



# **Ultra Analogue Benchtop Ultrasonic Baths**



# **Operator Instruction Manual**



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**Ultrawave baths are manufactured in the UK and conform to exacting international standards.**

## Safety Instructions

### Electrical

Connect to a 220 - 240 VAC fully earthed supply via a 3 pin plug. *It can be dangerous to operate an ultrasonic bath without an earth connected.*

The mains plug is fitted with a 5A fuse. **NEVER FIT A FUSE OF A HIGHER RATING.** Some baths are fitted with a detachable mains lead. These baths have a mains socket on the rear of the bath fitted with two 20mm fuses. See rating information on page 14.

Ensure that excess mains cable is stored neatly.

### General Use

Ensure that the bath is at least  $\frac{3}{4}$  full of liquid before you switch it on.

Always use a basket to support items to be cleaned. *Not doing so may damage the bath and invalidate the warranty.*

Do not place hands or fingers in the bath.

Care should be taken when operating the bath at higher temperatures as external surfaces may become hot.

Never use toxic, flammable, acidic, caustic or corrosive solutions in the bath.

Where the bath is fitted with a detachable mains lead disconnect the bath from the mains supply before emptying. When emptying baths with no waste outlet, tip the bath AWAY from the electrical connector and lead.

The user should familiarise themselves with this *Operator Instruction* manual before operating the equipment and should apply to Ultrawave or its agent for advice on cleaning techniques and detergents. Ultrawave will not be responsible for damage or injury caused by incorrect use of the equipment.

### WEEE Compliance

Ultrawave are complying with the WEEE regulations by contracting-out our obligations to a Producer Compliance scheme. Once it is deemed that this model is no longer effective, please contact Ultrawave to arrange collection by our compliance scheme provider, who will pick up the machine from your premises.

## Installation

The following parts and accessories are included with the Ultra Analogue Benchtop ultrasonic baths:

- 1 x Ultra Analogue Benchtop ultrasonic bath
- 1 x basket
- 1 x lid
- 1 x 2m length of drain hose (**U500H** only)
- 1 x hose tail (**U500H** only)
- 1 x Ultraclean detergent sample
- 1 x Operator Instruction manual

## How to install

Locate the bath close to a drain or sink to allow easy drainage of the tank.



Connect the mains lead into a suitable mains socket.

If the bath is a **U500H**, screw the hose connector into the drain valve located on the side of the unit. Connect one end of the drain hose to the hose connector and locate the other end over a drain or sink.

Fill the bath with water and the correct dose of detergent. The bath is now ready to use.

## Quick Guide

Pour water into the bath until it is at least  $\frac{3}{4}$  full or the fluid level reaches the lip of the tank. To reduce the process preparation time, fill your bath with water at the temperature required for your process. The water you pour in must not exceed 50°C.

Add the required dose of detergent (see page 10).

Operate the ultrasonics by turning the timer dial to the required time and pressing the SONICS button (where applicable).

Operate the heater, if the bath has a heating function, by turning the heater dial to the required temperature and pressing the HEAT button.

Turn on the ultrasonics for approximately 5-10 minutes to degas the cleaning liquid. (See page 9 for more details on degassing).

The bath is now ready to use.

At the end of the cycle, remove the basket from the bath and rinse the items under clean running water.

The lid can be inverted and the basket placed on top to catch excess fluid as the items dry.



Lip of tank



Please refer to the following pages in this manual for more detailed instructions.

Change the cleaning liquid at regular intervals. Your cleaning process will determine how often to change the liquid – the more soiled your items, the more often you will need to change the liquid.

Ultrawave recommend changing the cleaning liquid at least on a daily basis.

**REMEMBER**

- Always ensure the liquid is at or above the lip of the tank when in operation.
- Do not put hot water above 50°C into the bath.
- Always use the basket to support items in the bath.
- Never expose hands, fingers or other body parts to cleaning solutions.
- Never use toxic, flammable, acidic, caustic or corrosive solutions.
- Never breathe the fumes from strong solutions.
- Rinse the items in clean water once the cycle is complete.

Subjecting the bath to improper treatment or misuse will invalidate the warranty.

## Manual I Control Panel Instructions (U50, U95, U100, U300)



### ***To switch on the ultrasonics:***

Turn the Timer dial to the desired time, and then press the SONICS button.

The SONICS button and the SONICS light will glow. Ultrasonic activity will then commence in the liquid inside the tank and the Timer dial will be heard ticking.

At the end of the timed period, the Timer will click off, the SONICS light will go out, and the ultrasonic activity in the liquid will stop.

To stop the ultrasonic activity at any time, press the SONICS button while in operation.



## Manual II Control Panel Instructions (U100H)



### ***To switch on the ultrasonic activity:***

Turn the Timer dial to the desired time, and the ultrasonics will automatically begin.

The SONICS light will glow. Ultrasonic activity will commence in the liquid inside the tank and the Timer dial will be heard ticking.

At the end of the timed period, the Timer will click off, the SONICS light will go out, and the ultrasonic activity in the liquid will stop.

To stop the ultrasonic activity at any time, turn the Timer dial to 0 while in operation.

### ***To operate the heater:***

Press the HEAT button to turn on the heater.

The HEAT switch will glow, and the liquid will start warming up. No indication is given when the preset maximum temperature of 70°C is reached.

To turn off the heater at any time, press the HEAT button while in operation.

**NOTE: Ultrasonic activity can elevate the liquid temperature to above the set level. If in doubt, check actual temperature with a thermometer.**

## Manual III Control Panel Instructions (U300H, U500H)



### ***To switch on the ultrasonic activity:***

Turn the Timer dial to the desired time, and then press the SONICS button.

The SONICS button and the SONICS light will glow. Ultrasonic activity will then commence in the liquid inside the tank and the Timer dial will be heard ticking.

At the end of the timed period, the Timer will click off, the SONICS light will go out, and the ultrasonic activity in the liquid will stop.

To stop the ultrasonic activity at any time, press the SONICS button while in operation.

### ***To operate the heater:***

Turn the HEATER dial to the desired temperature, and press the HEAT button.

The HEAT button and the HEAT light will glow, and the liquid will start to heat up.

When the set temperature is reached, the HEAT light will go out.

To stop the heater at any time, press the HEAT button while in operation (ie. when the HEAT light is already on).

**NOTE: Ultrasonic activity itself will heat the liquid. This means that the liquid temperature may rise above the level indicated on the temperature dial.**

**The temperature dial only controls the heater cut-out temperature.**

**If in doubt, check the actual temperature with a thermometer.**

## Technical Information

### The need to degas

In order to allow optimum ultrasonic activity, the gases present in ordinary tap water need to be driven out of the cleaning solution.

The time needed to degas the liquid varies depending on the amount of gas present in the liquid and the quantity of water in the tank. Ultrawave recommends a degas period of at least 10 minutes.

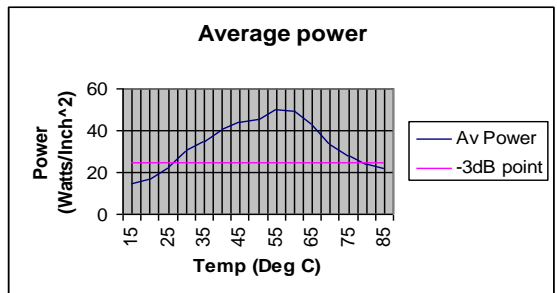
During the de-gas cycle, you will see bubbles of gas forming on the inside of the bath, and slowly rising to the surface. Degassing is complete when you can no longer see these bubbles. Another indication of increased "cold-boiling" at the liquid surface indicates that the liquid is degassed.

Once the liquid is degassed, the bath is ready for use.

### The effect of heat

Heating the liquid in the bath will aid the cleaning process.

Normally a temperature of between 30 to 60°C is sufficient to accelerate the process. You will see from the graph below that optimum cleaning will be obtained at 60°C



If you are using your bath to clean medical equipment, it is recommended to limit the fluid temperature to 35°C. This will avoid "baking" proteins.

Ultrasonic activity itself will heat up the liquid at a rate of approximately 10-15°C per hour if in continuous use.

### Cleaning time

Cleaning time will depend on application, type and amount of contamination. General light contamination should be removed in less than 10 minutes.

An indication of cleanliness is when stains are no longer visible, and contamination no longer appears in a stream from the item being cleaned.

## Ultrasonic cleaning detergents

Detergents are a vital component in the ultrasonic cleaning process, aiding in the removal and loosening of debris from the surfaces of items placed in the tank while also intensifying the power of the ultrasonic activity.

Ultrawave offer a range of specially formulated ultrasonic detergents for use in applications including medical and heavier industrial cleaning requirements.

**Sonozyme:** A poly-enzymatic detergent for cleaning surgical instruments. Packaged in single shot dose sachets - 1 sachet per 5-10 litres.

**Ultraclean M2:** A general purpose detergent for all plastics, glass and metals (except aluminium and other soft metals). Also suitable for use on medical instruments.

**Ultraclean SA:** A general purpose cleaning detergent for aluminium and other soft metals.

**Ultraclean CBX:** A heavy oil and carbon remover for non-ferrous metals.

**Ultraclean CS:** A carbon and heavy contaminant remover, not for use on aluminium and other soft metals.

**Ultraclean PH:** A rust removal detergent and brightening agent for non-ferrous metals.

## Dosing Matrix (ml of detergent per tank)

	Detergent dose (ml)	
	2%	5%
<b>U50</b>	10	25
<b>U95</b>	40	100
<b>U100</b>	30	75
<b>U100H</b>	30	75
<b>U300</b>	50	125
<b>U300H</b>	50	125
<b>U500H</b>	90	225

Each of these detergents is available from Ultrawave. The required detergent dose may vary depending on the component being cleaned and the level of contamination. Ultrawave recommend a dosage of between 2 and 5% for all detergents other than Sonozyme.

## **Maintenance**

It is important to keep your bath clean. Not only will contaminated liquid reduce the performance of the bath, it may also damage it. Change the cleaning liquid regularly. Your cleaning process will determine how often to change the liquid – the more soiled your items, the more often you will need to change the liquid. Change the cleaning liquid at least daily.

The base of the bath generates the ultrasonic activity by vibrating at very high speeds. If any contaminants are in contact with the bath, they act as an abrasive, causing wear on the metal surface. In extreme cases, the bath will develop holes and start to leak. Portable Appliance Testing should be conducted with water in the bath.

There are not user serviceable parts inside the unit. All service and repair must be conducted by suitably trained and qualified engineers approved by Ultrawave.

## **Disposal of this ultrasonic bath**

At the end of its useful life, please ensure that you dispose of this product in accordance with national regulations.

## **Returning equipment to Ultrawave**

All equipment being returned to Ultrawave for service, repair or other reason **MUST BE FULLY DECONTAMINATED** prior to return and include a copy of the certificate of decontamination.

Failure to do so may result in additional charges, or the equipment being returned to the user/sender at Ultrawave's discretion.

Ultrasonic baths which have been used in medical/healthcare applications should be decontaminated/packaged in accordance with MHRA guideline document DB2003(5) 'Management of Medical Devices prior to Repair, Service or Investigation', this can be found at [www.mhra.gov.uk](http://www.mhra.gov.uk)

This policy is designed to protect the health and safety of Ultrawave employees reducing the risk of potential injury or infection

If you require further information please contact the Service Dept. on:

Tel: +44 (0) 845 330 4238 or E-mail: [service@ultrawave.co.uk](mailto:service@ultrawave.co.uk).

## **Warranty**

The warranty on this Ultrawave ultrasonic bath applies to defects appearing within **12 months** of the date of sale because of faulty material or manufacture. Genuine defective items returned to Ultrawave or its agent's premises will be replaced or repaired free of charge at their discretion.

The warranty is extended to two years on transducer assemblies and to 5 years on the bonding process. If the transducers or bonding material are exposed to liquid or cleaning chemicals, the warranty will be invalidated.

The warranty does not apply to:

- normal wear and tear.
- damage caused by misuse.
- non-observance of maintenance, service or connection instructions.
- damage caused by the use of toxic, flammable, acidic, caustic or corrosive chemicals or fluids not recommended by Ultrawave.

The user should familiarise themselves with this instruction booklet before operating the equipment and should apply to Ultrawave or its agent for advice on cleaning techniques or chemicals.

Ultrawave will not be responsible for damage or injury caused by incorrect use.

Statutory rights are not affected.

## Troubleshooting

Ultrawave have a dedicated service team who are able to resolve any problems that occur with your bath. However, on many occasions it is possible that the problem can be rectified by the operator.

The unit fails to turn on (no display is shown)	Check that the unit is plugged in and that mains electricity is present.
The unit stops working	<p>Check that the indicators illuminate when the unit is switched on.</p> <p>If the indicators fail to illuminate, check the mains supply and fuse in the mains plug, as well as the fuses in the mains socket (if fitted) on the rear of the bath.</p> <p>If the fuses and mains electricity supply are OK, and the unit fails to operate, the bath should be returned to your supplier for service.</p>

If any of these problems persist, the Ultrawave Service Department can be contacted on +44 (0) 845 330 4238 or [service@ultrawave.co.uk](mailto:service@ultrawave.co.uk).

## Fuse Ratings

### IEC Socket Fuse Ratings

If your bath has an IEC socket, then two 20mm fuses will be fitted. The following table gives the correct fuse rating for each different model.

Replacement fuses should ALWAYS be anti-surge. This type of fuse is marked with a "T"; e.g. T1.6A, T3.15A etc

<b>Model Number</b>	<b>Fuse Rating</b>
<b>U100, U100H, U300, U300H</b>	1.6A
<b>U500H</b>	2.0A

Fitting fuses of the incorrect rating will invalidate the warranty. If you have any doubt, please contact the Ultrawave Service Department

### UK Mains Plug Fuse Ratings

The following models must be fitted with a 5A fuse in the mains plug:

***U50, U95, U100, U100H, U300, U300H, U500H.***

Fitting fuses of the incorrect rating will invalidate the warranty.



## Temperatures of touchable hot surfaces

BS EN 13202:2000 gives the recommended maximum surface temperatures for different materials at various exposure times (see below). Your Ultrawave ultrasonic bath can be set so that the cleaning fluid is up to 70°C. This means that parts of your ultrasonic bath will be above the recommended maximum temperature.

If you operate your ultrasonic bath at temperatures above the recommended maximum, then Ultrawave advise that you conduct a risk assessment, and if appropriate fix a "Caution – Hot" warning label to your machine.

The following limit values are based on the harmonized standards -

- BS EN 13202:2000 Ergonomics of the thermal environment - Temperatures of touchable hot surfaces - Guidance for establishing surface temperature limit values in production standards with the aid of -
- EN 563: 1994 Safety of machinery - Temperatures of touchable surfaces - Ergonomics data to establish temperature limit values for hot surfaces

Materials/time-temp*	1 sec	4 sec	10 sec	10 min	8 hr
uncoated metal	65°C	58°C	55°C	48°C	43°C
painted metal	83°C	64°C	55°C	48°C	43°C
enamelled metals	74°C	60°C	56°C	48°C	43°C
ceramics, glass, stone	80°C	70°C	66°C	48°C	43°C
plastics	85°C	74°C	70°C	48°C	43°C
wood	110°C	93°C	89°C	48°C	43°C

Time	Contact	Part
1 sec	accidental contact	Outer case, tank flange
4 sec	parts held for short periods	knobs, switches
10 sec	parts continuously held in normal use	handles
10 min	prolonged use	handles
8 hr	continuous use	handles

## **Compliance with the Control of Noise at Work regulations**

The Control of Noise at Work Regulations 2005 (the [Noise Regulations](#)<sup>[1]</sup>) came into force for all industry sectors in Great Britain on 6 April 2006. The Control of Noise at Work Regulations 2005 replaces the Noise at Work Regulations 1989.

The aim of the Noise Regulations is to ensure that workers' hearing is protected from excessive noise at their place of work, which could cause them to lose their hearing and/or to suffer from tinnitus (permanent ringing in the ears).

The level at which employers must provide hearing protection and hearing protection zones is now 85 decibels (daily or weekly average exposure) and the level at which employers must assess the risk to workers' health and provide them with information and training is now 80 decibels. There is also an exposure limit value of 87 decibels, taking account of any reduction in exposure provided by hearing protection, above which workers must not be exposed.

To help you calculate your workers' exposure, Ultrawave publish the noise generated by your ultrasonic cleaner on the Certificate of Test. The figure is that experienced by a worker standing in the operating position.

The full text of the [Control of Noise at Work Regulations 2005](#)<sup>[2]</sup> and the full text of the [Noise at Work Regulations 1989](#)<sup>[3]</sup> can be viewed online.

Guidance on the 2005 Regulations can be found in the free HSE leaflet '[Noise at Work](#)'(INDG362 (rev 1))<sup>[4]</sup> and in HSE's priced book 'Controlling Noise at Work' (L108) (ISBN 0 7176 6164 4) available from [HSE Books](#)<sup>[5]</sup> or from bookshops.

[1] <http://www.hse.gov.uk/noise/regulations.htm>

[2] <http://www.opsi.gov.uk/si/si2005/20051643.htm>

[3] [http://www.opsi.gov.uk/si/si1989/Uksi\\_19891790\\_en\\_1.htm](http://www.opsi.gov.uk/si/si1989/Uksi_19891790_en_1.htm)

[4] <http://www.hse.gov.uk/pubns/indg362.pdf>

[5] <http://www.hsebooks.co.uk>



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