

General information

In practice, UV-C germicidal lamps are most preferred for disinfection of air and surfaces. They use a portion of ultraviolet light with a wavelength of 253.7 nm (UV-C) for disinfection. This portion of the UV spectrum of sunlight does not normally occur on earth. It is absorbed by the atmosphere and, therefore, microorganisms are not adapted to its effect. This effect disrupts DNA cellular structures and, as a result, simple microorganisms perish.

The UV-C radiation does not pass through matt, opaque materials or glass. The germicidal radiation is invisible to the human eye. What is visible is the blue light, which is only a by-product.

The UV-C radiation is harmful for the human body and plants. Even a small dose of radiation may, upon exposure, cause conjunctivitis and, at higher doses, even severely damage eyesight or skin.

The UV-C radiation also has a negative impact to plastic surfaces. Poor quality plastics degrade faster and turn yellow under its effect. The UV-C radiation is only effective when the device is switched on. When switched off, movement around the device is safe.

In general, depending on their effect, germicidal emitters are divided into directly and indirectly radiating. The directly radiating ones are open (**GARA 30WU**) and operate without the presence of persons. The indirectly radiating ones are closed (**GARA 30WO**) and may also operate when persons are present. The combined emitters (**GARA 2X30WK**) represent a combination of both above-mentioned versions.

The intensity of the radiation exposure is given by time and drops with a square of a distance. A strong intensity for a short time has the same effect as a weak intensity for a longer time. The intensity of the UV-C radiation from a 30W germicidal tube with a hot cathode at the source is 90 microwatts per second at a distance of one meter to one square centimetre.

Examples of UV-C radiation dosage /micro W/sec/cm² / required for 90% deactivation of organisms within 1m:

Microorganisms	Rate	Microorganisms	Rate
Colli bacteria	3000	Staphylococcus epidermis	1840
Pseudomonas seruginosa	5500	Bakery yeast	3900
Streptococcus hemolyticus	2160	Aspergillus flavus	66000
Penicilinum expanatum	44000		

In case of open lamps, the exposure is effective by direct radiation. In case of closed emitters, the operation of the device is based on the principle of forced air circulation in the room. The air is sucked in through the openings located in the lower part, flows smoothly in the tunnel around the germicidal tube and is blown back into the room. This way, the UV-C radiation produced by the germicidal tube eliminates bacteria and viruses in the ventilated air. Exposure times are short, but disinfection in the active zone is very effective.

Parameter/Type	GARA 5X30WK	GARA 2X30WK	GARA 30WU	GARA 30WO
Rated voltage	230V/50Hz	230V/50Hz	230V/50Hz	230V/50Hz
Output	200W	90W	60W	35W
Amount of exposed air	100m ³	100m ³	100m ³	-
Recommended exposure time for a room with the following dimensions (4m x 5m x 3m)	0.5-1hr	2-3hrs	4-6hrs	2-4hrs

The automatic operation of the devices is provided by a timer, which allows to pre-set daily operating times.



Basic timer



Internal timer



External timer



Remote control

Open and closed GARA germicidal lamps may be additionally equipped with a counter of operating hours. Combined lamps have a counter as standard. Illuminated LED lights indicate the activity of an open or closed part of the lamp. If the LED is green, the germicidal tube has been working for 0-7000 hours. If the LED is orange, the germicidal tube has been working for 7000-8000 hours. If the LED is red, the germicidal tube has been working for more than 8000 hours, which means that its efficiency drops under 60% and it needs to be replaced. The disposal of used germicidal tubes must comply with the hazardous waste disposal regulations. For safety reasons, GARA germicidal lamps are assembled with 30W germicidal tubes (PHILIPS, OSRAM), which are different in size and cannot be interchanged or used in conventional lighting fixtures. The filter glass of a discharge lamp inhibits the radiation at a wavelength of 185 nm, which causes the formation of ozone. The protective inner coating of the discharge lamp limit the degradation of UV-C radiation.

GARA germicidal lamps should preferably be used in outpatient clinics, waiting rooms, schools and pre-school facilities, restaurants and food facilities – wherever there is an increased risk of so-called respiratory droplet transmission of germs (coughing, sneezing). Germicidal lamps may only be operated by trained persons familiar with the operating instructions and possible risks.

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GERMICIDAL LAMPS

Designed for sterilization of air, surfaces and disinfection of environment.

GARA

NEOMED

QUALITY AND WARRANTY 3 YEARS



GARA 30WO/M

GARA 30WU/M

GARA 5x30WK/M



Open GARA 30WO germicidal lamps disinfect the area, including air and all surfaces exposed to UV-C light radiation. No persons or animals may be present in the room during disinfection. GARA 30WO is equipped with an external timer, thanks to which the device automatically switches on and off as necessary. It is mounted on the wall, either vertically or horizontally. It is equipped with a power cord which is plugged directly into a socket. **GARA 30WO/M** is a mobile version with an option of easy transfer to a room where environment disinfection is necessary. **GARA 30WO/C** and **GARA 30WO/KL** are mains versions without a power cord and a timer. Connection to the mains may only be performed by an authorised and qualified electrotechnician. GARA 30WO/KL with a flexible attachment is mounted under the ceiling and enables so-called indirect radiation at an angle of rotation so that no direct light is headed downwards.



WHICH ONE MEETS YOUR REQUIREMENTS?

Closed GARA 30WU germicidal lamps disinfect the air in the room by means of UV-C light. A germicidal tube is located in a metal housing with an inlet and an outlet. It does not emit a harmful radiation into the room, so it can be operated when people and animals are present. The device may be switched on and off either manually or by means of an external timer, which ensures automatic switching on and off at a predefined time. The device is mounted on the wall so that the ventilation in the lamp is matched with the air flow in the room. When mounted horizontally, it is advisable to extend exposure times slightly. **GARA 30WU/M** is equipped with a practical stand on wheels, which enables easy transfer of the device if necessary. **GARA 30WU/B** is made in white



GARA 2X30WK germicidal lamps are a combination of open and closed devices. They are practical in rooms where it is important to disinfect the air and surfaces. They have two levels of operation. The open part is used for disinfection of air and surfaces outside operating times, the closed part is used for continuous air disinfection with the presence of persons. The device is equipped with a motion sensor which interrupts a direct exposure in case any persons are present. The automatic operation of the device is set by means of a remote control. **GARA 2X30WK/M** is a mobile version. It is easily transferred, which makes it possible to use the device in several rooms and at various operating intervals. **The GARA 5X30WK/M** germicidal tower is a combination of 5 germicidal emitters. The 4 open ones are located panoramically and enable radiation at an angle of 360 degrees with high intensity. The motion sensor allows a safe operation. The control and commissioning is optional according to the current needs of the user, either manually using on and off switches or by means of a remote control with an option of setting required operating time intervals with automatic switching on and off. The device is suitable for professional, fast and effective disinfection of air and surfaces in a short time.

CONVENIENT OPERATION