

General description

The **germicidal access doors for rectangular ducting (FAD-UV)** and for **round ducting (CAD-UV)** allow the air sterilization inside of duct.

They consist of **two panels connected between themselves with two screws, springs and knobs**. The inner panel will be slid inside the duct, and the outside panel will then be compressed by tightening both knobs.

The germicidal access doors are a patented system that adds a new function to our access doors: **the sterilization of air in ducts** of air-conditioned recirculation installations.

This air purification system is specially recommended for **all type of indoor use** and specially for surgery rooms, clean rooms, hospitals, clinics, laboratories, food industry, pharmacy, etc.



We offer a variety of power lamps to cater for various installations : 70 w (35 x 2), 120 w (60 x 2) and 190 w (95 x 2). To achieve a quicker decontamination we recommend choosing the more powerful lamps.

UV light Technical specification

With these doors, bacteria, yeasts, mold spores, viruses, protozoa, algae, etc ... are **exterminated by UV-C radiation**, between wavelengths of 100 to 280 nm (nanometers), generated by powerful low pressure mercury vapor PHILIPS lamps from the TUV PL-L HO range, emitting short wave ultraviolet light with a precise wavelength of 254 nm. Therefore, this type of lamp does NOT generate ozone (<240 nm).

For each type of germ there is a certain dose to neutralize its DNA, preventing its reproduction and, consequently, causing its elimination. For example, the dose to neutralize the SARS-Cov-2 (COVID-19) coronavirus by 90% is 29 mJ / cm².

Faced with possible improper openings, the germicidal access doors have an **automatic electrical disconnection system** that prevents radiation to the outside, since it is totally contraindicated for people or animals and direct exposure must always be avoided.

Two lamps are always mounted per door with patented mechanical safety fixing that **prevents vibrations of the lamps due to high air speeds that could even disconnect them**. With external LEDs to indicate operation and brightness level. These lamps have a 9,000 h life and their periodic maintenance for cleaning the lamps, or their replacement, is carried out without having to use tools.

For an optimal performance of the lamps :

- **keep the filters in perfect conditions**, dust would significantly reduce disinfection management
- **low level of humidity** is required
- keep the duct clean
- apply glossy aluminum type paint in the interior walls of the duct

Traditionnal Climatech access doors can be instantly **replaced by germicidal access doors** without the use of tools.

If needed we can help you calculate the number of doors needed to neutralize any type of parasite based on data provided by the customer (type of germ to be sterilized, duct dimension, airspeed, volume to be treated and minimum blown air temperature) thanks to our specifically designed software.

List of pathogenic germs exterminated by our UV access doors

Below we detail the relationship of pathogenic germs that would be exterminated by 90% with the afore mentioned those of 29mJ/cm², since they generally correspond to a lower dose.

BACTERIES :

Bacillus anthracis	Legionella pneumophila	Serratia marcescens
B. megatherium sp. (spores)	Micrococcus candidus	Shigella paradysenteriae
B. megatherium sp. (veg.)	Micrococcus sphaeroides	Shigella sonnei
B. paratyphosus	Mycobacterium tuberculosis	Spirillum rubrum
B. subtilis	Neisseria catharrhalis	Staphylococcus albus
B. subtilis spores	Phytomonas tumefaciens	Staphylococcus aureus
Campylobacter jejuni	Pseudomonas aeruginosa	Streptococcus faecalis
Clostridium tetani	Pseudomonas fluorescents	Streptococcus hemoliticus
Corynebacterium diptheriae	Proteus vulgaris	Streptococcus lactus
Dysentery bacili	Salmonella enteritidis	Streptococcus viridans
Eberthella typhosa	Salmonella paratyphi	Sentertidis
Escherichia coli	Salmonella typhimurium	Vibro cholerae (V.comma)
Klebsiella terrifani	Sarcina lutea	Yersinia enterocolitica

YEAST :

Bakers' yeast
Brewers' yeast
Common yeast cake
Saccharomyces cerevisiae
Saccharomyces ellipsoideus
Saccharomyces sp.

MOLD SPORES :

Aspergillus flavus
Aspergillus glaucus
Aspergillus niger
Mucor racemosus A
Mucor racemosus B
Oospora lactis
Penicillium digitatum
Penicillium expansum
Penicillium roqueforti
Rhizopus nigricans

VIRUS :

Hepatitis A
Influenza virus
MS-2 Coliphase
Polio virus
Rotavirus
Coronavirus
Berne virus (Coronaviridae)
Murine Coronavirus (MHV)
Canine Coronavirus (CCV)
SARS Coronavirus Cov-P9
SARS Coronavirus (Hanoi)
SARS Coronavirus (Urbani)

PROTOZOA :

Cryptosporidium parvum
Giardia lamblia

ALGAE :

Blue Green
Chlorella vulgaris

Access door Technical specification

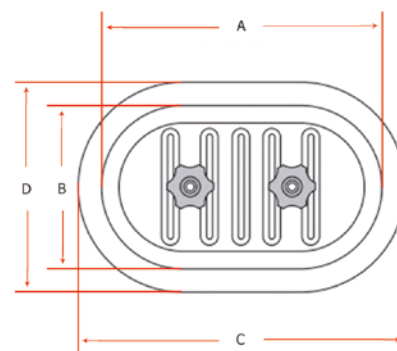
PANELS	Material	Galvanized steel Z275
SEALING GASKET	Type	High quality EPDM gasket
	Dimension	6 mm x 15 mm
	Density	+/- 33 Kg / m ³
COMPONENTS COMPRESSION SYSTEM	Screws	2 screws: M8x40 or M10x40 crimped on internal panel
	Springs	2 compressions springs
	Knobs	2 plastic knobs with metal insert M8 or M10

Self-adhesive template comes with each door, for accurate cut-out

Sizes

Door type	Nominal sizes (mm)	Actual Dimensions (mm) The format is oblong, and the radius of the 4 angles is equivalent to the small size divided by 2.			
		A	B	C	D
30*	300 x 200	300	200	329	228
40	400 x 300	380	280	403	303
50	500 x 400	500	400	532	432
60	600 x 450	600	450	627	480

* the size 300x200 is only available for flat access doors with UV light of 70 and 120 watts

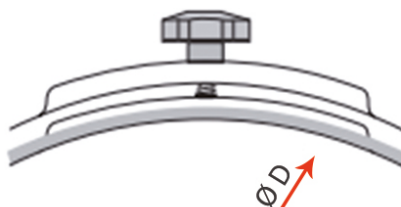


A & B = opening dimensions
C & D = external dimensions

CAD selection chart for round ducting

Door size Duct dia.	300x200 mm	400x300 mm	500x400 mm	600x450 mm
250 mm	-	-	-	-
280 mm	+	-	-	-
300 mm	+	-	-	-
315 mm	+	-	-	-
355 mm	+	-	-	-
400 mm	+	+	-	-
450 mm	+	+	-	-
500 mm	+	+	-	-
550 mm	-	+	+	-
560 mm	-	+	+	-
600 mm	-	+	+	-
630 mm	-	+	+	-
700 mm	-	+	+	-
710 mm	-	+	+	-
800 mm	-	+	+	-
850 mm	-	+	+	-
900 mm	-	+	+	+
1000 mm	-	-	+	+
1120 mm	-	-	+	+
1250 mm	-	-	+	+
1400 mm	-	-	+	+
1500 mm	-	-	+	+
1600 mm	-	-	+	+
1800 mm	-	-	+	+

For non standard duct diameter it is recommended to use the curved access doors with a diameter directly superior the requested diameter.



+ : Available on request
- : Not available

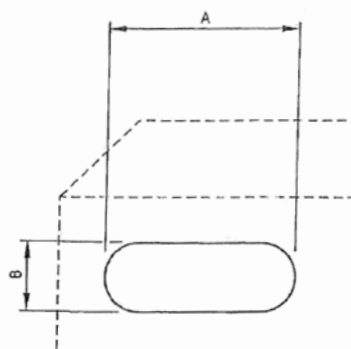
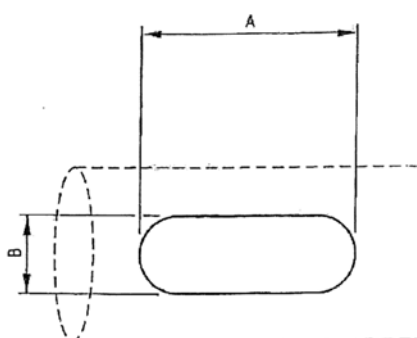
Information contained herein is based on careful tests and experience. It reflects our knowledge and is for guidance purpose only. It is given in good faith and user should ensure that the product is fit for purpose before any application. The quoted values are average and should not be taken as maximum or minimum values for specific purposes. Manufacturer and distributor are not responsible for any non-recommended use or consequential damage.

Recommendations (based on EN 12097)

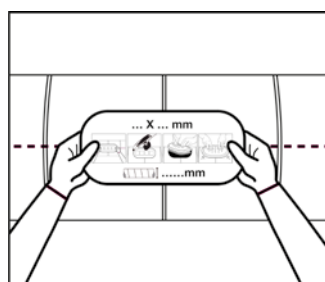
Access door needs to be fitted :

- before and after every fitting (dampers, fire dampers, filters, duct fans, duct heaters,...)
- after more than one change of direction of more than 45° as from the access door
- after more than one change of airflow as from the access door
- at least every 7,5 m

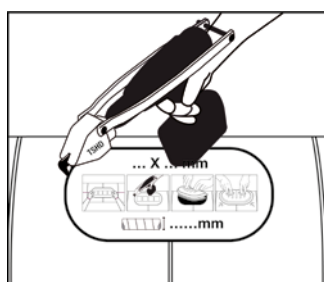
ROUND DUCTING (CAD)		RECTANGULAR DUCTING (FAD)	
Nominal duct diameter (mm)	Minimal size of access door (mm) A x B	Width of duct where access door is fitted (mm) S	Minimal size of access door (mm) A x B
$100 \leq D < 200$	180 x 80	$S \leq 200$	180 x 80
$200 \leq D \leq 315$	250 x 150	$200 < S \leq 400$	300 x 200
$315 < D \leq 500$	300 x 200	$400 < S \leq 500$	400 x 300
$500 < D$	400 x 300	$500 < S$	500 x 400



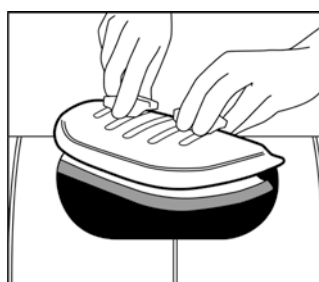
Application



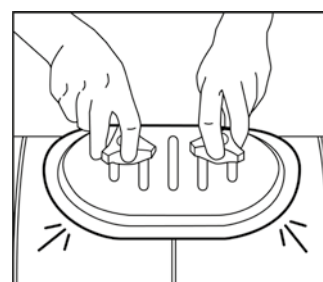
1. Stick self-adhesive template on to duct (a template is provided with each door)



2. Using Turbo Shears or similar cut around template taking care not to exceed the size of the template (the door will function correctly when cut to template size +0 mm -3 mm).



3. Install door by unscrewing the hand knobs until thread is level with top of bolt. Using both hands place the door in the hole at an angle.



4. Turn straight and pull out slightly to align. Then tighten knobs.

Practical example

Below we will present a supposed practical case in which, apart from being able to analyze the different combinations that can be made by varying the number of access doors and the disinfection time, we will see the great impact that the temperature of the recirculated air has on the results obtained for a certain disinfection.

Our computer application, for the calculation of access doors, always prioritizes the highest power of the mounted lamps over the largest size of access doors that can be installed according to the size of the proposed duct.

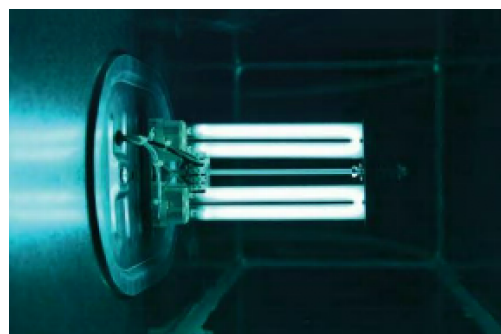
Let's assume an installation with:

A rectangular duct section of 500 × 300 mm with air speed of 2 m / s. An area of 80 m² with 2.7 m of average height that corresponds to a volume of 216 m³ and a temperature of the driven air in summer of 10°C, gives us a result of:

- 4 access doors of 300 × 200 of 120W
- A total consumed power of 480 W
- A disinfection time of 72 min
- With 6 volume recirculation

Or well:

- 3 access doors of 300 × 200 of 120W
- A total consumed power of 360 W
- A disinfection time of 96 min
- With 8 volume recirculation



Then, for the same installation but with a driven air temperature in winter of 50° C, we would have:

- 3 access doors of 300 × 200 of 120W
- A total consumed power of 360 W
- A disinfection time of 24 min
- With 2 volume recirculation

Or well:

- 2 access doors of 300 × 200 of 120W
- A total power consumption of 240 W
- A disinfection time of 36 min
- With 3 volume recirculation

Obtaining information from the advanced technology of PHILIPS, we see that these lamps have their maximum efficiency at 40° C and their performance in UV-C radiation decreases considerably with lower temperatures. For this reason it is vital to consider the temperature at which they are going to work.

With the calculation tool that we have specifically developed, we can instantly provide you with the results that best suit your installation, including the economic evaluation that best suits your needs based on the time set to perform the sterilization.