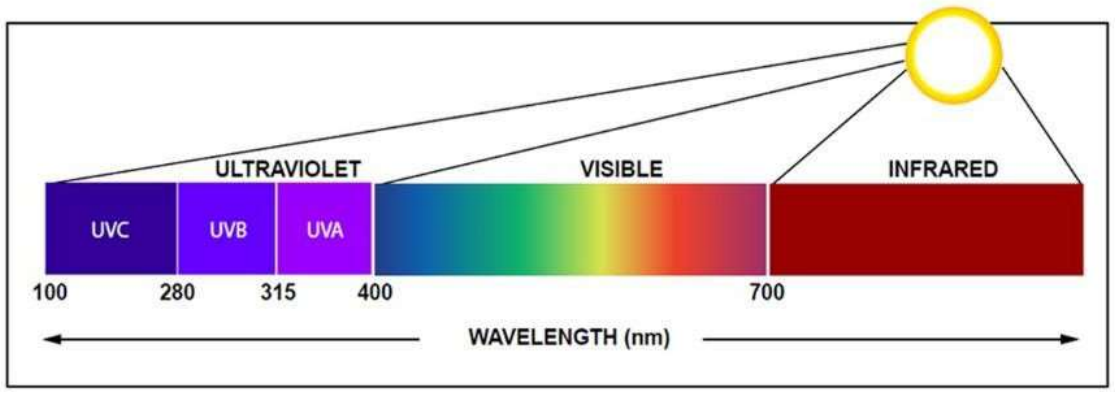
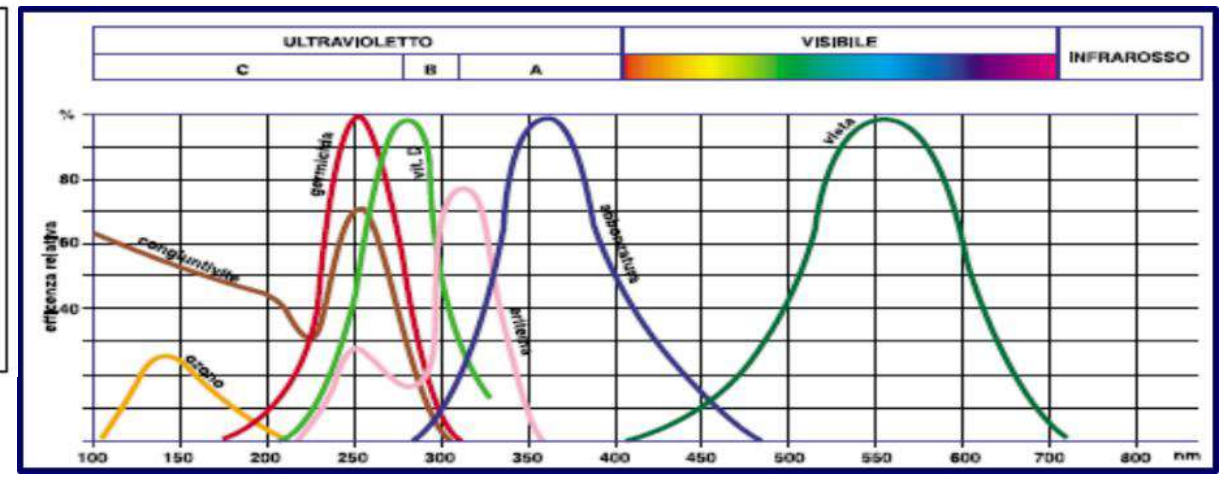
FILTREX

UltraViolet Germicidal Irradiation (UVGI)

What does UVGI mean ?





Light in a broad sense can be divided in visible, infra-red and ultraviolet rays. Ultra-violet rays (invisible) can be classified in :

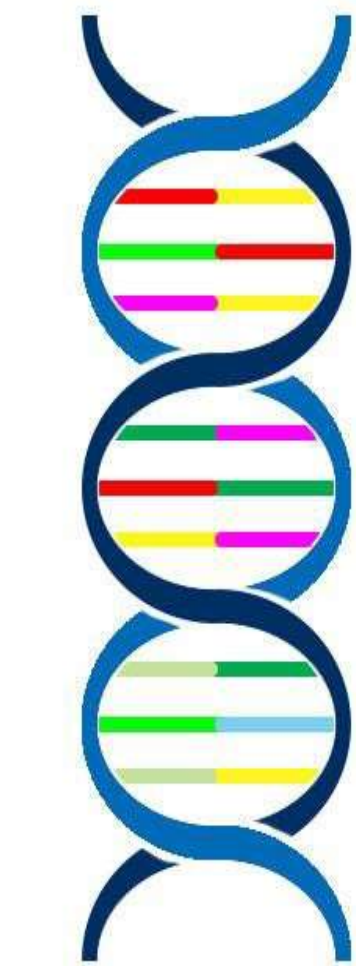
- UV - A (with tanning properties),
- UV - B (with therapeutic properties)
- UV – C (with germicidal properties).

What does UVGI mean ?

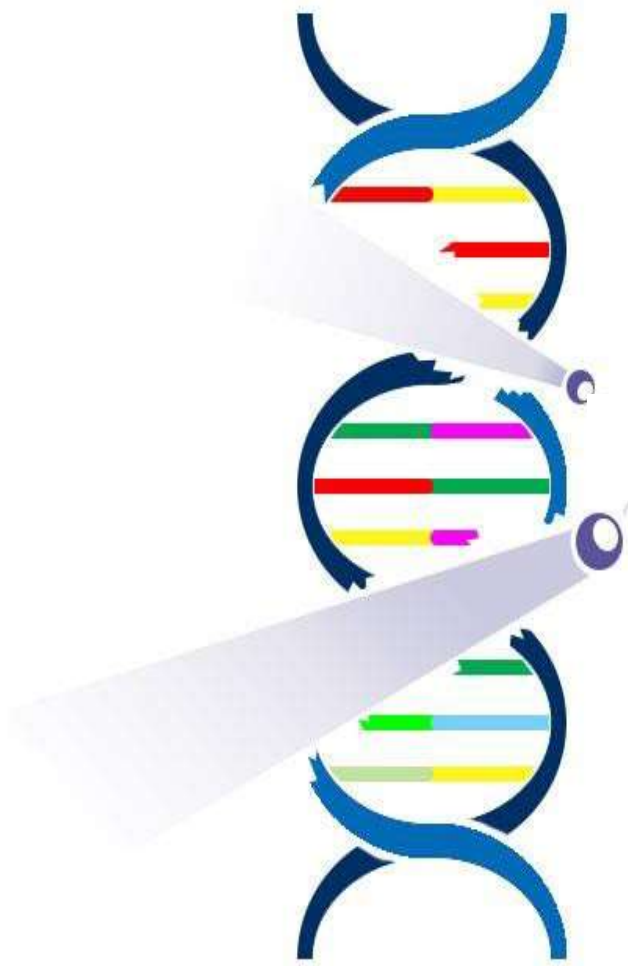
The absorption of a UV photon by the DNA of microrganisms causes a destruction of a link in the DNA chain, and consequently the inhibition of DNA replication.

The germicidal effects of the UV C radiation destroy DNA of Bacteria, Viruses, Spores, Fungi, Molds and Mites avoiding their growth and proliferation.

UVGI technology is a physic disinfection method with a great costs/benefits ratio, it’s ecological, and, unlike chemicals, it works against every microorganisms without creating any resistance.



Micro-organism DNA
(before UV-C exposure)

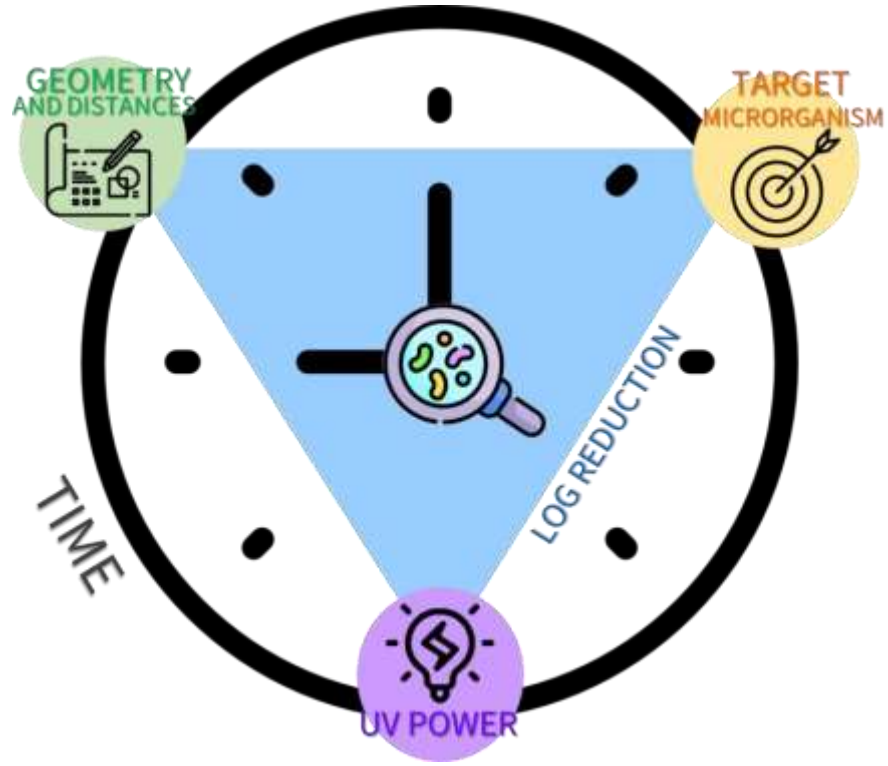


Micro-organism DNA
(broken by UV-C exposure)

UV Disinfection Key Factors

Each microorganism has a specific UV-resistance threshold, called DOSE. The specific dose need to be delivered to get a proper disinfection level, which is expressed in LOG REDUCTION (1 Log=90%, 2 Logs=99%, 3 Logs=99,9%, etc).

Therefore, for some microorganisms a low level of UV POWER is sufficient to be eliminated, while for others it takes more power to get same elimination level...or alternatively a longer exposure TIME.



These factors are essential to understand UV technology:

- Disinfection level that needs to be achieved (Log Reduction);
- Target pathogen (and its dose)
- UV power in play
- Exposure time geometry and distance balance

UV DOSE needed to eliminate 99% (2 Logs) value in (µW/cm2 SEC)

BACTERIA		Virus (genieric, DNA e RNA)	
Mycobacterium tuberculosisn (TBC)	4300	Virus dell' influenza A	4558
Escherichia coli ATCC 11229	4800	Hepatitis A HM175	8000
Legionella pneumophila ATCC 33152	3200	Corona Virus (SARS-CoV1 – MERS-Cov)	1200-1500
Pseudomonas aeruginosa ATCC 9027	6500	Rotavirus	15000
Salmonella ATCC 6539	4500	Molds	
Staphylococcus aureus	3200	Aspergillus Amstelodami	66700
Streptococcus hemolyticus	4400	Aspergillus Brasiliensis (Niger)	226000
Vibrio cholerae	4100	Yeasts	
MRSA	6550	Comuni lieviti dolciari	12000
Clostridium Difficile	10000	Lievito di birra	20000

SANITATION means bringing the microbial load into acceptable and optimal hygiene standards that depend on the intended use of the environments concerned. Sanitation is often used to mean “clean” and must however be preceded by cleaning.

SANITATION

DISINFECT means to reduce the microbial load deeply, that is to eliminate at least 1 log 90 of the bacteria present Microbial load reduction is a basic value in disinfection and it is expressed in Log Reduction.
A good disinfection level is around 2 Logs 99 a very good disinfection is 3 Logs 99,9 and 4 Logs 99,99 is considered a pretty high standard

DISINFECT

STERILITY is the closest level anyone can get to achieve complete reduction of microbial load, we can talk about sterilization only if reduction is proved to be not less than 6 Logs, meaning 99,9999
To declare sterility test has to be proved and certified by third parts by law.

STERILITY

PROGRESS

Operates in different fields and turns **Ultraviolet Technology** into real **Solutions**, providing a **Specific Device** for every application needed.

FILTREX

DIRECT IRRADIATION

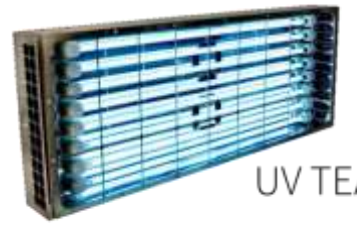
UV REFLEX

UV FLOW

UV DIRECT

UV STICK

TEAM OF LAMPS



UV TEAM

UV TEAM-A

AIR PURIFIERS

UV-FAN

UV PIPE

UV STYLO

WATER TREATMENT

UV WATER

AIR CONDITIONING

UV DUCT

UV RACK

UV STYLO

UV STICK-SCR

UV STLO X

FAT AND SMELL

UV SMELL

UV STYLO S

BOX AND CABINETS

UV CABINET

UV BOX

What are most common issues in healthcare ?

Healthcare environment is for sure the most sensitive about hygiene levels control. However it is also the most fertile ground on which **to develop issues regarding the spread of viruses bacteria molds spores and mites.** There usually a great consciousness regarding the proper procedures that have to be followed to avoid the spreading of harmful microorganisms. But often they are not enough.

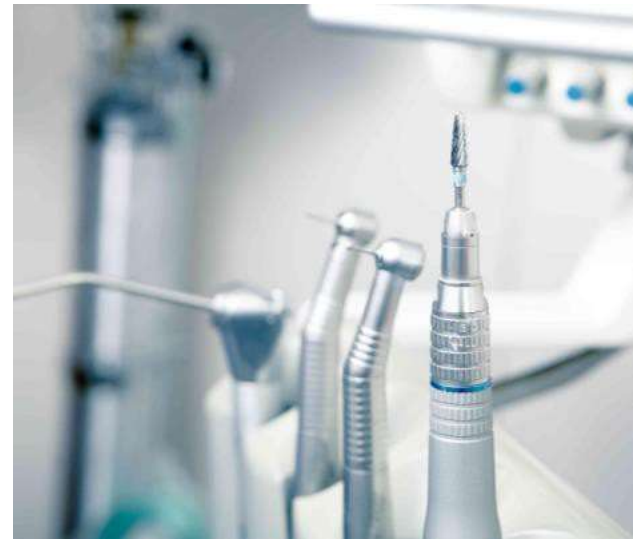
What are most common issues in healthcare ?

Disinfection is the base for good hygiene praxis in healthcare environments. A good sanitization procedures enables the elimination of **pathogenic microorganism**.

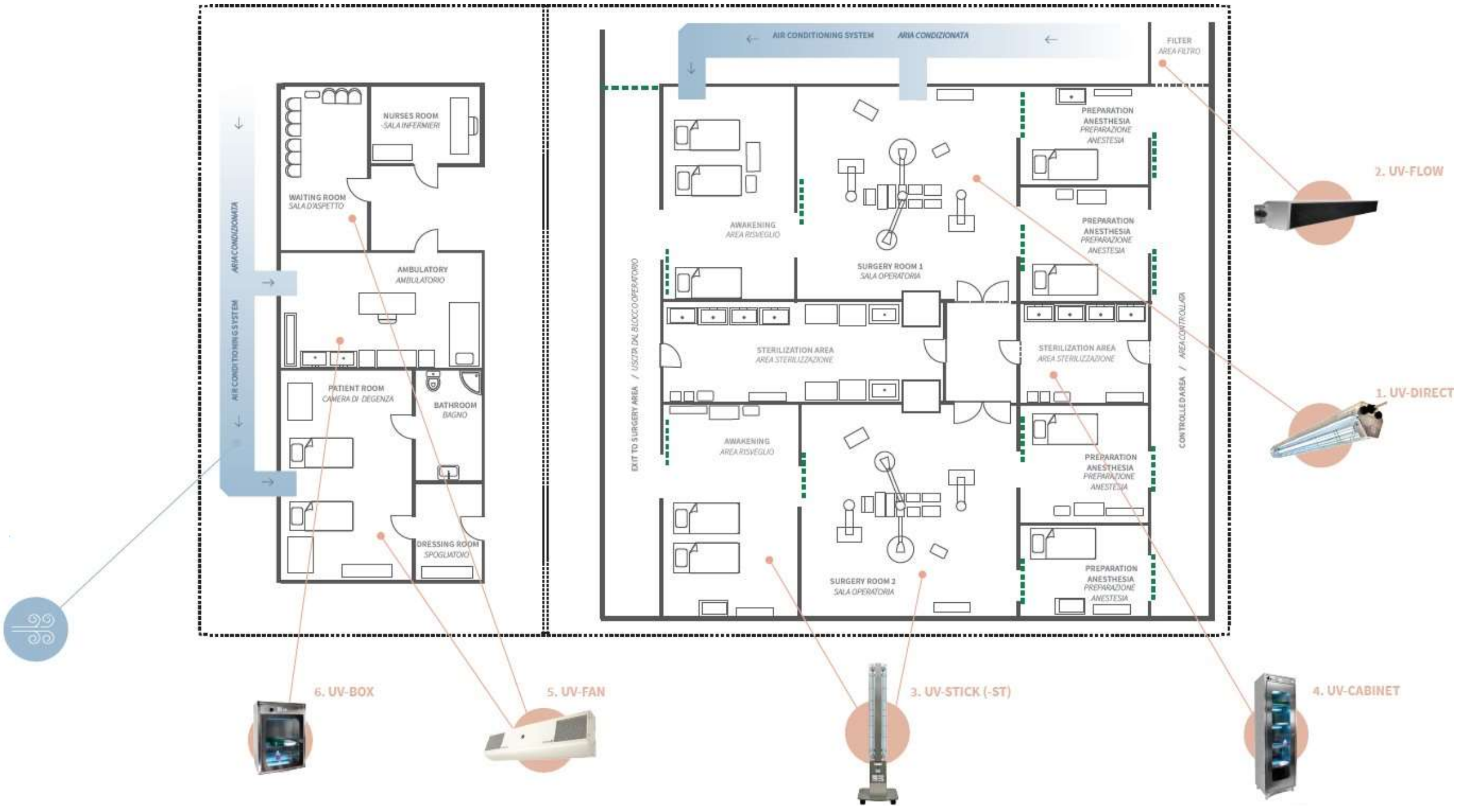
Microorganisms arrive through the air, employees, and, obviously, patients. They spread through the air, by sedimentation or by vectors (animated) or vehicle (inanimate).

Microorganisms settle in areas that offer a favorable environment for proliferation. These areas become potential sources of **contamination for the whole environment.**

Chemical method is used massively, but not without a lot of bad consequences.



Application Scheme



Environmental Disinfection

- Direct Irradiation (absence of people)
- Air Purifiers (presence of people)

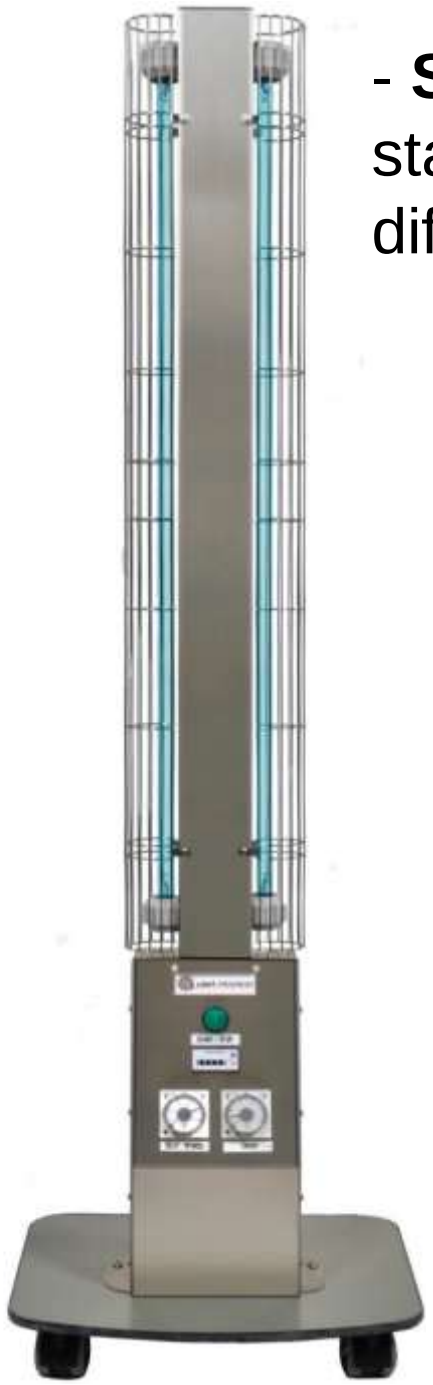
UV-DIRECT

- It can be easily applied as a common ceiling light fixture.
- Special mirror bright reflector to increase UVGI power.
- Switched ON during work breaks, it treats both air and surfaces
- Made in high quality SS.
- Control board available to set up programmable disinfections.
- External Grid to protect the lamp.

UV-STICK-NX

- It can be easily applied as a common ceiling light fixture but smallest models could be also used inside processing and packaging machines pharma industries.
- Switched ON during work breaks, it treats both air and surfaces.
- Made in high quality SS.
- Special mirror bright reflector to increase UVGI power.
- Control board available to set up programmable disinfections.
- External Grid to protect the lamp.

UV-STICK-NX



- **ST** model with double lamp and a four wheels stand is available to treat surfaces all around in different environments.

Its compact sizes and the wide range of models allow endless applications' solutions.

UV-DIRECT | UV-STICK-NX

When staff leaves during work breaks, direct irradiation of surfaces allow a deep disinfection treatment.

The natural recirculation of air currents allows air disinfections as well.

The combination of surface + air disinfection creates the ideal hygiene level in healthcare environments.

UV-FAN

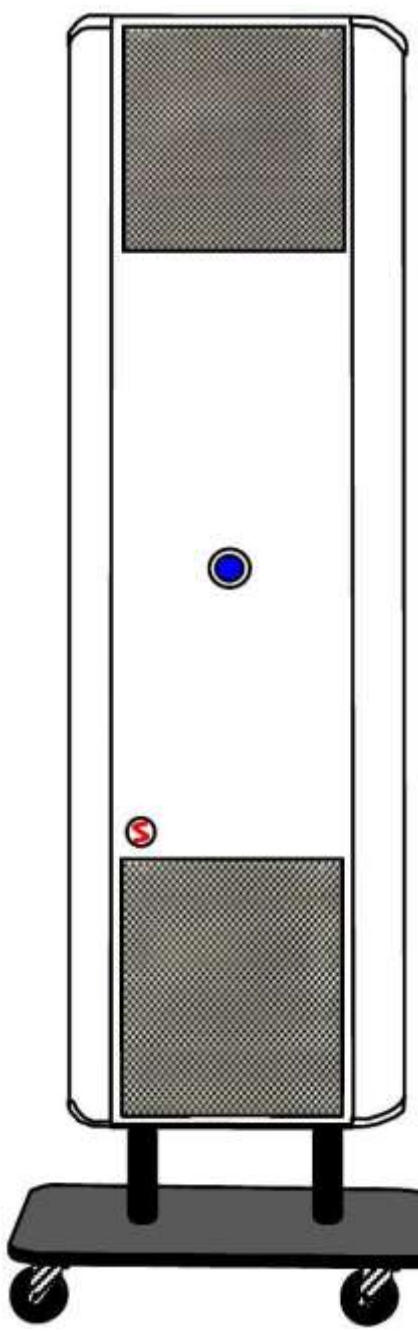
Air Purifier, it treats the air 24 hours a day, without any contraindications for the people present.

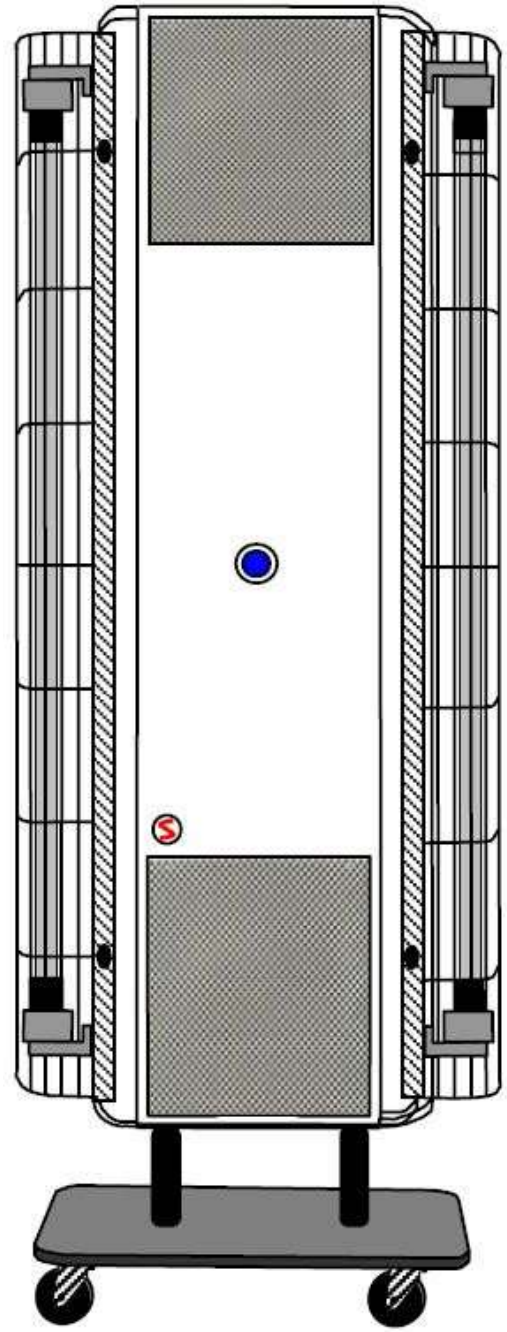
A silent built in fan conveys the air to pass inside its germicidal chamber.

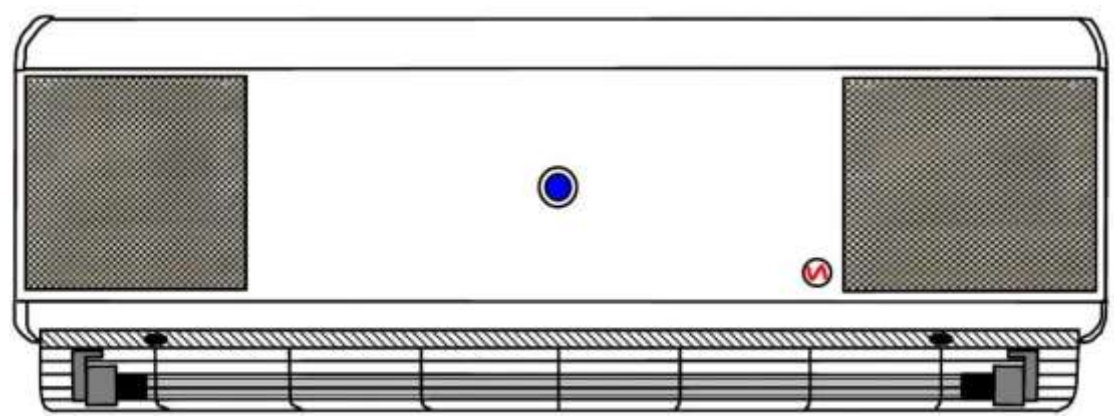
External body in extruded Aluminum, coated with epoxy powders.

TiOX Filter included. Titan Dioxide Nanoparticles with silver salts enhance the germicidal effect of UV-C light; Its photocatalyzation allows the elimination of VOCs and NOXs, too.

UV-FAN

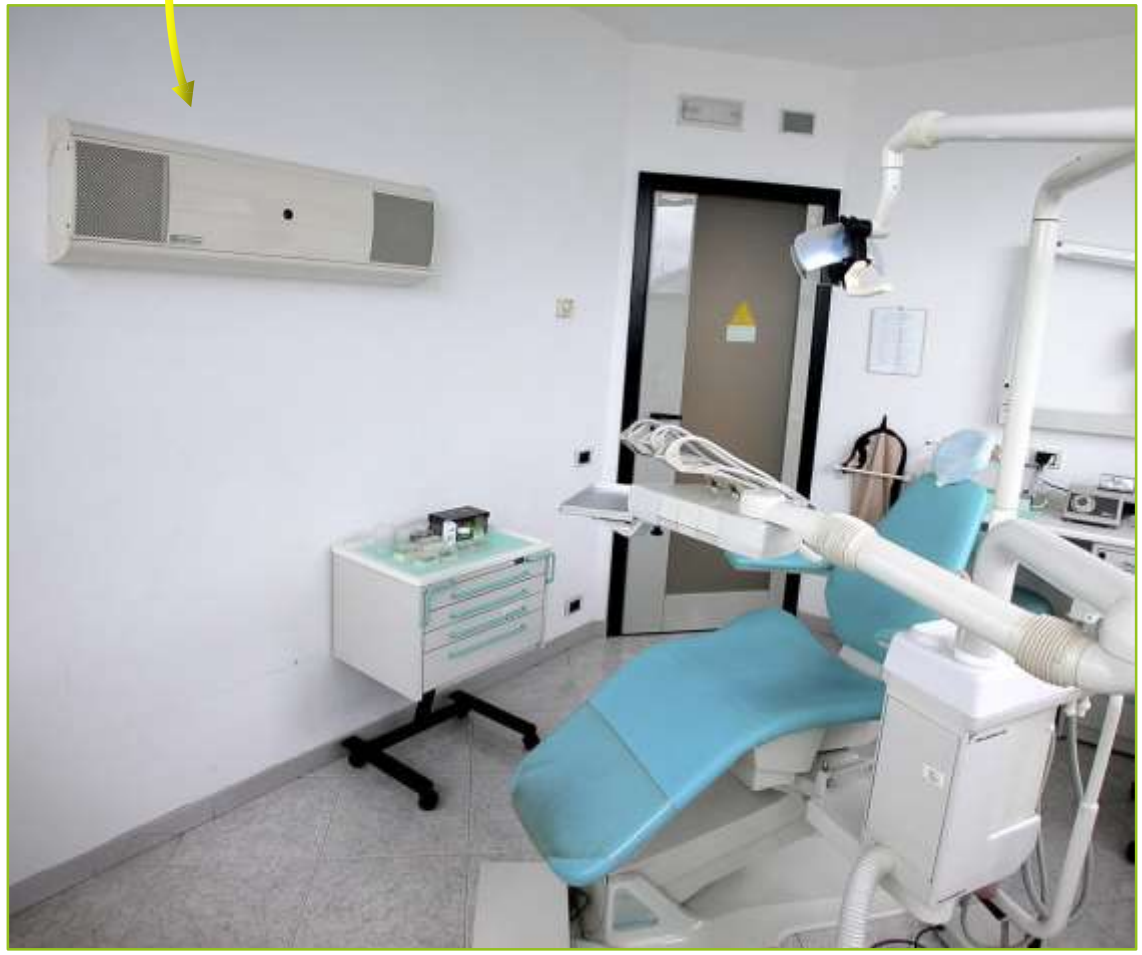






- **BD** model with integrated external lamp. Besides the normal purifying action, it provides the possibility of having a deeper disinfection treatment during non operational ours (i.e. night).
- **ST** model with four wheels stand available.

UV-FAN



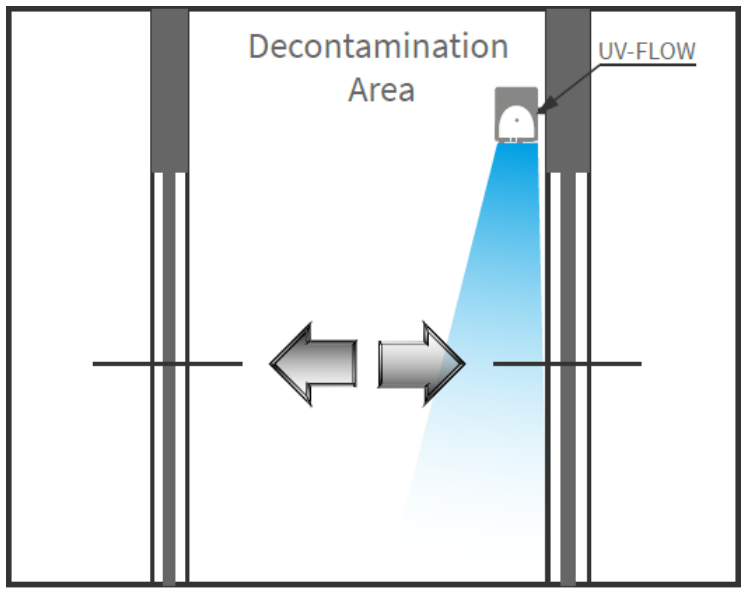
Special Areas Environments

- Controlled Areas (clean rooms, filter passages, etc)

UV-FLOW

- Monodirectional UV-C flow device;
- it creates a UV-C barrier if placed above an opening (door) and/or it treats the upper air layers when installed pointing.
- Made in high quality SS.
- Directional honeycomb filter to create a «UV blade»

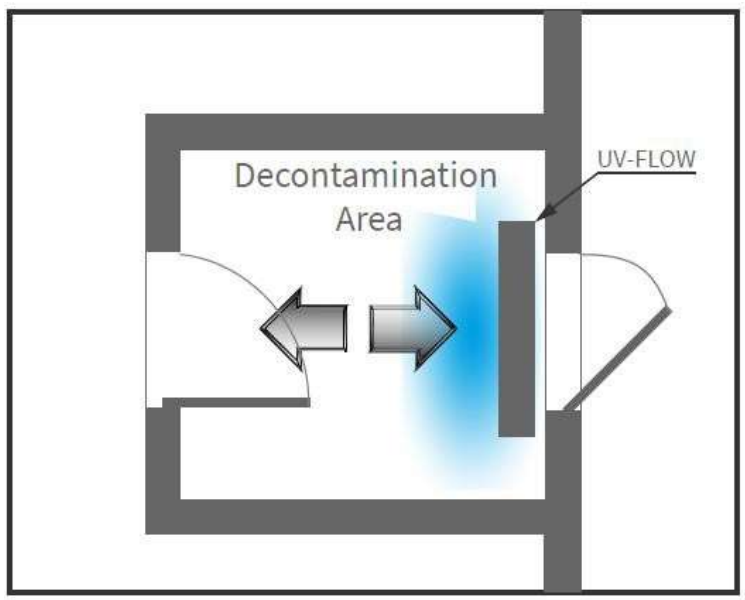
UV-FLOW



SECTION / SEZIONE

Filter Room are very important to separate areas with a different grade of microbiological controll (i.e. Clean Rooms, separeted sectors).

Treating upper air layers enables a general enhancement of air decontamination, thanks to air natural convective motions.



Tools Sterility Maintenance

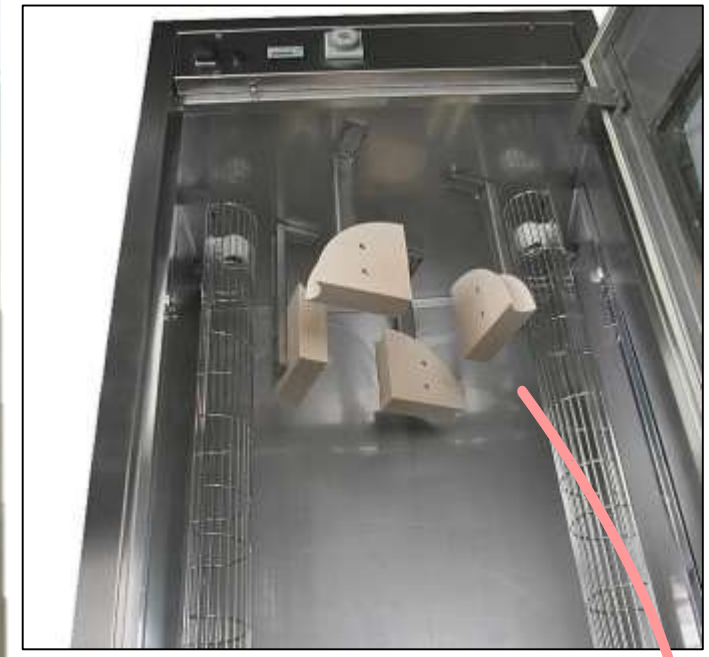
- Germicidal Box
- Germicidal Cabinet

UV-CABINET

- Cabinet to preserve sterility maintenance, for any type of equipments, tools, containers.
- Automatic switching ON-OFF to set disinfection cycles with a settable timer.
- Available vith multiple doors, wallmounted or floor standing.
- High quality Stainless Steel AISI 304.

UV-CABINET

Wall mounted model
is also available



– **E** model includes a special endoscopic probes holder (just for floor standing structure)

UV-BOX

- Box to preserve sterility maintenance for any type of equipments tools containers
- Automatic switching ON OFF to set disinfection cycles with a settable timer
- Table model available (UV BOX E 2 40 H)
- High quality Stainless Steel AISI 304