



HVAC
AIR PURIFICATION
TECHNOLOGIES
2021

ROCHEGGIANI®
care for air

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Roccheggiani, a solid expertise in Indoor Air Quality

The awareness of the risks related to poor Indoor Air Quality (IAQ) recently increased due to the Covid-19 pandemic. While it is common sense to identify pollution as an outdoor problem, indoor environment, where we spend 90% of our time, poses the major risks to our health and well-being.

The air we breathe at home, at school and at work, carries volatile organic compounds (VOCs), moulds, bacteria, spores, viruses and odours. That is a natural and sustainable condition, unless the concentration of those compounds exceeds given values, resulting in an unhealthy environment.

Poor IAQ negatively impacts our health being responsible for the so called Sick Building Syndrome, whose symptoms are headache, nausea, irritation on eyes, nose, throat, asthma. These are apparently light symptoms but prolonged exposure to indoor polluting elements might lead to chronicization.



HVAC system effectiveness in delivering excellent levels of IAQ, is therefore of paramount importance. Good practice is to consider all the solutions needed to ensure an healthy environment while approaching the design stage.

Roccheggiani boasts a significant expertise in air sanification, derived from multiple projects on low and very low contamination applications over the past 20 years. Roccheggiani's technologies for air sanification span from systems which can be fitted on air handling units to stand alone units designed to serve a great variety of indoor environments.



For further information and updates please refer to the digital documents on the website
<https://www.roccheggiani.it/en/air/catalog/hvac-solutions/air-purification-technologies/all/>

UV-C SECTIONS

VERY HIGH OUTPUT UV-C GERMICIDAL LAMPS

- Sterilization rate up to 99,99%
- Bespoke design according to actual conditions
- Integrated within Roccheggiani AHUs



Roccheggiani has been installing UV-C lamps for more than 20 years in air handling units serving applications with low and very low contamination requirements.

All UV-C sections are designed based on customer specific requests and feature cutting edge UV-C technology. The design of the UV-C section accounts for working temperatures, relative humidity, air velocity, contact time between light and polluting particles. The objective is to eliminate viruses, bacteria, moulds and prevent their proliferation by destroying their DNA chains.

These sections provide far higher UV-C dose compared to room UV systems or plug-in systems, thus standing as the major solution to achieve sterilization rate up to 99,99%.

Virus DNA
before UV rays
action



Virus DNA
breakdown due
to UV rays
action



STERI-LITE

STERI-LITE

THE ULTIMATE SOLUTION
FOR AIR PURIFICATION

- Very high dose germicidal lamps (up to 20.000 $\mu\text{J}/\text{cm}^2$)
- High surface frame coated with Airlite© painting
- Effective against viruses, polluting compounds (NOx) and odours



The new Steri-Lite technology for air sterilization and disinfection originates from the extensive expertise in air quality and purification developed by Roccheggiani and AM Technology.

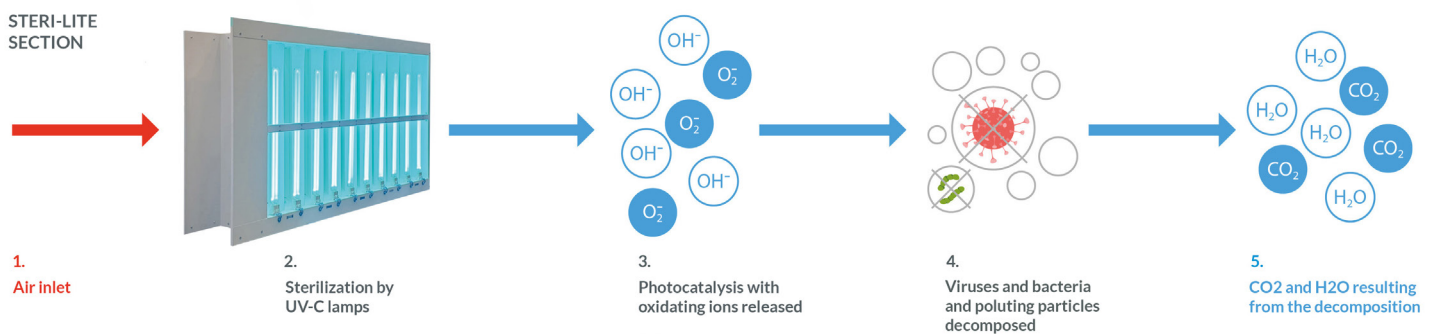
Steri-Lite modules can be installed within Roccheggiani's AHUs and prove extremely effective in eliminating viruses, microbes and airborne. Steri-Lite combines the characteristics of Airlite© developed by AM Technology with the well-known effects of the UV-C technology, thus generating two major effects: sterilization and disinfection.

Sterilization

Very high output UV-C lamps up to 20.000 $\mu\text{J}/\text{cm}^2$, designed based on the working parameters.

Disinfection

UV-C light promotes the photocatalytic effect on dedicated frames coated with Airlite©, thus generating hydroperoxide ions, hydroxide ions, superoxide ions, all with high oxidation potential but harmless to human and animals. Those ions are especially effective in eliminating viruses, NOx and odours by putting in place the same disinfection process we experience in nature (responsible for the feeling of fresh and clean air after a thunderstorm).



Steri-Lite ensure a safe and durable air purification effect. While the action of UV-C lamps is safely enclosed within the AHU, the barrier of oxidating ions originates from photocatalysis on the Airlite© coated surfaces and flows along the HVAC system ducts to the occupied spaces where the decomposition of polluting substances is continued.

STERI-LITE

The effectiveness of Airlite® coating has been extensively proved by several success stories and experimental tests performed by renowned laboratories and universities worldwide.

- Antibacterial effect – (Università La Sapienza - Rome)
- Antiviral effect – (Guangdong Detection Center of Microbiology – China, Università La Sapienza – Rome, Virology Research Services Ltd – UK)
- Anti-pollution from NOx effect (Università La Sapienza - Rome, Queens IPS - UK)

Sterilite technology can be applied in all Roccheggiani air handling units. The Sterilite section is designed based on specific working conditions to ensure the highest effectiveness.

Sterilite represents a valuable solution, with tremendous impacts on IAQ and the health, the well-being, and the productivity of the occupants. Sterilite modules are especially recommended for Roccheggiani units serving hospitals, nursing homes, offices, medium-large commercial spaces and in general wherever a durable, valuable and complete solution for air purification is required.



SRU

CONTROLLED MECHANICAL VENTILATION, STERILIZATION AND DISINFECTION IN CLASSROOMS, OFFICES AND RESTAURANTS



- ErP 2018
- Heat recovery efficiency > 85%
- Roccheggiani Steri-Lite® system for sanitation and sterilization
- Airflow up to 1.000 m³/h
- Plu&Play (integrate control)



The SRU series, specifically designed for delivering fresh, purified and odourless air, consistently reduces the concentration of volatile organic compounds (VOCs), moulds, bacteria, spores, viruses and odours.

The SRU unit combines fresh air supply, filtration and relevant energy savings due to the high heat recovery efficiencies. Very high dose UV-C lamps (18.000 µJ/cm² - Sars-Cov-2 inactivation dose = 3.700 µJ/cm²) provide air sterilization and promote air disinfection by interacting with Airtite® coated surfaces, thus generating by photocatalysis oxidizing compounds such as hydroperoxide, hydroxide, superoxide ions.

The SRU series stands out as the ideal solution for air renewal and purification in classrooms, offices and restaurants.

APPLICATIONS



Schools and institutes



Restaurants



Offices



Sport facilities

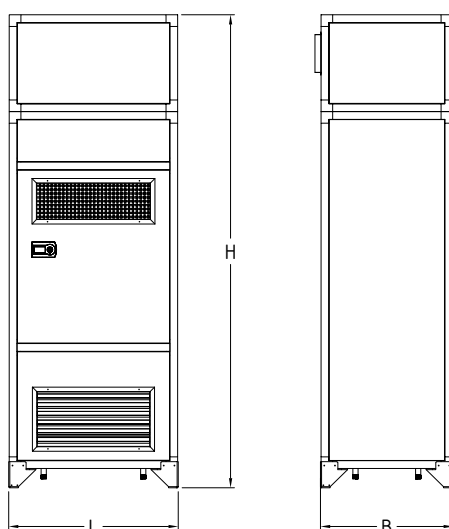


Medium surface environments

ACCESSORIES

- Additional electric heater
- Fresh/Exhaust air module for wall installation, including circular ducts with telescopic junction
- Outdoor wall terminal

Model SRU	u.m.	
Nominal Airflow	m ³ /h	760
Heat recovery	u.m.	
Energy efficiency (1)	%	86,8
Total recovery capacity (1)	kW	6,1
Supply air temperature (1)	°C	17,6
Supply air relative humidity (1)	%	16,7
Temperature energy efficiency (2)	%	80,5
Electric characterization	u.m.	
Supply fan power	W	170
Supply fan current	A	1,5
Return fan power	W	170
Return fan current	A	1,5
Optional electric heater	W	640
Power supply	V/Ph/Hz	230/1/50
Filtration	u.m.	
Supply air filter		ISO Coarse 55% (G4) + ePM1 80% (F9) - ISO 16890
Return air filter		ISO Coarse 55% (G4) - ISO 16890
Sterilization + Disinfection Steri-Lite®	u.m.	
Total power output within UV 253,7 nm band	W	24
Dose	μJ/cm ²	18.053
Airlite® promoted photocatalysis		
Compliance 1253/2014 (3)	u.m.	
Declared unit type		NRVU/BVU
Working mode		Variable speed
Thermal efficiency	%	80,90
Specific fan power	W/m ³ /s	811
Sound power output	dB(A)	57,9
Dimensions	u.m.	
B	mm	686
H	mm	2443
L	mm	876
Weight	kg	343



Notes: (1) Performances refer to winter operations: outside air -5°C/80%, indoor air 21°C/50%; (2) dry thermal efficiency with 20°C difference between indoor and outdoor air; (3) Differential pressure gauges supplied integrated in the unit in compliance with Ecodesign directive.



SFCU

AIR STERILIZATION AND DISINFECTION UNIT FOR SMALL AND MEDIUM SURFACE ENVIRONMENTS

- Roccheggiani Steri-Lite® system for sanitation and sterilization
- H14 absolute filter (integral efficiency $\geq 99,995$ according to EN1822)
- Airflow up to 1.500 m³/h
- Plug&Play (integrated control)



SFCU unit provides trifold action to limit the presence of volatile organic compounds (VOCs), moulds, bacteria, spores, viruses and odours.

- Advanced filtration by multiple stages, including final H14 absolute filter.
- Sterilization by very high dose UV-C germicidal lamps, 6.800 $\mu\text{J}/\text{cm}^2$.
- Disinfection by hydroperoxide and hydroxide ions generated by photocatalysis as UV light interacts with extended Airlite® coated structures.

APPLICATIONS



Restaurants



Sport facilities



Schools and institutes



Wellness centres



Supermarkets



Offices



Shops

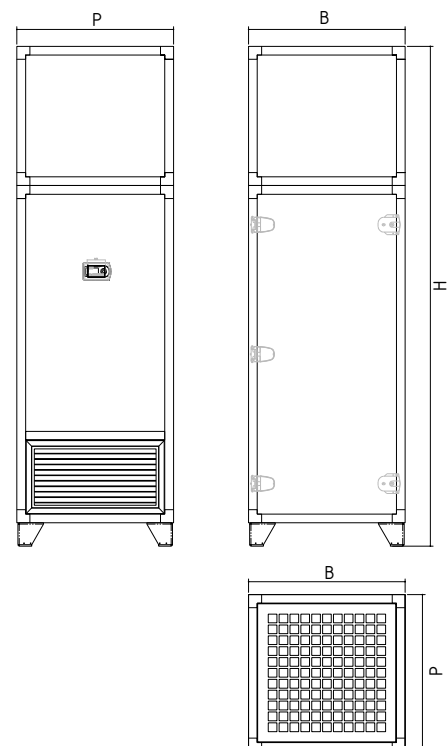
ACCESSORI

- Optional sound attenuating module

Main features:

- Brushless EC fans
- Plug&Play unit with LCD integrated backlit display for airflow variation, clogged filters alarm, time programming, ON-OFF.
- Multistage filtration with final H14 absolute filter
- Roccheggiani Steri-Lite® system: very high dose UV-C lamps combined with Airlite® coated surfaces (sterilization and photocatalytic release of oxidizing ions for air disinfection and deodorization)

Model SFCU	u.m.	
Airflow	m ³ /h	up to 1.500
Recommended treated surface(1)	m ²	up to 150
Airborne sound power (max airflow)	dB(A)	55,1
Fans	u.m.	
Nominal fan power	W	500
Nominal fan current	A	1,57
Power supply	V/Ph/Hz	230/1/50
Filtration	u.m.	
1st + 2nd stage - coarse dust		ISO Coarse 30% (G2)+ISO Coarse 55% (G4)
3rd stage - fine dust		ePM1 65% (F7) - ISO 16890
4th stage - absolute		≥99,995 according to EN1822 (2)
Sterilization + Disinfection Steri-Lite®	u.m.	
Total power output within UV 253,7 nm band	W	76
Dose	μJ/cm ²	6.800
Airlite® promoted photocatalysis		
Dimensions	u.m.	
B	mm	720
H	mm	1657 (2297 with sound attenuating optional module)
P	mm	720
Weight	kg	115



Notes: (1) reference to rooms with 3 m high ceiling; (2) efficiency for particles with reference size 0,3 μm.



PLUG-IN MODULES

EASE OF INSTALLATION, ALSO FOR EXISTING HVAC SYSTEMS

Plug-in modules are specifically useful whenever an air sanitization process has to be provided on existing air handling units or HVAC systems. The air purifying action is related to the photocatalytic effect generated by the interaction of UV light with humid air and a catalyst: oxidizing ions are released such as hydroperoxide, hydroxide, superoxide ions, extremely aggressive towards bacteria, viruses, NOx and odours, but harmless to human, animals and vegetables. That is a significant advantage when compared to widely used but potentially harmful sanitization substances, like fluorine and chlorine.

HVAC-MINI

- Effective against bacteria, viruses, moulds, odours, VOCs
- Photo-Hydro-Ionization technology (PHI®)



HVAC-MINI is extremely easy to install and can be combined to compact units such as Roccheggiani's TCL, TCU or existing fan coils.

Technical data	
Cell Power Output	11
Power supply	12Vdc (transformer included)
Max recommended airflow (m³/h)	1500
Cell size WxLxH (mm)	55x265x30

HVAC-REME HALO LED

- Effective against bacteria, viruses, moulds, odours, VOCs, smoke, airborne
- LED UV technology results in long life, ozone-free and mercury-free operations
- Photo-Hydro-Ionization technology (PHI®) and Reflective Electro Magnetic Energy technology (REME®)



HVAC-REME HALO LED includes a UV LED cell and an technologies hybrid hydrophilic catalyst and combines Photo-Hydro-Ionization technology (PHI®) and Reflective Electro Magnetic Energy technology (REME®). The device promotes the generation of an oxidizing plasma consisting of hydroperoxide, hydroxide, superoxide ions, extremely effective in cleaning the air from polluting elements. Self-cleaning carbon-fiber ionizing brushes make HVAC-REME HALO LED effective in airborne elimination.

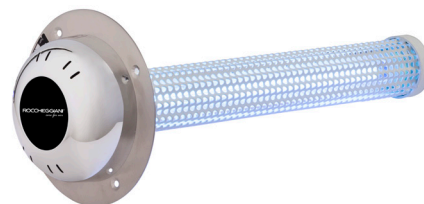
HVAC-REME HALO LED might be installed in air ducts or as an optional in Roccheggiani's air handling units. The device is designed to operate when the HVAC is ON.

Technical data	
Cell Power Output	17
Power supply	24Vac (transformer included)
Max recommended airflow (m³/h)	11.000
Plate WxLxH (mm)	165,1x190,5

MODULI PLUG-IN

HVAC-GA

- Effective against bacteria, viruses, odours, VOCs
- Photo-Hydro-Ionization technology (PHI®)



HVAC-REME GA consists of a UV cell and catalyst made of 4 different metals (titanium, silver, rhodium, copper). Photo-Hydro-Ionization (PHI®) is the technology enabling a robust action towards improving Indoor Air Quality.

HVAC-GA might be installed in air ducts or as an optional in Roccheggiani's air handling units. The device is designed to operate when the HVAC is ON.

Technical data	AOP HVAC-GA9	AOP HVAC-GA9
Cell Power Output	14	17
Power supply	12Vdc (transformer included)	
Plate WxLxH (mm)	Ø 152,4	
Max recommended airflow (m³/h)	11.000	30.000





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