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# AIR300

Our total air treatment solution

## Content presentation

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- What is the Air 300?
- What is UV disinfection and how does it work?



# What is the AIR300?



## Our introduction to the AIR300

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- The most flexible air treatment system available
- UV disinfection / particle collection\* (HEPA 14) or TVOC removal\* at your fingertips
- Suitable for flow rates from 120 to 1200 m<sup>3</sup>/hr
- Built in PM2.5 sensor operates in sync with the HEPA filter
- Flexibility and comfort
- Easy to install, easy to operate, easy to maintain
- 24 hrs of protection against airborne threats

(\*): Optional available, not included in standard scope of supply

# Exploded view AIR300

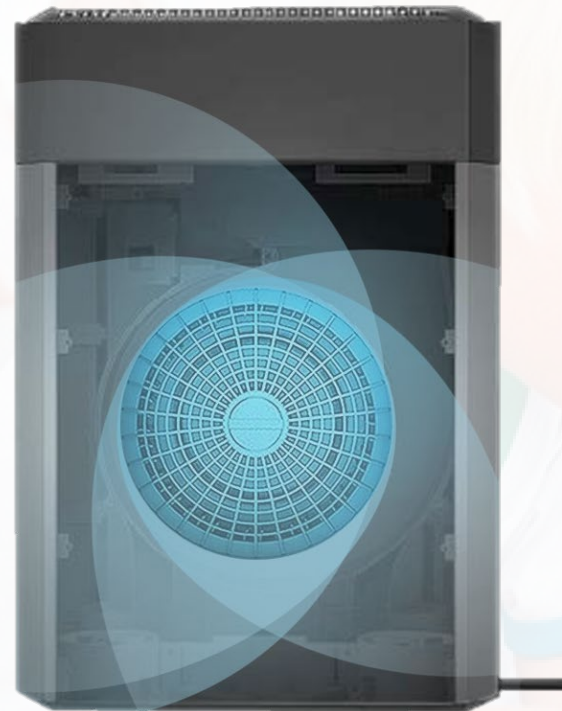


No	Item
1	Air inlet
2	Pre filter
3	Housing filter module
4	Fan
5	Air outlet
6	Operation panel

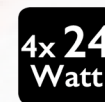
# Our Heart

## The Turbo Fan and air distribution system

27-68 dB



- Fan blades
- Shape
- Resistance
- Distance
- Sound
- Inclination angels
- Rotational air speed
- Head loss
- Instream & Outstream opening
- Wear & Tear
- Optimised air distribution
- Torque
- Strength
- CFD Simulation

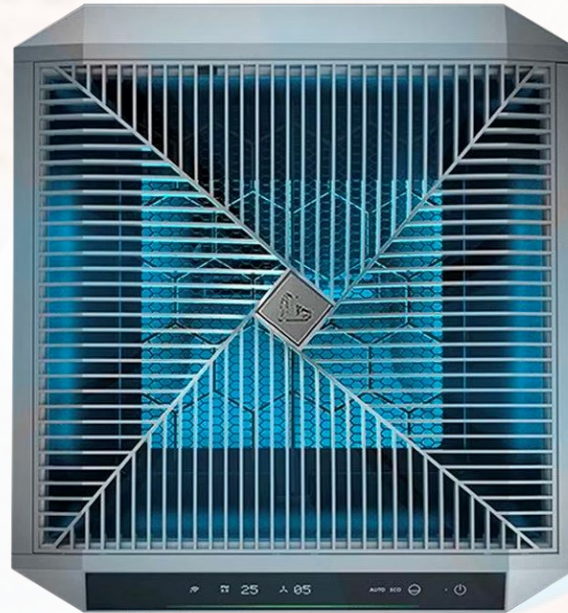


# Our Heart

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## The Turbo Fan and air distribution system

45° Angled Air flow  
Operational steps: 10%

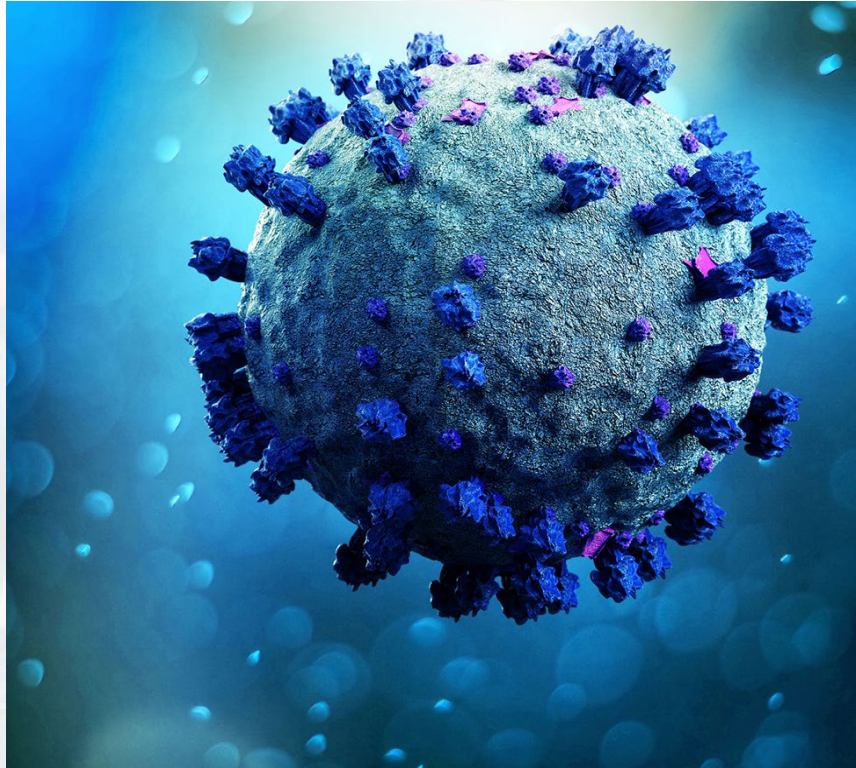


*Specially engineered to create parabolic air movements to minimise dead spots in a room.*

*Patented honeycomb design offers >109% higher air distribution*

# Our task: Reliable disinfection

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## UV Disinfection and Corona (Covid-19)





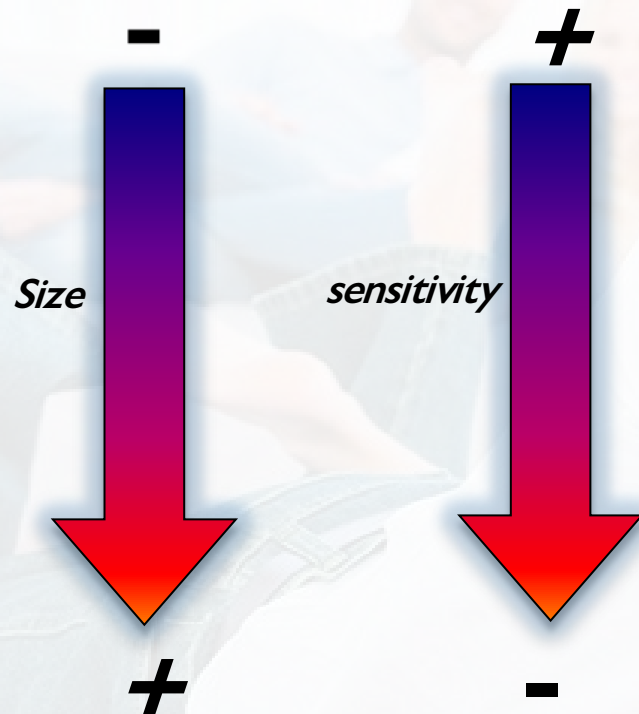
## Our UV disinfection:

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# How does UV disinfection work?

## Micro-organisms: Size vs UV-C dose



Organism	Types	Size (Micron)
Virus	<ul style="list-style-type: none"> <li>Influenza</li> <li>Sars-Covid-19</li> </ul>	0,001 to 0,5
Vegetative bacteria's	<ul style="list-style-type: none"> <li>Staphylococcus</li> <li>E-coli</li> </ul>	0,3 to 1
Mycobacteria's	<ul style="list-style-type: none"> <li>Tuberculosis</li> </ul>	1 to 5
Bacterial spores	<ul style="list-style-type: none"> <li>Bacillus subtilis</li> </ul>	5 - 10
Moulds	<ul style="list-style-type: none"> <li>Aspergillus</li> </ul>	10
Algeas	<ul style="list-style-type: none"> <li>Green Algae</li> </ul>	> 10
Human hair		150

# UV Dose tables

UV dose to obtain 90% killing rate	Dose
<b>Bacteria</b>	
Bacillus anthracis	45.2
B. megatherium sp. (f)	27.3
B. megatherium sp. (v)	13.0
B. paratyphosus	32.0
B. subtilis	71.0
B. subtilis spores	11.0
Campylobacter jejuni	32.0
Clostridium tetani	71.0
Corynebacterium dip.	120.0
Dysentery bacilli	11.0
Eberthella typhosa	120.0
Escherichia coli	33.7
Klebsiella terrifani	22.0
Legionella pneumophy	21.4
Micrococcus candidus	30.0
Micrococcus sphaeroi	26.0
Mycobacterium tuber	9.0
Neisseria catarrhalis	60.5
Neisseria meningitidis	100.0
Phytopomonas tumefaci	60.0
Pseudomonas aerugin	44.0
Pseudomonas fluores	44.0
Proteus vulgaris	55.0
Salmonella enteritidis	35.0
Salmonella paratyphi	26.4
Salmonella typhimurii	40.0
Sarcina lutea	32.0
Serratia marcescens	80.0
Shigella paradysenterii	197.0
Shigella sonnei	24.2
Spirillum rubrum	16.3
Staphylococcus albus	30.0
Staphylococcus aureus	44.0
Streptococcus faecalis	18.4
Streptococcus hemolyticus	26.0
Streptococcus lactus	44.0
Streptococcus viridan	21.6
Serratidid	21.6
Vibrio cholerae (V.comma)	61.5
Yersinia enterocolitica	20.0
	40.0
	35.0
	11.0



UV Disinfection and Corona (Covid-19)

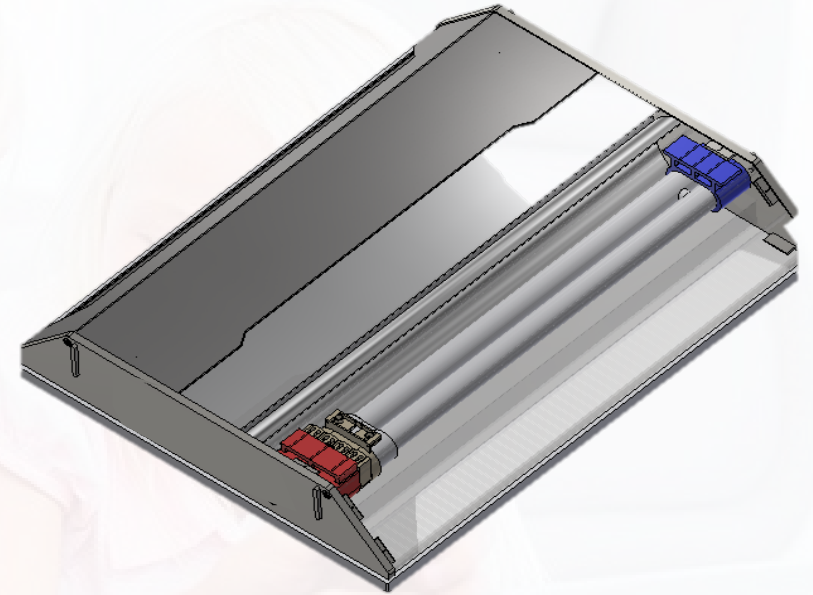
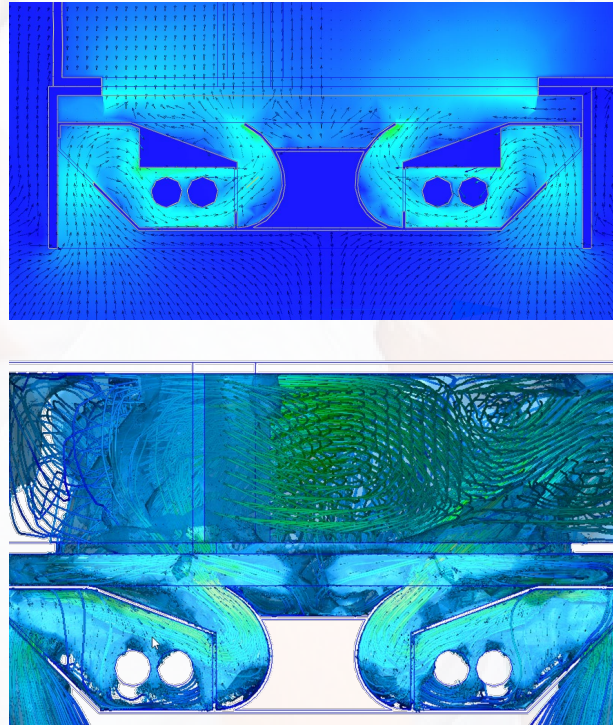
# The formula:

$$\text{Doses} = \text{intensity} \times \text{retention time}$$

# UV energy distribution

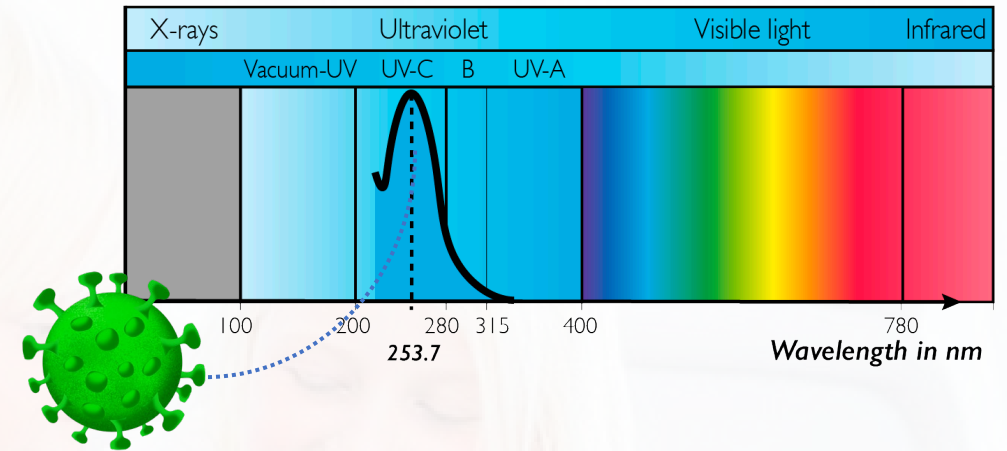
A computational fluid dynamic program is used to optimise the disinfection chamber:

- All air particles in the UV chamber receive the same UV dose




# Advantages UV disinfection?

- No micro-organism is resistant against UV-C light
- Overdoses does not exist
- No change of PH or smell of the air
- Up to 99,99% effective
- Destroys DNA / RNA of harmful micro-organisms, such as viruses & stops reproduction
- No residual effect, causing unwanted by-products or dangerous situations
- Proven technology ( entrusted to disinfect > 70% of our drinking water)



# UV-C lamp specifications



No	Item	Specification
1	Power output per lamp	24 watt
2	Lifespan lamp	9.000 hrs (1 year)
3	UV-C output (at 253,7 nm)	High
4	Premature lamp fall-out	Below 0,5%
5	Amount of UV lamps per unit	4 per unit
6	Brand	Signify (Philips Europe)

# Why disinfection for control of airborne viruses <sup>(1)</sup>

No	Handling	Aerosol <sup>(2)</sup> distribution (horizontal distance in metres)
1	Breath	1
2	Talk	1,5
3	Cough	1,5 to 2,5
4	Sneeze	6 to 8

(1) Source: TNO report 2020 R11208 rev 1

(2) Size aerosol particles: > 60µm

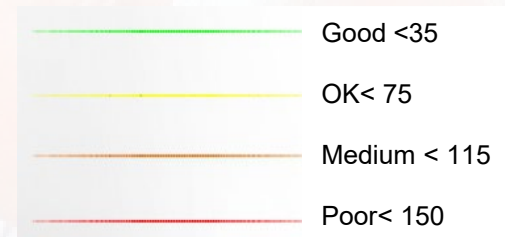


# Your comfort

The soft touch operation panel offers an intuitive handling of all parameters



With the HEPA filter module





# Specifications

Item	Specification
Dimensions ( L x W x D / mm)	390 x 420 x 630 mm
Weight	19 Kg
Voltage supply	220-240V ~ 50-60 Hz
Maximum power consumption	180 Watt ( i.c.w. the UV modules)
Positioning	Floor standing
Guarantee	2 years
Approval	CE
Environmental aspects	Recycled high resistance plastic housing parts
Air capacity	120 to 1200 m <sup>3</sup> /hr

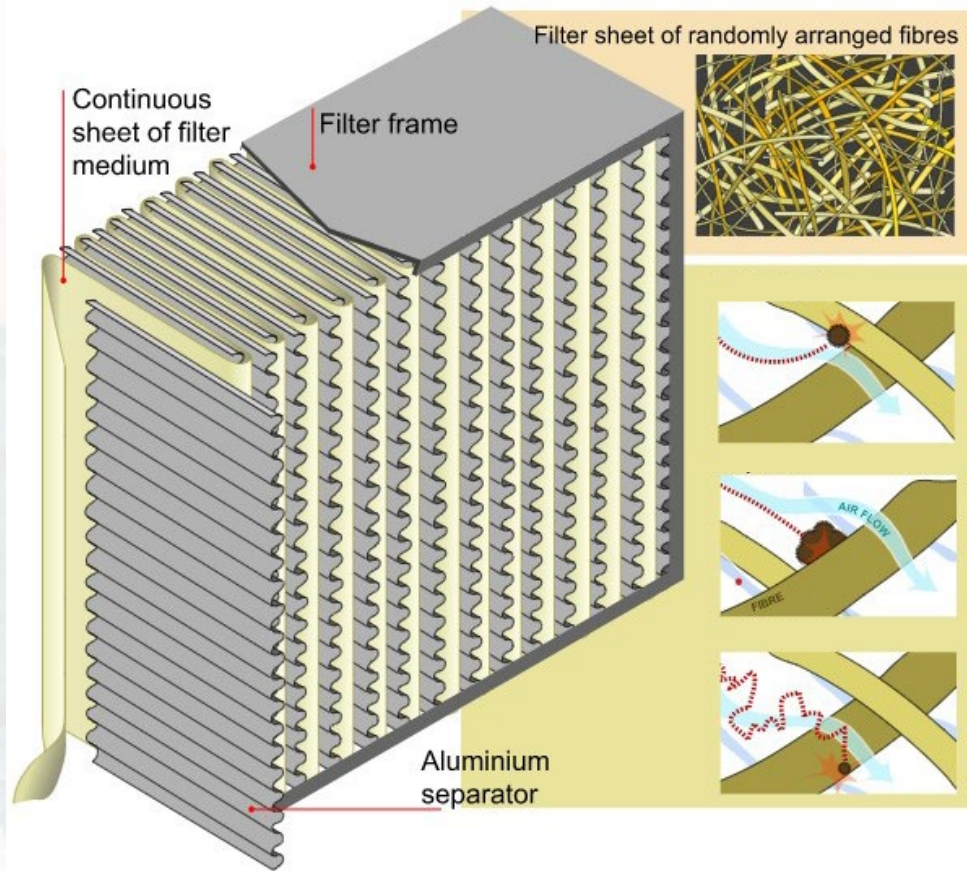


# Energy consumption of the Air 300

Speed level	Power consumption UV module (W)	Energy costs per day (Euro)	Power consumption HEPA / TVOC module (W)
1	111.5	0,59	11.5
2	114.5	0,60	14.5
3	118.5	0,63	18.5
4	122.9	0,65	22.9
5	128.0	0,68	28.0
6	135.3	0,71	35.3
7	143.0	0,76	43.0
8	151.9	0,80	51.9
9	164.1	0,87	64.1
10	178.3	0,94	78.3

1kWh = Euro 0,22

# Optional available: HEPA filter module



— Inception:  $< 100\text{nm}$

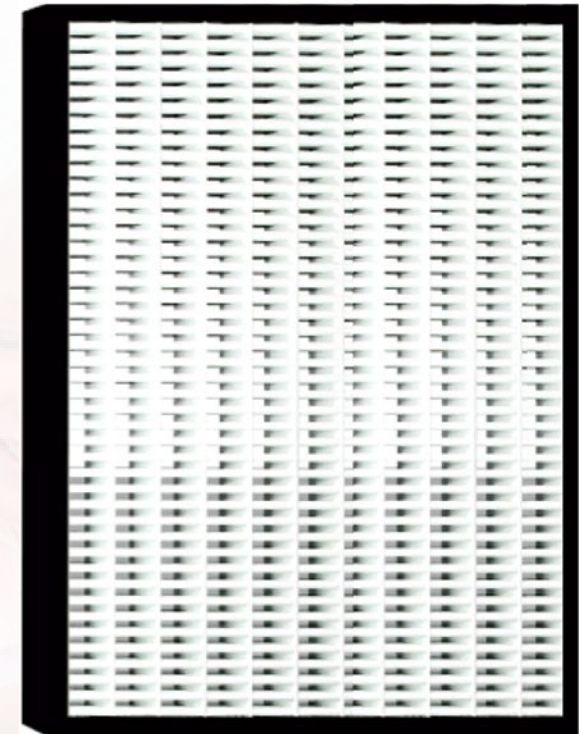
— Impact:  $< 1\ \mu\text{m}$

— Diffusion:  $< 0,1\ \mu\text{m}$

**pollen** – pet dander –  
**smoke** – dust  
 mite – bacteria's –  
 Moulds – solid particles

## Optional available: HEPA filter module

No	Item	Specification
1	Name	HEPA Filter module Air 300
2	Article number	2.25.3050
3	HEPA filter grade	H14
4	Particle reduction	≥ 99,97% at ≥ 0,3 microns
5	Dimensions (L x W x D in mm)	371 x 292 x 60
6	Weight ( Kg)	0,6
7	Surface area	7,5m <sup>2</sup> ± 10%
8	Average filter life	Pending on air quality, indicative: 3 – 6 months
9	Filter material	Water repellent
10	Pressure loss (Pa) (*)	≤ 140
11	Storage conditions	Dry storage (RH ≤ 90% / temp max: 50°C)



(\*) Resistance test method: JISB 9908-2011 (Japanese standard)

# Optional available: TVOC filter module

Reference Level (*)	Air Information	Action	TVOC PPM	Air Quality
Level 1	Clean Hygienic Air (Reference value)	No action required.	< 0.15	Very Good
Level 2	Good Air Quality (If no threshold value is exceeded)	Ventilation recommended.	0.15 – 0.5	Good
Level 3	Noticeable Comfort Concerns (Not recommended for exposure > 12 months)	Ventilation required. Identify sources.	0.5 – 1.5	Medium
Level 4	Significant Comfort Issues (Not recommended for exposure >1 month)	Refresh air when possible. Increase ventilation. A search For sources is required.	1.5 – 5.0	Poor
Level 5	Unacceptable Conditions (Not recommended)	Use only if unavoidable and only for short periods.	> 5.0	Bad

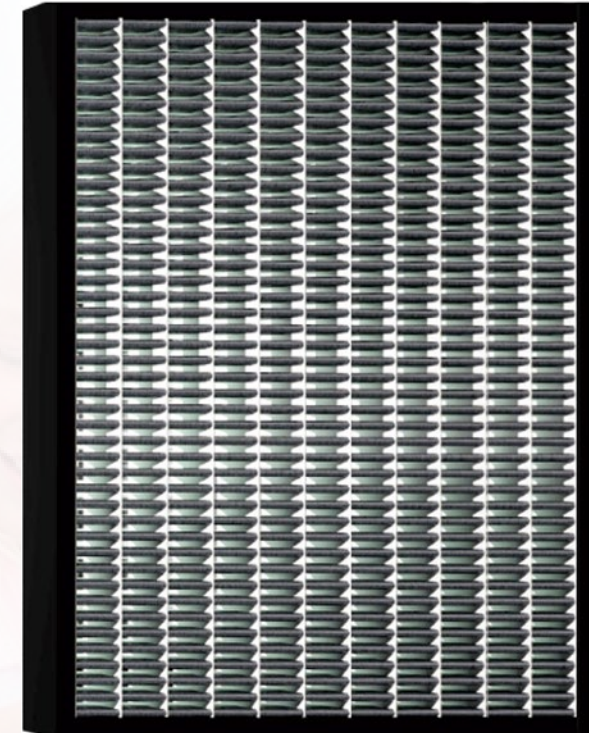
**Detergents** - furniture  
 – Carpets – Perfumes –  
**paint** – exhaust  
**products** – medicinal  
 products – Upholstery  
 – Cooking – **Chemical  
 fluids** –

(\*) See: Umweltbundesamt, *Beurteilung von Innenraumluftkontaminationen mittels*

*Referenz- und Richtwerten* (Bundesgesundheitsblatt - Gesundheitsforschung - Gesundheitsschutz)

## Optional available: TVOC filter module

No	Item	Specification
1	Name	TVOC Filter module Air 300
2	Article number	2.25.3060
3	Filter purpose	High adsorption efficiency for a wide variety of gaseous contaminants & odours
4	Dimensions (L x W x D in mm)	371 x 292 x 60
5	Weight ( Kg)	0,5
6	Absorption medium	Active carbon
7	Average filter life	Pending on air quality, indicative: 6 -12 months
8	Filter material	Water repellent
9	Pressure loss (Pa) (*)	≤ 140
10	Storage conditions	Dry storage (RH ≤ 90% / temp max: 50°C)



(\*) Resistance test method: JISB 9908-2011 (Japanese standard)

# Our markets

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Schools – meeting rooms – medical rooms –  
restaurants – **office areas** – Cleanrooms - Home areas –  
many more...

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Your questions

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**Thank you for listening**

Alcochem Hygiene