

Ingenuity in
infection control
since 1830



Little Sister UltraSONICA Ultrasonic Cleaner

User Manual

Thank you for choosing Eschmann

Eschmann design, manufacture and supply a range of market leading products including autoclaves, washer disinfectors, suction units and accessories. For further information visit our website: www.eschmann.co.uk

Eschmann products must be serviced and maintained by Eschmann trained engineers only. Failure to do so may invalidate the warranty.

Contents

Section 1	3
Introduction to Ultrasonic Cleaning	3
Section 2	3
Warranty	3
Safety	4
Symbols	4
Section 3	5
Electrical Connection	5
Before Operating the Device	5
Recommended Cleaning Solution	6
Preventing Damage to the Device	6
Important When Using the Ultrasonic Cleaner	7
Section 4	7
Ultrasonic Cleaner Figures	7
Section 5	9
Operating Instructions	9
Pre-Use (If Ultrasonic Cleaner Has Been Drained)	9
During Use	9
After Use	9
Section 6	10
Accessories	10
Section 7	10
Useful Tips and Suggestions	10
Section 8	11
Technical Specification	11
Section 9	12
Maintenance and Repair	12
Section 10	12
Product Disposal	12

Section 1

Introduction to Ultrasonic Cleaning

Ultrasonic: what is it?

Ultrasonic Cleaners employ the use of sound waves at very high (inaudible) frequencies (approximately 39 kHz) to agitate a cleaning medium, which in turn results in the removal of debris and contaminants from the object being processed.

The Ultrasonic Cleaner's tank is made up of an ultrasonic generator and two or three piezoelectric transducers (depending on the model) that are placed on the external bottom of a stainless steel tank containing the cleaning solution. The electronic generator produces a continuous signal at the frequency of 39 kHz and drives the piezoelectric transducers that transform the electrical signal into a mechanical vibration. This vibrational energy is transmitted to the cleaning solution within the tank at a frequency of 39,000 oscillations per second. These pressure and depression oscillations create an enormous quantity of microbubbles inside the cleaning solution that, by imploding in rapid succession, create immense impact energy between the cleaning solution and the surface to be cleaned. This is called "cavitation" and enables an efficient and safe cleaning system with reduction in time.

Sweep System Technology

The Little Sister Ultrasonic Cleaner contains a brand new generator which incorporates a special ultrasonic oscillator called **Sweep System Technology**. With this technology, the output frequency of the ultrasonic generator is modulated around a central frequency, so the transducers working at a frequency of 39 kHz are modulated at a frequency between 38 and 40 kHz. This frequency modulation offers the following advantages:

- **Decreases** cleaning times;
- **Prevents** the damage of delicate parts to be cleaned;
- **Decreases** the effects of stationary waves increasing the distribution of ultrasonic energy in the cleaning solution;
- **Improves** cleaning results and facilitates the **cavitation** in liquids that are difficult to cavitate with traditional ultrasonic systems.

Section 2

Warranty

This product and purchased accessories are warranted for a period of 12 months to be free from defects in materials and workmanship at the time of delivery.

Eschmann will be under no liability for any defect arising from fair wear and tear, negligence, wilful damage, misuse, abnormal working conditions, failure to follow the manufacturer's instructions, unauthorised alteration or repair of hardware, unauthorised or accidental alteration of software or configuration, lost profits, commercial loss, economic loss, or loss arising from personal injury. We may, at our discretion, raise a charge for any faults repaired that fall outside the warranty cover. Where charges are necessary, replacement parts will be charged at manufacturers' list prices and labour will be charged at the prevailing hourly rate. Repairs performed by Eschmann carry a 3-month parts and labour warranty

Safety





To preserve the original safety features of the product, the Customer must not replace any part or make any unauthorised changes.

WARNING









This symbol focuses attention on a procedure (s) whose failure or partial compliance may produce partial or total damage to the product or lead to injury to the operator. Before performing the procedures reported after this symbol, be sure to fully understand and comply with the specified conditions.

Symbols

Safety Symbols

Symbol	Meaning
	Read the instruction manual symbol - Consult the instructions for use before using the equipment. Consult the manual to prevent damage to the product or injury to the operator.
	Caution symbol - Indicates the need for the user to consult the instructions for use for important cautionary information such as warnings and precautions that cannot be presented on the medical device itself.
	High voltage symbol - Do not open or tamper with the equipment. There are high voltage electrical components inside the equipment.
	Earth terminal Symbol - Never disconnect the cables connected to the protective earth terminals.

Product Information Symbols

Symbol	Meaning
	CE Symbol - Medical device complying to EU Regulation 2017/745 and further amendments.
	Product code symbol
	Serial number symbol
	Manufacturer symbol
	Medical device symbol
	UDI (Unique identification number) symbol for the device.
	DataMatrix code - Includes GTIN code, date of manufacture and device serial number.
	WEEE recycling symbol - Do not dispose of product at end of life with other waste.

Rear label



Section 3

Electrical Connection

Before connecting the Ultrasonic Cleaner to power, check that the voltage indicated on the rating plate attached to the rear of the unit (Fig.2, item 5), corresponds to that of your workplace

The earthing of the device is compulsory according to law. It is prohibited to intentionally interrupt the earthing conductor inside or outside the device or remove the earth pin from the plug, as it makes the use of the device dangerous.

The manufacturer assumes no liability towards people or property resulting from failure to observe this rule. The electrical safety of this device is ensured only when it is properly connected to an effective earthing system, as required by the electrical safety regulations in force.

WARNING

THIS DEVICE REQUIRES EARTHING

If you do not have an electrical system with regular earthing, do not connect the device to the power outlet and consult a qualified electrician as soon as possible.

Before Operating the Device

Before connecting the Ultrasonic Cleaner to power fill the tank with recommended cleaning solution up to a maximum level of 3 cm from the top. Refer to Recommended Cleaning Solution heading below. If the Ultrasonic Cleaner is equipped with a manual drainage tube (Figs. 3 & 4, item 9), first check that the drain tap is fully closed (Figs 3 & 4, item 8) and, if fitted with a plastic tap, ensure it is held in place using the clip (Fig. 4, item 7) provided, before filling the tank and during use. This will prevent accidental spillage of liquid substances which may cause a short-circuit or electrocution and therefore be dangerous for the operator.

Make sure that the device is not damaged. Do not use damaged devices; if in doubt, ask your supplier.

Install the ultrasonic cleaner on a flat and stable surface, able to support the weight of the device, instruments and cleaning solution that are placed in the Ultrasonic Cleaner. Handle it with care.

Install the Ultrasonic Cleaner away from heat sources. In addition, be careful not to install it near sources of moisture, wet work surfaces, or near sources of dust.

Make sure that the Ultrasonic Cleaner's feet are in the correct position to ensure air circulation.

Do not use the Ultrasonic Cleaner if: the power cord or plug is damaged or does not work properly. This may lead to electrical shock, fire or other accidents. Do not attempt to personally service the device. Contact only qualified technical personnel or the supplier.

Do not immerse the power cord or the plug in water. Keep the power cord away from hot surfaces.

Do not let the cord hang over the edges of tables or furniture.

Do not leave or do not use this device outdoors.

Do not tamper with, for any reason, the electronic system of the Ultrasonic Cleaner "Electric shock hazard". For any repairs, contact the supplier.

Do not replace the power cord. If the cable is damaged due to wear, or other reasons, turn off the device immediately and contact the supplier.

Do not lift and carry the device when it is connected to a power outlet. Disconnect from the power outlet first.

Do not lift and carry the device when full of cleaning solution. Lift and carry the device only when it is empty. An exception to this rule is the 3L model which does not incorporate a drain tap. This model can be lifted, with care, to enable the tank to be drained. (Refer to Section 5, After Use instructions).

Recommended Cleaning Solution

WARNING

The Little Sister Ultrasonic Cleaner should only be used with the cleaning solution recommended by the manufacturer or validated by Eschmann for that country of use.

To clean any instrument, you should principally use clean running water and dissolve in it a quantity of detergent or solution depending on the type of material residue to be removed from the instrument itself. Use only solutions that are appropriate to the type of work to be performed. Only use undiluted detergent if it is explicitly specified in the product's instructions for use. Use only the amount of liquid needed to clean. Always follow the instructions for use of the solution.

Do not use any of the following solutions:

- Acidic or strong alkaline solutions such as sodium hypochlorite because these substances, when in direct contact with the tank, cause a series of microscopic holes with irreparable and especially dangerous consequences for the operation of your device.
- All acidic or alkaline substances that can release corrosive compounds such as chlorine or other chemical compounds, or glutaraldehyde disinfectants, used together with the energetic ultrasonic cavitation activity, can cause accelerated corrosion of stainless steels.
- Substances such as petrol, benzene, benzol or other harmful, explosive or flammable solvents.

Any acid particles, micronised by intense ultrasonic cavitation activity, are dispersed in the working environment causing corrosion to the device and also damaging health.

Preventing Damage to the Device

WARNING

To prevent damage to the device:

- Periodically replace the solution. It is recommended that the cleaning solution is replaced at the end of every session, or as a minimum daily, unless local guidance recommends a more frequent schedule or if the solution is heavily contaminated.
- Do not operate the device without the recommended cleaning solution.
- Do not put parts or containers directly in contact with the bottom of the tank, use the stainless steel basket provided.
- When the Ultrasonic Cleaner is in operation, make sure that the cleaning solution does not fall below 2/3 of the total height of the tank.

Failure to follow such instructions may cause damage to the transducers, invalidating the warranty.

Important When Using the Ultrasonic Cleaner

Before connecting the **Ultrasonic Cleaner** to power, **if the system has been drained**, fill the tank with clean running tap water* and the recommended concentration of cleaning solution, up to a maximum level of 3 cm from the top. Refer to the Recommended Cleaning Solution on Page 6.

*Reverse osmosis, distilled or deionised water can also be used if desired, at the same cleaning solution concentration levels.

If the Ultrasonic Cleaner is equipped with a manual drainage tube (Figs. 3 & 4, item 9), check that the drain tap is fully closed (Figs. 3 and 4, item 8) and, if fitted with a plastic tap, ensure it is held in place using the clip (Fig. 4, item 7) provided, before filling the tank and during use. This will prevent accidental spillage of liquid substances.

If new solution has been added to the Ultrasonic Cleaner, the system must first be de-gassed. To de-gas the Ultrasonic Cleaner, turn the Timer/Switch knob clockwise (Fig. 1, item 1) and run for 10 minutes without any instruments inside the tank. The empty basket can be left in the tank during the de-gas process. Note that, if not de-gassed, there will be a large quantity of air in the liquid which will prevent cleaning.

Always pay attention to the liquid level so that it does not fall below 2/3 of the total height of the tank. If this occurs, the ultrasonic transducers and electronic circuitry may be seriously damaged.

Do not overload the basket and ensure the instruments within the basket are not touching.

Do not immerse your hands in the tank or basket during operation.

Use this Ultrasonic Cleaner only for the use described in this manual and for the purpose for which it was designed. This device is designed to clean and detach excess materials from approved dental and medical instruments. Always refer to the instrument manufacturer's cleaning instructions.



Section 4

Ultrasonic Cleaner Figures

Fig. 1: FRONT

1. Timer/Switch knob
2. '0' position (cleaning time expressed in minutes)
3. ∞ Position (infinite cleaning time)
4. Power indicator light

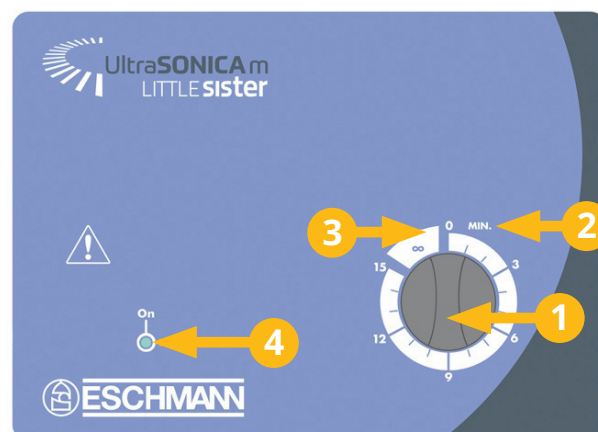
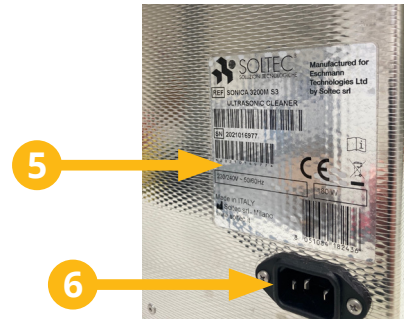


Fig. 2: REAR LABEL AND POWER CORD INPUT

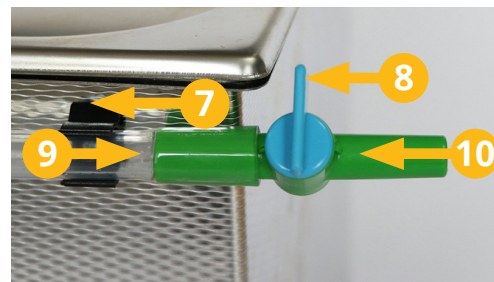
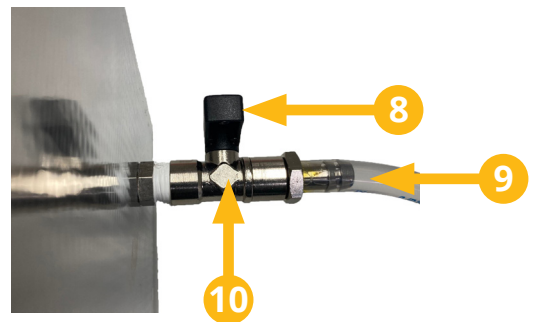
- 5. Rear label
- 6. Power cord input



One of two types of tap can be fitted to the Ultrasonic Cleaner, a plastic tap or a stainless steel tap. Both types are shown below.

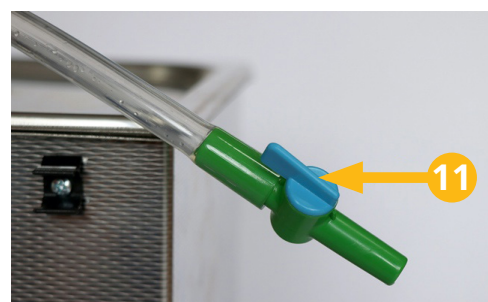
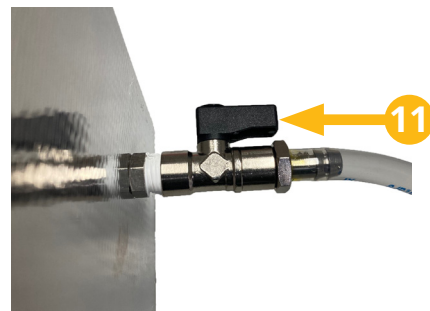
Figs. 3 & 4: MANUAL DRAINAGE TUBE (OFF)

- 7. Clip holds manual drainage tube in place. (Applicable to the plastic tap only)
- 8. Valve in the CLOSED position
- 9. Manual drainage tube
- 10. Tap



Figs. 5 & 6: MANUAL DRAINAGE TUBE (ON)

- 11. Valve in the OPEN position, in preparation for draining the tank



Section 5

Operating Instructions

Pre-Use (If Ultrasonic Cleaner Has Been Drained)

1. Before connecting the Ultrasonic Cleaner to power, if the system has been drained, fill the tank with clean running tap water* and the recommended concentration of cleaning solution. (Refer to Recommended Cleaning Solution, Section 3, and Technical Specification, Section 8). Fill up to a maximum level of 3 cm from the top, corresponding to the step in the side of the tank. If the Ultrasonic Cleaner is equipped with a manual drainage tube (Figs. 3 & 4, item 9), check that the drain tap is fully closed (Figs. 3 and 4, item 8) and, if fitted with a plastic tap, ensure it is held in place using the clip (Fig. 4, item 7) provided, before filling the tank and during use. This will prevent accidental spillage of liquid substances.

*Reverse osmosis, distilled or deionised water can also be used if desired, at the same cleaning solution concentration levels.

2. If new solution has been added to the Ultrasonic Cleaner, the system must first be de-gassed. To de-gas the Ultrasonic Cleaner, turn the Timer/Switch knob clockwise (Fig. 1, item 1) and run for 10 minutes without any instruments inside the tank. The empty basket can be left in the tank during the de-gas process.

During Use

3. Place the instrument(s) into the stainless steel basket and into the Ultrasonic Cleaner tank. Do not overfill the Ultrasonic Cleaner, refer to **Useful tips and suggestions** on page 10.
4. Place the stainless steel cover onto the Ultrasonic Cleaner (unless using the stainless steel container for small parts).
5. Set the cleaning time by turning the Timer/Switch knob (Fig. 1, item 1) clockwise. The power indicator light (Fig. 1, item 4) will light up on the front panel to indicate the actuation of the unit. To stop the operation of the Ultrasonic Cleaner at any time, simply turn the Timer/Switch knob (Fig. 1, item 1) anti-clockwise to the "0" position (Fig. 1, item 2).
6. At the end of the set time the machine will turn off automatically.

To set a cleaning time of more than 15 minutes, turn the Timer/Switch knob (Fig. 1, item 1) anti-clockwise to the "∞" position (Fig. 1, item 3). To stop the operation of the Ultrasonic Cleaner at any time, simply turn the Timer/Switch knob (Fig. 1, item 1) clockwise back to the "0" position (Fig. 1, item 2). This will allow the user to set the cleaning time manually.

After Use

7. After the cycle has completed, instruments must be removed and rinsed in clean running water* to remove any residue or contaminant that might be in the Ultrasonic Cleaner or on the instrument. This should be performed before the instrument is further processed.

*Reverse osmosis, distilled or deionised water can also be used if desired.

8. It is recommended that the cleaning solution is replaced at the end of every session, or as a minimum daily, unless local guidance recommends a more frequent schedule or if the solution is heavily contaminated. To drain the Ultrasonic Cleaner:
 - a. Drain the solution by turning the valve to the OPEN position (Figs. 5 and 6, item 11) on the tap. The solution must be drained into an appropriate disposal area as per local guidance.
 - b. Once the tank is empty, turn the valve to the CLOSED position (Figs. 3 & 4, item 8) on the tap and position the drainage tube using the clip (Fig. 4, item 7) provided.

If the Ultrasonic Cleaner does not come equipped with a manual drainage tube (Applicable to the 3L version), empty by tipping the tank (with stainless steel basket removed) into an appropriate disposal area as per local guidance.

When the tank is drained, always ensure it is left clean (i.e any signs of contamination are removed) using recommended cleaning/disinfection wipes.

Section 6

Accessories

Stainless steel cover

Used to cover the Ultrasonic Cleaner during use.



Stainless steel basket

The stainless steel basket optimises the cleaning of instrument(s) and then drains them into the tank.



Stainless steel container for small parts

Useful accessory for small instruments including burrs.

Note: Do not place this item directly into the tank. This must be placed into the stainless steel basket and then into the tank.



Section 7

Useful Tips and Suggestions

The type of cleaning solution to use. To clean any instrument, you should principally use clean running water and dissolve in it a quantity of detergent or solution depending on the type of material residue to be removed from the instrument itself. Only use undiluted detergent if it is explicitly specified in the product's instructions for use. Always follow the instructions for use of the solution.

Do not overfill the Ultrasonic Cleaner. Always place the instruments in a logical manner at the bottom of the stainless steel basket, place the basket in the tank and proceed with the appropriate cleaning. Too many instruments cleaned simultaneously will reduce the effectiveness of cleaning and if touching, could lead to damage.

When objects are very dirty, use longer cleaning times.

When to replace the cleaning solution. It is recommended that the cleaning solution is replaced at the end of every session, or as a minimum daily, unless local guidance recommends a more frequent schedule or if the solution is heavily contaminated.

Shape and size. There are no special recommendations for the shape of the instruments to be cleaned, however avoid placing in the tank particularly heavy objects of very large dimensions. The cleaning solution must always cover the entire object.

Cleaning time. The cleaning time always depends on the type of instrument and level of contamination.

Section 8

Technical Specification

Little Sister UltraSONICA	2200M – 3L	2400M – 4.5L	3200M – 6L
Power supply voltage	230/240V - 50/60Hz		
Power consumption	130W	130W	180W
Tank volume	3 litres	4.5 litres	6 litres
Cleaning/ detergent solution volume* (2% Concentration)**	Water: 1.7 litres Cleaning/ detergent solution: 34ml	Water: 2.7 litres Cleaning/ detergent solution: 54ml	Water: 4.5 litres Cleaning/ detergent solution: 90ml
Weight (approx.)	3.8kg	3.8kg	4.5kg
External dimensions	270x170x260mm	325x175x260mm	325x270x260mm
Tank dimensions (mm)	240x140x100mm	300x150x100mm	300x240x100mm
Number of transducers	2	2	3
Environmental conditions	Temperature from 5 to 40°C; relative humidity 80% up to 31°C with linear decrease up to 50% at 40°C.		
Installation conditions	Class II according to EN 61010-1		

*Cleaning/ detergent solution volume is less than the tank volume to allow for displacement of the liquid when the load is added.

**The 2% concentration is an example. Eschmann recommend a 2% concentration of CL4 solution. (By volume 2% of 1litre is 20ml). Refer to Section 3. Recommended Cleaning Solution.

Information for use as 'Medical Device'

Denomination: Ultrasonic Cleaning Equipment EMDN: Z12011302

Field of application: Ultrasonic Cleaning Equipment for surgical and dental instruments

Classification: Medical Devices Regulation Class I rule 13, Active MD, Non Invasive MD, Non Implantable MD

CE-compliant EMC (EN 61326-1)

LV (EN 61010-1 EN 61010-2-040)

2017/745/UE Medical Device Regulation

Risk Class I according to the rule 13 to the MDR

Section 9

Maintenance and Repair

Always disconnect the plug before carrying out any maintenance. To always ensure the safety of the device, carry out a daily check to ensure that the external frame, tank and power cord of the device are not damaged.

Cleaning is the only maintenance normally required. It must be carried out with the device disconnected electrically. Only use neutral detergents to clean the inside of the tank and a soft cloth to clean the outside such as the frame and the command panel.

Do not leave dirt deposits inside the tank. If the liquid outlet hole is obstructed by dirt residues, clean with a non-pointed flexible stick, making sure that the rubber hose is not punctured.

If the device does not work, perform the following checks:

- Check that the plug is properly plugged into the socket.
- Check the level of liquid in the tank.

WARNING

Maintenance and repair should only be carried out by technicians trained by the manufacturer. It is dangerous for any other person to carry out repairs. If assistance is required, contact your supplier.

Section 10

Product Disposal

The crossed out wheellie bin symbol on the equipment or its packaging indicates that the product at the end of its useful life must be collected separately from other waste.

Separate collection of this equipment at the end of its life is organised and managed by the supplier. The user shall contact the supplier and follow the method that has been implemented for disposing of the equipment at the end of its life. The correct disposal technique of the used equipment, which must be recycled, treated and disposed of in an environmentally friendly way, helps to avoid possible negative effects on the environment and on health; it also facilitates the recycling of the materials the equipment is composed of.

Incorrect disposal of the product by the user involves application of the administration sanctions according to the laws in force.

The Declaration of conformity according to 2012/19/EU Directive must be required by sending an e- mail to info@eschmann.co.uk. In accordance with EN 13306 standard, the lifetime is the period of time which starts at a given instant and it ends when the failure rate is unacceptable, or when the product cannot be repaired following a failure or other relevant elements.

The Little Sister Ultrasonic Cleaner has a lifetime of 6 years.

Service

Eschmann products are supported by a network of fully trained engineers, offering high quality Eschmann spare parts. For further information on the range of Service Contracts available, please contact your local Eschmann representative.

Eschmann can be contacted during normal office hours. Please quote the Model and identifying numbers (SN) exactly as printed on the product label. Address all Eschmann correspondence to:

Eschmann Technologies Limited, Eschmann House, 15 Peter Road, Lancing, West Sussex, BN15 8TJ, United Kingdom. Tel: +44 (0)1903 753322

Safety Reporting

Any serious incident that occurs with this medical device should be reported to Eschmann Technologies Limited and your local Competent Authority

Warranty

This product and purchased accessories are warranted for a minimum period of 12 months to be free from defects in materials and workmanship at the time of delivery.

Eschmann will be under no liability for any defect arising from fair wear and tear, negligence, wilful damage, misuse, abnormal working conditions, failure to follow the manufacturer's instructions, unauthorised alteration or repair of hardware, unauthorised or accidental alteration of software or configuration, lost profits, commercial loss, economic loss, or loss arising from personal injury. We may, at our discretion, raise a charge for any faults repaired that fall outside the warranty cover. Where charges are necessary, replacement parts will be charged at manufacturers' list prices and labour will be charged at the prevailing hourly rate. Repairs performed by Eschmann carry a 3-month parts and labour warranty.

Trade Marks

The Eschmann name and Logo are trade marks of Eschmann Technologies Limited. Eschmann Equipment is a trading name of Eschmann Technologies Limited.



SOLTEC S.r.l.

Via Guglielmo Röntgen 16 20136 Milano (MI) - ITALY

Eschmann Technologies Limited

Eschmann House, 15 Peter Road, Lancing,
West Sussex, BN15 8TJ United Kingdom

t: +44 (0)1903 753322

e: info@eschmann.co.uk

w: eschmann.co.uk

Ingenuity in
infection control
since 1830

