

1. Safety warnings

Carefully read the safety warnings before you operate the unit.



The present ultrasonic cleaning unit has been designed for the ultrasonic treatment of **items** and **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! Opening of the unit by specialized staff only!

For operation place the unit on a dry and stable work place!

Do not immerse or rinse the unit with water!

Pull the mains plug in case of any malfunctions, if humidity might have entered the unit inside, for maintenance purposes and after use!



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 operated with heating!

In permanent operating mode temperatures exceeding 80 °C can be reached.



Avoid sound transmission to the operating staff!

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 instructions of the operating staff.

For any queries please contact your supplier or the manufacturer.

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.
- 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 (AL 04-06 / AL04-12 / AL04-30).
- Heating, safe to run dry*.
- Temperature-controlled ultrasound*: Cleaning process starts automatically when preset temperature is reached. The cleaning liquid is stirred regularly during heating up allowing a uniform temperature in the bath.
- Mains cable pluggable.
- Electronic turning knobs.
- Indication of remaining cleaning time via diodes.
- Splashwater-proof operating panel.
- Plastic carrying handles (AL 04-06, AL04-12, AL04-30).
- Automatic switch-off after 12 h operation (if no buttons have been activated in this period) to prevent unintended permanent operation.

* on units with heating

3. Delivery volume

Advantage-Lab AL Ultrasonic cleaning unit ■ Mains cable ■ Drain tube socket ■ Operating Instructions

Large range of additional accessories available on request.

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)
AL 04-01 / AL 04-02	0.8	0.7	190x85 x 60	206x116x178	177x73x30	2.0
AL 04-03 / AL 04-04	2.75	1.9	240x137x100	300x179x214	198x106x50	3.3
AL 04-06	5.75	4.3	300x151x150	365x186x264	255x115x75	5.1
AL 04-12	12.75	9.0	300x240x200	365x278x321	250x190x115	7.5
AL 04-30	28.00	20.6	505x300x200	568x340x321	455x250x115	11.0

	Mains voltage variants (Vac)	Ultrasonic frequency (kHz)	Total power consumption (W)	Ultrasonic power effective (W)	Ultrasonic peak max. (W)	Heating power (W)
AL 04-01	100-120	37	25	25	200	0
AL 04-02	220-240		85			60
AL 04-03	100-120	37	80	80	320	0
AL 04-04	220-240		280			200
AL 04-06	100-120 220-240	37	550	150	600	400
AL 04-12	100-120 220-240	37	1000	200	800	800
AL 04-30	100-120 220-240	37	1500	300	1200	1200

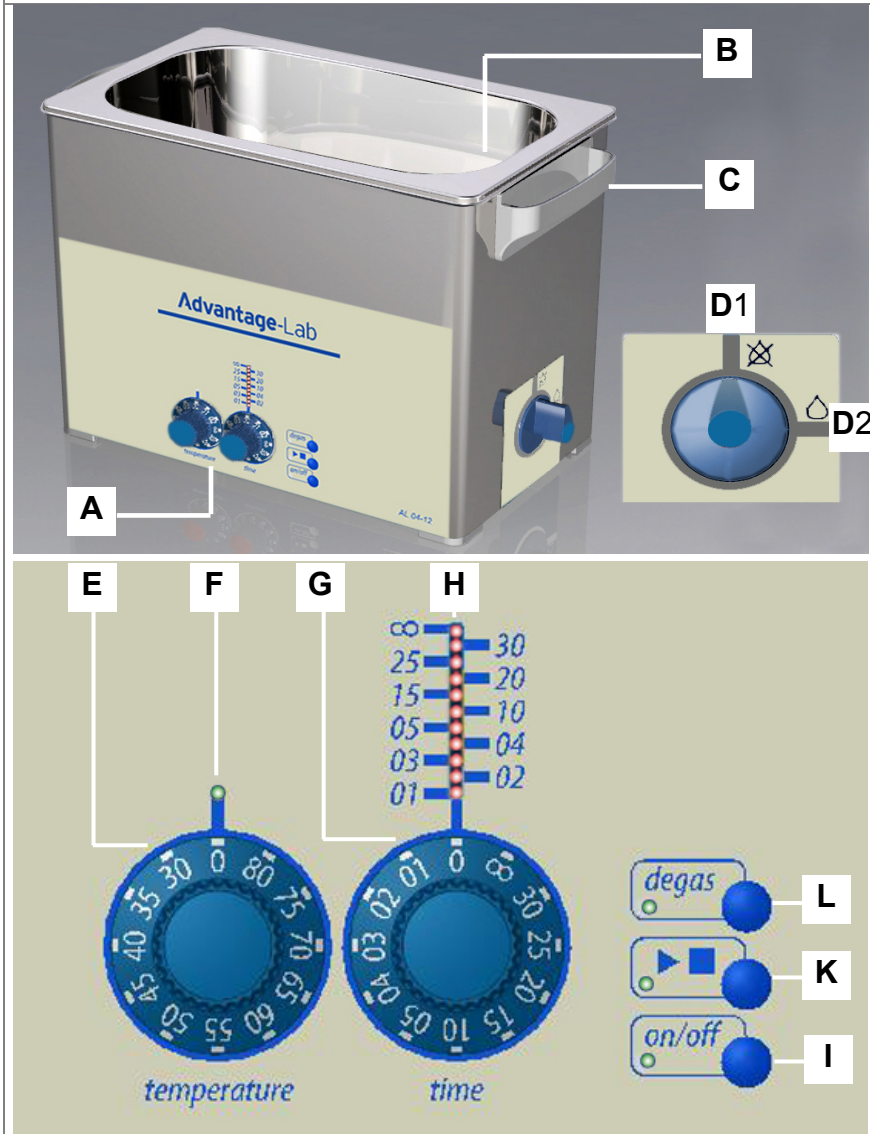
5. CE Conformity

The present Advantage-Lab AL Ultrasonic cleaning unit is in compliance with the CE marking criteria according to the EMC directive 89/336/EEC, and the low voltage directive 73/23/EEC and carries the relevant CE mark.

Low voltage directive 73/23/EWG Norm: DIN EN 60335-1:2002

EMC directive 89/336 + 91/263 + 92/31 + 93/68/EWG Norms: EN 55011:1998+A1:1999+A2:2002, EN 61000-3-2:2000, EN 61000-3-3:1995+A1:2001, EN 61000-6-2:2001

6. Unit description

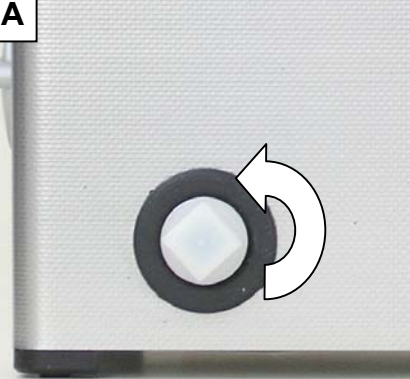
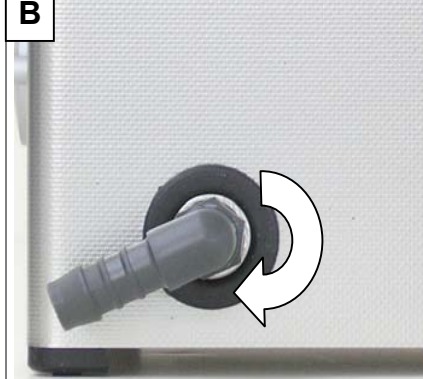






A	Operating panel for controlling the unit functions
B	Transducer tank – indicator marking for optimum filling level ¹⁾
C	Plastic carrying handles (on AL-04-06 and larger) for the safe transportation of the unit
D	Turning knob liquid drain ¹⁾ Position D1 drain shut, position D2 drain open
E	Turning knob temperature ²⁾ Temperature range 30° – 80°C, variable in 5 °C steps
F	LED indicator temperature ²⁾ red during heating up, green when set temperature is reached or exceeded
G	Turning knob cleaning time. Possible 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 h permanent operation.
H	LED indicator for remaining cleaning time
I	on/off key for switching the unit on and off on/off LED
K	Key for ultrasonic operation and temperature-controlled ultrasonic operation Ultrasound LED
L	Key for Degas function (manual and Auto-Degas – for the efficient degassing of the cleaning liquid)

¹⁾ on units with drain duct (AL 04-06 / AL04-12 / AL04-30)

²⁾ on units with heating

7. Initial operation / Putting into operation

<p>A</p> 	<p>B</p> 	<p>7.1. How to mount the duct tube socket (AL 04-06 / AL04-12 / AL04-30)</p> <ol style="list-style-type: none"> 1. Unscrew the closing plug (A); turn anti-clockwise. 2. Screw on the tube socket (B) clockwise (included in delivery volume). 3. Connect ½" tube of required length (not included in delivery volume). Fasten the tube with hose clip (included in delivery volume).
<p>C</p> 	<p>D</p> 	<p>7.2. How to connect the unit to the mains</p> <p>Connect mains input socket (C) to a grounded shock-proof socket with the mains cable (included in delivery volume) (D). The mains voltage must correspond with the voltage indicated on the nameplate of the unit.</p>
<p>E</p> 	<p>F</p> 	<p>7.3. How to fill the transducer tank</p> <ol style="list-style-type: none"> 1. Fill the transducer tank up to 2/3 or up to the marking on the tank wall with water (E). Caution: Do not use any solvents or acids! 2. Add a suitable cleaning chemical; for the concentration follow the instructions on the label.

8. Operation		
Intended action	What to do	Result
Switch on unit / switch off unit	Press <i>on/off</i> (I) key	Unit is ready for operation / unit is switched off
Start ultrasound - now -	Set required cleaning time at turning knob for cleaning time (H) Press ►■ key for ultrasonic operation (K)	Ultrasound starts operating
Switch on ultrasound – temperatur-controlled* with revolution of cleaning liquid – (only possible on units with heating as long as the set temperature > actual temperature).	Set required cleaning time at the turning knob for cleaning time (H) Set required temperature at turning knob for cleaning temperature (F) Keep ►■ key (K) pressed (> 2 sec.)	Heating starts operating Ultrasound is switched on in intervals (automatic revolution of the liquid). As soon as the set temperature is reached the ultrasonic operation is automatically started. Set cleaning time starts running.
Stop ultrasonic operation by hand	Turn knob for cleaning time (H) to „0“ or press ►■ key (K)	Ultrasound stops
Switch on heating ¹⁾	Set required temperature (F)	Heating starts operating
Switch off heating by hand ¹⁾	Turn set temperature (F) to „0“ position	Heating stops
Switch on Degas function	Set required cleaning time (H) Press ►■ key (K) Press <i>degas</i> key (L)	Ultrasound operates in degas mode
Switch off Degas function	Press <i>degas</i> key (L)	Degas function stops Ultrasound continues in standard operating mode
Switch on Auto-Degas function	Keep <i>degas</i> key (L) pressed (> 2 sec.)	Ultrasound operates in Auto-Degas mode for 10 minutes and then switches off automatically
¹⁾ on units with heating		

9. Cleaning process

	<p>Observe the general safety warnings.</p> <p>The operator is responsible for the control of the cleaning result.</p> <p>Take the warming of the cleaning liquid into consideration when cleaning temperature-sensitive items.</p> <p>Ultrasound can damage sensitive surfaces when operated over a prolonged period of time and particularly when operated at low cleaning frequencies.</p>
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.	Monitor the cleaning process: Check the cleaning result by visual inspection. Repeat the cleaning process if necessary.
6.	Rinse the cleaned items after the cleaning and dry if necessary.

10. Maintenance / Care / Repair

	<p>Caution! Pull the mains plug before you carry out any maintenance and care works! Do not put the unit under water!</p> <p>For repair return the unit to your supplier or to the manufacturer.</p>
■	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 mild decalcifiers (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 taken to metal and electronics recycling stations.

In compliance with the General Standard Terms and Conditions of Advantage Lab, the manufacturer or the supplier takes the units back for disposal within the EU. Please contact your supplier and agree on the procedure.

12. Manufacturer's contact address

Advantage-Lab

Jachthoornlaan 8

B-2970 Schilde-

Belgium

info@advantage-lab.com

www.advantage-lab.com

For any queries concerning the unit, its operation or the Operating Instructions please contact your supplier.