

Instruction Manual

Ultrasonic Cleaning Tank



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1. Important Notifications

 <p>DANGER</p>	<p>Do not use cleaning liquid classified as FLAMMABLE or COMBUSTIBLE in this cleaning tank. It is not equipped with the safeguards necessary for cleaning with combustible chemicals.</p>
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 <p>WARNING</p>	<p>Do not operate ultrasonic and heater of the cleaning tank without cleaning liquid in the tank.</p>
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 <p>WARNING</p>	<p>High voltages exist when the electrical power is turned on. Always disconnect power when servicing the system. When operating the system, observe all practical precautions for the use of high voltage, as dictated by applicable electrical codes and regulations. Observe all operating precautions stated throughout this manual.</p>
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 <p>WARNING</p>	<p>Tank walls can remain hot for a period of time after the power is turned off. Wear gloves and other protective clothing, and wait until the tank walls have cooled off before performing cleaning and maintenance work.</p>
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 <p>CAUTION</p>	<p>Never place your hands, arms, or any body part in the cleaning liquids when ultrasonic cleaning is in operation. Always use racks or baskets to hold the cleaning parts.</p>
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2. Product Description

2.1 Ultrasonic Cleaning Tank

The ultrasonic cleaning tank is a plug-and-play solution for a number of cleaning needs in series NT (non-heated tank) and HT (heated tank). Both NT and HT tanks contain groups of acoustic couplers which are permanently bonded to the bottom of the tank by means of high temperature cured.

The ultrasonic cleaning tank provides the optimum environment for precision cleaning with extended service life. It is constructed of cavitations resistant, bright annealed 316L stainless steel, welded inside and out for long-term stability and sturdy performance, has cove corner construction with ground and polished welds. The bottom of the tank is sloped in one direction towards the drain port for easy draining.

The below diagram illustrates the features and connections of the cleaning bath, transducers, junction box, generator and power supply:

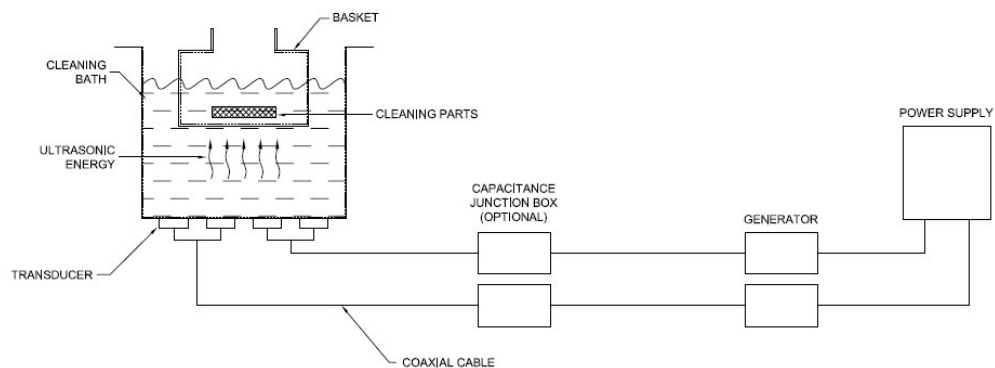


Figure 2-1: Cleaning bath, transducers, junction box, generator and power supply

2.2 Industrial Ultrasonic Cleaning Tanks Specifications

Model No. (Heated)	Fluid Capacity (Gallons)	Ultrasonic Power (Watts)	Internal Dimensions W L D	Overall Dimensions W L D	Basket Dimensions W L D	Power Requirement (Heated Tanks) Volts/Amps/Heat
XHT-710-3	3	250	7" x 10" x 10"	10" x 13" x 14.50"	6" x 9" x 3"	120V/4.2A/500W
XHT-710-3	3	250	7" x 10" x 10"	10" x 13" x 14.50"	6" x 9" x 3"	240V/2.1A/500W
XHT-1014-6	5	500	10" x 14" x 10"	13" x 17" x 14.50"	7" x 12" x 3.5"	120V/8.4A/1000W
XHT-1014-6	5	500	10" x 14" x 10"	13" x 17" x 14.50"	7" x 12" x 3.5"	240V/4.2A/1000W
XHT-1014-9	10	750	12" x 18" x 12"	15" x 21" x 16.25"	9" x 16" x 3.5"	240V/8.4A/2000W
XHT-1218-12	10	1000	12" x 18" x 12"	15" x 21" x 16.25"	9" x 16" x 3.5"	240V/8.4A/2000W
XHT-1524-12	19	1000	15" x 24" x 14"	18" x 27" x 18.75"	12" x 22" x 5"	240V/12.6A/3000W
XHT-1622-12	22	1000	16" x 22" x 16"	19" x 25" x 20.75"	13" x 20" x 6"	240V/12.6A/3000W
XHT-1826-18	33	1500	18" x 26" x 18"	21" x 29" x 22.75"	15" x 24" x 6"	240V/16.8A/4000W
XHT-2426-30	49	2500	24" x 26" x 20"	27" x 29" x 24.75"	21" x 24" x 6"	240V/21A/5000W
XHT-2436-42	68	3500	24" x 36" x 20"	27" x 39" x 24.75"	21" x 34" x 6"	240V/34A/8000W
XHT-2446-54	85	4500	24" x 46" x 20"	27" x 49" x 24.75"	21" x 44" x 6"	240V/42A/10,000W
XHT-1236-24	34	2000	12" x 36" x 20"	15" x 39" x 24.75"	9" x 34" x 6"	240V/17.6A/4000W
XHT-1246-30	43	2500	12" x 46" x 20"	15" x 49" x 24.75"	9" x 44" x 6"	240V/21A/5000W

Note: The "X" represents the Ultrasonic Frequency (Example: 4HT= 40 kHz, 13HT= 132 kHz)

2.3 Tank Accessories

Following are various optional features available for Crest Ultrasonic cleaning tanks:


- Stainless steel tank cover
- Stainless steel work basket
- Water jacket
- Condensing collar
- Overflow weir
- Cove corner construction
- Ground and polished welds
- Drain valve - ball type (brass or stainless steel)
- Recirculating filter system (brass or stainless steel)
- Matching rinse tank - no transducers (heated or unheated)
- Chem-Crest chemicals
- Sealed skirts
- Different voltages
- Heat exchanger
- Strip heater
- Explosion proof packages
- Electric cycle timer
- Liquid level safety sensor
- Temperature controller

3. Installation

3.1 Placing and Mounting

The surface on which ultrasonic cleaning tank and generator are placed must be level and secure. The area surrounding the tank and generator should be clear and dry with close access to proper electrical connection. Make sure area allows adequate flow of cooling air.

3.2 Plumbing Installation

<div style="border: 1px solid black; border-radius: 10px; padding: 2px; display: inline-block; background-color: #e0f0e0;">NOTE</div> 	<p>If your product is a standard tank, this connection will not be necessary.</p>
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Please follow instruction below to install the plumbing lines if it is a custom tank.


No.	Description
1	Refer to plumbing schematic provided. Observe all precautions and installation procedures required for your industry and location.
2	Locate the utility connections of the tank. <ul style="list-style-type: none"> • Connect fill line to water source or chemical source. • Connect all drain lines to unrestricted factory drain(s).

3.3 Electrical Installation

No.	Description
1	Electrical power plug from the tank and generator should be connected to electrical outlet, provided by the customer.
2	Please refer to Generator Manual for detailed information.


4. Operation

4.1 Preparation - Clean, Drain and Fill

	<p>Generators should be kept dry all the time. Do not allow moisture or chemicals to collect on or near ultrasonic generators.</p>
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Step	Description
1	Switch OFF the generator and main power source.
2	Inspect tank wall for any accumulation of chemical debris or other contaminants. If tank wall require cleaning, wipe off properly.
3	Check and clean tank bottoms. Remove broken or dropped parts which may have been left in the tank. This is necessary to minimize the possibility of small objects becoming lodged in the drain line.
4	Verify that the plastic cap on the drain nipple of the tank is secured. If the drain outlet is fitted with a valve, make sure that the valve is closed. If the tank contains liquid, open drain valve to drain liquid from tank.
5	Flush tank with DI water.
6	Close drain valve if it is provided.
7	Fill tank with appropriate liquid and ensure that the safety overflow (if any) valve is open. The liquid must be filled to at least above low liquid level or to a depth sufficient to cover the parts to be cleaned. If tank is heated, liquid depth must be 5" from the bottom of the tank.


4.2 Setting Up and Operating the Cleaning Tank

	<p>WARNING</p> <p>Only use cleaning liquid permitted for use with ultrasonic tank, taking into consideration their possible environmental effects and their flammability.</p>
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Step	Description
1	Before operating, check generator serial tag for proper power requirement.
2	The generator coaxial cables must be connected between the tank and the generators.
3	Plug the generator power cord into the appropriate wall outlet.
4	Activate the front panel ON/OFF switch of the generator to begin ultrasonic cavitations in the tank. NOTE: You should hear the ultrasonic cavitations sound once generator is turned ON.
5	Check that the fan of the generator is operating for proper cooling.
6	For tanks with heaters, set the control thermostat to the desired temperature.
7	Plug the heater power cord into the wall outlet.
8	Placed the parts to be cleaned in a basket or fixture.
9	Place the basket or fixture into the tank. After cleaning for a prescribed time, remove the basket or fixture from the tank.
10	Repeat the same process for the next parts to be cleaned.
11	Power OFF the generator, heater and tank when complete.

4.3 Degassing


<p>NOTE</p> 	<p>Perform degassing ONLY on Genesis generator.</p>
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<p>NOTE</p> 	<p>To degas, switch to the “Lo” position for half-wave modulation. (NOTE: Although the peak power is the same, average power is reduced by one-half). Degassing of normal water detergent solutions will usually be completed within 10 minutes.</p>
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Degassing is the removal of unwanted dissolved gas from the liquid. As the cavities form, they fill with unwanted air which appears as bubbles. These resist collapse and tend to remain suspended in the liquid, serving as “shock absorbers” which can reduce cleaning efficiency.

The amount of air in the cleaning bath liquid can be reduced by switching off or modulating the sound energy to permit adjacent bubbles to coalesce, float to the surface, and escape. The type of modulation is important, for the correct balance between de-gassing and cleaning efficiency must be determined for each application.

5. Routine Maintenance

	<p>CAUTION</p> <p>Do not scratch the radiating surface of the tank. Scratches can aggravate cavitations erosion.</p>
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	<p>NOTE</p> <p>For generator maintenance, refer to the cleaning of generator in the generator instruction manual.</p>
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5.1 Tank and Generator

Item	Activity/Schedule	
Tank	Cleaning tank.	W
Tank	Checking for clogged drain.	W
Tank & Plumbing	General checking and seeking for leakage	M
Generator	Clean up the generator with air gun spray	M
Cable	Cable properly secured and in good condition	W

(D–daily; W–weekly; M–monthly)

Activity	Description
Cleaning tank	Tank should be cleaned with a non-abrasive cloth and a non-abrasive cleaner. Rinse thoroughly.
Checking for clogged drain	The drain elbow of the tank may become clogged. It should be cleaned out periodically with a stiff wire. Keep drain area as clean as possible.
General inspection for leakage	<ul style="list-style-type: none"> • Check for any leaks on the tank weldment. • Visually inspect all piping connections for leaks. Repair as required.

6. Troubleshooting

6.1 Correcting Problems

The troubleshooting steps on the following page are recommended prior to contacting the factory. If further service is required, contact Crest Ultrasonics.

Problem	Possible Causes	Corrections
No ultrasonics activity in tank	Loose connection from the generator to the tank.	Secure the connection.
Generator cannot power up	Fuse blown	Replace fuse
	No Power at AC outlet	Circuit breaker of AC outlet may have tripped or fuse may have blown. Reset breaker or replace fuse.
Low activity in tank (Foil Test)	Bad acoustic coupler component.	Call the Crest Service Department.
	Full wave/Half-wave toggle switch in half-wave (low) position. (For Genesis Generator)	Place switch in full-wave (high) position.
	Cleaning liquid (particularly solvents) does not reach operating temperature or does not completely degas.	Leave generators and heaters "ON" until liquid is up to temperature.
	Low power intensity from the generator.	Increase the power intensity
Poor Liquid Drainage	Clogged drain elbow.	Cleaned out with stiff wire.
Tank cannot heat up (for heated tank only)	Thermostat is not turned ON.	Make sure thermostat is turned ON and set to desired temperature.
	Heater plug is not connected	Make sure the plug is properly secured to the electrical outlet. Check that the electrical outlet is supplied with power source.
	If the above have been done and failure still persists, suspect faulty heater	Contact Crest Ultrasonics.

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