THE *Clifton* RANGE

Ultrasonic Baths
SW Series

Contents

1. Safety warnings	
Carefully read the safety warnings before you operate the unit.	
	The ultrasonic bath has been designed for treating **items in liquids** only.
	The unit must be operated by instructed staff; observe and follow the operating instructions.
	Risk of electrocution! Connect the unit to a grounded shock proof socket only! Do not open the unit! For operation place the unit on a dry and stable work surface. Do not immerse or rinse the unit with water. Pull the mains plug out in case of any malfunction.
	Risk of fire and explosion! Do not operate the unit with flammable cleaning media!
	Risk of damage to the transducer tank! Do not put any acids (HCl, etc) or chlorides into the stainless-steel tank! Do not place any items directly on the tank floor!
	Risk of burning and scalding! Tank, housing and cleaning liquid can heat up considerably, particularly if its heating! In permanent operating mode temperatures exceeding 80 °C can be reached.
	Avoid sound transmission Do not reach inside the cleaning liquid or touch sound-carrying parts (tank, basket, cleaning items, etc.) during operation.
	Noise emission! Ultrasonic units can produce annoying sounds. Wear personal ear protection devices when working close to an ultrasonic unit, which is operated without cover. Emission data for operation with cover: < 70dBAU.
	Exclusion of liability: The manufacturer cannot be held liable for damages on persons, equipment or cleaning items caused by improper use and non-observance of the Operating Instructions. The operator is responsible for the instruction of the operating staff. For any queries please contact your supplier or Nickel-Electro Ltd.

2. Product features
■ Transducer tank made of cavitation-proof stainless steel.
■ Housing made of stainless steel, easy to keep hygienically clean.
■ Sandwich performance transducer systems.
■ Sweep function for the perfect sound field distribution in the cleaning liquid.
■ Degas function for the efficient degassing of the cleaning liquid and for special laboratory applications.
■ Auto-Degas function for an automatic degassing cycle, e.g. after freshly mixed cleaning liquid has been filled.
■ Quick drain on the unit back.
■ Heating, safe to run dry.
■ Temperature-controlled ultrasonic cleaning process starts automatically when preset temperature is reached. The cleaning liquid naturally mixes during heating up allowing a uniform temperature in the bath.
■ Electronic controls.
■ Indication of remaining cleaning time.
■ Splashwater-proof operating panel.
■ Plastic carrying handles.
■ Automatic switch-off after 12 h operation (if no keys have been activated in this period) to prevent unintended permanent operation.
■ Boost function for a power increase of the ultrasound by approx. 25 %.

3. Delivery volume
SW Ultrasonic cleaning unit ■ Mains cable ■ Drain tube socket ■ Operating Instructions

4. Technical Details

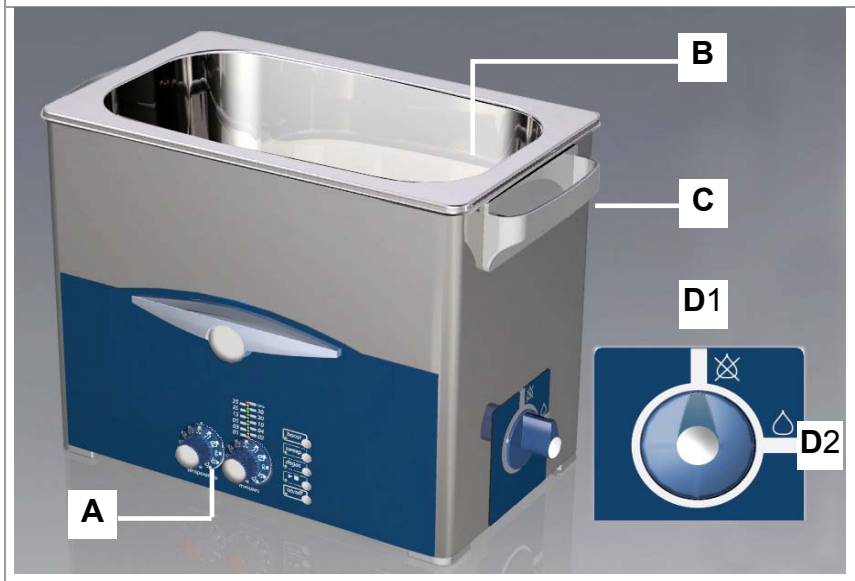
	Max. tank volume (approx. litre)	Tank service volume (approx. Litre)	Tank internal dimensions W x D x H (approx. mm)	Unit external dimensions W x D x H (approx. mm)	Basket internal dimensions W x D x H (approx. mm)	Weight (approx. kg)
SW 12 H	12.75	9.0	300x240x200	365x278x321	250x190x115	7.5
SW 30 H	28.00	20.6	505x300x200	568x340x321	455x250x115	11.0
SW 45 H	45.00	35.0	500x300x300	615x370x467	455x270x194	25.0
SW 90 H	90.00	75.0	600x500x300	715x570x467	545x450x250	42.0

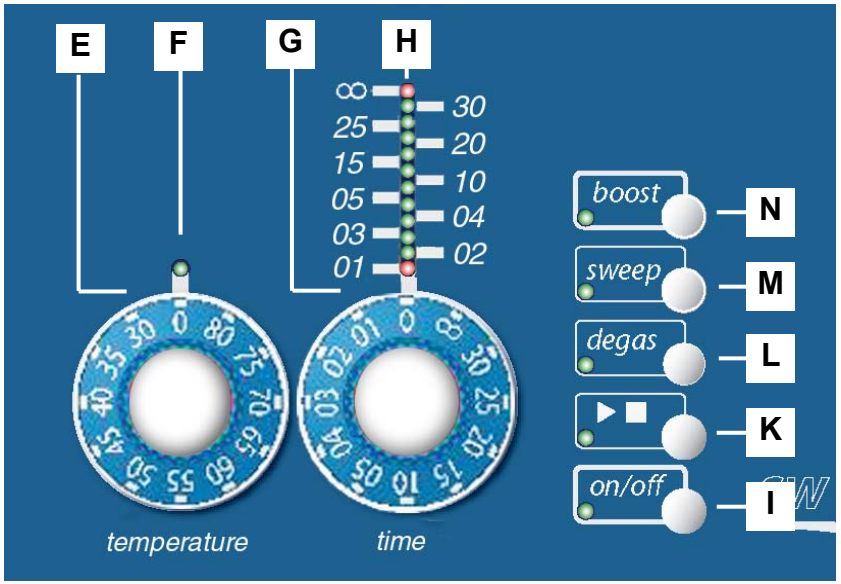
	Mains voltage variants (Vac)	Ultrasonic frequency (kHz)	Power consumption total (W)	Ultrasonic power effective (W)	Ultrasonic peak max. (W)	Heating power (W)
SW 12 H	100-120 220-240	37	1000	200	800	800
SW 30 H	100-120 220-240	37	1500	300	1200	1200
SW 45 H	200-240	37	2000	400	1600	1600
SW 90 H	200-240	37	2800	800	3200	2000

5. CE Conformity

These units are in compliance with the CE marking criteria according to the EMC directive 89/336/EEC, and the low voltage directive 73/23/EEC.

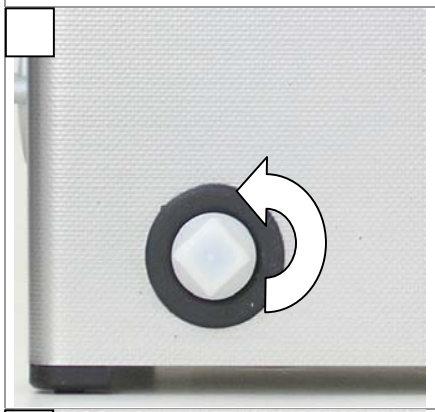
6. Unit description

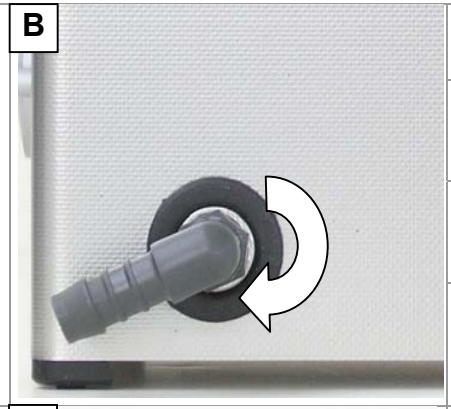




A	Operating panel for controlling the unit functions
B	Transducer tank
C	Plastic carrying handles for the safe transportation of the unit
D	Turning drain dial allows liquid emptying from the tank. Indicators show position when drain is shut and open
E	Temperature Temperature range 30° – 80°C, variable in 5 °C steps
F	LED indicator temperature red during heating up, green when set temperature is reached or exceeded
G	Time. Settings: short-term operation: 1; 2; 3; 4; 5; 10; 15; 20; 25; 30 min.; permanent operation ∞ for continuous operation. The unit switches off automatically after 12 hours permanent operation.
H	LED indicator for remaining time
I	*on/off* key for switching the unit on and off *on/off* LED
K	Press “Play and Stop” buttons: to start and stop ultrasonic operation. Indicator illuminates.
L	Press “Degas” (manual and Auto-Degas – for the efficient degassing of the cleaning liquid). Indicator illuminates.
M	Press “Sweep” function for the perfect sound field distribution in the cleaning liquid. Indicator illuminates.
N	Press “Boost” function for an additional increase of the ultrasonic power by approx. 25%. Indicator illuminates.

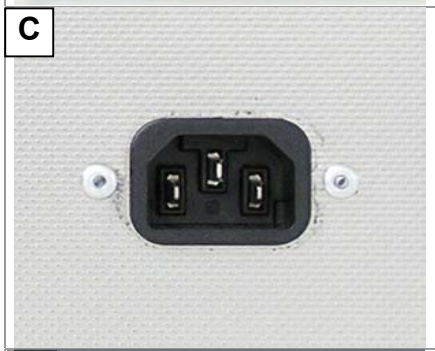
7. Initial operation / Putting into operation





7.1. How to fit the drain tube

1. Unscrew the closing plug (A); turn anti-clockwise.
2. Screw the supplied tube socket (B) clockwise
3. Connect ½“ bore tube of required length, not included.
   Fasten the tube with hose clip.



7.2. How to connect the unit to the mains

Connect mains input socket with the mains lead set. The mains voltage must correspond with the voltage indicated on the nameplate of the unit.

7.3. Filling the tank

1. Fill the tank up to 2/3.
   Caution: Do not use any solvents or acids!
2. Add a suitable cleaning chemical; for the concentration follow the instructions on the label.
   Recommended cleaners: Decon or accessory SW products.

8. Operation

Intended action	What to do	Result
Unit switch on / off	Press *on/off* **(I)** key.	Unit is ready for operation / unit is switched off.
Start ultrasonics – no heating	Set required cleaning time, turning dial for desired cleaning time **(H)**. Press ►■ to start ultrasonic activity. **(K)**	Ultrasonic activity starts.
Start ultrasonics – heating	Set required cleaning time, turn dial for cleaning time **(H).** Set required temperature. **(F)**. Keep ►■ key **(K)** pressed (> 2 sec.)	Heating starts operating. Ultrasonics switches on in intervals (mixing the liquid for even temperature).. As soon as the set temperature is reached the ultrasonics start operating. Cleaning indicator flashes, time runs back.
Interrupting ultrasonic operation	Turn knob for cleaning time **(H)** to "0" or press ►■ key **(K).**	Ultrasonic activity stops
Switch on heating	Set required temperature **(F).**	Heating starts operating.
Switch off heating	Turn set temperature **(F)** to "0" position.	Heating stops.
Switch on Sweep function	Set required cleaning timet **(H)** Press ►■ key **(K)** Press *sweep* key **(M)**	Ultrasonic activity starts operating in sweep mode
Switch off Sweep function	Press *sweep* key **(M)**	Sweep function stops. Ultrasonic activity continues operation in standard operating mode.
Switch on Degas function [2)]	Set required cleaning time **(H)** Press ►■ key **(K)** Press *degas* key **(L)**	Ultrasonics operates in degas mode.
Switch off Degas funcion	Press *degas* key **(L)**	Degas function stops. Ultrasonic activity continues in standard operating mode.
Switch on Auto-Degas function	Keep *degas* key **(L)** pressed (> 2 sec.)	Ultrasonics operates in Auto-Degas mode for 10 minutes and then switches off automatically.
Switch on Boost function [2)]	Set required cleaning time **(H)** Press ►■ key **(K)** Keep *boost* key **(N)**	Ultrasonics operate in boost mode.
Switch off Boost function	Press *boost* key **(N)**	Ultrasonics now in standard mode

[2)] Sweep, Degas, Boost cannot be operated at the same time

9. Cleaning Process	
	Observe general laboratory safety warnings! Ultrasonic activity can damage sensitive surfaces over prolonged periods.
1.	If necessary for the cleaning task at hand, pre-heat the liquid (in units with heating).
2.	When the cleaning liquid has been freshly mixed switch on the Degas / Auto-Degas function for degassing the liquid (approx. 10 min).
3.	Immerse the cleaning items into the cleaning liquid. Do not place any items or containers directly onto the tank floor. Use either a cleaning basket, a beaker (filled with water + cleaning chemical) or hang the items into the liquid.
4.	Set the cleaning time – switch on the ultrasound.
5.	If required switch on the sweep function (for the intensive cleaning of large items and for robust surfaces).
6.	Monitor the cleaning process: Check the cleaning result by visual inspection. Repeat the cleaning process if necessary.
7.	Rinse the cleaned items after the cleaning and dry if necessary.

10. Maintenance / Care / Repair	
	Caution! Pull the mains plug before you carry out any maintenance and care works! Do not put the unit under water! For repair return the unit to your supplier or to the manufacturer.
■	**Electrical safety**: Regularly check the housing and the mains cable for damage to avoid electrical accidents.
■	**Care of transducer tank**: Lime deposits in the stainless-steel tank can be removed gently, e.g. by SW-C T 5 (operate the unit with water + concentrate). Do not use any scouring media!
■	**Care of housing**: Depending on their kind, contaminations can be removed with a mild household cleaner or decalcifier (wipe with wet cloth).
■	**Disinfection**: If the unit is operated in the medical and sanitary sector it is necessary to disinfect the transducer tank and the surfaces regularly for hygienic purposes (standard surface disinfectants).

11. Putting out of operation and waste disposal	
	The unit and its components can be recycled.

12. Portable Appliance Testing	
	When testing, ensure testing is conduced by a qualified person.

13. Warranty	
	Our service engineers are fully trained in the assembly, calibration and servicing of all Clifton instrumentation.Products can be returned to our comprehensively equipped service centre where a fast and efficient turnaround is guaranteed: Service Department, Nickel Electro Limited, Oldmixon Crescent, Weston-super-Mare, North Somerset BS24 9BL, UK. Tel +44 (0)1934 626691 Fax +44 (0)1934 630300.

14. Manufacturer's Contact Address
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15. Accessories

LD-12	Flat One Piece Moulded Plastic Lid to suit 12 Litre Capacity Bath	
LD-30	Flat One Piece Moulded Plastic Lid to suit 30 Litre Capacity Bath	
LD-45	Flat One Piece Stainless steel Lid to suit 45 Litre Capacity Bath	
LD-90	Flat One Piece Stainless steel Lid to suit 90 Litre Capacity Bath	
BSK-12	Stainless Steel Wire Basket to suit 12 Litre Ultrasonic Bath	
BSK-30	Stainless Steel Wire Basket to suit 30 Litre Ultrasonic Bath	
BSK-45	Stainless Steel Wire Basket to suit 45 Litre Ultrasonic Bath	
BSK-90	Stainless Steel Wire Basket to suit 90 Litre Ultrasonic Bath	

SW-C L1	Acid foam-inhibited cleaning concentrate Removes aqueous cooling emulsions after mechanical treatment, light mineral greases and oils, fingerprints, dust as well as deposited calcinations. Suitable for all surfaces made of metal (including aluminium & aluminium alloys), glass, ceramic and plastic materials. 2.5 litres.
SW-C L2	Neutral foam-inhibited cleaning concentrate Removes grease and oil, fingerprints and dust as well as deposited lime soaps. Suitable for all surfaces made of metal (including aluminium & light metal alloys), glass, ceramic, plastic and mineral materials. 2.5 litres.
SW-C L3	Alkaline foam-inhibited cleaning concentrate Removes light greases and oils, paper labels and markings, calcinations and lime soaps, fingerprints and dust. Suitable for surfaces made of glass, metal, ceramic and plastic materials. Check light metals for compatibility before. 2.5 litres.
SW-C L4	Strong acid foam-inhibited cleaning concentrate Removes rust, lime, metal oxides, flux, mineral oils and greases, fingerprints and dust. Suitable for surfaces made of metal, glass, ceramics, and plastics. 2.5 litres.
SW-C L5	Aqueous, surfactant-free, ammonia-containing cleaning concentrate Removes light oils/greases, fingerprints, dust. Suitable for surfactant-free cleaning of laboratory instruments made of glass. Especially for: outlet-calibrated volume measuring vessels (pipettes, burettes, measuring cylinders), as well as laboratory instruments made of glass, stainless-steel, ceramics and plastics used for the volumetric measuring analysis. Not suitable for aluminium. 2.5 litres.
	

16. Spares		
100 086	Control PCB for SW30H	
100 587	Control PCB for SW45H	
100 059	Fuse for Control PCB	
100 171	RFI Filter PCB	
100 200	Fuse T15A for RFI Filter	

EC Declaration of Conformity

We herewith confirm the following product:

SW Series of Industrial Ultrasonic Baths

Conforms with the requirements outlined by the following EU Directives:

Low Voltage Directive (73/23/EEC)
EMC Directive (89/336/EEC)

We confirm the declaration:

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Conforms with the requirements of the following standards:
BS EN 61010:1
BS EN 61010:2.010
Safety requirements for electrical equipment for measurement, control and laboratory use
BS EN 61326
Electrical equipment for measurement control and laboratory use – EMC requirements