



## *ASPIRE* Laboratory Aspirator



### *USER MANUAL*

Rev 5/5/16

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**THE ACCURIS ASPIRE LABORATORY ASPIRATOR** is a portable instrument that operates on 115V~/60Hz or 230V~/50Hz power input. It is designed for the aspiration of liquid samples and suitable for removal of tissue culture media and supernatant from laboratory plates, tubes and vessels.

The ASPIRE is housed in a heat-resistant, and electrically insulated plastic casing, incorporates a vacuum regulator on the front panel, and also includes a polycarbonate autoclavable bottle and lid with overflow protection valve, silicone tubing, hydrophobic filter, and handheld vacuum pipette.

### GENERAL WARNING



**READ THE INSTRUCTION MANUAL IN ITS ENTIRETY AND CAREFULLY BEFORE USE**



**THE INSTRUMENT SHOULD ONLY BE USED BY PROPERLY TRAINED LABORATORY PERSONNEL**



**THE INSTRUMENT'S PUMP UNIT MUST NOT BE DISASSEMBLED. FOR SERVICE ALWAYS CONTACT BENCHMARK SCIENTIFIC**



**DO NOT LEAVE BLEACH OR BLEACH SOLUTION IN THE COLLECTION BOTTLE AS IT WILL DAMAGE THE POLYCARBONATE MATERIAL.**

### IMPORTANT SAFETY INSTRUCTIONS







1. Check the condition of the unit before each use. The housing, collection bottle, and all components should be carefully inspected for visual damage.
2. Check the main power cable and **do not connect to power** if damage is apparent;
3. Before connecting to power, check that the electric input data indicated on the data label and the type of plug used, correspond to that of the electrical outlet and electrical supply
4. If the plug supplied with the appliance is incompatible with the power supply outlet, contact qualified staff for replacement of the plug with a suitable type. The use of simple or multiple and / or extension adapters is not generally recommended.
5. Always follow general safety requirements for electrical appliances:
  - Use original components and accessories provided by Benchmark Scientific to guarantee performance and safety;
  - Do not operate the aspirator without the bacteriological filter in place between the collection bottle and vacuum;
  - Never immerse the aspirator pump unit in water or other liquids;
  - Install the aspirator on a stable and flat surface;
  - Position the instrument in a way that the air vents on the back and sides are not obstructed;
  - Don't use in the presence of flammable gases;
  - Don't touch the device with wet hands and always prevent the appliance from coming into contact with liquids;
  - Keep out of reach of children and unauthorized personnel;
  - Always use care when removing the power cord from the instrument;
  - Always use the instrument at a safe distance from heat sources;

6. For repairs, contact Benchmark Scientific technical services at 908-769-5555 and always use original spare parts and accessories. Failure to comply with the above can jeopardise the safety of the user of the device;
7. **This laboratory instrument must be used exclusively for its intended applications as described in this manual.**
8. Any different use could be dangerous; the manufacturer will not be responsible for damage due to improper use or connection to an electrical system not complying with current regulations;
9. Internal electrical and mechanical parts are not designed to be repaired by customers or end-users. Do not open the pump unit, do not mishandle the electric / mechanical parts. Always contact Benchmark Scientific for technical assistance
10. Using the device in environmental conditions different than those indicated in this manual may be dangerous to the user and may cause damage to the instrument.

### TECHNICAL SPECIFICATIONS

MODEL	<b>ACCURIS ASPIRE LABORATORY ASPIRATOR</b>
VOLTAGE	115V,50/60Hz or 230V, 50/60Hz
POWER CONSUMPTION	105VA / 184VA
FUSE	F 1 x 4A 250V / F 1 x 1.6A 250V
MAXIMUM SUCTION PRESSURE (without jar)	-75kPa (-0.75 Bar) Adjustable from -75kPa (-0.75bar) to -10kPa (-0.10 bar)
MAXIMUM SUCTION FLOW (without bottle / filter)	15 l/min
WEIGHT	4.8 Lbs / 2.2 Kg
DIMENSIONS	250mm x 190mm x 160 mm
SICILICONE TUBE SIZE	Ø 6 x 10 mm
ACCURACY OF VACUUM INDICATOR	± 5%
AMBIENT OPERATING CONDITIONS	Room temperature: 5 to 35°C Room humidity percentage: 30 to 75% RH Altitude: 0 to 2000m
STORAGE AND TRASPORT CONDITIONS	Room temperature: -40 to 70°C Room humidity percentage: 10 to 100% RH

### SYMBOLS

	Class II isolation equipment
	Warning, consult the instruction manual
	Keep in a cool, dry place
	Storage/transport temperature: -40 ÷ 70°C
	Type B equipment
	Fuse

~	Alternate Current
Hz	Mains Frequency
I	ON
O	OFF

Please note technical specifications may change without notice.

<b>Guidance and manufacturer's declaration – Electromagnetic Emissions</b>		
<p>The <b>ACCURIS ASPIRE LABORATORY ASPIRATOR</b> is intended for use in the electromagnetic environment specified below.</p> <p>The customers or the user of the <b>ACCURIS ASPIRE LABORATORY ASPIRATOR</b> should assure that it's used in such an environment.</p>		
<b>Emissions Test</b>	<b>Compliance</b>	<b>Electromagnetic environment - guidance</b>
Power disturbance CISPR11	Group 1	THE ACCURIS LABORATORY ASPIRATOR RF emissions are very low and will not cause interference in proximity to any Electronic appliances.
Irradiated / Conducted emissions CISPR11	Class [B]	THE ACCURIS LABORATORY ASPIRATOR can be used in all environments, including domestic and those connected directly to the public mains distribution that supplies power to environments used for domestic scopes.
Harmonic emissions IEC/EN 61000-3-2	Class [A]	
Voltage fluctuations / flicker emissions IEC/EN 61000-3-3	Complies	

<b>Guidance and manufacturer's declaration – Electromagnetic Immunity</b>		
<p><b>THE ACCURIS LABORATORY ASPIRATOR</b> is intended for use in the electromagnetic environment specified below.</p> <p>Users of this product should assure that it's used in such an environment.</p>		
<b>Immunity Test</b>	<b>Compliance</b>	<b>Electromagnetic environments - guidance</b>
Electrostatic discharge (ESD) IEC/EN 61000-4-2	± 6kV on contact ± 8kV in air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient / burst IEC/EN 61000-4-4	± 2kV power supply	Mains power quality should be that of a typical commercial environment.
Surge IEC/EN 61000-4-5	± 1kV differential mode	Mains power quality should be that of a typical commercial environment.
Loss of voltage, brief voltage interruptions and variations IEC/EN 61000-4-11	5%U <sub>T</sub> for 0.5 cycle 40%U <sub>T</sub> for 05 cycle 70%U <sub>T</sub> for 25 cycle <5%U <sub>T</sub> for 5 sec	Mains power quality should be that of a typical commercial environment.
Magnetic field	3A/m	The power frequency magnetic field

IEC/EN 61000-4-8		should be measured in the intended installation location to assure that it's sufficiently low.
Conducted Immunity IEC/EN 61000-4-6	3Vrms 150kHz to 80MHz (for appliances that aren't life - supporting)	-
Irradiated Conducted IEC/EN 61000-4-3	3V/m 80MHz to 2.5 GHz (for appliances that aren't life - equipment)	-
Note U <sub>T</sub> is the value of the power supply voltage		

## ACCESSORIES SUPPLIED

DESCRIPTION
COMPLETE COLLECTION BOTTLE 2000ml
TUBING SET (3 pieces)
HANDHELD VACUUM CONTROLLER
2 ADAPTERS (PIPETTE TIP AND FINE POINT METAL TUBE)
ANTIBACTERIAL FILTER

**Antibacterial Filter:** The filter is produced with (PTFE) hydrophobic material which prevents fluids entering the pump unit and also offers protection to prevent bacterial contamination of the pump unit. When the filter is wet, it's not possible to use the unit therefore the filter should be changed immediately. In case of possible contamination or discoloration of the filter, change the filter immediately. Do not use the instrument without the filter properly installed.

## CLEANING OF ACCESSORIES

To clean the plastic housing of the device wear disposable protective gloves and clean with denatured alcohol or hypochlorite solutions.

Washing and / or cleaning the autoclavable collection bottle can be carried out as follows:

- Wear protective gloves and apron (glasses and face mask if necessary) to avoid contact with contaminating substances;
- Disconnect the bottle from the device
- Disconnect all tubes from the jar and the filter
- Empty and properly dispose of the contents in the collection bottle
- Separate all parts of the cover (overflow valve, o-ring);

Thoroughly rinse all parts in cold water then soak in warm water (temperature not to exceed 60°C). Wash thoroughly and if necessary use a non-abrasive brush to remove and deposits. Rinse in running warm water and dry all parts with a soft cloth (non-abrasive).



**Do not use leave bleach solutions in the collection bottle. If required for disinfection, use a 10% bleach to water solution for cleaning, but then rinse thoroughly with water. Bleach can damage the polycarbonate material of the collection bottle.**

The collection bottle and lid can be autoclaved by placing the parts into an autoclave and running one sterilization stem cycle at 121°C (1 bar relative pressure) making sure that the jar is positioned upside down. Mechanical resistance of the jar is guaranteed up to 30 cycles of sterilization and cleaning at the indicated conditions (EN ISO 10079-1). Beyond this limit the physical-mechanical characteristics of the plastic may decrease and replacement of the part is therefore recommended.

After sterilization and cooling at ambient temperature, make sure that the parts are not damaged.

Assemble the bottle as follows:

- Place the overflow valve into its seat in the cover (under VACUUM connector)
- Insert floating valve keeping the o-ring towards the opening of the cage
- Place the o-ring into its seat around the cover
- After completing assembling operations always make sure that cover seals correctly to avoid vacuum or liquid leakage.

The aspiration tubes can be sterilized in an autoclave using a sterilization cycle at 120°C.



**DO NOT WASH, STERILIZE OR AUTOCLAVE THE ANTIBACTERIAL FILTER**

## MAINTENANCE

The **ACCURIS ASPIRE LABORATORY ASPIRATOR** does not require any routine maintenance or lubrication. It is, however, necessary to inspect the unit before each use. Unpack the instrument and **always check** the plastic parts for any damage that may have occurred during prior use. Connect cable to an appropriate electrical outlet with correct voltage and turn the power switch to on.

Close the aspiration outlet by blocking with a finger and with suction regulator set to maximum check that the vacuum gauge reaches at least -75 kPa (-0.75 bar) maximum. Rotate the knob from right to left and check the aspiration regulating control.

The vacuum indicator should go down to -25 kPa (-0.25 bar). Check that no loud noises are present.

A fuse (**F 1x4A 250V**) is located in the plug to protect the instrument. In the event of a fuse blowing, replace with another or the correct type.

Fault type	Cause	Solution
1. The vacuum system doesn't work	Cable is damaged	Replace the cable
	External power source failure	Check the external power source
2. No aspiration	Bottle Cap not screwed down properly	Unscrewed the cap, and re-attach carefully
3. No aspiration	Silicone cap seal (o-ring) not seated properly	Unscrew the cap and insert the seal properly.
4. The Vacuum power on the sample side is very low or absent	a) Vacuum regulator set to minimum	a) Turn the vacuum regulator clockwise and check the value of the vacuum on the gauge
	b) Protection filter blocked or damaged	b) Replace the filter
	c) Connection tubes blocked, kinked or disconnected	c) Replace or reconnect the tubes, check the bottle connections
	d) Shut-off valve blocked or damaged	d) Empty the bottle, or disconnect the tube from the bottle and unblock the shut-off valve. The unit will only work in the upright position.
	e) Pump motor damaged	e) Refer to authorised service personnel

5. The float in the overflow valve doesn't close	If the cap has been washed, ensure that the float is not partially detached	Insert the float into its proper position
6. The float in the overflow valve doesn't close	The float it's covered by dirty material	Unscrewed the cap, wash the overflow valve in clean water, and replace.
7. Low suction	Foam inside the bottle	Fill the bottle to 1/3 capacity with water
<b>Faults 1 - 2 - 3 - 4 - 5 - 6 - 7</b>	<b>None of the remedies has achieved the desired results</b>	<b>Contact Benchmark Scientific for Service Assistance</b>

If the overflow valve system fails, continued aspiration will cause liquid to contact the bacteriological filter and air flow will be blocked.

Should this back-up security also fail, there is a risk of liquid entering the vacuum pump system. Do not attempt to continue using the Aspirator in the event of liquid entering the vacuum pump system. Contact Benchmark Scientific for Service Assistance.

**Benchmark Scientific will provide upon request electric diagrams, components list, descriptions, setting instructions and any other information to assist with quick repair.**



**IN THE EVENT OF DAMAGED PARTS OR ABNORMAL OPERATION, PLEASE CONTACT BENCHMARK TECHNICAL SERVICE. THE MANUFACTURER CANNOT HONOR THE WARRANTY IF THERE HAS BEEN AN UNAUTHORIZED ATTEMPT AT REPAIRING THE INTERNAL COMPONENTS.**

## OPERATING INSTRUCTIONS

- Place the Aspire Aspirator on a flat, horizontal surface
- Connect the end of the short silicon tube, with antibacterial filter, to the suction connector.
- The other tube already connected to the filter has to be connected to the port on the bottle cap labelled "VACUUM". This is the port with the overflow prevention valve directly below. When the collection bottle is 90% full, the overflow prevention valve will be activated to block liquid from traveling to the filter and pump system.



**WARNING:** Ensure that the filter is installed correctly and that the side marked "IN" is toward the collection bottle. If the filter is installed incorrectly, liquid may come through the filter and cause damage to the pump system.

- Connect the long silicone tube to the "SAMPLE" port on the bottle lid.
- Connect the other end of the long silicon tube to the hand held vacuum pipette.
- Connect the power cord to the device then connect the power cord to an appropriate electrical outlet.
- Optional: Put some water, disinfecting liquid (ie 10% bleach to water), and/or antifoam agent into the collection bottle prior to aspiration of samples. It may be filled to 1/3 capacity with this liquid. Adding liquid prior to use will provide easier cleaning, may help prevent growth of biological contaminants, and will also increase the speed to reach full vacuum level.
- Push the green power switch on the front of the instrument to the on "I" position to start suction.
- During operation the collection bottle must remain in a vertical position to prevent the overflow protection valve from cutting off suction. Should this happen, switch off the device and disconnect the tube from the jar cover (from "VACUUM" outlet).
- Once finished push switch on 0 position and unplug.

- After usage it is recommended to remove the tubing and accessories and clean with water and mild detergent or autoclave.



**WARNING: NEVER USE THE DEVICE WITHOUT THE COLLECTION JAR AND FILTER PROPERLY INSTALLED**



## REQUIREMENTS FOR RETURNING AND REPAIRING

Accuris Brand Products carry a **24 month warranty from the date of purchase, covering manufacturing defects.**

In the event of a service related issue, contact Benchmark Scientific's Service Department at 908-769-5555.

In the event that the Aspirator unit needs to be returned to Benchmark for repair, contact Benchmark Scientific for a Return Authorization number. It is necessary to properly disinfect and decontaminate the instrument and accessories prior to returning. Put the instrument and accessories in a plastic bag with certificate of decontamination, and properly package the instrument and accessories prior to returning for service.

**Benchmark Scientific cannot be held liable for accidental or indirect damages should the device be modified, repaired without authorization or should any of its component be damaged due to accident or misuse.**