Ultrasonic Cleaning - FAQ

Part No: General
Doc V: 1.0

Q - How do ultrasonic cleaners work?

When an electrical generator within the unit emits a high frequency signal, the transducer(s) attached to the tank produce compression waves in the liquid, this is known as cavitation.

During cavitation the liquid is torn apart forming vacuum cavities or bubbles. As each cavity collapses it produces pressures of 20,000 lbs/square inch at a temperature of 5,000ºC - but all on a microscopic scale.

Millions of these bubbles are created and collapsed every second; the violence of this action is what produces the cleaning effect.

Q - How do I get the best out of my ultrasonic cleaner?

For best results, ensure the component being cleaned is fully submerged in a suitable cleaning fluid and not touching the tank to allow maximum cavitations.

Check the cleaning solution is at the correct temperature and that the fluid in the tank has been properly degassed.

We also recommend using deionised, demineralised or distilled water, as calcium carbonate and other impurities in tap water can reduce the cleaning properties of the solutions and produce undesirable side effects such as limescale deposits.

Q - Can I use solvents or other cleaning liquids in my ultrasonic tank?

Liquids and chemicals not specifically designed for use with ultrasonic cleaners may cause a health hazard if subjected to heat and ultrasonic agitation, as well as potentially damaging the tank.

Q - What solution should I use?

We sell a wide range of cleaning fluids suitable for most applications.

http://www.allendale-ultrasonics.co.uk/ultrasonic-cleaning-solutions.html

Always check that the fluid you are using is suitable for the component you are cleaning. The chemical composition of each solution is detailed on its data sheet.

Q - What ratio of water to cleaning fluid should I use?

Always use the manufacturer recommended ratio for whatever cleaning fluid you are using.

Fluids purchased from us have the mix ratio clearly displayed on the label.

Q - What is 'Degassing' and how do I do it?

Degassing removes any gasses present in the cleaning fluid. You should do this whenever you use your ultrasonic as it will aid the cleaning process.

You can degas your fluid by raising the temperature and switching on the ultrasonic power. Degassing is complete when bubbles stop rising and there are ripples on the surface.

Q - Can I put my hand in the tank to remove items while the unit is running?

Avoid putting hands in the cleaning solution, particularly if the ultrasonic is in operation.

Not only do most cleaning solutions contain chemicals likely to cause skin irritation, but the action of ultrasonic energy in water can be harmful to human tissue.

Q - Why do I need to use a basket in my cleaner?

Placing items directly in the tank causes them to come into contact with the transducers which are attached at the bottom of the unit. This will disrupt the ultrasonic generation and if the items are heavy can actually damage the electronics.

Although using a basket will reduce the effectiveness of the ultrasonic action slightly, this is not normally significant. An alternative method, particularly for large items is to suspend them in the fluid using a cross-bar and wires.

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Q - Why is it important to use my tank at the correct temperature?

Heating the tank will give better results to cleaning and also speed up the process - most solutions will need to be heated to perform as designed. The optimum temperature setting for the unit should be indicated on the solution packaging.

Q - How often should I change the cleaning fluid in my tank?

The cleaning fluid in the tank should be changed whenever it becomes visibly too contaminated, or when the cleaning process is not as effective.

Q - What is the cycle time of my ultrasonic cleaner?

For most cleaners we recommend a 50% duty cycle. Cycles should last 10-20 minutes depending on how contaminated the components are.

EG after a 10 minute cycle, allow the device to rest for 10 minutes before running it again.

Q - What is the 'foil test'?

If you feel cavitation is not occurring properly you should perform the 'foil test':
- Set your tank to its correct operating temperature; add any solution and degas the fluid.
- Suspend a piece of baking foil in the tank and switch on the ultrasonic power.
- After around 1 minute, inspect the foil. If the cleaner is operating correctly the foil should be perforated and wrinkled.

Q - Can I half fill my tank?

Half filling the tank with fluid is acceptable for small cycles, but you must ensure the heating element is not switched on.

Q - Do I need the lid on the tank whist cleaning?

Yes, the lid prevents any gasses from the cleaning solution produced by the heating and ultrasonic process from escaping.

Q - Can I clean heavy or dense items?

Heavy or dense items can be cleaned but they should not be placed on the bottom of the tank as this could damage the transducers. Instead they should be suspended in the bath by basket or other means such a wires.

Q - When the cleaning cycle is finished do my items need rinsing?

Yes they do. Rinsing removes the residues of the cleaning fluid and any dirt or contaminants which may have been worked loose by the cleaning.

Parts rinsed in de-ionised water will dry clear of water spots.

Q – Small parts will fall through the mesh of the basket – how do I clean them?

If the objects you wish to clean are too small for the basket place them in a glass beaker filled which is also filled with cleaning solution. The cavitations are unaffected by glass so will pass through and act upon the items inside.

Do not place the beaker directly on the bottom of the tank though as this will effect the operation of the ultrasonic emitters – either suspend it in the solution, or place it within the basket.

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