Ultrawave

Ultrasonic Precision Cleaning

IND-Series

Operator Instruction Manual

C6000507-02

Issued July 2023

Contents

Safety Instructions

Use of products

The following products are covered by this operating manual:

- IND30, IND45, IND75, IND80, IND90, IND90L, IND100, IND100L, IND145, IND145L, IND155L

The products listed above are a series of ultrasonic cleaning baths designed for indoor use by a professional user.

Electrical:

The mains plug (BS 1363) is fitted with a 13A fuse - **NEVER FIT A FUSE OF A DIFFERENT RATING.**

The IND-Series machines are rated at up to 3000W maximum.

Connect to a 230 VAC fully earthed supply via a BS 1363 3 pin plug socket.

It can be dangerous to operate equipment without an earth connection.

The mains switch is the disconnect device and should remain accessible while the machine is in use.

Ensure that excess mains cable is stored neatly.

Temperature:

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

When the temperature is set to 54°C or above, the unit will become hot and care should be taken when touching the case.

A risk assessment should be conducted – see BS EN ISO 13732-1:2008 for full details

The liquid level float switch is the safety device ensuring that the heaters only operate if there is water in the tank. It should be free to move on its stem. This should be checked every time the tank is emptied.

Noise:

The noise level at which employers must assess the risk to workers' health and provide them with information and training is now 80 decibels.

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

A risk assessment should be conducted – see page 21 for further details.

General use

Do not place fingers, hands, or other parts of the body in the liquid in the bath when it is sonicating.

Always ensure the liquid is above the float switch when in operation.

Do not place parts or containers directly on the bottom of the cleaning tank. Always use a basket or instrument cassette to support items to be cleaned. Not doing so may damage the bath and invalidate your warranty.

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

Do not move the bath when it is full of water.

Before cleaning, drain the bath. Clean by wiping with a clean non-abrasive cloth.

The user should familiarize themselves with this user manual before operating the equipment. Safety may be impaired if they are not followed.

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

The user should apply to Ultrawave or its agent for advice on cleaning techniques or detergents.

IMPORTANT: Once the cleaning cycle has finished, remove the cleaned items, and rinse them immediately in clean running water.

REMEMBER

- Ensure that the tank is filled to operate the liquid level sensor before you switch on the machine.
- Do not put hot water (above 50°C) into the equipment.
- Always use the basket to support items to be cleaned.
- Never expose hands, fingers, or other body parts to cleaning solutions.
- Never use toxic, flammable, or corrosive solutions.
- Never breathe the fumes from strong solutions.
- Rinse the cleaned items in fresh water once the cycle is complete.

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

Operating Conditions

Ambient Temperature	5 to 40°C
Maximum relative humidity	80% R.H. at room temperatures up to 31°C decreasing linearly to 50% R.H. at 40°C
Altitude above sea level	Up to 2,000m (6,500ft)
Operating environment	Indoor use only
Protection rating	IP54 (IP65 control panel)
Mains supply:	230V / 50Hz
Pollution degree:	2
Installation category:	II

Safety Symbols

Danger
Indicates an imminently hazardous situation which will result in serious or fatal injury. This symbol is used only in the most extreme conditions.

Caution
Indicates a potentially hazardous situation which may result in minor or moderate injury. It may also be used to alert against unsafe practices.

Equipment Alert
Indicates a potentially hazardous situation which could result in equipment damage.

Other Symbols

Proper shipping orientation

Keep dry

Fragile

Catalogue Number

Date of Manufacture

Serial Number

Manufacturer

Country of manufacture

Unique Device Identifier

Installation

The following parts and accessories are included with the Ultrawave IND-Series ultrasonic units:

- 1 x Basket
- 1 x Lid
- 1 x Hose tail connector
- Ultraclean detergent sample
- Wheeled stand

How to install

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

Screw the hose connector into the drain valve located on the rear of the unit.

Connect a drain hose to the hose connector and locate the other end over a drain or sink.

Connect the electrical mains lead into a suitable mains outlet.

The mains ON/OFF switch is located on the rear of the unit.

Filling the tank

Pour cold or hand warm water into the tank the liquid reaches the float level sensor.

If there is insufficient fluid in the tank to activate the float level sensor, the digital control panel will display the scrolling message “LEVEL”.

Where this message displays, the unit will not operate until more fluid is poured into the tank to activate the sensor. Once this is done this message will no longer display.

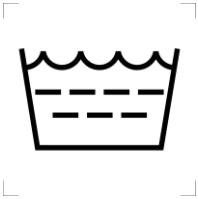
Type of IND unit

There are three versions of the IND series:

Ultrasonic & heated

This is a fully functional ultrasonic unit with an ultrasonic generator & transducers and heaters

Heated only

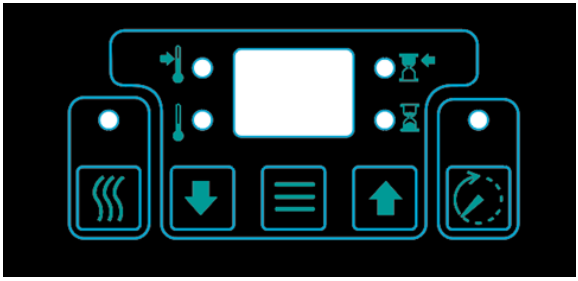


In certain circumstances, ultrasonic activity is not required, e.g., when used as a rinse tank. In this instance only water heaters are provided

Dryer

The IND dryer is covered in a separate user guide.
Never attempt to fill the dryer with liquid.

The User Interface Explained



Five buttons are provided

	Heat	Starts and stops the heat function
	Down	Used to scroll down when programming cycle time or set temperature
	Mode	Toggles between Normal Cycle, Set Cycle Time and Set Temperature
	Up	Used to scroll up when programming cycle time or set temperature
	Cycle	Starts and stops a timed cycle

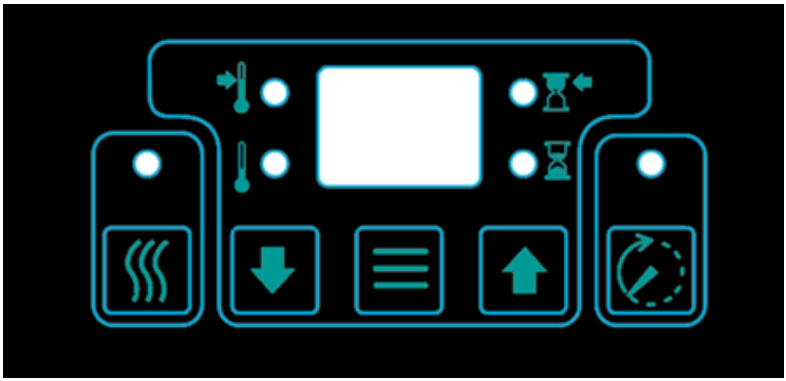
Six individual LEDs are provided

	Heat	Illuminated when the unit is heating, flashing when the set temp is at or above the set temperature
	Temp Set	Illuminated when in temperature setting mode
	Temp Now	Illuminated to indicate that the screen is displaying the water temperature
	Time Set	Illuminated when in cycle time setting mode
	Time Now	Illuminated to indicate that the screen is displaying cycle time remaining
	Cycle	Illuminated when a cycle is running

Setting the cycle time and temperature

To set the cycle time **(settable 1-99 minutes)**:

Press the centre MODE key until the TIME SET light glows. Press the Up or Down arrows until the required time in minutes is indicated.



To set the cycle temperature **(ambient to 80°C)**:

Press the centre MODE key until the TEMP SET light glows. Press the Up or Down arrows until the required heat setting in degrees Celsius is indicated.

The new programmed settings will be stored in the software memory once the equipment has completed a cycle. These settings will remain even if the machine is disconnected from the electricity supply.

The centre MODE button can be pressed at any time to view the time set, time remaining, the temperature set or actual temperature.

Ultrasonic Unit Operating Instructions

Before placing items in the IND-Series to be cleaned, the liquid will need to be degassed. Turn on the ultrasonics for at least 10 minutes to degas the cleaning liquid. (See page 14 for more details on degassing).

The IND-Series is now ready to use.

To switch on the ultrasonic activity:

Press the CYCLE key. The CYCLE light will glow, activity will commence in the liquid and the display will count down from the set time.
(The factory pre-set time is 10 minutes.)

At the end of the timed period the activity will stop and the timer will revert to the pre-set time, ready for a repeat of the operation.

To stop the sonic activity at any time, press the CYCLE key.

To operate the heater:

Press the HEAT key. The HEAT light will glow, and the liquid temperature will rise until it reaches the set temperature (the factory pre-set temperature is 50 °C.)

Once the desired temperature has been reached, the HEAT light will flash indicating that the set temperature has been reached.

NOTE: Ultrasonic activity itself will heat the liquid, meaning that the liquid temperature may rise above the set level. When the °C NOW Mode is selected, the display will show the actual liquid temperature.

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

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.

Heated Unit Operating Instructions

To start a timed cycle:

Press the CYCLE key. The CYCLE light will glow, activity will commence in the liquid and the display will count down from the set time.
(The factory pre-set time is 10 minutes.)

At the end of the timed period the activity will stop and the timer will revert to the pre-set time, ready for a repeat of the operation.

To stop the cycle at any time, press the CYCLE key.

To operate the heater:

Press the HEAT key. The HEAT light will glow, and the liquid temperature will rise until it reaches the set temperature (the factory pre-set temperature is 50 °C.)

Once the desired temperature has been reached, the HEAT light will flash indicating that the set temperature has been reached.

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, although larger tanks will require a longer degas period.

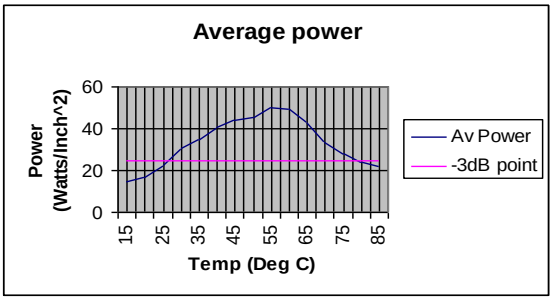
During the degas cycle, you will see bubbles of gas forming on the inside of the equipment, and slowly rising to the surface. Degassing is complete when you can no longer see these bubbles. Another indication of increased "cold-boiling" at the liquid surface indicates that the liquid is degassed.

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

The effect of heat

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

Normally a temperature of between 30 to 75°C is sufficient to accelerate the process. You will see from the graph that optimum cleaning will be obtained at 60°C.



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

Ultrawave recommends a dosage of between 2 and 5% by volume for all the following detergents

Ultraclean SA: A general purpose cleaning detergent suitable for use on aluminium and other soft metals.

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

Ultraclean CS: Moderate grease and heavy contaminant removal for industrial cleaning applications. Not suitable for use on aluminium and other soft metals.

Ultraclean CBX: An alkaline detergent for heavy grease and carbon removal. Not suitable for use on aluminium and other soft metals.

Ultraclean SPX: A strong alkaline detergent for removal of tough grease and heavy carbon deposits. Not suitable for use on aluminium and other soft metals.

Ultraclean PH: A strong acidic based detergent for heavy descaling, light rust removal and metal brightening. Not suitable for use on aluminium and other soft metals.

Ultraclean CTA: An acidic based detergent for descaling, degreasing and brightening of metals. Fair compatibility with aluminium.

Ultraclean RI: Rust inhibitor for corrosion prevention of ferrous metals.

Ultraclean Test Kit: A sample pack of 1L each of the Ultraclean: SA, M2, CS, CBX, SPX and PH.

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.

Maintenance

It is important to keep your equipment clean. Not only will contaminated liquid reduce the performance of the ultrasonic equipment, but 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 tank generates the ultrasonic activity by vibrating at high frequency. If any contaminants are in contact with bottom of the tank, they act as an abrasive, causing wear on the metal surface. In extreme cases, the tank will develop holes and start to leak.

There are no user serviceable parts inside the IND-Series. All service and repair must be conducted by suitably trained and qualified engineers approved by Ultrawave.

Service contracts for your ultrasonic equipment are available from Ultrawave.

Contact us for more information on
Tel: +44 (0) 29 2083 7337
e-mail service@ultrawave.co.uk

Returning equipment to Ultrawave

All equipment being returned for service, repair or other reason MUST BE FULLY DECONTAMINATED prior to return and include a 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.

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 call the Ultrawave After Sales Department on +44 (0) 29 2083 7337 or email service@ultrawave.co.uk.

Disposal of this ultrasonic equipment

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

WEEE Compliance:

Ultrawave is 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.

Warranty

Ultrawave Industrial Cleaning Systems and Equipment, when used in accordance with the instructions, are covered by the following warranty:
Ultrawave Ultrasonic Generators and all electrical, electronic and mechanical components are made of the highest quality materials and are guaranteed for 12 months from the date of commissioning on site by our engineer but no greater than 13 months after shipment date, against failure caused by genuine defective material or workmanship, unless otherwise agreed.

Ultrawave Ultrasonic PZT transducers are guaranteed not to crack, deteriorate or become detached from the radiating surface (bonding process), for five years from date of shipment. If exposed to liquid or chemicals the warranty will be invalidated.

Within the warranty period Ultrawave will repair or replace free of charge, Ex Works, all defective parts in the system/equipment but Ultrawave shall not be liable for costs for removing (disassembling) or installing (assembling) parts.

For repairs and replacements effected under these warranty conditions, same warranty conditions are applicable. The warranty period for such repairs and replacements shall, however, be only until the end of the warranty period valid for the originally delivered system/equipment.

Damage caused by improper handling or misuse is not covered by warranty and costs mays be incurred.

The warranty does not cover normal wear and tear of e.g. motors, pumps, cavitation erosion of vibrating surfaces and such like, so far as this wear is not caused by structural failures. The warranty does not cover defects or failures arising out of non-observance, improper or faulty maintenance or faulty repair or by alterations carried out without Ultrawave's consent in writing.

Additionally, any damage caused by the use of toxic, flammable, acidic, caustic or corrosive chemicals or fluids not recommended by Ultrawave will invalidate the warranty. If in any doubt, contact Ultrawave to ensure compatibility in the first instance.

The warranty excludes consumable items such as filters, seals and detergents which would need to be replaced as part of any routine maintenance. Furthermore any external services to and from the system/equipment shall be excluded, which may be subjected to external forces outside the control of Ultrawave.

Extended Warranty

An Extended warranty on the system/equipment is offered with two options:

Option 1 - for a period of 36 months from the date of commissioning on site by our engineer but no greater than 37 months after shipment date;

Option 2 - for a period of 60 months from the date of commissioning on site by our engineer but no greater than 61 months after shipment date.

The warranty will remain in force for the stated period of the option taken out above, provided always that any system/equipment which includes the extended warranty is serviced at regular intervals as part of a separate Planned Preventative Maintenance Service (PPMS) agreement. All PPMS functions under any PPMS agreement must be performed by Ultrawave personnel or organisations authorised by Ultrawave. Services under any PPMS agreement must be carried out at intervals of a minimum of once per year or more for the full term of the extended warranty, as designated by Ultrawave for each individual system/equipment.

Warranties will not apply if any fault has been caused by failure of the Customer to carry out routine maintenance, in addition to any PPMS carried out by Ultrawave as part of the extended warranty, or the Customer fails to ensure the required services are maintained.

Ultrawave will accept no liability for any loss of production or business interruption resulting from any system/equipment failure whether or not any such failure is covered by any Ultrawave warranty.

Warranties are not transferrable to other users in the event of the system/equipment being sold or otherwise transferred to third party users. Warranties will become void in the event of the system/equipment being moved in any way from any location where the system/equipment was originally commissioned by Ultrawave unless Ultrawave are notified in writing prior to any such move.

Troubleshooting

Ultrawave has a dedicated After Sales Department who are able to resolve any problems that occur with your equipment. 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.
There is no ultrasonic activity	Check that the indicators illuminate when the unit is switched on. 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 equipment. If the fuses and mains electricity supply are OK, and the unit fails to operate, the equipment should be returned to your supplier for service.
The heaters do not work	Check that the heater indicator illuminates when the unit is switched on. Check the set temperature. 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 equipment. If the fuses and mains electricity supply are OK, and the heaters fail to operate, the equipment should be returned to your supplier for service.
Display shows "LEVEL"	Ensure there is sufficient water in the tank so that the float level sensor activates.
Display shows "ot"	The water temperature has risen above the maximum allowable, i.e., 85 degrees Celsius, wait for the equipment to cool down.
Display shows "SF"	The temperature sensor is faulty, contact the Ultrawave After Sales Department.

If any of these problems persist, the Ultrawave After Sales Department can be contacted on +44 (0) 29 2087 7337 or service@ultrawave.co.uk.

Please have to hand your model and serial number together with information on the problem prior to contacting us.

If we are unable to solve your problem over the phone, we may suggest returning your product to the distributor from whom you purchased or directly to Ultrawave.

Where appropriate, we operate a Return to Base (RTB) warranty and repairs policy.

Compliance with the Control of Noise at Work regulations

The Control of Noise at Work Regulations 2005 (the Noise Regulations[1]) 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[2] and the full text of the Noise at Work Regulations 1989[3] can be viewed online.

Guidance on the 2005 Regulations can be found in the free HSE leaflet 'Noise at Work'(INDG362 (rev 2)[4] and in HSE's priced book 'Controlling Noise at Work' (L108) (ISBN 0 7176 6164 4) available from HSE Books[5] or from bookshops.

[1] http://www.hse.gov.uk/noise/regulations.htm
[2] http://www.opsi.gov.uk/si/si2005/20051643.htm
[3] https://www.hse.gov.uk/noise/regulations.htm
[4] https://www.hse.gov.uk/pubns/indg362.pdf
[5] https://www.hse.gov.uk/pubns/books/l108.htm

The Great Britain noise regulations are based on the EU Environmental Noise Directive requiring similar basic laws throughout the EU.

Service record

Ultrawave recommends that your ultrasonic equipment is serviced at least once every 12 months. This record must be maintained by the engineer conducting the service.

There are no user serviceable parts inside. All service and repair should be referred to qualified Ultrawave engineers only.

Date		Cycle count	
Engineer			
Details			
Next service due			

Date		Cycle count	
Engineer			
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www.ultrawave.co.uk

Tel +44 (0) 29 2083 7337

sales@ultrawave.co.uk

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