# Brochure Air Cleaning Units

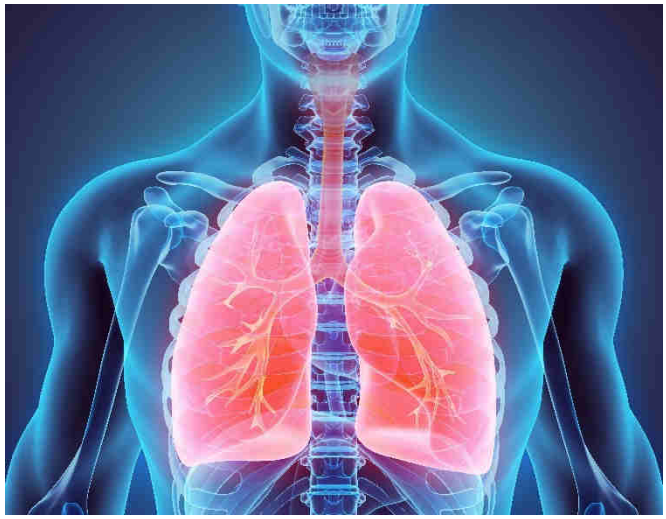
Version 22-03-2021

## Introduction

Salema Technology has developed a line of mobile air cleaning (purification) machines (also called FFU (Fan Filter Unit), negative air machine, positive air machine, air scrubber, negative pressure unit or positive pressure unit).These machines can realize air displacement and bring a space or room in negative pressure (underpressure) (NPU) or positive (overpressure) (PPU) and keep and control that air pressure .At the same time, air purification takes place in which the air is purified by a filter package of any pollution, contaminants, contamination, harmful and dangerous substances. Depending on the filters that are used, contamination, fibre, particles and micro particles as; dust, particulate matter, asbestos, fungus, viruses, bacteria, microorganisms, pollen and even smell can be filtered from the air.

**Development / design**

Clean air is a universal need. There are many places and applications where clean air/high air quality are not self-evident. Due to various causes, the concentration of contamination, fibres, particles and micro particles like; dust, particulate matter, asbestos, fungus, viruses, bacteria, microorganisms, pollen and odours can be very high.



In some applications and cases, there is legislation that provides for the above issues to remain within acceptable levels. However, our experience shows that in many cases, applications and areas safety is hardly guaranteed and that even with regulated standards of dangerous or harmful substances such as asbestos, fungi, high concentrations of dust and particulate matter there is a high risk of (permanent) damage to humans and the environment.

Besides the legislation, the equipment used is also essential to exclude risks as much as possible. And in particular in that area is where we want to make a difference in comparison with the competition and want to be far ahead of the (sometimes inadequate) legislation in this area.

Salema Technology's engineering team started the design of the air purifier from their own strengths. Not looking at competition, not just meeting with current health and safety regulations and other laws and regulations, but from own experience and insights come up with a design like a machine should be;

- Progressive measures for maximum safety and protection of people and the environment
- Using parts and materials of the best quality
- Optimized ease of use
- Extensive possibilities for the professional
- Intelligent design with unique features
- Robust design suitable for mobile use

**Operation**
The Salema Technology ACU machine has an electric motor with operating control system that drives a special fan and thus moves air. The result is an air displacement/air flow from one side to the other side of the machine in which the airflow is led through a number of filters. This creates a negative pressure on one side and positive pressure on the other side in which the outflowing air is filtered.


Depending on the application, the Salema Technology ACU machine can be used as a negative pressure (underpressure) machine (NPU) or as a positive pressure (overpressure) machine (PPU). In most cases the Salema Technology air cleaning unit is positioned /connected as a NPU to an airtight compartment or other sealed space/workspace, also known as containment. But the device can also be used as a PPU in a HVAC or cleanroom application.

**Applications**
Because Salema Technology has developed the ACU air purifier with the user in mind, it is suitable for use in a wide variety of applications and working areas. Applications of the Salema ACU devices vary from use in decontamination, dust control, remediation, construction, renovation, industry, agricultural, laboratory and medical field.

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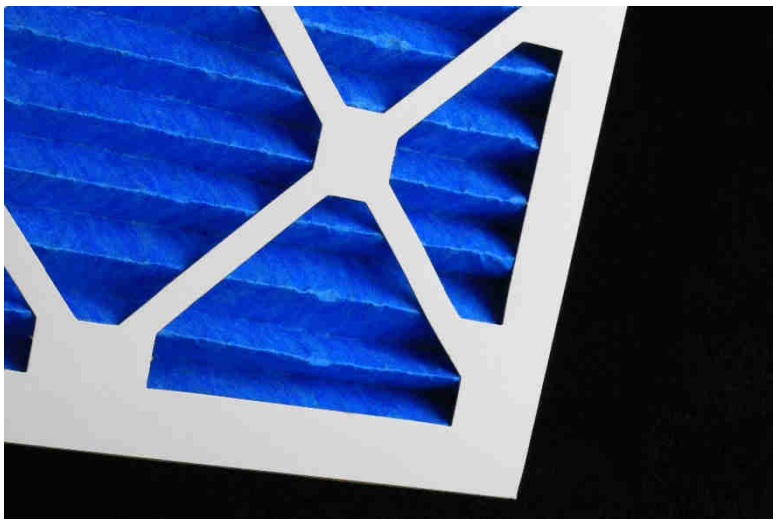
The Salema ACU machines can be used in areas such as:

- Medical
- Agricultural
- Industry
- Construction
- Laboratory
- Mobile operation room
- Re-construction work
- Dust control
- Wound therapy
- Cleanroom
- HVAC
- Remediation
- Dust combating
- Mobile hospital
- Laboratories
- Air purification
- Fire damage remediation
- Infection control
- Particle processing
- Decontamination
- Air quality improvement
- Field hospital
- Asbestos remediation
- Virus control
- Glass fibre processing
- Mold remediation
- Air cleaning
- Allergy control
- Dismantling drug laboratory
- Mould remediation


**Filters**



Due to the sophisticated design, the Salema Technology air cleaning unit allows different types of filters of different air filtration grade and filter class to be placed according to the applications. The ACU device is suitable for many different types of air filters such as HEPA and carbon activated filters. Of course, all filters within applicable filter standards and classes such as DIN, NEN, EU, G, M, F, H and U can be used.

Depending on the mounted air filter, degree of filtration and desired air treatment, the following contaminants may be removed from the air:

Asbestos
Fine dust
Dust particles
Fibres
Particles
Micro particles
Hexavalent chrome
Mould
Fungus
Mold
Bacteria
Chemical
Asbestos dust
Fungal spores
Pollen
Dangerous substances
Dust
Harmful substances
Hex chrome
Smell
Particle
Odours
Virus
Viruses
Bacterium
Chemicals
Microbiological organisms
Processionary caterpillar hairs
Chrome 6
Glass fibre
Oil mist
Fiberglass
Industrial dust
Lead paint
Cement dust
Diesel soot
Soot
Micro organisms
Germs
Allergens
Tobacco smoke
Chrome-6
Smoke
Smog
Pesticides
Gas molecules
Spores
Oil fumes
Fungi
Oak processionary caterpillar hairs
Quartz dust
Wood dust
Paint particles

## ACU features overview

The Salema Technology design has many unique features:

- Light weight robust aluminium housing, powder coated
- Sturdy handles for machine handling and fixation of the ACU during transport
- Strong casters, front wheels swinging with brake
- The ACU units are easily stackable
- Seal cover outlet side for safe transport (only ACU 1500 and ACU 3200)


- Safety cover (transport cover) on suction side with magnetic tool box
- Including T-grip torque tool for securing the holding frame (for fixation of the filter) and safety transport cover
- Including filter room status plate for recognition of dirty or clean filter room

- Highly energy efficient electric motor
- High capacity/performance optimized fan
- Highest quality electronics
- Status and warning lights with 360° visibility*
- Quick and easy to replace power cord with strain relief
- Large, 7 Inch, full colour, touch screen (industrial) control panel*
- Low noise emission design

- Unique double filter room (airtight) for maximum safety
- Fully smooth inner housing for easy cleaning
- Unique double safety seal construction
- Easy docking with containment base plate and magnetic holding frame, no need for applying tape*
- Suitable for virtually all filter manufacturers. Salema Technology does not force users to use certain brands


- Full user management system, user log can be stored on USB*
- Very complete alarm log file, can be saved on USB*
- User log for full registration of settings*
- Intelligent automatic and manual filter management for efficient use of filters*
- Datalog functionality (continuous real time) for measurement process information, can be stored on USB*


- Automatic soft start
- Can be used as a underpressure (negative pressure) or as a overpressure (positive pressure\) machine
- Automatic recovery start after power supply failure
- 3-fold control mode; manual, automatic and guard control*
- Complete user definable alarms for containment pressure and filter replacement
- Several convenient gauges for process information*
- Process information appears in real-time graphs on a separate screen*
- Boot screen customisable by user with own company logo and contact information*
- Multi-language ACU control system: English, Deutsch, Español, Français, Italiano, Nederlands*

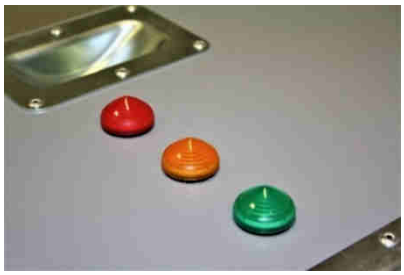
*Only ACU-IQ


- Quality produced in the Netherlands
- CE Certified, complies with ISO and machine directive
- 12 months full warranty

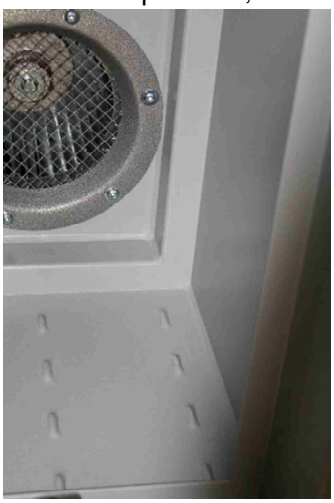
## ACU features in detail

Unique high energy efficient electric motor with high capacity/performance optimized fan. High quality fan/motor, perfectly balanced system for powerful low vibration and noise operation.

Conventional machines only have warnings on the control panel of the machine, which are not visible from distance and not by people working in the infected/polluted space. Salema Technology has equipped the ACU machine* with status and warning lights with 360° visibility, so warnings can be seen from great distance and even from within the containment! *Only ACU-IQ




Salema Technology has developed the ACU machine with a unique double filter room (airtight) for maximum safety. If one of the rooms would develop a leak, there is another airtight room around it. This prevents any hazardous substances from being discharged. In conventional machines, leaks occur regularly, resulting in emissions of dangerous substances.



The unique Salema design also gives a completely smooth inside filter housing that can be easily cleaned/decontaminated. Conventional machines often claim to have “smooth” filter housing, but then why do they have handles, rivets and all sorts of hard to clean edges inside of the filter housing? The Salema filter housing really is smooth and easy to clean, no dishonesty.

The Salema Technology ACU machines are equipped with a unique double safety seal construction. This is a special sealing construction in which, when a filter seal fails, no emissions from hazardous substances can occur because an additional seal is included in the machine in parallel. In conventional designs, a seal failure would mean that these dangerous substances would be discharged in the outlet of the machine under high pressure spreading into the “safe” space! This can result in extremely dangerous situations and have huge negative impact on humans and environment. Thanks to the high safety designs of Salema Technology this risk is virtually excluded.


To further enhance safety, the Salema ACU machines come complete with a special torque tool. This ensures that all bolts/nuts are fastened with the correct toque, so that the seals are always correctly tightened. This way you know that seals have enough preload and cannot be overtightened with risk of damage to the seals. The tool and any bolts and nuts can be placed in the magnetic tool tray, so they will not get lost. Conventional machines either have a normal wrench without torque limiter included or use a quick lock (or tension lock) system. Both normal tool without torque and quick lock are not the safest way and cannot guarantee the proper preload of the seals. When seals are compressed (over time), the quick lock will no longer give the correct load on the seal and compress the seal enough to work properly. On top of this, these quick lock systems come loose easily by accident, with high danger of contaminations with dangerous substances.

The Salema ACU machine has a special, easy replace, power cord with lock and stain relief. This allows for easy and quick replacement of the power cord when the cord is damaged. Normal machines have a power cord directly connected to the machine. In case of a damaged cord, there is no quick way to replace the power cord, so the machine cannot work, causing possible dangerous situations. On top of this, the warranty of such a machine will be void, because you have to disassemble the machine in order to replace the damaged power cord. Just another clever detail of the Salema Technology air cleaning units.

In case of a power supply failure, the Salema ACU machine has an automatic recovery start when the power supply is restored again. All settings from before are stored and the ACU machine will automatically start to regulate to meet the settings within the shortest amount of time. Just like any normal start-up of the machine, the ACU has a soft start operation.

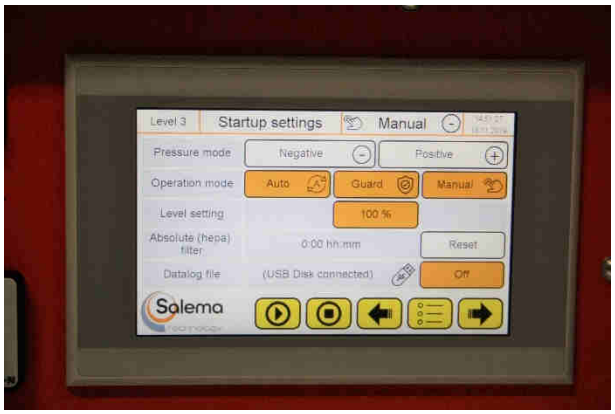

The ACU machine* is equipped with a large , 7 inch, full colour, touch screen (industrial) display and PLC control system. The menu structure is intuitive and has a user management system, that allows settings to be modified according to a certain user level. This means that for instance a supervisor can do the setup of the machine, while the operator can only change a limited amount of settings. This allows for more safety as the operator cannot make any mistakes caused by modifying settings that are above his

training level / knowledge. This also makes the Salema ACU machine very suitable for rental purposes. The intuitive menu and different user levels also make the machine very simple to operate, a low level operator can start the machine with pressing just 2 buttons on the touch screen! A 3-year old child can operate the machine (yes we literally tried that) *Only ACU-IQ


The Salema ACU control system* also has an integrated user log, alarm log and data log. All settings made by the user, occurring alarms and all relevant process information, measurements and sensor values are stored internally and can later be transferred/stored on a USB device via the USB port on the ACU control panel. This way you can verify if the machine and application has been working within the set parameters and within any applying regulations. *Only ACU-IQ

The alarms* for differential pressure (containment pressure) and filter replacement pressure can be fully set by the user. Also the user can define if the ACU machine will be used in a negative pressure (underpressure) or positive pressure (overpressure) operation. *Only ACU-IQ

The display* has several convenient gauges for displaying process information (containment pressure, machine capacity, filter pressure and motor current) . Also there is a separate screen available where all important data is shown in a real-time graph. *Only ACU-IQ




The ACU controller* has a 3 control modes; manual, automatic and guard control.
In manual mode, the operator can manually adjust the machine capacity (motor/fan speed (rpm)). In automatic mode, the machine can automatically keep a space in the pre-adjusted pressure limits. With the guard function, the machine continuously measures the pressure in the space and if the pressure then falls outside of these pre-set limits (for instance when another machine stops), the Salema ACU will start automatically and work to bring the pressure back within the set limits, within the shortest amount of time. Conventional machines can only be operated manually, which means there is a high risk of errors in case of incidents or when the filters are getting fuller (reduces that machines performance).
Salema Technology has developed intelligent automatic filter management (IFM) for efficient use of filters. Conventional machines only use the filter capacity for a small part because they have a fixed total replacement pressure value for the filters. So when the absolute filter is getting fuller, you are essentially replacing the intermediate and pre-filters a lot sooner than needed. This creates a very large amount of contaminated filters that then give a large environmental impact in the case of further processing. The Salema Technology machine determines the (replacement )pressure value for all of the placed filters separately. So each filter can be used to the maximum of it's pressure drop capacity. The separate replacement pressures for all filters can be set in the ACU control system. We also give you the possibility to use manual filter management, this allows the user to set a maximum total filter pressure for the total filter package. *Only ACU-IQ



The Salema ACU machine comes complete with a filter room status plate. This magnetic plate that has 2 sides to indicate if the filter room is clean or dirty (contaminated). We came up with this solution to avoid safety risks. It is important to know if a machine has a contaminated filter room or a fully cleaned filter room, because handling and safety precautions are essential for machines with a dirty filter room. Also this avoids mistakes when multiple machines are placed beside each other, preventing that the wrong machine is selected.


The last featured Salema Technology innovation is the containment base plate with magnetic holding frame* for easy docking of the ACU to a containment. This allows users to easily connect the ACU machine to the plastic containment foil. The magnetic holding frame  secures and seals the foil against the containment base plate. Because the containment plate is slightly wider, tape can be applied to the other side of the plate and plastic foil sheet for a double sealing of the plastic sheet. Important to notice is that there is no need to apply tape to the outside of the machine (because the magnet seal is very strong), greatly improving sealing and also saves a lot of time-consuming and costly cleaning of the machine casing to remove tape residue. *Only ACU-IQ

## ACU types / models

The Salema Technology Air Cleaning Units are available in different models and types.

**Machine models / capacities:**

- ACU 1500
- ACU 3200
- ACU 6200
- ACU 10000

**Machine types:**
ACU-M
ACU-IQ

ACU-M
The ACU-M air cleaning machine (type M) is the basic version of the ACU series. This machine has the same quality and basic technology as the ACU-IQ, only this machine is equipped with a basic control, that can only control the motor/fan speed.


ACU-IQ
The ACU-IQ air cleaning machine (type IQ) is the flagship of the ACU series. This machine is equipped with extensive electrical control with a touchscreen. With this extensive control and associated safety features, this type of machine is extremely suitable for use in critical safety applications.

| | Machine types | |
|---|---|---|
| **Machine models / capacities** | ACU-M | ACU-IQ |
| ACU 1500 |  |  |
| ACU 3200 |  |  |
| ACU 6200 | Product Image Coming Soon |  |

| | Machine types | |
|---|---|---|
| **Machine models / capacities** | ACU-M | ACU-IQ |
| ACU 10000 |  |  |

## Comparison ACU-IQ and ACU-M

| Properties | ACU-M | ACU-IQ |
|---|---|---|
| Light weight robust aluminium housing, powder coated | V | V |
| Sturdy handles for machine handling / fixation of ACU during transport | V | V |
| Strong casters, front wheels swinging with brake | V | V |
| The ACU units are easily stackable | V | V |
| Seal cover outlet side for safe transport | V | V |
| Safety cover on suction side with magnetic tool box | V | V |
| Torque tool for securing the filter frame and safety cover | V | V |
| Filter room status plate | V | V |
| Highly energy efficient electric motor | V | V |
| High capacity/performance optimized fan | V | V |
| Highest quality electronics | V | V |
| Status and warning lights with 360° visibility | X | V |
| Quick and easy to replace power cord | V | V |
| Large, 7 Inch, full colour, touch screen (industrial) control panel | X | V |
| Low noise emission design | V | V |
| Unique double filter room (airtight) for maximum safety | V | V |
| Fully smooth inner housing for easy cleaning | V | V |
| Unique double safety seal construction | V | V |
| Easy docking with containment base plate and magnetic holding frame, no need for applying tape | O | V |
| Suitable virtually all filter manufacturers | V | V |
| Full user management system, user log can be stored on USB | X | V |
| Very complete alarm log file, can be saved on USB | X | V |
| User log for full registration of settings | X | V |
| Intelligent automatic and manual filter management for efficient use of filters | X | V |
| Datalog functionality (continuous real time) for measurement process information, can be stored on USB | X | V |
| Automatic soft start | V | V |
| Can be used as a underpressure (negative pressure) or as a overpressure (positive pressure\) machine | V | V |
| Automatic recovery start after power supply failure | V | V |
| 3-fold control mode; manual, automatic and guard control | X | V |
| Complete user definable alarms for containment pressure, filter replacement and filter defects | X | V |
| Several convenient gauges for process information | Pressure gauges | V |
| Process information appears in real-time graphs on a separate screen | X | V |
| Boot screen customisable with own company logo / contact information | X | V |

O = Optional
V = Standard
X = Not available

## Technical data ACU

### Dimensions and weight

| | ACU 1500 | ACU 3200 | ACU 6200 | ACU 10000 |
|---|---|---|---|---|
| Length (incl. seal cover) (mm) | 1041 | 1093 | 1143 | 1223 |
| Width (mm) | 484 | 484 | 789 | 789 |
| Height (mm) | 568 | 874 | 874 | 1174 |
| Hose connection exhaust air (mm) | 2x Ø120 | Ø 300 | Ø 450 | Ø 450 |
| Working pressure connection hose Out/In (mm) | Ø 8 / 6 | Ø 8 / 6 | Ø 8 / 6 | Ø 8 / 6 |
| Weight (ready for use) (no filters) (Kg)* | ACU-IQ:<br>ACU-M: | ACU-IQ: 64<br>ACU-M: 62 | ACU-IQ: 74<br>ACU-M: 72 | ACU-IQ: 100<br>ACU-M: 97 |
| Weight complete (no filters) (Kg)* | ACU-IQ:<br>ACU-M: | ACU-IQ: 69<br>ACU-M: 67 | ACU-IQ: 86<br>ACU-M: 84 | ACU-IQ: 108<br>ACU-M: 105 |

### General

| | ACU 1500 | ACU 3200 | ACU 6200 | ACU 10000 |
|---|---|---|---|---|
| Power cable type | H07RN-F 3G1,5 | H07RN-F 3G1,5 | H07RN-F 5G1,5 | H07RN-F 5G1,5 |
| Type of protection (with seal cover) | IP54 | IP54 | IP54 | IP54 |
| Filter system | 3-stage | 3-stage | 3-stage | 3-stage |
| Filter 1: Absolute HEPA filter (mm) | 305 x 305 x 292 | 305 x 610 x 292 | 610 x 610 x 292 | 610 x 910 x 292 |
| Filter 2: Intermediate filter (mm) | 305 x 305 x 47 | 305 x 610 x 47 | 610 x 610 x 47 | 610 x 910 x 47 |
| Filter 3: Pre filter (mm) | 305 x 305 x 47 | 305 x 610 x 47 | 610 x 610 x 47 | 610 x 910 x 47 |
| Sound level (dB)** | 90 | 95 | 99 | 99 |

### Performance

| | ACU 1500 | ACU 3200 | ACU 6200 | ACU 10000 |
|---|---|---|---|---|
| Air displacement (free blowing) max.* ($m^3/h$)*** | 2295 | 4400 | 7200 | 11500 |
| Air displacement (with filters @800 Pa) max.* ($m^3/h$)*** | 1740 | 3800 | 6700 | 10900 |
| Air displacement (with filters @1000 Pa) max.* ($m^3/h$)*** | 1475 | 3200 | 6200 | 10000 |

| | | | | |
|---|---|---|---|---|
| Power connection (V) | 220 / 230 | 220 / 230 | 380/400 | 380/400 |
| Frequency (Hz) | 50 / 60 | 50 / 60 | 50 / 60 | 50 / 60 |
| Electric motor current max. (A) | 3,3 | 6,5 | 4,6 | 6,8 |
| Electric motor power max. (kW) | 0,75 | 1,5 | 3,05 | 4,5 |
| Electric motor speed (rpm) max | 4250 | 3200 | 3230 | 2480 |

* Calculated value
** Value specified by manufacturer (max)
*** Because the Salema Technology ACU machines are high power and high performance, the filters that are used may not be able to handle the large airflow. The capacity of the ACU machine may be changed (lowered) by the distributor to better adapt to the filters that are used.

## Options

| Options | | |
|---|---|---|
| | ACU-M | ACU-IQ |
| Non return valve exhaust air | O | O |
| Power cable length 5 m. | O | O |
| Nozzle inlet connection 4x Ø 100mm (ACU 3200) | O | O |
| Nozzle inlet connection 1x Ø 300mm (ACU 3200) | O | O |
| Magnetic containment holding frame | O | V |
| Shock and tilt detector / data logger | O | O |

O = Optional
V = Standard
X = Not available

## Delivery / included with machine

- Torque tool
- Socket 13mm
- Seal cover for outlet side
- Safety cover for suction side
- Filter room status plate
- Power cord 3m
- User manual (digital USB stick)

## Pricing

Please contact your dealer for a price list or quotation.

**Dealer info:**

## Contact information

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