

Commercial ultraviolet ray space sterilizer 【2020】



Preventing “droplet infection”

The output of the highest ultraviolet C rays energy decreases concentration of viruses floating in the air to the extreme level.

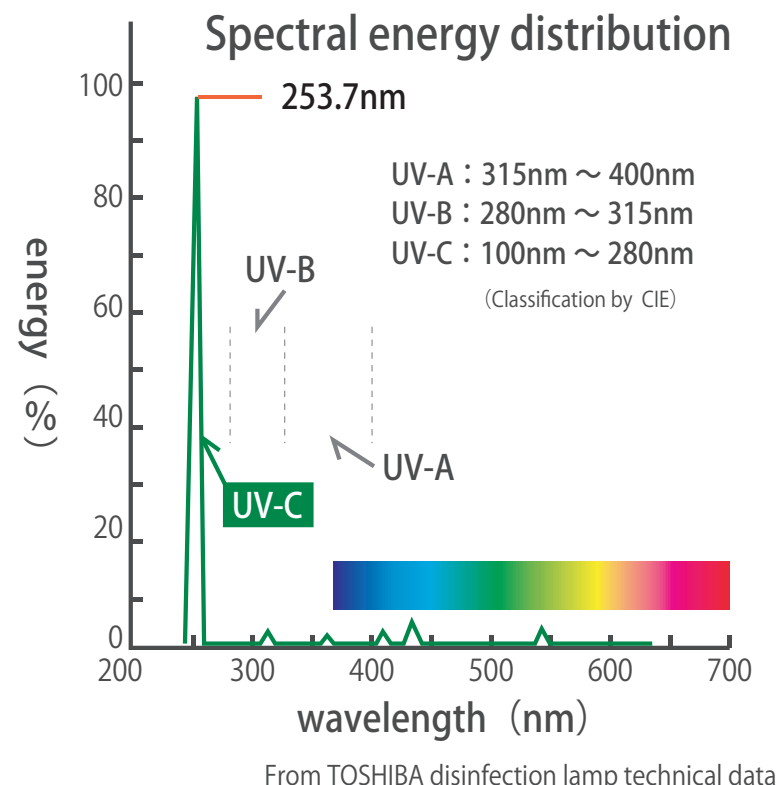


Protective Device

Infection prevention

Disinfection lamp

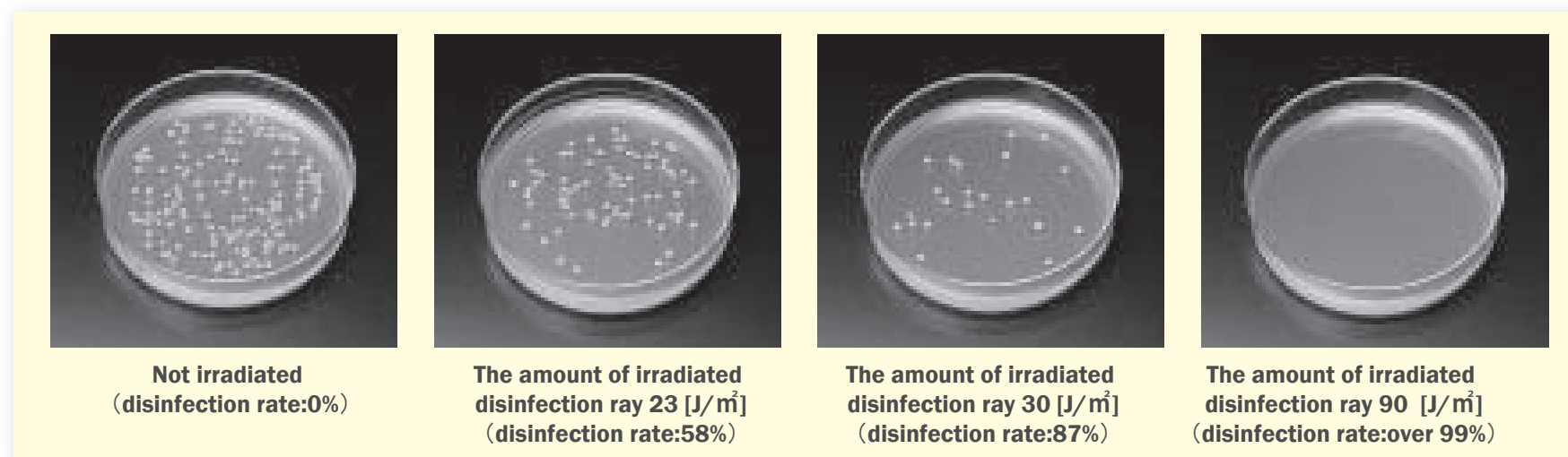
The Japanese -made disinfection lamp installed in this device is low pressure mercury lamp called "disinfection ray" emitting light energy at 253.7nm. The ultraviolet C rays (UV-C), which is invisible to the naked eye, is extremely effective for disinfecting bacteria or fungus and inactivating virus. It is widely supplied as "disinfection ray" both for medical and household use.



Disinfective effect

The disinfective effect by ultraviolet C rays (UV-C) depends on multiplication between amount of energy (radiation dose) and exposed time, which means it is necessary to utilize ultraviolet C rays "more strongly", "longer" and "effectively with safety" in order to kill or inactivate viruses floating in the air.

From Panasonic disinfection lamp technical data



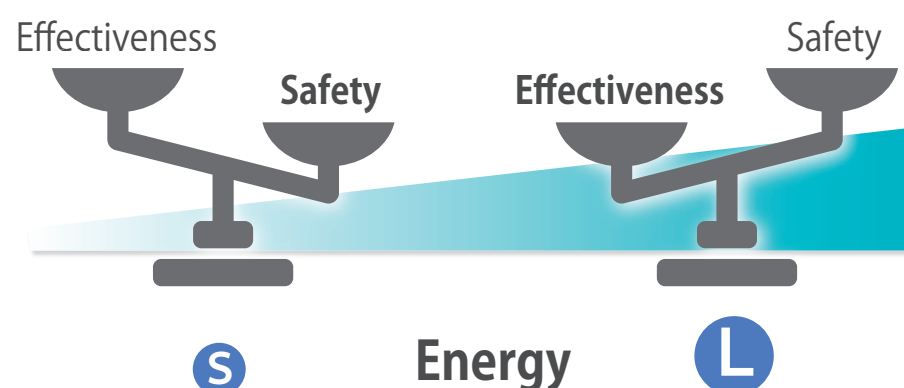
※ Each picture shows colony on agar media after being incubated for 48hours with each different amount of disinfection ray irradiating MRSA (methicillin resistant staphylococcus aureus)

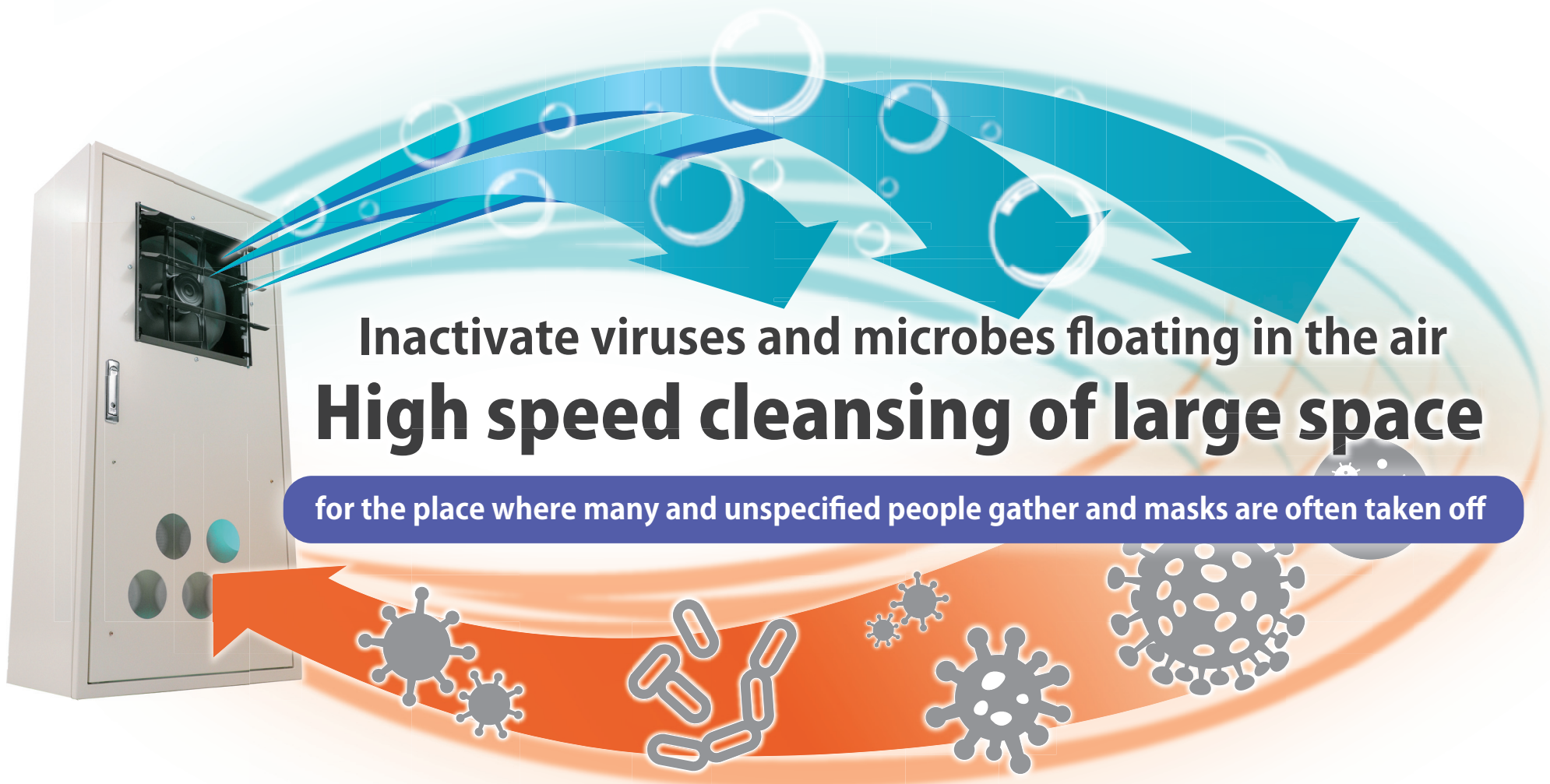
Effectiveness and safety

The ultraviolet C rays (UV-C) allegedly influences deoxyribonucleic acid (DNA) inhibiting metabolism, destroying archiplasm and losing proliferating ability. It is not limited to bacteria and virus but all the living creatures on earth are subjected to the influence including human being.

When people are exposed to the ultraviolet C rays (UV-C), it would cause skin inflammation (burn injury etc), symptom similar to eye pain or conjunctiva inflammation and the cases of disorder leading to impaired eyesight have sometimes been reported. You can get disinfection effect from ultraviolet C rays but it is also very troublesome and hazardous to people.

It means adequate knowledge, sufficient attention, countermeasure and engineering /physical protection are essential to deal with and control it.





Inactivate viruses and microbes floating in the air High speed cleansing of large space

for the place where many and unspecified people gather and masks are often taken off

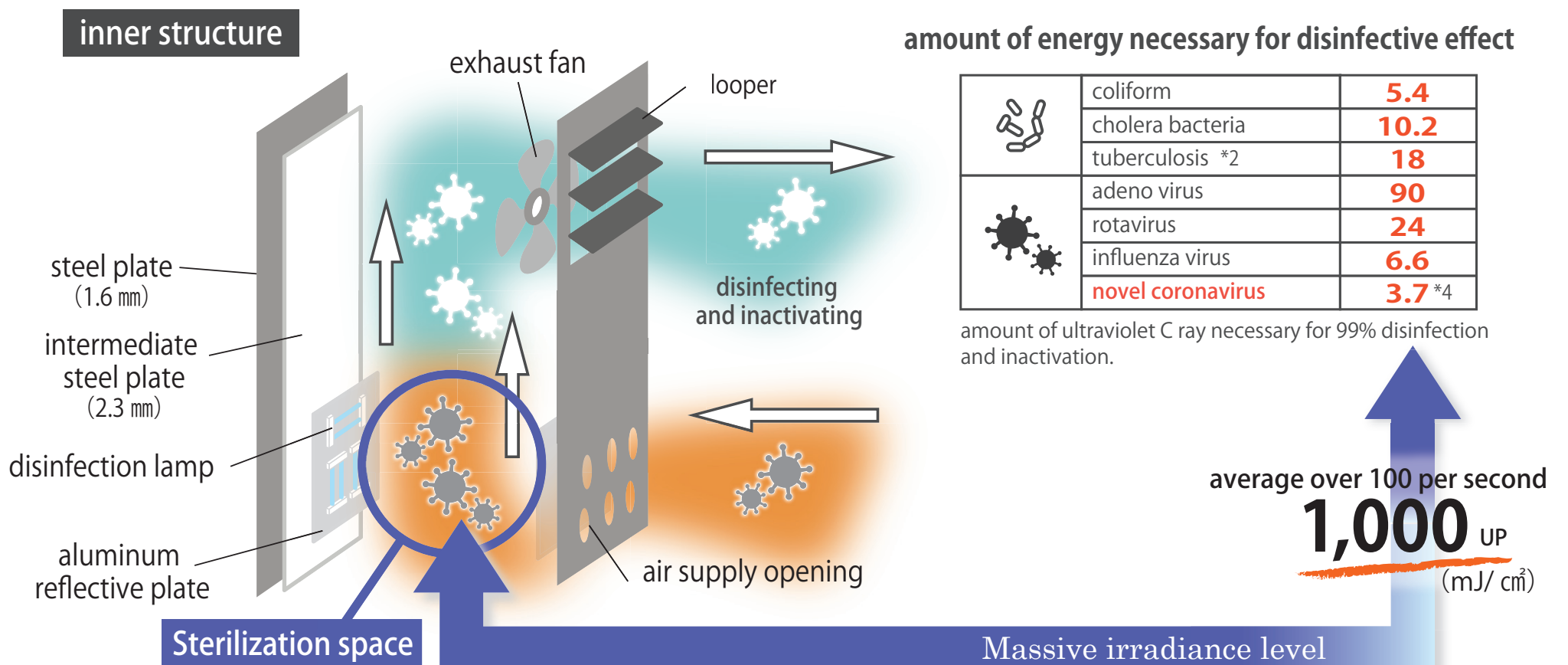
By taking air directly into the unit, irradiating it with strong ultra violet C rays energy, inactivating and cleansing 99% of microbes/viruses and circulating air periodically, it makes it possible to cleanse space effectively in a short period of time.

※ Please note that this unit is not to remove microbes and viruses attached to dust in the air, floor, furniture, curtain, wallpaper, or clothes etc. The pictures and images are for illustrative purposes only

Massive irradiance level of ultraviolet C ray

**Inactivate
99.9% of viruses
in just
one second**^{*1}

By irradiating air going through inside of the unit with high-energy ultraviolet C ray which is over $1,000(\text{mJ}/\text{cm}^2)$ ^{*3} on average, it gives direct damage to DNA of microbes and viruses. When microbes are exposed to more ultraviolet C ray than necessary to be disinfected and inactivated, they lose proliferation potential as pathogens. Also by circulating air periodically, density of microbes and viruses floating in the air can be lowered to the extreme level.



*1 [Kaufman, J.E, IES Lighting Handbook 5th Ed., 1972] *2 [Water Environment Federation, Wastewater Disinfection. Manual of Practice FD-10, 1996]

*3 [N.Masamoto, et al., Removal Methods of Nematoda contained in the effluent of activated carbon, 2001W.W.C. of Int.Wat.Assoc., 2001]

*4 [UV-C irradiation is highly effective in inactivating and inhibiting SARS-CoV-2 replication, Andrea Bianco et al., medRxiv, preprint] (Unpeer-reviewed)

Complying with “Japan Regulations on various types of radiation, etc.”

Shield ultraviolet C ray in “closed place” limiting effect to microbes and viruses!

The unit utilizing highest ultra C ray for consumer use complies with “Regulations on various types of radiation, etc.” in order to ensure effectiveness and safety. It shields ultraviolet C ray (UV-C) perfectly with iron chassis and eliminates possibility of people being exposed to it at a high rate. Since ultraviolet C ray is invisible light beam, by exposing only safe and visible light (blue light), you can tell it is on from outside preventing inadvertent accident from happening.

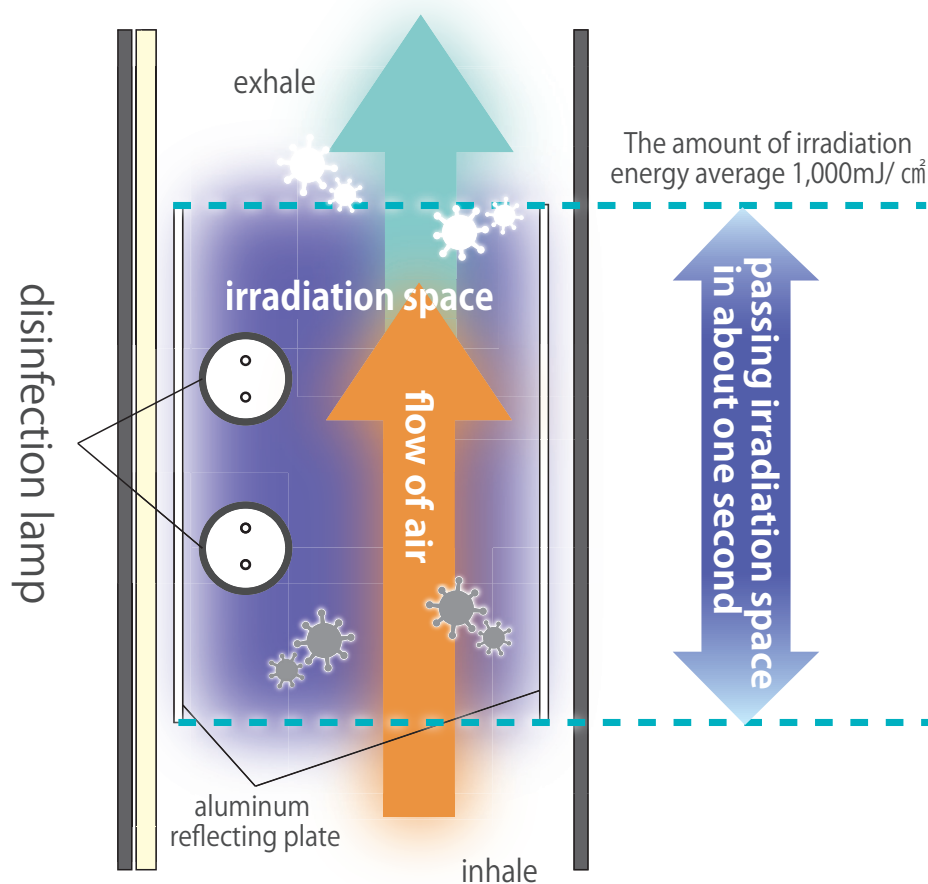
Pumping forced-circulation system rapidly cleanse large space

disinfect and inactivate 1250 m³ in^{*6} just 2 minutes

UV-1250AS optically controls wind pressure inside taking in air of as much as 2,000 m³ per minute. It produces cleansing effect of 99% in one cycle by having air go through the space where large amount of ultraviolet C ray is irradiated for about one minute. This original “pumping forced-circulation system” makes it possible to cleanse rapidly and evenly large space of about 1250 m³, which is one of the largest scales as a stand-alone unit.

* 6 [in case of UV-1250AS, W 22.3m × D 22.3m × H 2.5m]

Rapid disinfection in shielded enclosure



Development concept of UV-AS series

The amount of disinfection energy
(workload: W/cm²)

irradiation times
(Seconds)

$$\begin{matrix} \text{power of the lamp} & \text{distance} \\ (\mu\text{W}/\text{cm}^2) & (\text{m}) \end{matrix} \times \begin{matrix} \text{travel distance of air} \\ (\text{cm}/\text{s}) \\ \text{volume of the unit} \\ (\text{cm}^3) \end{matrix}$$

balance between effectiveness and safety

Practicality

short-time disinfection
capability of dealing with large space
silent & energy-saving

Safety

calculation of amount of energy
selection of chassis
compliance with safety standards

note: time of disinfection and inactivation differs depending on layout of anti-scattering film, partition and furniture etc.

Silent & Maintenance-Free

The noise during operation is as low as that of air conditioner for home use, which is not distractive while having a conversation. All you need to do is to plug in the unit to operate it. Just opening the door is enough for maintenance. UV-AS series is also entirely made in Japan, therefore, we can deliver great customer service.

For example

Business facility : office/meeting room/reception room/dining hall etc...

Hotel : lobby/guest room/dining hall/kitchen/dressing room/party hall etc...

Hospital : entrance/waiting room/treatment room/rehabilitation room etc...

Store, Shop : restaurant business, hair salon, esthetic salon, amusement facility



note: ultraviolet UV lamp is consumable supply. It needs to be replaced with the new one within the designated period of time.

LINEUP

monster type (MO)

for large hall without partition



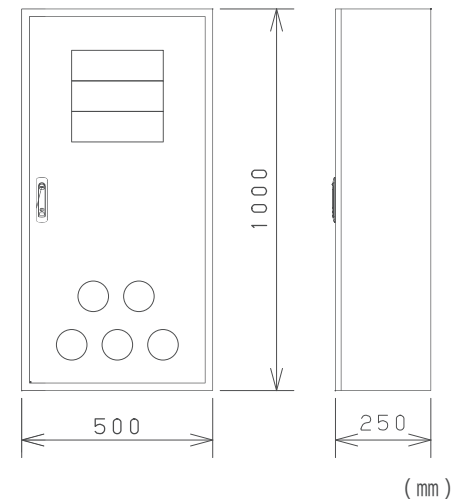
2 min
volume of space
and
onset time of effect
1250m³

UV-1250AS



3 min
volume of space
and
onset time of effect
800m³

UV-800AS



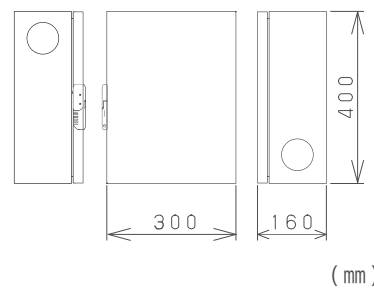
high-spec type (HI)

for poorly ventilated shop or private room

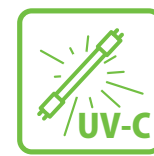


10 min
volume of space
and
onset time of effect
200m³

UV-200AS



common specs



**ultraviolet
disinfection**



**compliant with laws
and regulations**



power saving



forced pumping



silent



maintenance-free

SPEC

series	monster model (MO)		high-spec model (HI)	
model number	UV-1250AS (2020)	UV-800AS (2020)	UV-200AS (2020)	
main specs	effect *1	disinfect microbes like germs or bacteria, inactivate viruses etc		
	system	ultraviolet irradiation UV-C		
	ultraviolet radiator *2	disinfection lamp × 6 [made-in-Japan]	disinfection lamp × 2 [made-in-Japan]	
	amount of ultraviolet energy	over 1,000 (mJ/ cm ²)		
	intake and exhaust system	intake by air pressure control, exhaust forced by fans		
	volume of space *3	about 1,250 m ³ : about 2 minutes	about 800m ³ : about 3 minutes	about 200m ³ : about 10 minutes
main performance	range of temperature	-10 ~ +40°C (Do not freeze the unit)		
	range of humidity	20 ~ 85%R h (Prevent condensation)		
	power *4	rated voltage 100(V)/frequency 50Hz eastern Japan/ 60Hz western Japan (select)		
	power consumption	about 80 (W)	about 100 (W)	about 30 (W)
	power code	2 (m)	1 (m)	
	outer dimensions	W500*D250*H1,000 (mm)		W300*D160*H400 (mm)
	weight	about 40 (kg)		about 7 (kg)
	noise	about 50 (db)		
	maintenance *5	inner cleaning once per month		
	life of disinfection lamp *6	approx.5,000~6,000 hours (fare-paying exchange)		
installation location *7	in doors, floor-standing			
product assurance	for one year from the date of purchase			

* 1) It makes an effect by intaking microbes and viruses floating in the air into the unit and irradiating it with ultraviolet C rays for about one second.* 2) Officially approved disinfection lamps are used.* 3) Proximate time of disinfection and inactivation when operating the unit in a closed space.* 4) Please select 50Hz or 60Hz at time of order.* 5) Particles and dust will be deposited inside, therefore regular cleaning done by customer is necessary.* 6) In case that lamp like disinfection lamp or glow tube runs out, please contact the dealer or the manufacturer. It will be exchanged with charge.* 7) In principle, please make sure that the unit is fixed by installing it on a floor or mount it on a wall. please do not block the intake and exhaust with a wall surface or an obstacle.

※ The wall-mounted hook, the casters, the paint applications and others are optional. Specifications may be changed without prior notice.



safety notice

Please receive an explanation from the “distributor” or the “dealer” before use in order to operate the unit safely.

Misuse of this system causes malfunction of this system,overheat,fire,electric shock and injury,or loss on assets.

【 forbidden place for installation 】 ● You cannot use this system in places where “viruses”“microbes”are handled for brewing and research etc. **【 precautions for use 】** ● Do not intentionally look at the ultraviolet C rays or reflected light directly with the naked eyes. It could cause considerable disability with eyesight. ● Never install the unit,open or close the door, do maintenance,inspection or operation while the system is live. (it could cause death,fire,electric shock,burning,injury,abnormal operation and malfunction.) **【 installation and handling precautions 】** ● Use this system indoors. ● Do not use this system with exceeding rated voltage and rated current. ● Do not dismantle or alter the unit. ● Do not short-circuit terminal or insert foreign matter like finger or metal object. ● Do not install the unit in the place where there is the possibility that it will be corroded or catch fire,vibrations and shocks are generated,and dusts are floating. ● Do not touch inside with wet hands. **【 sales 】** ● This system is not a medical appliance. In case you need to customize it according to usage situation or installation environment, please contact the dealer or distributor for it. **【 inspection,maintenance 】** ● Because dusts can accumulate inside the unit,please clean the inside and the fans at least once a month. ● Ultraviolet UV lamp is consumable supply. In case it is not lighted, please contact the dealer or distributor to exchange the parts with charge. ● Regular maintenance can be offered (with charge) on request. **【 warranty coverage 】** ● In case of a malfunction or a problem under proper operation conditions based on the instructions separately offered by us,this unit will be exchanged or repaired with no charge for one year. We will not be responsible for any secondary damages caused by problems with this unit except for obvious design faults. The holding period of the parts of this unit is five years since we stop producing it. ※ The following cases are also excluded from compensation. We will not be responsible for any secondary damages cause by them. 1) Problems with this unit due to lack of knowledge, technique or skill etc of manufacturer of finished product or seller. 2) In case this unit is installed or used without following laws and regulations. 3) Damages caused by natural disaster. 4) Damages caused by fire,abnormal voltage or other external factors. 5) Damages caused by alteration or remodeling. 6) Damages caused by dropping,spilling water or transportation. 7) Damages caused by natural wear and tear or other similar factors. 8) Damages caused by intentional destruction etc. including ones by irresistible force. 9) Damages caused by resold unit. **【 notes on catalog 】** ● Specifications and external appearance may be changed for improvement without prior notice.

SUPPLIER

Please contact the distributor or the dealer for inquiries about consideration or introduction of the system.

Manufacturer

HIRAKAWA WORK INC.

2-40-18-36 Nakano, Aki-ku, Hiroshima
HiroshimaPrf, 739-0321,Japan

Total distributor

PD-JAPAN GK.

1387-3 Kawanakajimamachi, Nagano City,
Nagano Prf, 381-2221,Japan
phone : +81-26-214-3929
E-mail : info@pd-japan.com

Please contact the supplier below for inquiries.

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