individual sonication vessels.
    b. These vessels can be filled with different solutions pursuant to differing user applications.
    c. Fill device with water allowing for displacement by the accessory beakers.
    d. Fill the beakers with appropriate eco-friendly solutions, and place the parts into the beakers.
    e. Please do not allow beakers to sit directly on the bottom of the tank. Beaker holders are available from our line of ultrasonic cleaner accessories.
    f. Process the cleaning cycle as needed. Rinse and dry upon cycle completion.

III. Equipment Maintenance

Introduction:
Ultrasonic cleaning devices require routine cleaning of the stainless steel tank to keep the vessel operating at optimal cavitational levels. The vessel bath should be refreshed after every cleaning cycle as to ensure that optimal conditions for cavitation exist within the device at all times. The stainless steel tank should be kept clean, and free from debris at all times to prevent microbial and cavitational

erosion. Sonix4 has uniquely designed testing procedures that ensure the ultrasonic device is operating at a level that destroys harmful microbes as well as removes all bio-debris. Following all safety instructions, operating instructions, and routine maintenance programs will ensure the longevity of this highly efficient technology.

Routine Cleaning Procedures:
Clean water, and fresh eco-friendly solution should be used during every cleaning cycle to ensure that optimal cavitational conditions exist within the vessel.

- To clean, rinse with fresh water and wipe clean.
- In some cases, a “Scotch Brite” pad may be used to clean debris.
- The drain mechanism should be flushed with fresh water regularly.
- The cabinet should be kept clean and dry at all times.
- Please see our accessories for water filtration and recirculation options that make these maintenance procedures more efficient.

Testing Procedures:
Before any device leaves our manufacturing facility it is tested using scientific, peer-reviewed methods to determine that the vessel is working at optimal cavitational efficiency in order to ensure that microorganisms are being destroyed, and debris is being removed. All units are equipped with 4i Technology, which indicates that ultrasonic transducers are operating at full power. Cavitational energy is proportional to power input. As long as the 4i technology is functioning, and operating instructions have been followed, the user can rest assured that cavitation is taking place at optimal levels. We do recommend that a routine foil test be conducted to further ensure that disinfection is taking place at all times while operating this device. To accomplish the foil test, simply dip a piece of foil into the running ultrasonic bath for 30 seconds and analyze the foil for the presence of voids. Ideally, no voids will be seen in the dimpled pattern left by sonication. If the 4i technology fails, the boards to which the led indicator light is attached will need to be replaced.

Chemical List:
The following list contains chemicals that are known to be harmful to the stainless steel tank of your ultrasonic device. These should never be used.

DO NOT USE ANY OF THESE CHEMICALS!

Acidic acid 70degrees F	Ethers	Oxalic Acid (>70 degrees F)
Acetol Chloride	Ethyl Bromide	Phosphoric Acid (> 70 degrees F)
Acetol Bromide	Ethyl Chloride	Silver Bromide
Methyl Alcohol	Ethylene Dichloride	Magnesium Chloride
Aluminum Fluoride	Ferric Chloride	Mercuric Chloride
Anhydrous Ammonia	Ferrous Chloride	Muriatic Acid
Aniline Hydrochloride	Fluorine	Oleic Acid
Antimony	Freon	Oxalic Acid (>70 degrees F)
Antimony Trichloride	Hydrobromic Acid	Phosphoric Acid (> 70 degrees F)
Benzene	Hydrochloric Acid	Silver Bromide
Bromine	Hydrocyanic Acid	Silver Chloride
Calcuim Hydroxide (>50%)	Hydrofluoric Acid	Sodium Hypo chloride
Carbon Disulphide	Hydrofluosilicic Acid	Stannic Chloride
Carbon Tetrachloride	Iodine	Stannous Chloride
Chloracetic Acid	Ketones	Sulphur Chloride
Chlorinated Water	Lactic Acid (>70 degrees F)	Sulfur Monochloride
Chromic Acid (>70degrees F)	Magnesium Chloride	Sulphurous Acid
Citric Acid (>70 Degrees F)	Mercuric Chloride	Trichloracetic Acid
Copper Chloride	Muriatic Acid	Zinc Chloride (>70 degrees F)
Deionized Water	Oleic Acid	

VII. Accessories

Sonix 4 offers many accessories that enhance the ultrasonic cleaning process efficiency and provide versatility. For example, beakers along with a positioning cover convert the ultrasonic tank into mini 600 ml tanks with each beaker having a different solution. Our own Eco4 certified green cleaning solution enhances the cleaning efficiency of our ultrasonic cleaners with a neutral pH and no chemicals. Some of our accessories are listed below.

- **Eco4 Solution**
  - Environmentally friendly, chemical-free solution is gentle on hands & instruments and leaves no residue
  - Specially formulated to enhance performance of Sonix 4 ultrasonic cleaners
  - Highly concentrated for cost effectiveness – go green for less
  - Manufactured in compliance with green standards of health, safety, biodegradability, & biorenewability
- **Stainless Steel Baskets**
  - Stainless steel baskets available in many sizes

  - Durable stainless steel does not rust or stain
  - Different sized baskets can be used for handing different or multiple parts. Examples: 2 half sized baskets can be used instead of 1 full sized basket, or 1 half basket and a positioning cover with beakers can be used for different solutions.
- **Instrument Cassette Trays**
  - Instrument cassette trays are ideal for handing surgical instrument trays
  - Available in several sizes
  - Help maintain sterility of instruments and are easy to use
- **Combine accessories for maximum performance**
  - Sonix 4 ultrasonic cleaners and accessories are designed to work together to maximize performance while minimizing time
  - Combine baskets, trays, beakers, covers, and Eco4 solution for the most effective ultrasonic cleaning available
  - Using different accessories provides versatility for your ultrasonic cleaning needs

VIII. Warranty

Sonix4 Corporation has an industry leading 2/10 year warranty.

- 2 years on electronic components.
  - Protects from factory defect in workmanship on electronic parts
- 10 years on transducers.
  - Protects from cracked or broken transducers due to factory workmanship.

Warranty valid when operating instructions and regular maintenance programs are followed in accordance with this instruction manual.
*Subject to Sonix4 discretion.

IX. Trouble Shooting

The most important step regarding trouble shooting situations is that the user understand the warranty information before attempting any trouble shooting procedure. Opening the ultrasonic device voids the warranty. If the unit is under warranty the correct procedure is to send the unit into the manufacturing facility at *4301 Dorchester Rd. N. Charleston, SC 29405*. Sonix4 will assess the device, the cause of failure, and how the situation fits warranty specifications. If the device is out of warranty we recommend that the unit be sent into the manufacturing facility as well. Other maintenance issues can be remedied by consulting other sections of this manual. For further service contact us through www.sonixiv.com.

For more information regarding ultrasonics, applications, sonochemistry, and other supported devices please go to www.sonixiv.com.

The device may only be operated and maintained by personnel who have read and understood this manual and are familiar with applicable legal regulations for accident prevention and workplace safety. Otherwise, Sonix 4 is not in charge of any damage.

Statement: Sonix 4 reserves the right to change terms of this manual.