



A Leading Electronic Air Cleaning Tech Innovator & Manufacturer
Top 100 Global CleanTech Company

Electronic Air Cleaning No Consumable, Energy Saving!

Fon Zhou

AirQuality.com

AirQuality Technology



A Leading Electronic Air Cleaning Tech Innovator & Manufacturer | Top 100 Global CleanTech Company

Micro Electrostatic Precipitator

MESP

Indoor Air Purification and Sterilization

ElectroStatic Precipitator

ESP

Kitchen & Industrial Exhaust Purification

**Electroni
c
Air
Cleaning**

DBD Plasma Tech

Micro Plasma

Odor/TVOC Elimination and Air Sterilization

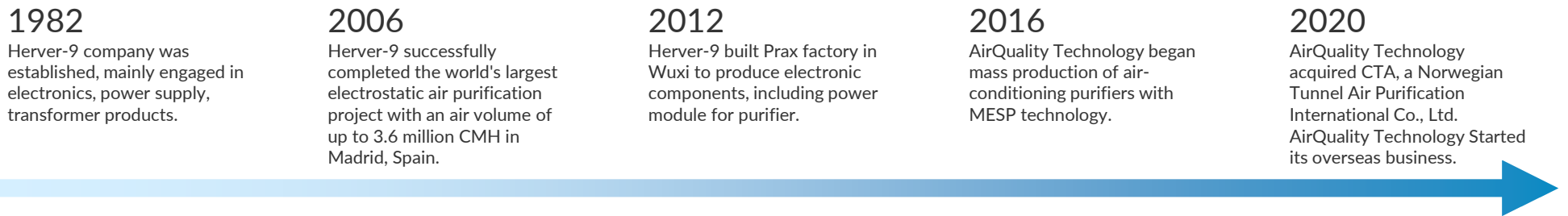
Wireless Discharge Tech

Vortex-ESP

Tunnel Air Purification

☑Powerful ☑Reusable ☑Cost-efficient ☑Energy saving

History



1982
Herver-9 company was established, mainly engaged in electronics, power supply, transformer products.

2006
Herver-9 successfully completed the world's largest electrostatic air purification project with an air volume of up to 3.6 million CMH in Madrid, Spain.

2012
Herver-9 built Prax factory in Wuxi to produce electronic components, including power module for purifier.

2016
AirQuality Technology began mass production of air-conditioning purifiers with MESP technology.

2020
AirQuality Technology acquired CTA, a Norwegian Tunnel Air Purification International Co., Ltd. AirQuality Technology Started its overseas business.

1996
Herver-9 Group was established and set up Electrostatic Air Purification Department with brands AirQuality/Calidaddelaire.

2011
Herver-9 jointly established AirQuality Technology in Shanghai with Super Merit Holdings Limited. Herver-9 set up a joint venture in Hong Kong to operate electrostatic air purification of municipal projects. Meanwhile, AQT started with the mass production of ESP kitchen exhaust purifiers.

2014
AirQuality Technology increased its capital and established air purification R&D Center and assembly workshop in Shanghai. AirQuality Technology participated in establishing Calidaddelaire Air Technology to enter the industrial gas market.

2018
AirQuality Technology establishes a dual vision: Turn any AC to a purifier and Make maintenance-free purifiers.

● Originated in Spain

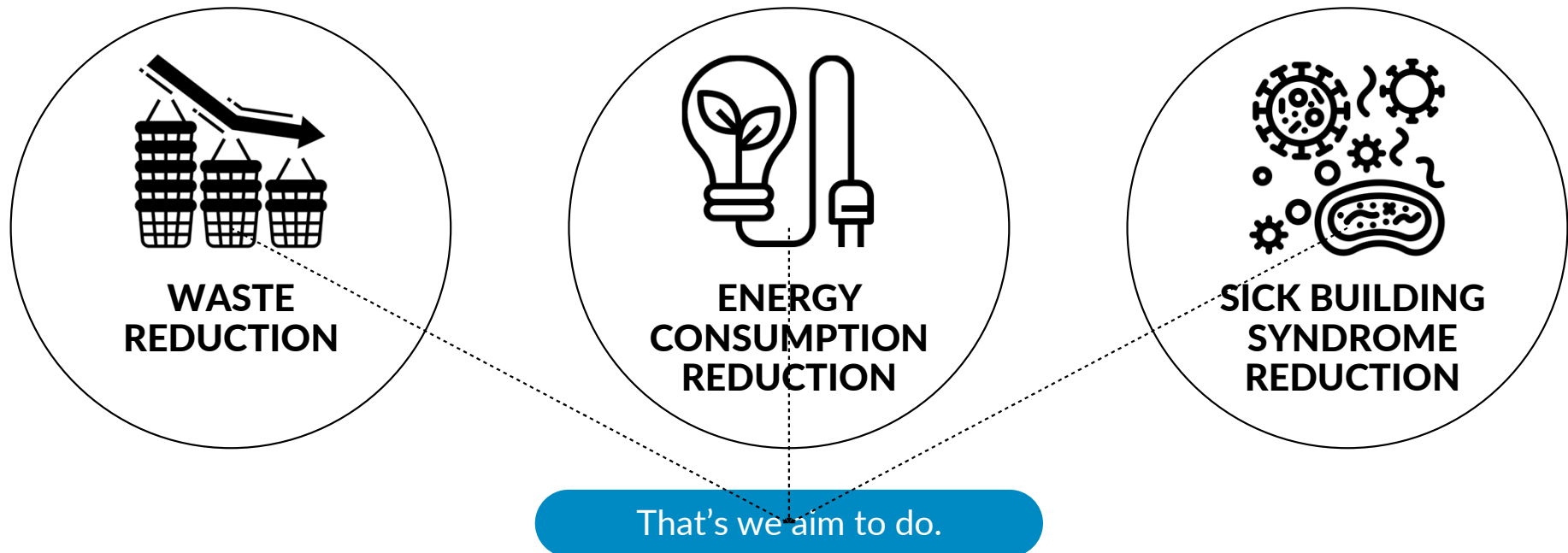
● Currently headquartered in Shanghai

● 3 rounds of venture capital investment

Green building

Green building refers to both a structure and the application of processes that are environmentally responsible and resource-efficient throughout a building's life-cycle.

Air Filtration plays big role in this part.





MESP

IAQ SOLUTION

Traditional Media Filters



- Billion pieces media filters are thrown away every year
- Plastic made, high air resistance, high energy consumption

Media Filters not eco-friendly



High fan energy consumption

Filters create significant resistance during operation, requiring extra energy from the fan, which increases the system's overall energy consumption.

Frequent replacements

Frequent filter replacements increase resource use and waste spending.

High production carbon emissions

Regular filter replacements require mass production, leading to high carbon emissions, especially when using non-recyclable or non-reusable materials.

Waste management

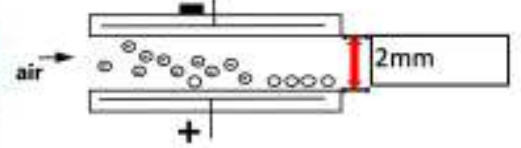
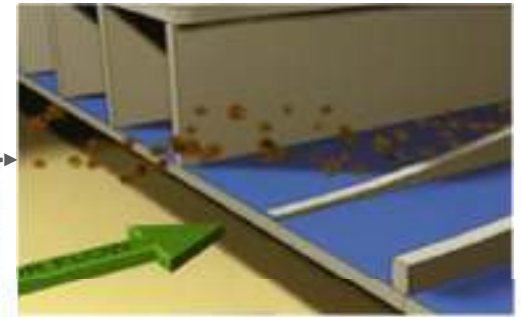
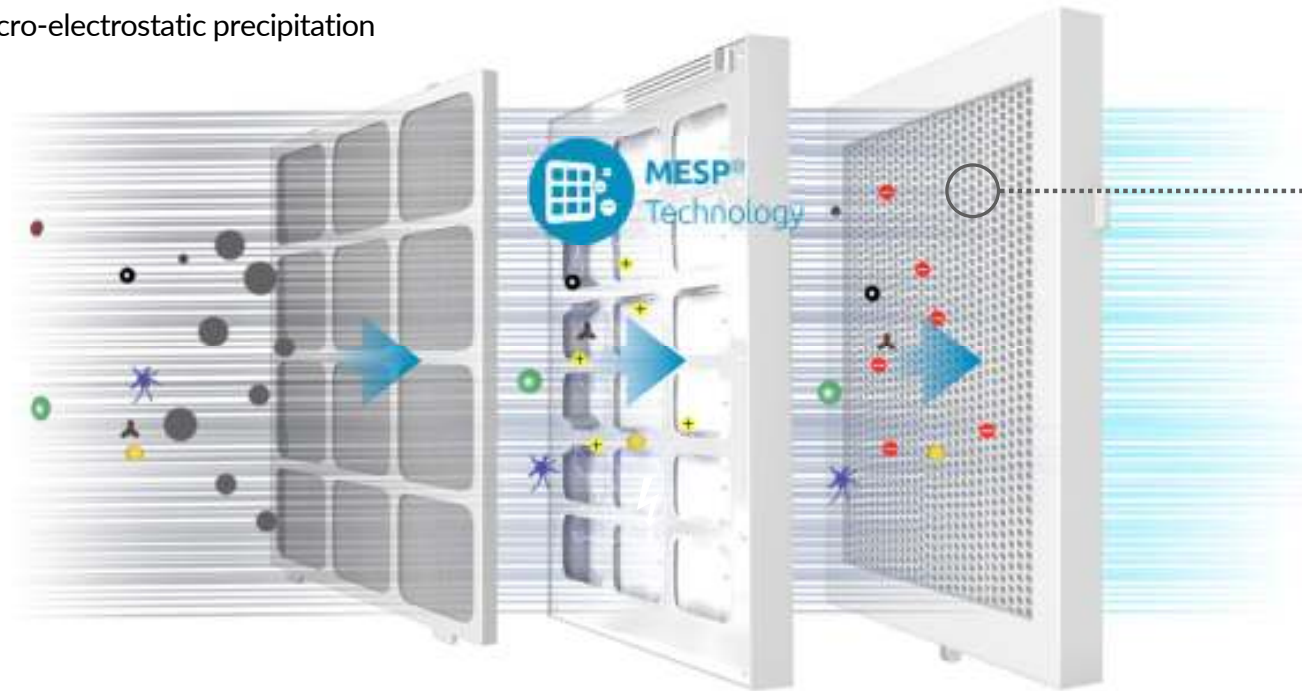
If not properly disposed of, discarded media filters can pollute the environment and increase landfill waste.

Transportation carbon emissions

Long-distance transportation of media filters adds extra carbon emissions.

MESP

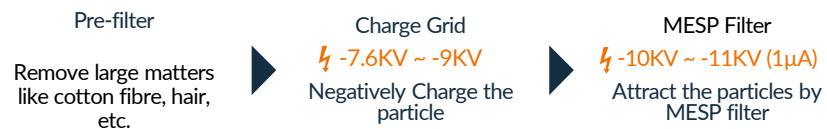
Micro-electrostatic precipitation



DISINFECT the air with its high voltage electrostatic field



MESP is an innovative upgrade of conventional ESP



The Advantages of MESP



AIR STERILIZATION & PURIFICATION
Remove 99%+ of PM and Reduce 99.99% of viruses including coronavirus



WASHABLE FILTER
10 years design life span
No efficiency loss after 100 times washing



HIGH EFFICIENCY
MERV14/F8



SAFETY
Can safely work around people



HIGH USABILITY
Temperature from -10°C to 50°C
Humidity up to 100%
Flame retardant



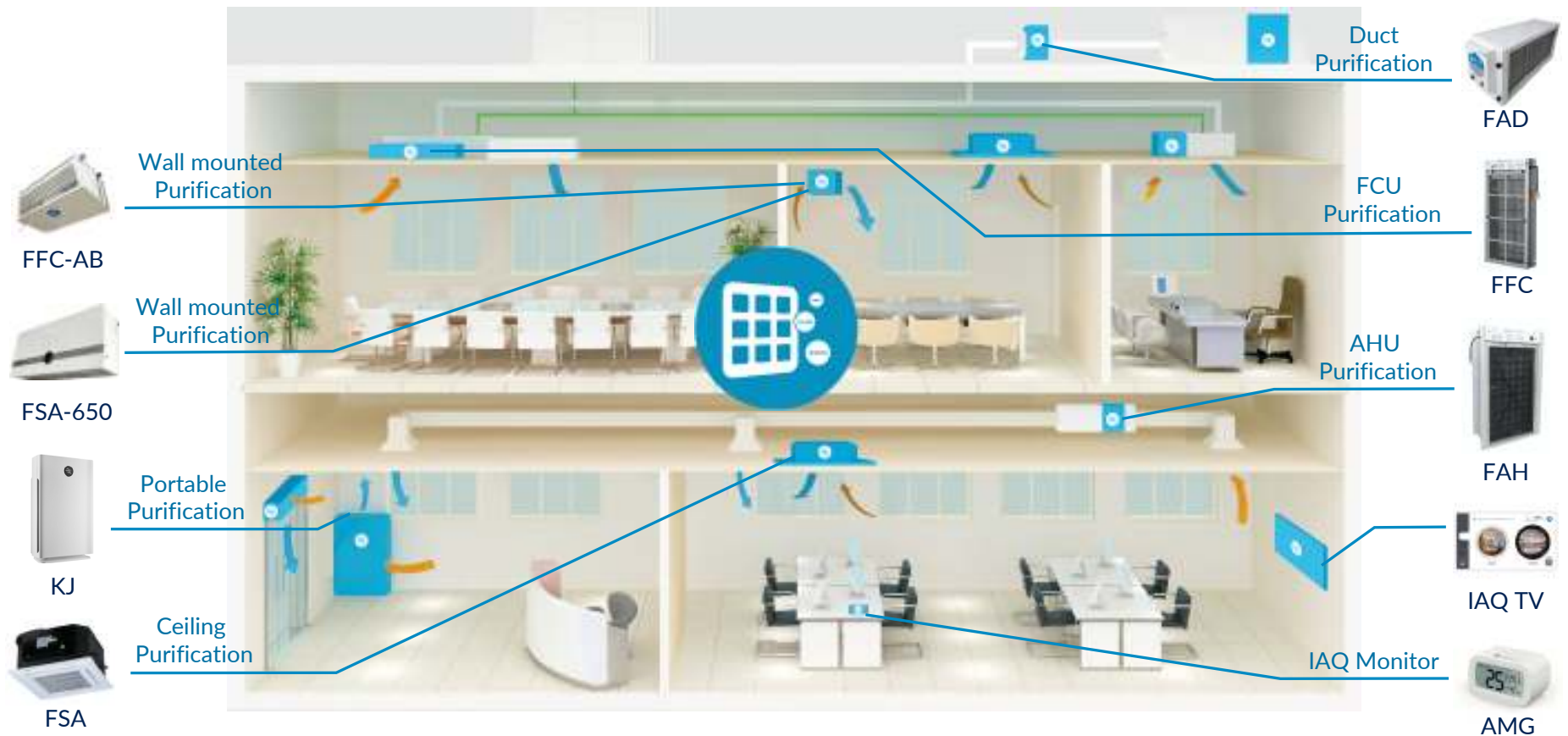
ECO-FRIENDLY
Energy Saving due to low pressure drop
No replacement

MESP Filters



Washable and reusable filter: **100+ times**

MESP® IAQ Applications



IAQ Solution with MESP® Tech



In-room Stand-alone Solution



KJ
portable air purifier



FSA
ceiling-mounted air purifier



FFC-AB
ceiling-mounted air purifier



FSA650
wall-mounted air purifier

IOT Solution



Amigo IAQ Monitors



FAH ROI calculation details

In-duct HVAC IAQ Solution



FAH
AHU Air Purifier



FFC
CU Air Purifier



FAD
Air Duct Purifier

MESP for HVAC energy saving



How big is HVAC filtration impact on Earth energy consumption?

- Buildings consume 1/3 of the world's energy and emit 1/4 of CO2
- HVAC systems consume 38% of a building's energy
- Air filtration accounts for 30% of energy consumption in HVAC system

TEST REPORT
Date Received: Nov. 15, 2023
Date Analyzed: Nov. 20, 2023

Test Report Summary Page

Serial number	Test item	Unit	Test sample			
			KJ202302555 AAF Bag Filter	KJ202302556 AirQuality Micro Electrostatic (MESP) Air Purifier/Cleaner		
1	Cleaning Efficiency (PM2.5) (Test wind speed: 2.5m/s)	%	97.3	>99.9		
2	Rated Power (Test wind speed: 2.5m/s)	W	90% of the Rated wind speed	94.8	80% of the Rated wind speed	11.4
			75% of the Rated wind speed	182.4	75% of the Rated wind speed	21.7
3	Resistance (Test with the machine's internal filter)	Pa	100% of the Rated wind speed	142.2	100% of the Rated wind speed	31.8
			125% of the Rated wind speed	170.8	125% of the Rated wind speed	46.4

Test conclusion:
Based on the test data reported by KJ202302555 and KJ202302556, under a face wind speed of 2.5m/s, two Air Handling Units (AHU) with the same shape structure, the AHU installed with AirQuality Micro Electrostatic (MESP) Air Purifier/Cleaner compared with the AHU installed with AAF F8 Bag Filter:

- 1) The PM_{2.5} cleaning efficiency has increased by 2.6%;
- 2) The pressure drop of internal filter section has decreased by 76.3% @ 100% rated wind speed;
- 3) The power consumption has decreased by 69.1%.

To be continued

Special Notes: The AHU used in the laboratory is not a real AHU. There is no coil installed in it. This equipment is only designed and manufactured to test the impact of the purification section on the energy consumption of the fan.

A 3rd party Testing Report of MESP filter compared with Media Filter shows **69.1% Energy Saving Efficacy.**

The pressure drop of internal filter section has decreased by **76.3%** and the power consumption has decreased by **69.1%**, compared to F8 (MERV14) Bag Filter

Energy Saving Effect Demo Machine





AirQuality Energy Saving and Carbon Reduction System

Energy saving

24.11

kWh/year

Carbon emissions reduction

240.42

tons/year

Coal quantity saving

96.46

tons/year

System energy saving

64.58
%

MESP System

Power: **67.93** W

Surface wind speed: **2.5** m/s

Pressure Drop: **44** Pa

Media Filter System

Power: **191.81** W

Surface wind speed: **2.5** m/s

Pressure Drop: **124** Pa

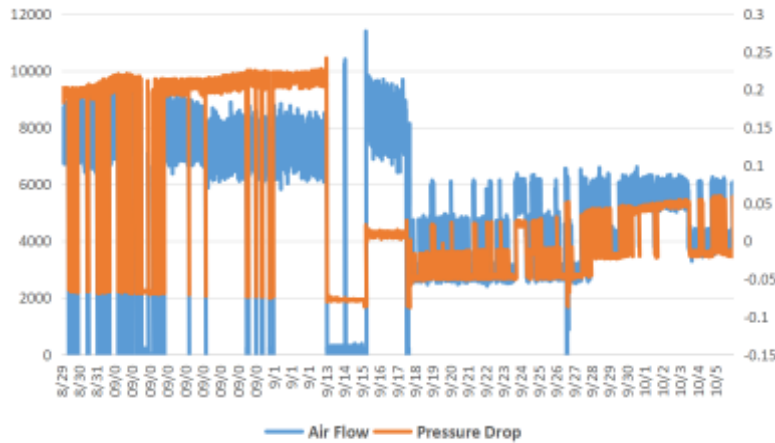
These calculations are based on Air Handling Unit AHU with 30,000 m³/hr as an example; when selecting the media filter, the fan power is 30kW, the fan shaft power is 26.88kW, and the hourly power consumption is 4.1 USD (calculated as 0.15 USD per kWh).

After selecting the Micro Electrostatic Precipitator (MESP) filter, the power savings are calculated based on a daily running time of 24 hours and 365 days. The noise of the system equipped with MESP was measured to be 54.9dB (A) in a laboratory environment, and that of the system equipped with a media filter was 60.5dB (A).

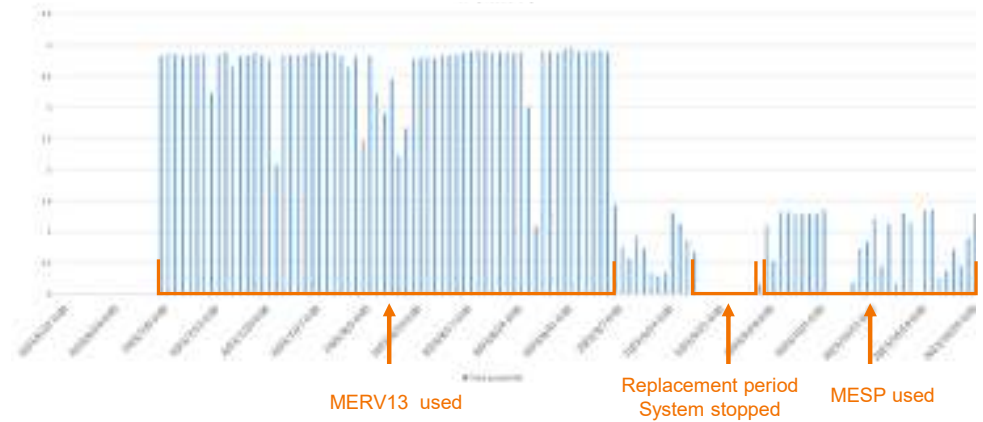
Pilot Testing in Hilton New York



Chart of Air Flow and Pressure Drop-Hilton Project



Energy Saving = $(3.83 - 1.32) / 3.83 = 65.5\%$



ROI

273/m	MERV13	MESP	405/m	MERV13	MESP	500/m	MERV13	MESP
Filter	US\$672.00	US\$0.00	Filter	US\$672.00	US\$0.00	Filter	US\$672.00	US\$0.00
Replacement	US\$800.00	US\$800.00	Replacement	US\$800.00	US\$800.00	Replacement	US\$800.00	US\$800.00
Recycling	US\$120.00	US\$0.00	Recycling	US\$120.00	US\$0.00	Recycling	US\$120.00	US\$0.00
Coil Cleaning	US\$360.00	US\$175.00	Coil Cleaning	US\$360.00	US\$175.00	Coil Cleaning	US\$360.00	US\$175.00
Energy	US\$430.98	US\$17.52	Energy	US\$819.05	US\$17.52	Energy	US\$1458.31	US\$17.52
Yearly Cost	US\$2172.98	US\$792.52	Yearly Cost	US\$2561.05	US\$792.52	Yearly Cost	US\$3290.31	US\$792.52
Initial Investment	US\$0.00	US\$3087.20	Initial Investment	US\$0.00	US\$3032.00	Initial Investment	US\$0.00	US\$3032.00
Yearly Cool Saving	US\$0.00	US\$1390.46	Yearly Cool Saving	US\$0.00	US\$1768.50	Yearly Cool Saving	US\$0.00	US\$2407.79
ROI in Years		2.24	ROI in Years		2.05	ROI in Years		1.51

Both a Purifier and a Disinfectant



99.99% SARS-CoV-2 Sterilization Rate with MESP Tech



CONCLUSION
99.99% reduction of SARS-COV-2 virus was observed.

Remark: The test report of Sars-Cov-2 disinfection from Innovative Bioanalysis in California, US.



<https://www.airquality.com/>



SGS

Page 4 of 6 Report No.: SHE20180202772

2 Refer to test standard: GB 21501.3-2013 Annex A

Test item: air virus removal effect test

Class	Item	Time	Test No.	Air virus concentration value TCD ₅₀ /m ³	Removal rate/%
Annex A	HWT (APR836) MOCX Cell	30 min	1	2.84x10 ⁶	
			2	1.84x10 ⁶	
			3	2.84x10 ⁶	
		60 min	1	<97.2*	>99.99
			2	<97.2*	>99.99
			3	<97.2*	>99.99

Note: Natural attenuation was taken into account for the calculation of bacterial removal effectiveness
* Limited value of standard equipment.

上海市消毒产品生产企业卫生许可证

沪卫消证字(2014)第 1044 号

单位名称: 爱优特空气净化技术(上海)有限公司

法定代表人: 陈国栋

注册地址: 上海市宝山区陆海路1100号

生产地址: 上海市宝山区陆海路1100号

生产方式: 生产

生产场所: 消毒器械

生产类别: 消毒器械、静电空气净化机

有效期限: 二〇二〇年十月二十日至二〇二二年十月二十日止

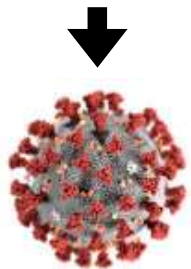
上海市宝山区疾病预防控制中心



ASHRAE Standard 241

- Standard 55 – Thermal Environmental Conditions for Human Occupancy.
- Standard 62.1 – Ventilation and Acceptable Indoor Air Quality
- Standard 90.1 – Energy Standard for Sites and Buildings Except Low-Rise Residential Buildings

ANSI/ASHRAE Standards 62.1 and 62.2 are recognized standards for ventilation system design and indoor air quality (IAQ) of ventilation. All three standards, expanded and revised in 2022, specify minimum ventilation rates and other measures to minimize adverse effects on occupant health.



Standard 241
Infectious Aerosol Control



ANSI/ASHRAE Standard 62.1-2022
(Supersedes ANSI/ASHRAE Standard 62.1-2019)
Includes ANSI/ASHRAE addenda listed in Appendix Q

**Ventilation
and Acceptable
Indoor Air Quality**



ASHRAE Standard 241-2022

**Control
of Infectious
Aerosols**

Green building cert & Award



Certificate for recommended products of green and energy-saving

Issued by the Expert Committee of Green Building Energy-Saving Products of the China Association for Engineering Construction Standardization.



Outstanding Green Innovation Award

Issued by The 3rd International Green Zero Carbon Festival

LEED/WELL credit compliance



Credits and Requirements which AirQuality can help to achieve

LEED Building Design + Construction with AirQuality

	Credit breakdown ¹	% of total LEED Score ²
Integrative Process	1	
Location and Transportation	20	
Sustainable Sites	11	
Water Efficiency	11	
Energy and Atmosphere	33	
EA Prerequisite Fundamental Commissioning and Verification	P	
EA Credit Enhanced Commissioning	3 / 6	2.73%
EA Prerequisite Minimum Energy Performance	P	
EA Credit Optimize Energy Performance	1-2 / 18	1.82%
Materials and Resources	14	
Indoor Environmental Quality	10	
EA Prerequisite Minimum Indoor Air Quality Performance	P	
EQ Credit Enhanced Indoor Air Quality Strategies	2 / 2	1.82%
EQ Credit Indoor Air Quality Assessment	2 / 2	1.82%
Innovation	6	
INpc155 Safety First: Design for Indoor Air Quality and Infection Control	1 / 1	0.91%
Regional Priority	4	
Total	10 / 110	9.09%

¹Point breakdown for each credit. [AirQuality Point / Total Points]

²Percentages are project dependant and can vary accordingly. Percentage values give an indication of the total ar

WELL v2 Certification with AirQuality

	Credit breakdown ¹	% of total WELL Score ²
Air	18	
A01.1 Meet Thresholds for Particulate Matter	P	
A01.2 Meet Thresholds for Organic Gases	P	
A01.3 Meet Thresholds for Inorganic Gases	P	
A05.1 Meet Enhanced Thresholds for Particulate Matter	2 / 2	1.82%
A05.2 Meet Enhanced Thresholds for Organic Gases	1 / 1	0.91%
A05.3 Meet Enhanced Thresholds for Inorganic Gases	1 / 1	0.91%
A08.1 Install Indoor Air Monitors	1 / 1	0.91%
A12.1 Implement Particle Filtration	1 / 1	0.91%
Water Efficiency	14	
Nourishment	16	
Light	18	
Movement	21	
Thermal Comfort	16	
Sound	18	
Materials	18	
Mind	19	
Community	38	
Innovation	10	
ID1.1 Propose Innovation	1 / 10	0.91%
Total³	7 / 110	6.36%

¹Point breakdown for each credit. [AirQuality Point / Total Points]

²Percentages are project dependant and can vary accordingly. Percentage values give an indication of the total

³The maximum points can be attained for each project is 110.

A typical case



Suhe Creek, Shanghai

The building is built along the Suzhou River, covering an area of approximately 73,000 square meters. Equipped with 718 MESP air purifiers, it has received both the WELL Platinum and LEED Gold certifications.

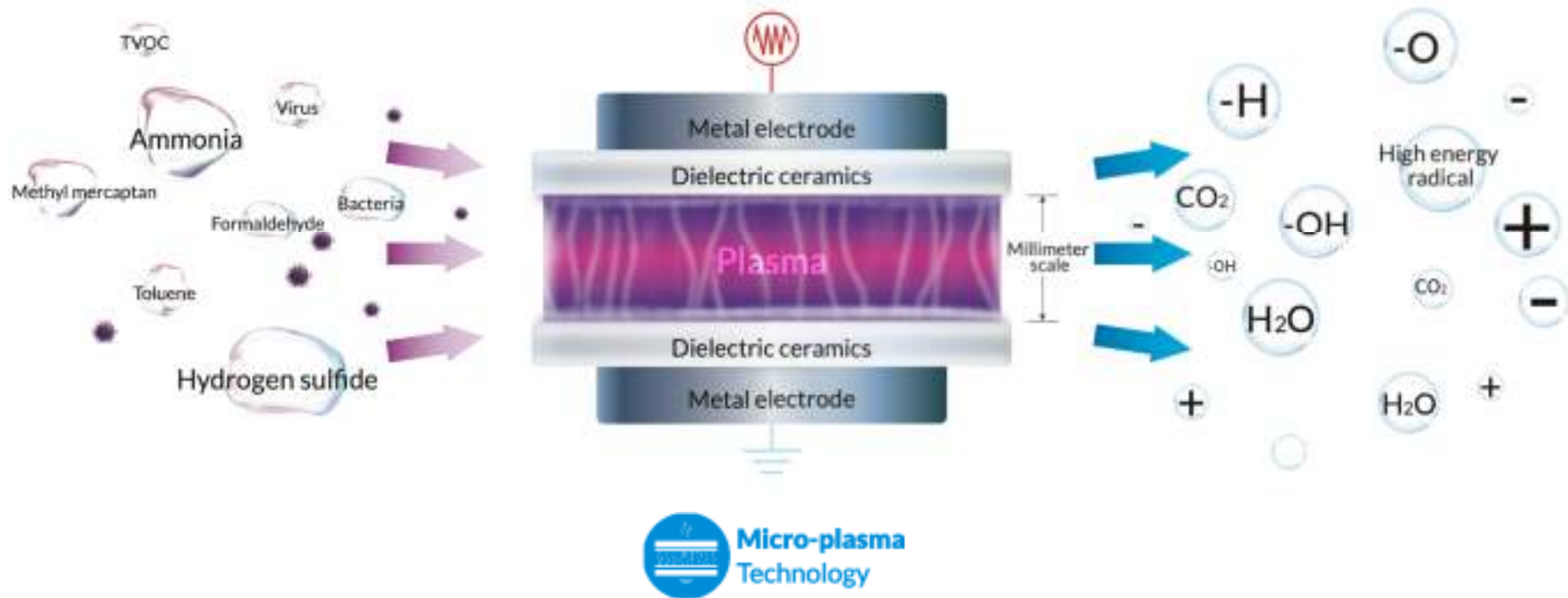
Certification System: LEED BD+C: Core and Shell
Certification Level: Gold
Certification Date: 2021



OTHER TECH

Micro Plasma

Micro Plasma Sterilization and Deodorization Tech DBD Plasma Tech



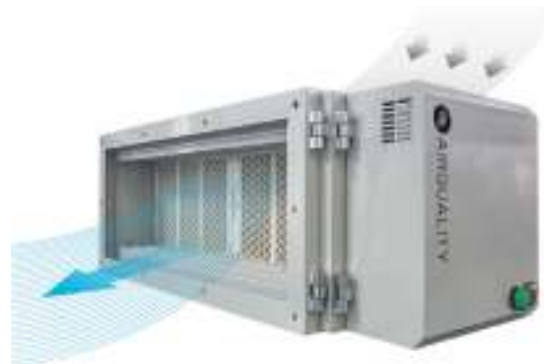
Micro Plasma Product lines



PSA wall mounted sterilizer and deodorizer



PAD Air duct type sterilizer and deodorizer



PFC plug-in sterilizer and deodorizer



☑ High efficiency ☑ Green Tech ☑ Best ROI

Deodorization:

Work for garbage disposal rooms, public restrooms, oil separation tanks, sewage treatment rooms, etc to remove all kinds of bad smell, TVOC, ammonia, hydrogen sulfide, formaldehyde, etc.

Sterilization:

To remove the viruses and bacteria

ESP Kitchen Exhaust System

ElectroStatic Precipitator

H₂O

Clean Air

O₂



Dust

Oil Fume

Heavy Flavor



☑ Efficient ☑ Safe ☑ Smart



Kitchen Exhaust Products



K Cost-effective
CE certificated



Q High quality and high performance
UL listed / CE certificated



G High end
Replace Q



Tunnel Air Purification



Clean Tunnel Air International AS was founded in year 1989, in Trondheim city of Norway. In 2012, CTA established Clean Tunnel Air China Co., in Hong Kong to conduct business in China. In 2020, CTA joined AirQuality Group. For over 30 years CTA has been a world leader in the development and provision of air purification for road tunnels. CTA has finished more than 20 air purification stations in more than 10 tunnels.



- **Mechanical Filter**
- **Vortex Electrostatic Precipitator**
- **NOx Gas Removal System**
- **Axial Fans**
- **Automatic Washing System**
- **Waste Water Recycling System**
- **Control System**

Tunnel Air Purification



1989: OSLO FESTNING TUNNEL, NORWAY
One of the world's earliest air purification tunnels.



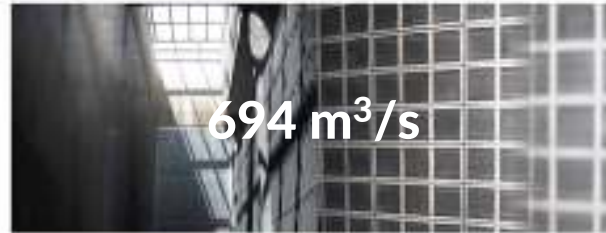
1999: CHINBU TUNNEL, SOUTH KOREA
2 lanes, 2,800 meters long tunnel in Chinbu, South Korea. Installation started in 1998 and finished in 1999. Bypass installation with a total air cleaning volume of 285 m³/s.



2001: LAERDAL TUNNEL
The world's longest tunnel equipped with Air Purification System, 24.5 KM



2001: STROMSAS TUNNEL, NORWAY
A large axial flow fan of a diameter of 6 meters long was deployed.



2007: M30 TUNNEL, MADRID, SPAIN
Large shaft air purification system, with a single-station air purification capacity up to 694 m³/s



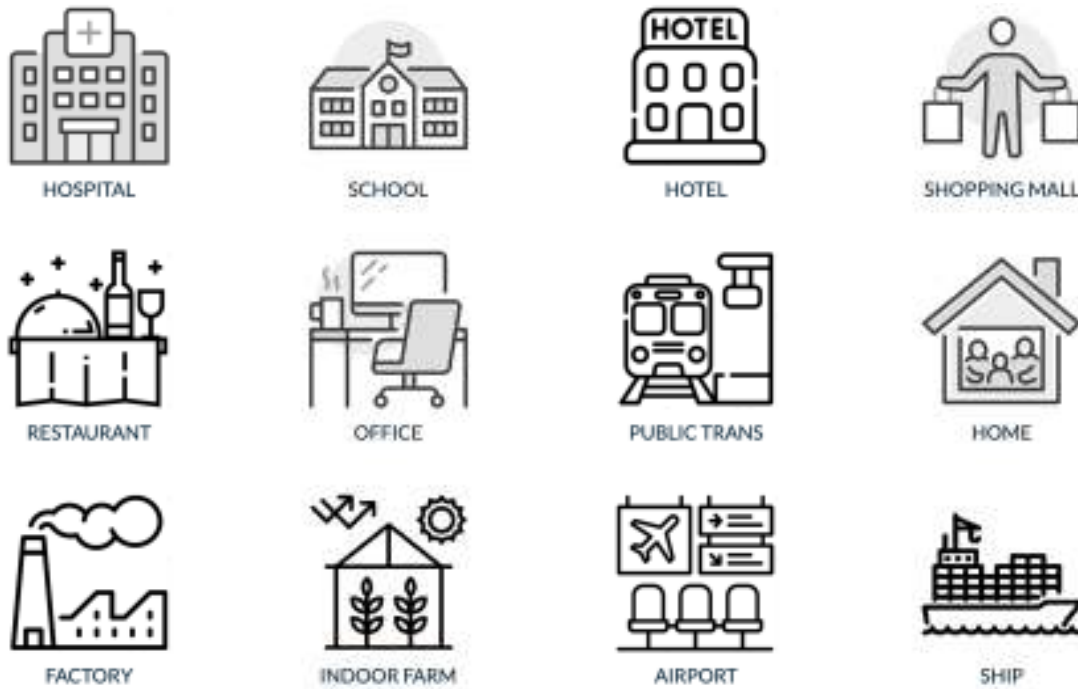
2021: CENTRAL KOWLOON TUNNEL, HONG KONG
9 APS stations, with an air purification volume of 2,250 m³/s

SOLUTIONS

Air Quality Solutions



For Industry



For Pollutant Type



Solutions



Requirements	Indoor air Purification	Air Disinfection	Exhaust air Purification	TVOC & Odor Removal
	Remove air particles (PMx)	Remove Pathogens, Fungi and Mold Spores, etc	Remove particles, oil, fume, grease	Remove bad smell and harmful gases
Commercial complex	MESP	MESP / Mplasma	ESP	M-filter / Mplasma
Office building	MESP	MESP / Mplasma		M-filter / Mplasma
Public transportation	MESP	MESP / Mplasma	ESP	Mplasma
Factory	MESP ESP	MESP / Mplasma	ESP	Mplasma
Hotel	MESP	MESP / Mplasma		Mplasma
Hospital	MESP	MESP / Mplasma		M-filter / Mplasma
Restaurant	MESP	MESP / Mplasma	ESP	UV/Carbon
School	MESP	MESP		M-filter / Mplasma
Laboratory	MESP	MESP / Mplasma		Mplasma
Home	MESP	MESP		M-filter / Mplasma
Garbage disposal center			ESP	Mplasma
Indoor farming	MESP	MESP / Mplasma	ESP	
Ships	MESP	MESP / Mplasma	ESP	Mplasma/UV/Carbon

15,000+ Projects



Beijing Winter Olympics Organizing Committee Office



Beijing New Airport



Xizi Hotel, G20 Summit in Hangzhou



Yanxihu Hotel, Beijing APEC



Tianjin CTF Finance Center



Hangzhou Olympic Sports Center



Chengdu Wangjiang Mingmen



COFCO Seaview NO.1

Overseas Project Cases



Standard Bank, South Africa



City Centre Mirdif, UAE



Crown Sydney, Australia



Fight COVID-19 Classroom Project, Israel



Sydney Fish Market, Australia



Oshima Kids Clinic, Japan



AHU Purification Project, India



Washington Hilton Hotel, USA

AirQuality Office Building

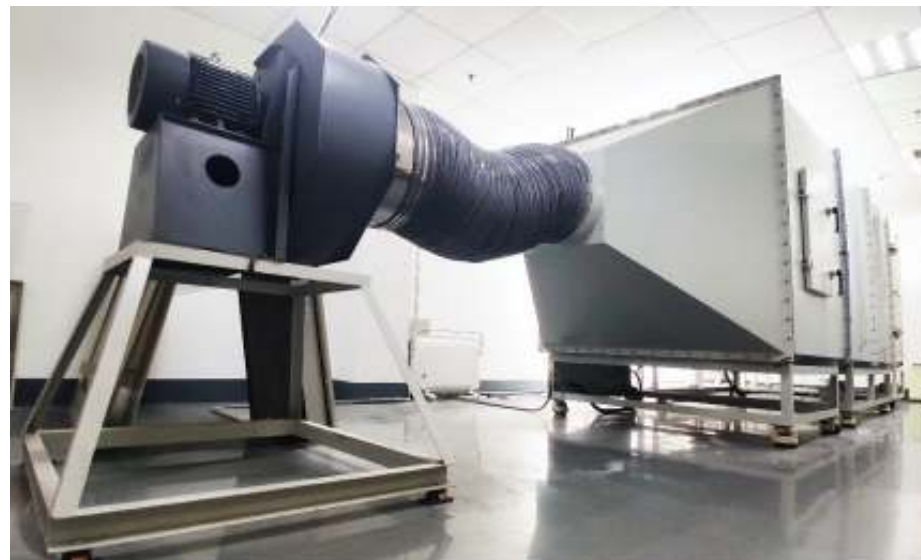


Showroom



6000M² R&D Center

•Shanghai •Hongkong •Hårstadreina



Factory





2022 GLOBAL
CLEANTECH**100**

Produced by  Cleantech.
Group

We are selected as

**2022 GLOBAL
CLEANTECH
TOP 100 COMPANY**

[Link](#)



TAKE A DEEP BREATH!

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