

Aero Shield Production Instruction





“ Going beyond the limit of air purification ”

ventilation-purification compound solution

air quality specialized company which cares all the harmful substance in the air

“The use of air cleaners alone cannot ensure adequate air quality.”

United States Environmental Protection Agency(EPA), Three Strategies to Reduce Indoor Air Pollutants

“One hour ventilation, reduce the covid-19 one-hundredth”

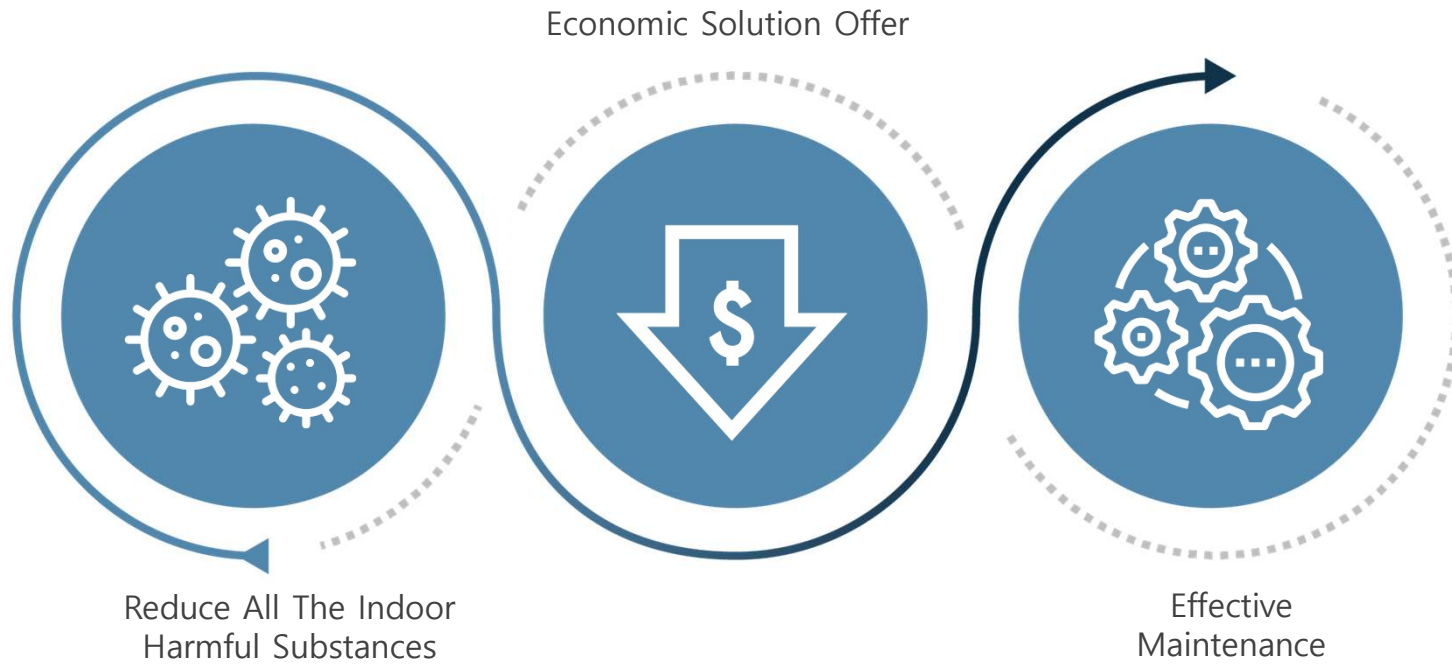
Central disaster and safety countermeasures headquarters



Can not respond carbon dioxide, VOC, inside harmful substance and Radon with exist air cleaner

Only ventilation-purification compound solution can respond with all the harmful substances.

CALAB focuses on synergy at **ventilation** & **purification**'s compound





Don't you ventilate because you trust the air purifier?

Impossible to remove carbon dioxide from breathing

Impossible to remove radon from building materials

Unpreventable mold and condensation

Air purifier is effective at fine dust and ultra fine dust
but not for harmful substances at all

The Limit of Air Purifier

Indoor pollutants

Possible to reduce by air purifier

Fine dust	Ultra fine dust
-respiratory disease	-brain disease
-skin disease	-blood vessels disease

Possible to reduce by ventilation

Formaldehyde	Volatile Organic compounds	Radon	Carbon dioxide
-emotional instability	-arrhythmia	-leukemia	-headache
-amnesia	-dizziness	-lung cancer	-shortness of breath

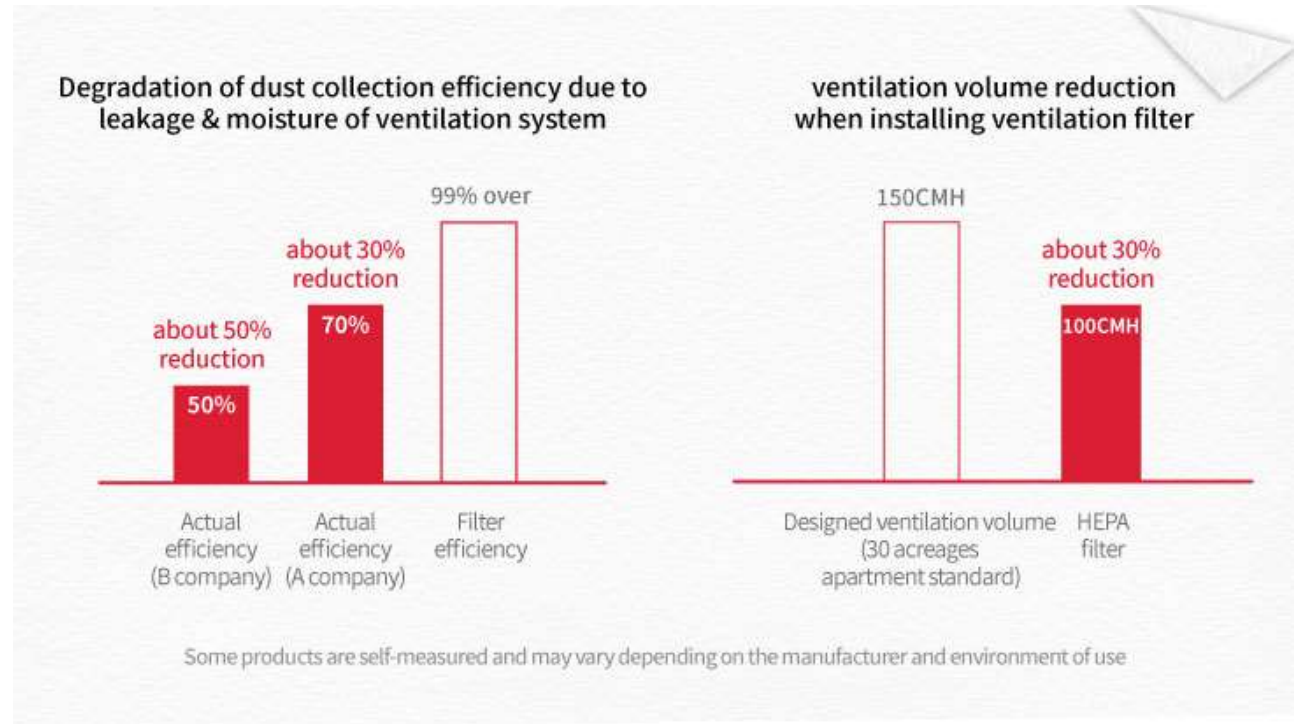
[Necessary of ventilation & purification to respond for reduction impossibility of existing air purifier]

Limitations of Existing Ventilation's Insert Type Filter

Apartment ventilation structural plot



Main issue of existing ventilation's filter



[The existing filter is structurally impossible to respond to find dust due to leakage inside the ventilation system and leakage from outside pipes]

Now,
ONLY ONE CALAB Aero Shield
simply solves air quality issues.

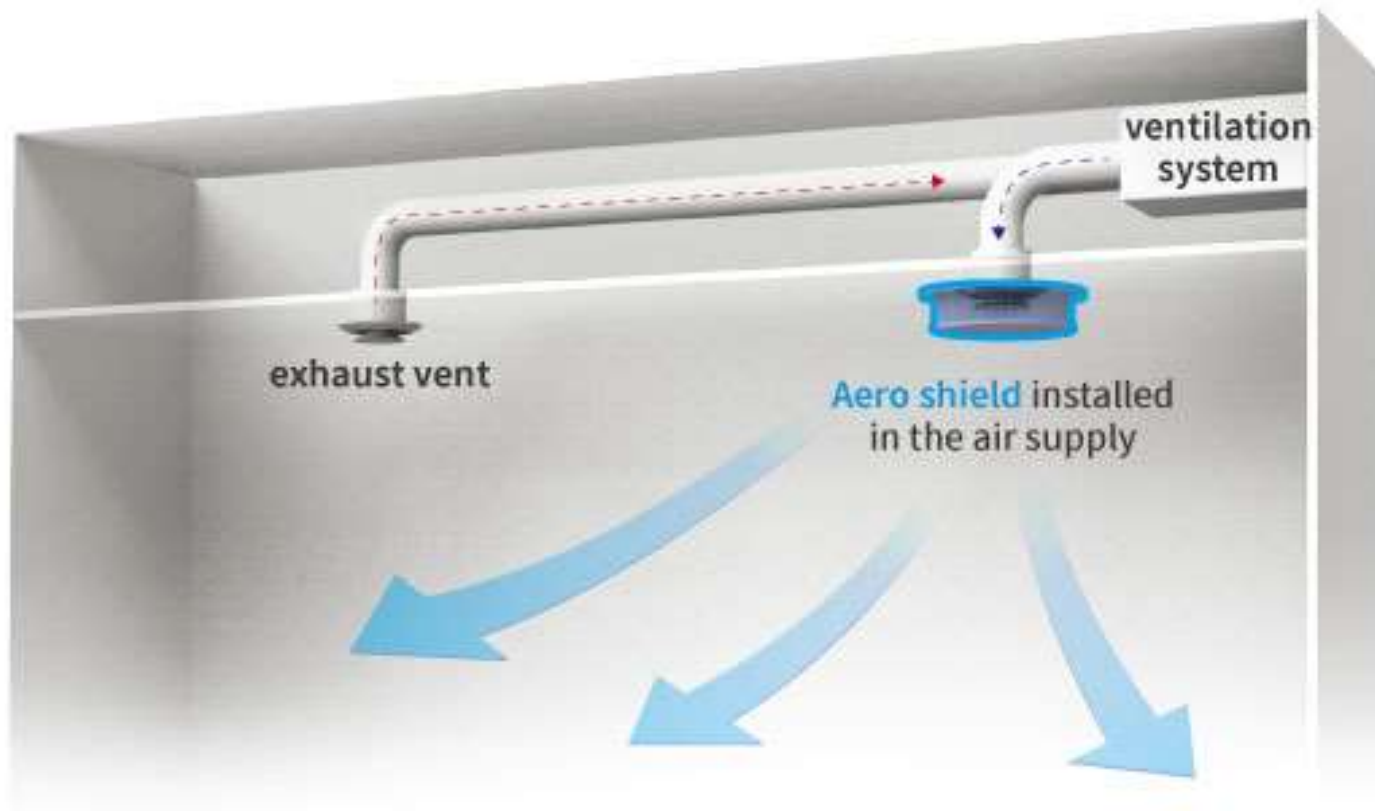


What is Aero Shield ?

ventilation-air purifier filter to any ventilation system



Aero Shield Using Conceptual Drawing



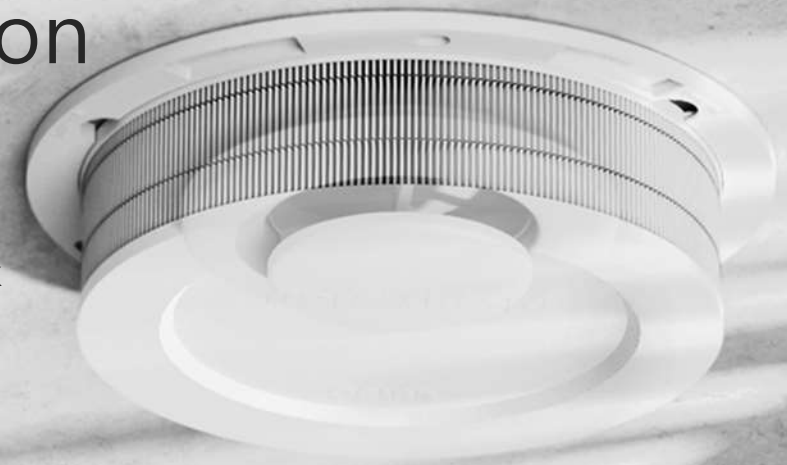
[Installation Aero Shield on the air supply unit where external air flows into the room through ventilation system and supply only purified air]

The image shows several circular HEPA filters arranged on a light-colored surface. The filters have a pleated, cylindrical design with a white top cap and a metal base. The text 'Aero Shield' is embossed on the top caps. A semi-transparent dark grey rectangle is overlaid in the center of the image, containing the text 'More about Aero Shield' in white. A small blue horizontal line is positioned below the word 'Aero' in the text.

More about Aero Shield

01 Dust collection/ Purification

Patented filter for ventilation removes ultra fine dust and bio-aerosol to 99.99% and efficiently gets rid of sick house syndrome-Radon/ mold-condensation and odor.



Only one filter **removes** ultra fine dust, bacteria **99.99%**



Fine dust
remove



Ultra fine particle
remove



bacteria
remove



Carbon dioxide
remove



Sick house
syndrome
remove

Filter that **clearly shows** the difference between **before and after use**



Before use

1month after

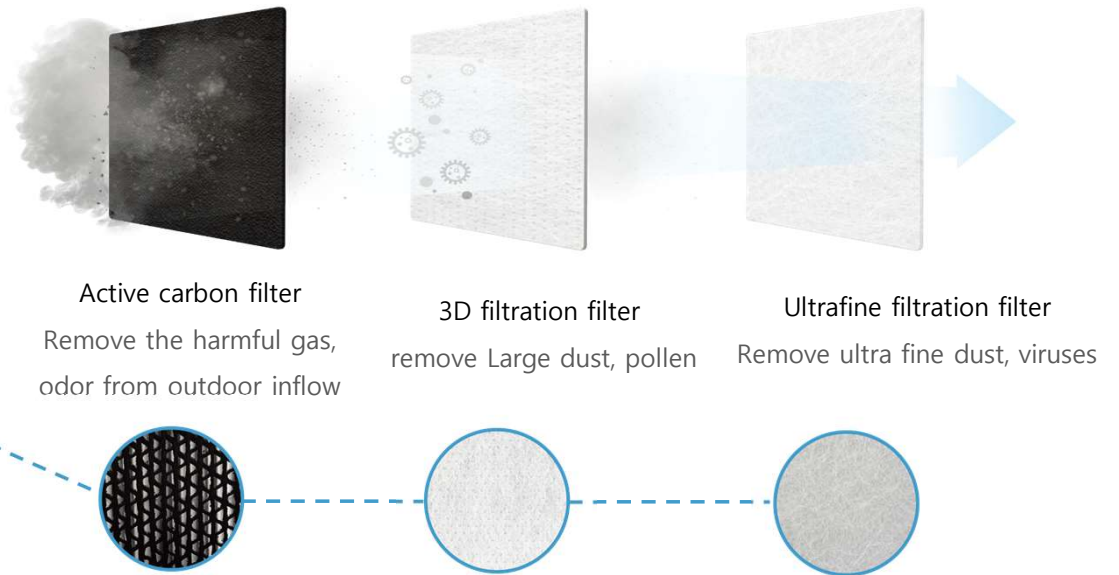
3months after

6months after

12months after



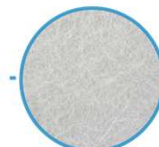
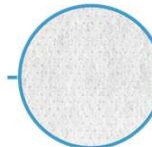
Patented ultra fine filtration filter/3D filter



Active carbon filter
Remove the harmful gas,
odor from outdoor inflow

3D filtration filter
remove Large dust, pollen

Ultrafine filtration filter
Remove ultra fine dust, viruses



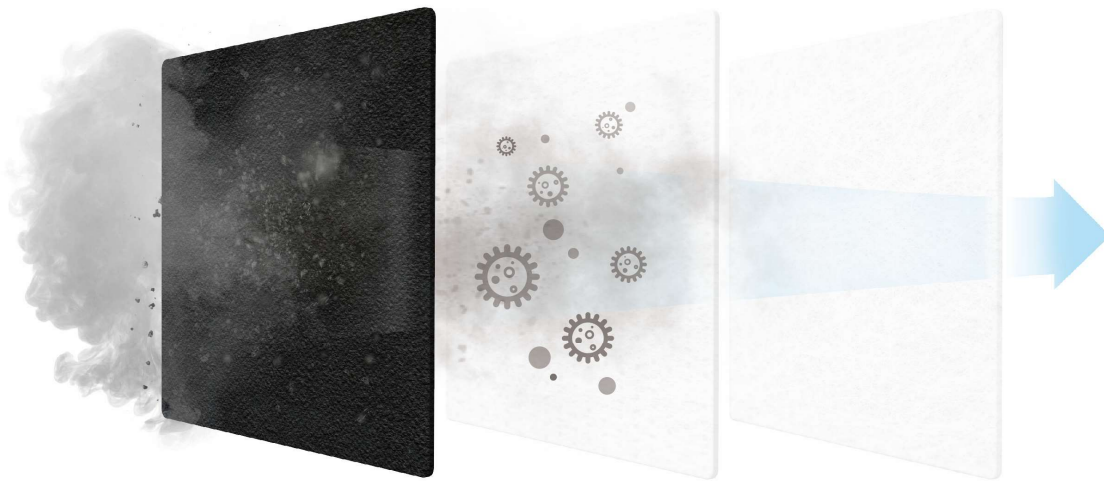
Researchers designed indoor optimized filter for removing the harmful substances quickly and keeping ventilation rate max through patented ultra fine filtration filter material which makes 4times longer filter life than normal one.

- 1 active carbon material which is optimized at adsorption
- 2 minimize air resistance by corrugate structure

- 1 Multilayer by Diameter structure
- 2 extension ultra fine filtration filter life by removing large dust and pollen

- 1 *ISO 16000 / KS B 6141 Standard certified
- 2 4times longer life filter without efficiency reduction rate due to moisture
- 3 completely remove not only ultra fine dust but viruses

Active carbon filter



Active carbon filter

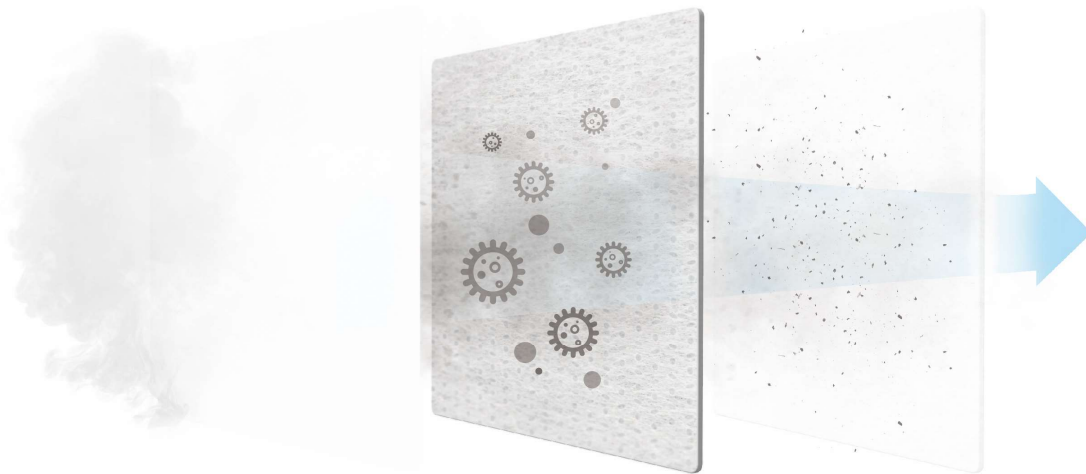
3D filtration filter

Ultrafine filtration filter

- 1 Active carbon material for optimized adsorption
- 2 Minimize air resistance by corrugate structure

Active carbon filter remove odor and harmful gas from outdoor inflows over 99% with adsorption

3D – filtration filter



Active carbon filter

3D filtration filter

Ultrafine filtration filter

- 1 Multilayer by Diameter structure
- 2 Ultra fine filtration filter life extension through reduction Large dust and pollen

3D filtration filter prevents from dust blockage of ultra fine filtration filter.
It helps to collect much more dust through collecting large dust and pollen by size

Ultrafine filtration filter



Active carbon filter

3D filtration filter

Ultrafine filtration filter

- 1 *ISO 16000 / KS B 6141
Standard certified
- 2 Completely remove! From ultra fine dust to viruses
- 3 Without efficiency reduction due to moisture,
4times longer filter life term

Ultra fine filtration filter is specialized at ventilation system where installed In humid environment. It doesn't use electrostatic way, so keep high efficiency even humid condition which keep different from existing electrostatic filter (mask/ air purifier)

Ultra Fine dust TEST



	FLOW	RESISTANCE	PENETRATION	DUST COLLECTION EFFEICIENCY(%)
1회	32.0	8.1	0.014	99.99%
2회	32.0	8.1	0.018	99.98%
3회	32.0	8.7	0.004	99.99%

Remove maximum 99.99% Ultra fine dust (PM2.5, <2.5 μ m) smaller than 0.3 μ m

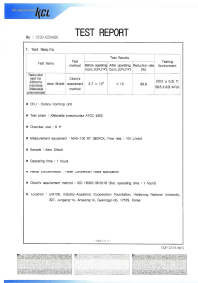
Harmful Substance / Deodorization Test



	#1
Deodorization rate - Formaldehyde	99.3 over

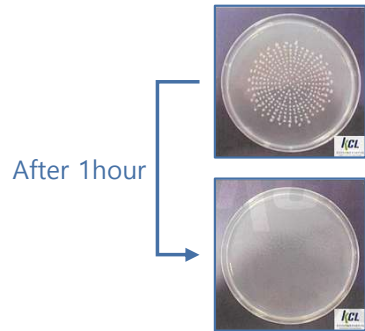
Remove more than 99% Formaldehyde and odor form outside inflowing

Harmful Viruses Test



CFU	Colony Forming Unit
Test Strains	Klebsiella pneumoniae ATCC 4352(harmful pneumonia)
Chamber Size	8m ²
sample	Aero Shield
Running time	1hour
Result value concentration	Feller Conversion Table applying
Condition of presenting clients	ISO 16000-36:2018 (but, running time in 1hour)

Harmful streptococcus pneumoniae

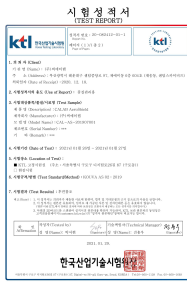


• Test result

Test Category	Test method	Test result			Test environment
		Before running concentration	After running concentration	Reduction rate (%)	
Floating virus reduction rate test(pneumonia)	Aero shield Clients presenting	2.7 x 10 ⁴	< 10	99.9%	(23.0 ± 0.2) °C (50.5 ± 2.0) % R.H.

Remove harmful streptococcus pneumoniae in air 99.9%

Bio-aerosol TEST



- TEST method and condition

Test category	bacteria	temperature	humid	Test chamber	Test time	Wind volume
KOUVA AS 02:2019, Air purifier	Phi-X174 (ATCC 13706-B1)	(23±2)°C	(50±5)% R.H.	60m³	30min	single

- 시험결과

Product name	Result
CALAB Aero Shield	Bio-aerosol reduction rate 76.4%

Reduction floating viruses 78.4% after 30min running

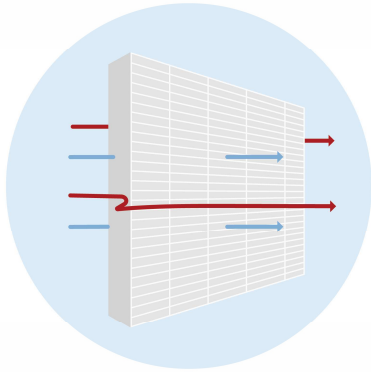
02 Technology skills

The product certified with core technology IAQST™ & MLFST™



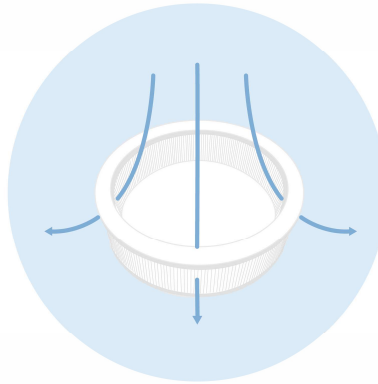
Incomparable technical skills

Ventilation system inside filter



Large dust removal ○
Ultra fine dust removal X
Bacteria removal X
Filter life 3months

Aero shield filter



Large dust removal ○
Ultra fine dust removal ○
Bacteria removal ○
Filter life 12months

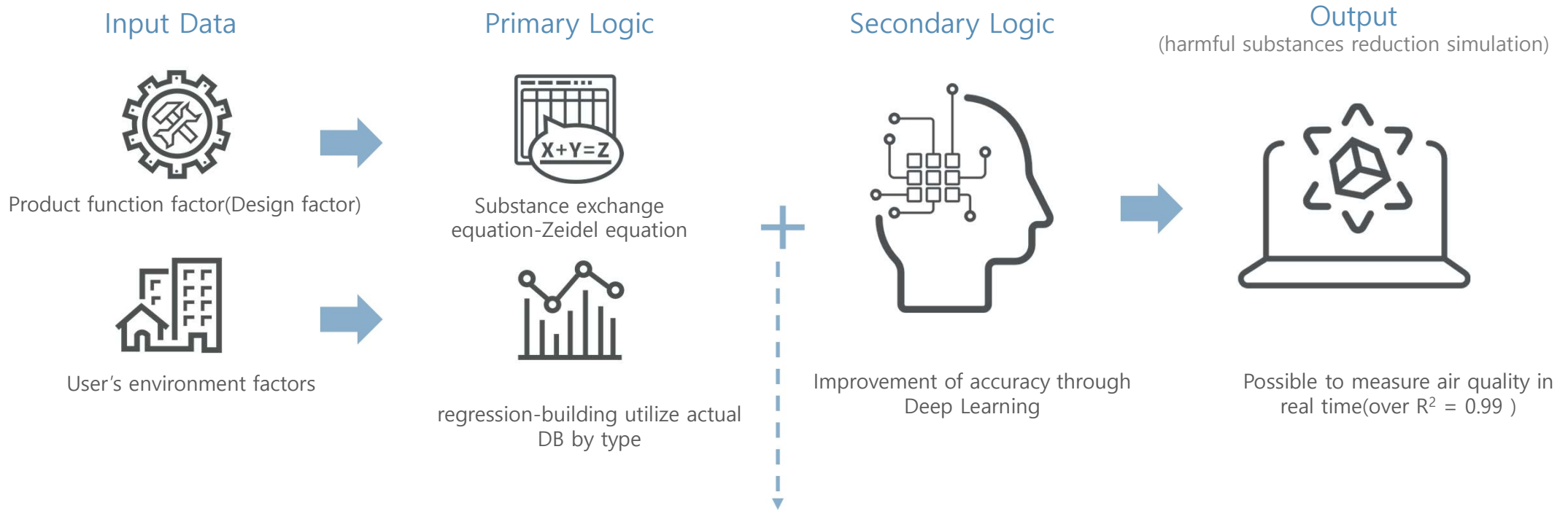


Certified as the latest international standard,
99.9% elimination of pneumonia.

Aero shield Certified ISO 16000-36:2018
Harmful substances 99.9% removal products

Core Retention Technology IAQST*

*IAQST: Indoor Air Quality Simulation Tool



[Product development period 70% shortening compare to existing method/ possibility of suitable product development for actual use environment]

Core possession technology MLFST*

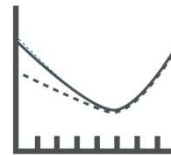
*MLFST: Multi-Layer Filter Media Simulation Tool



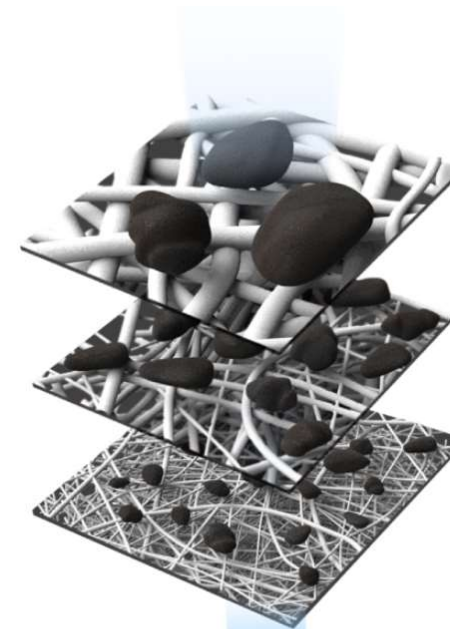
Fiber & Flow Condition
(reflect properties of fibers and passing fluids)



Collection Mechanism
(reflect particle acquisition mechanism)

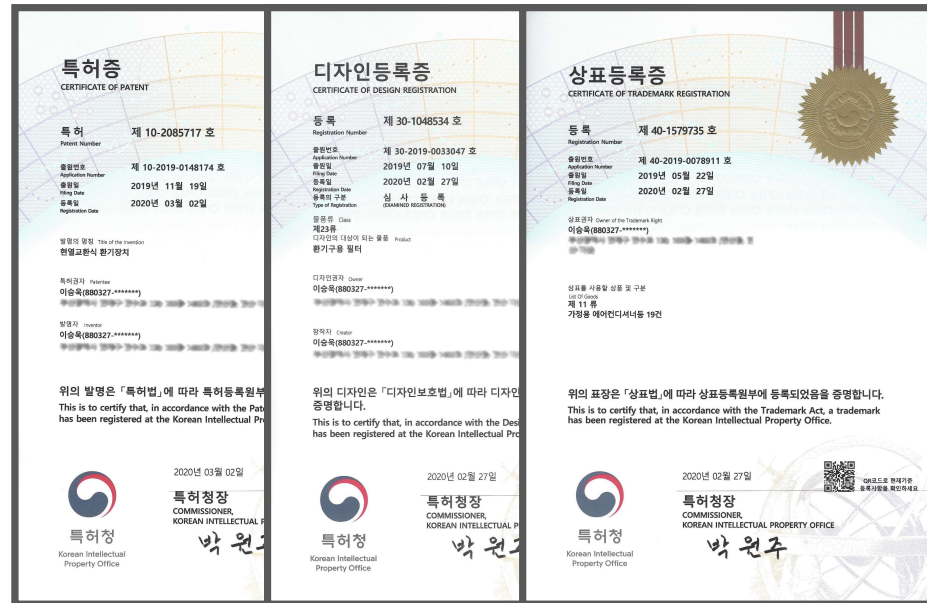


Filter Efficiency Simulation
(filter dust collection efficiency & pressure loss prediction)



[Possibility of maximizing life expectancy improvement and breathability through filter stacking simulation that compounds various condition's fabric optimally]

Patents possession



The production of CALAB's function which blocks highly ultra fine dust smaller than 0.3 μ m, harmful gas and floating bacteria has been proved officially and based on various patents and intellectual property

03 Economics

Save maintenances cost max 43% without efficiency reduction
due to moisture through Long life filter



Guaranteed Economics with long life filter

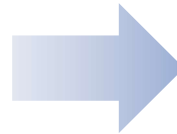
General filter area



5times

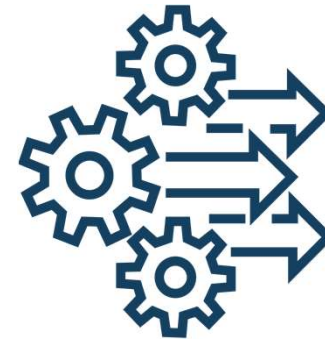
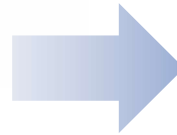
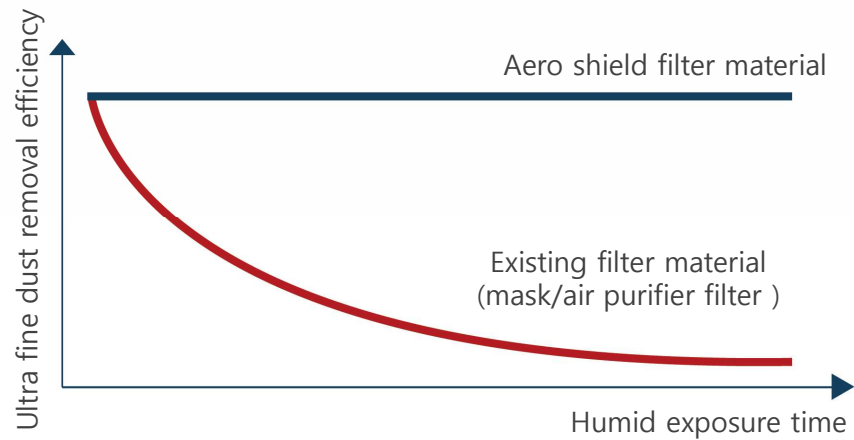


Aero shield filter area



Possible to minimize ventilation-rate reduction caused filter blockage with 5times wider filter area than existing filter. even max 12months used filter as well as works well.

No degradation filter material with humid



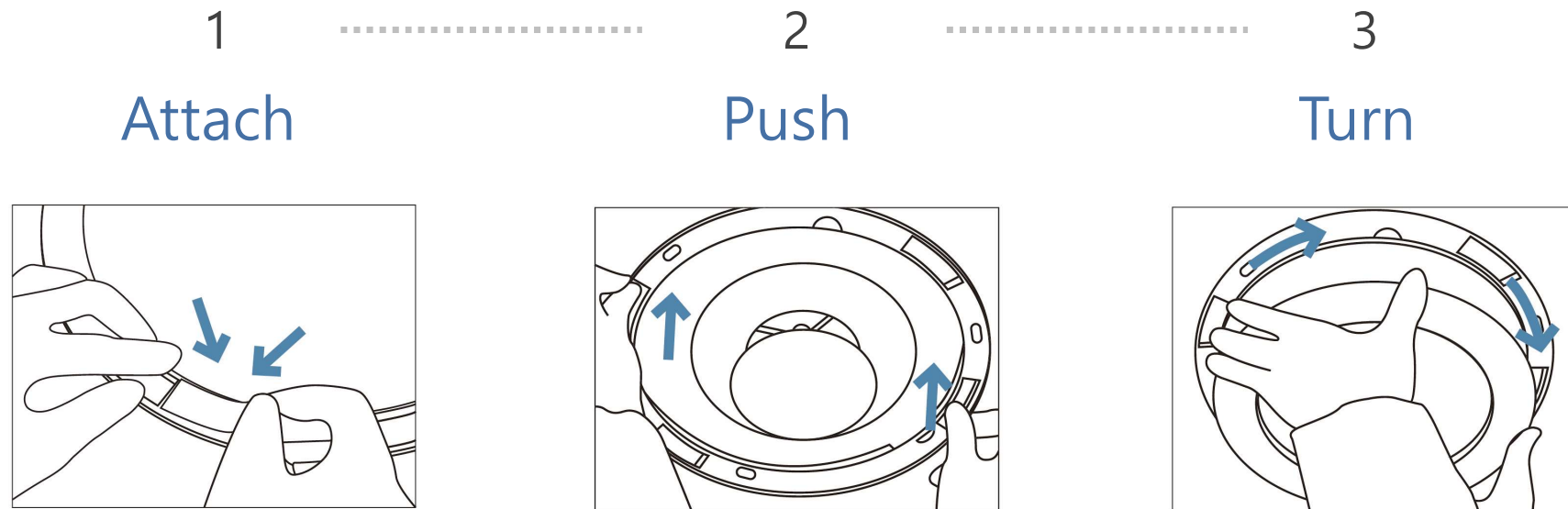
Ultra fine filtration material keep its efficiency unlike existing material which is continuously decreasing efficiency in respond to moisture.

04 Convenience

Anyone can install and replace the filter only 10seconds by patented structure and there is no inconvenience for maintenance.



Convenience and blocking cracks simultaneously by patented structure



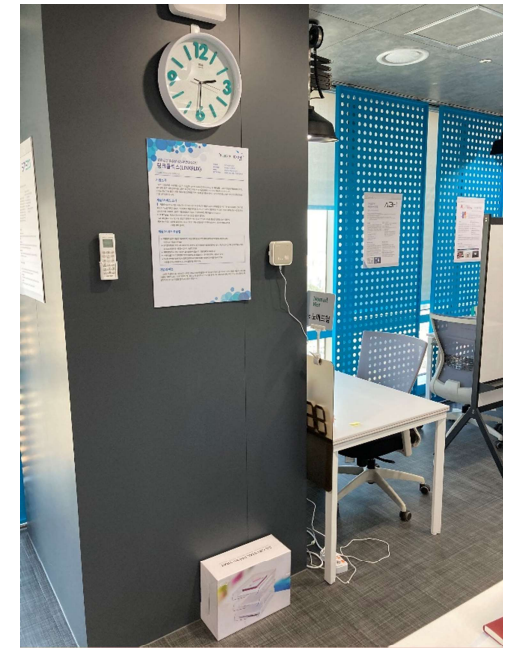
Possible to install it only 10seconds by patented structure
completely block the cracks and prevent fine dust from leaking
through excellent compression structure, the air is filtered without leaking.

05 Case of installation

Main case of installation



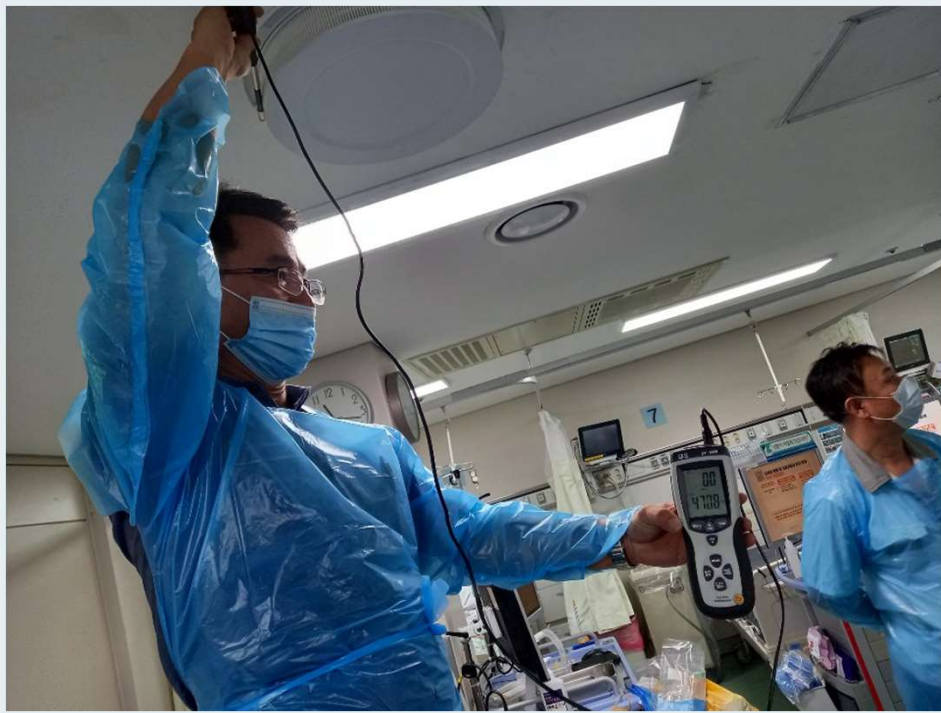
Industrial Bank Korea



Busan hospital



Busan Back hospital Screening Center



Public health center



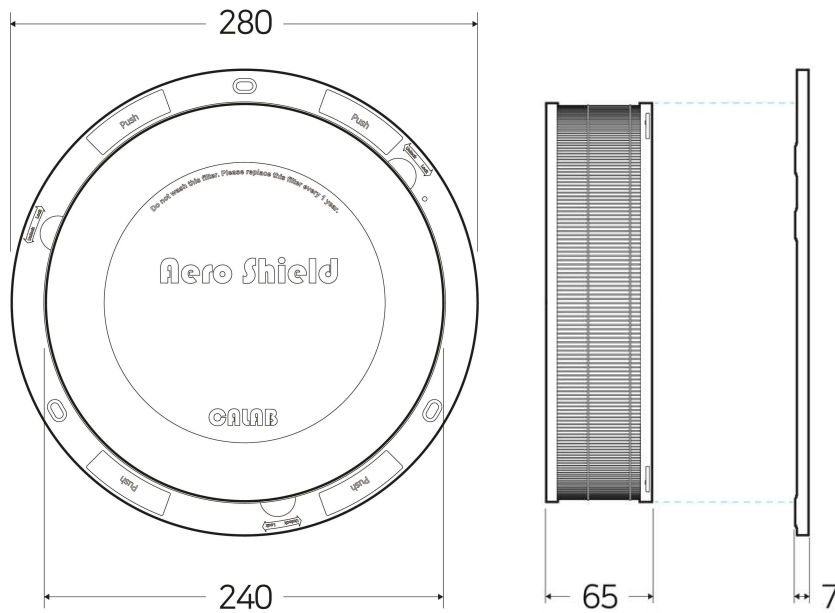
Screening Center



Aero Shield LINE-UP

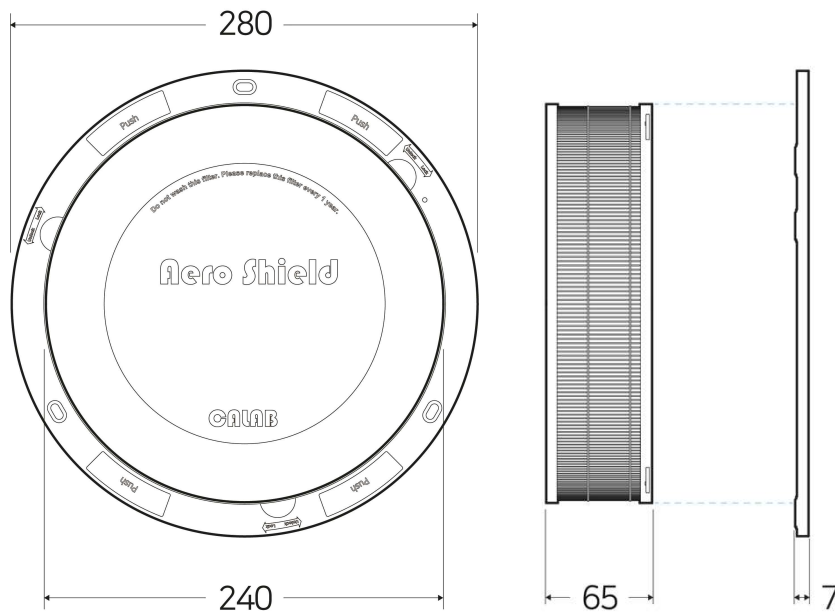
	AERO SHIELD	AERO SHIELD S	AERO SHIELD B
Intended use	Home	Home	Commercial (office, hospital, hall etc)
Purchasing channel	On-Line, sales agent	On-Line, Home-shopping , sales agent	On-Line, sales agent
Filter composition	Double configuration	Triple configuration (add removal harmful substances)	Double configuration
Available ventilation size	Less than 200mm	Less than 200mm	Less than 350mm
Filter replacement term	12months	12months	6~12months
			

Aero Shield product specification



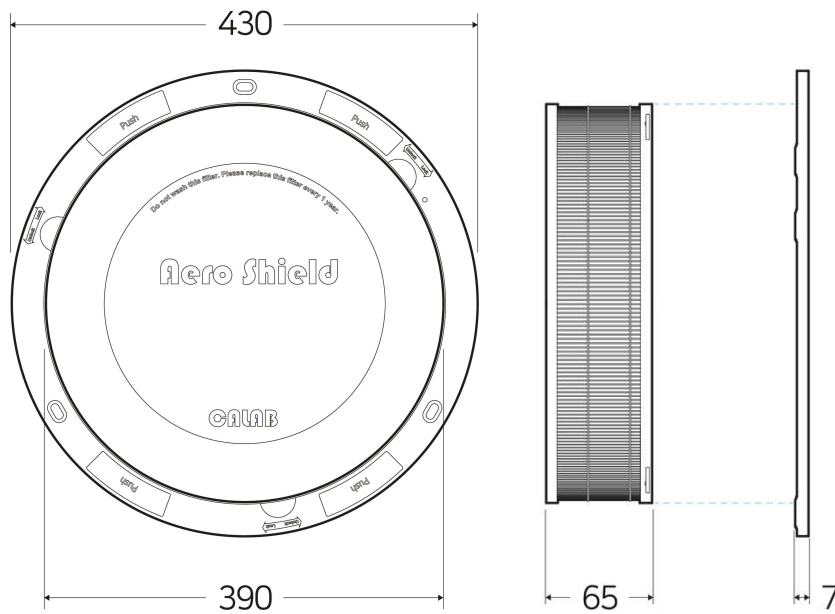
Product	CALAB Aero Shield
Model name	CAL-AS-201907001
Color	White
Filter replacement life	12months
Grade of filter efficiency	E11 grade(95%, @0.3um)
Part	Aero shield filter, fixing plate
Size	Filter: 240x240x65mm Fixing plate: 280x280x7mm
Weight	Filter: 180g Fixing plate: 50g
Material	Filter: ABS + PE Fixing plate: ABS
Origin	South Korea
Manufacturer/sales	CALAB Corporation
Warranty period	12months after purchasing

Aero Shield S Product specification



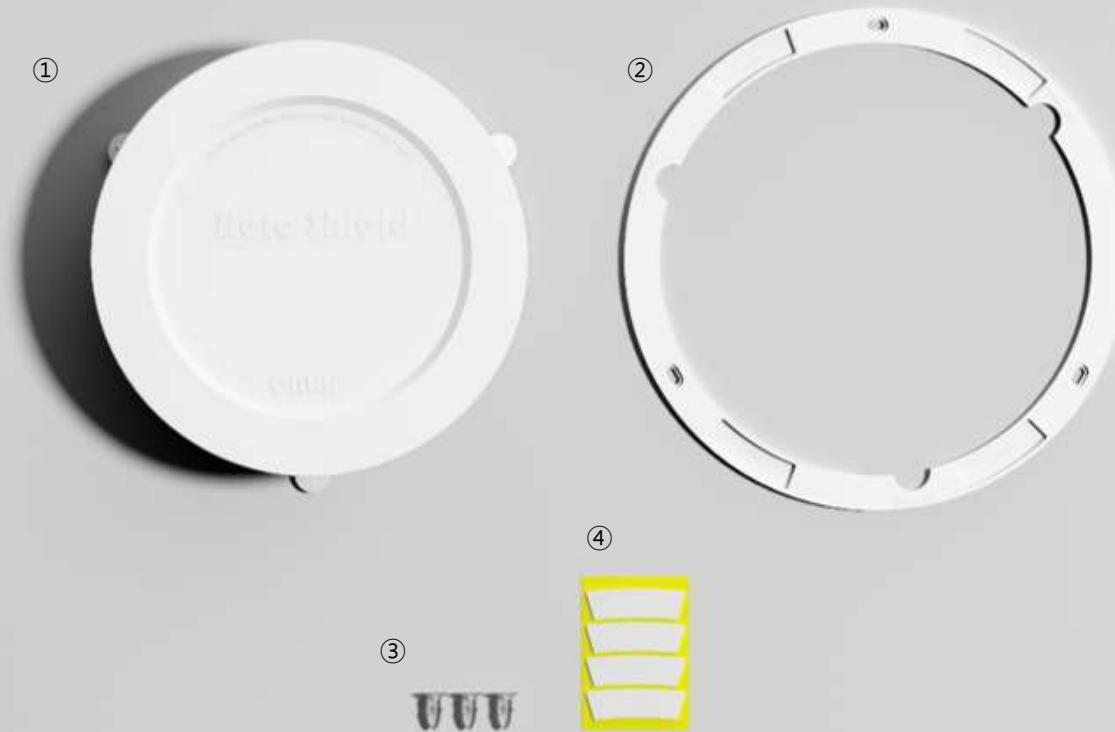
Product	CALAB Aero Shield S
Model name	CAL-AS-202005001
Color	White
Filter replacement life	12months
Grade of filter efficiency	H13 grade(>99.95%)
Part	Aero shield filter, fixing plate
Size	Filter: 240x240x65mm Fixing plate: 280x280x7mm
Weight	Filter: 180g Fixing plate: 50g
Material	Filter: ABS + PE Fixing plate: ABS
Origin	South Korea
Manufacturer/sales	CALAB Corporation
Warranty period	12months after purchasing

Aero Shield B Product Specification



Product	CALAB Aero Shield B
Model name	CAL-ASB-202010001
Color	White
Filter replacement life	12months
Grade of filter efficiency	E11 grade(95%, @0.3um)
Part	Aero shield filter, Fixing plate
Size	Filter: 390x390x65mm Fixing plate: 430x430x7mm
Weight	Filter: 508g Fixing plate: 87g
Material	Filter : ABS + PE Fixing plate: ABS
Origin	South Korea
Manufacturer/sales	CALAB Corporation
Warranty period	12months after purchasing

Product Composition



- ① Aero Shield filter
- ② Fixing plate
- ③ Double-sided tape [4ea]
- ④ Anka Bolt [3ea]

THANK YOU

CALAB

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