

The Commercial Kitchen Filtration Experts

purified  **air**®
since 1984

About Us And Our Market

Since 1984, Purified Air Limited has been striving to find the best and most cost effective way to filter and control the oil, smoke, grease and odour produced by commercial kitchens.

With the majority of industry brands already using our systems, Purified Air covers the Fast Food, Casual Dining and Fine Dining markets by providing bespoke systems dependant on the type of food cooked, the type of cooking process used and the volume of air being extracted through the exhaust. By working with these variables we are able to design and supply some of the best commercial kitchen exhaust filtration and odour control systems in the world.

In 2004 Netcen was asked to produce a report on behalf of the Department for Environment, Food and Rural Affairs on Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems and in January 2005 the DEFRA Guide was published.

Our Managing Director, David Collins, was consulted extensively during the preparation of the DEFRA guide and was very pleased to be able to assist NETCEN and DEFRA. David has been working in this business since the early 1980's and is a world renowned expert in the field of commercial kitchen exhaust filtration.

Councils up and down the country have powers under the Environmental Protection Act 1990 to ensure that commercial kitchens comply with the DEFRA Guide and that is where Purified Air comes in, ensuring that the extract from commercial kitchens, when finally exhausted, is as clean and odourless as it possibly can be, keeping the kitchens open and their neighbours happy.

Commercial Kitchen Exhaust Filtration

At Purified Air we specialise in the filtration and control of commercial kitchen exhaust systems.

To filter and control the exhaust pollution properly you have to understand the two distinct phases:

1. The particulate phase; oil, grease and smoke (carbon) particles.
2. The gaseous phase or odour.

Oil, Grease & Smoke Filtration

To effectively filter the particulate phase we manufacture and distribute a range of Electrostatic Precipitators or ESP's designed specifically for commercial kitchen application. These units utilise an ionisation process to filter particles down to submicron level, with an optimum efficiency of up to 98%.

Odour Control

To efficiently control the gaseous phase we manufacture a range of Ultra Violet Units or Ozone Generators as well as our Odour Neutraliser the ON100. We can also supply passive filtration, including Activated Carbon, Baffle, Mesh, HEPA, Bag and Panel filters.

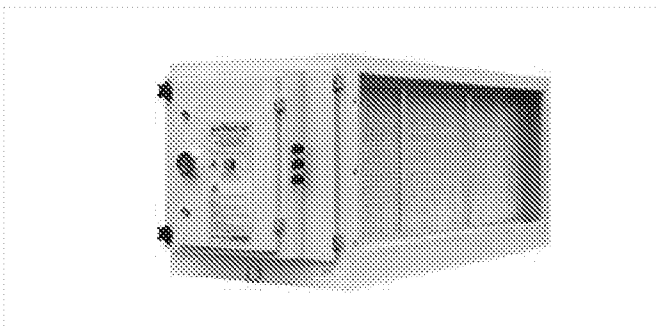


Dubai Mall - Purified Air provided filtration for the food & beverage outlets



The Particulate Phase

Our ESP Range



ESP 4500

- ✦ ESP 1500E which can handle up to 0.7m³/sec of air flow
- ✦ ESP 3000E which can handle up to 1.4m³/sec of air flow
- ✦ ESP 4500E which can handle up to 2.1m³/sec of air flow
- ✦ ESP 6000E which can handle up to 2.8m³/sec of air flow

Our ESP's have been specifically designed for kitchen extract systems; they have integral sumps to collect the oil, grease and smoke particles filtered out of the exhaust. This not only simplifies servicing but eradicates potentially dangerous spillage from the bottom of the units and greatly cuts down on build-ups of grease within the ducting.

The ionisation voltage has been designed to run at a negative potential which enhances the ionisation of particles and also produces more ozone which is helpful in reducing cooking odours.

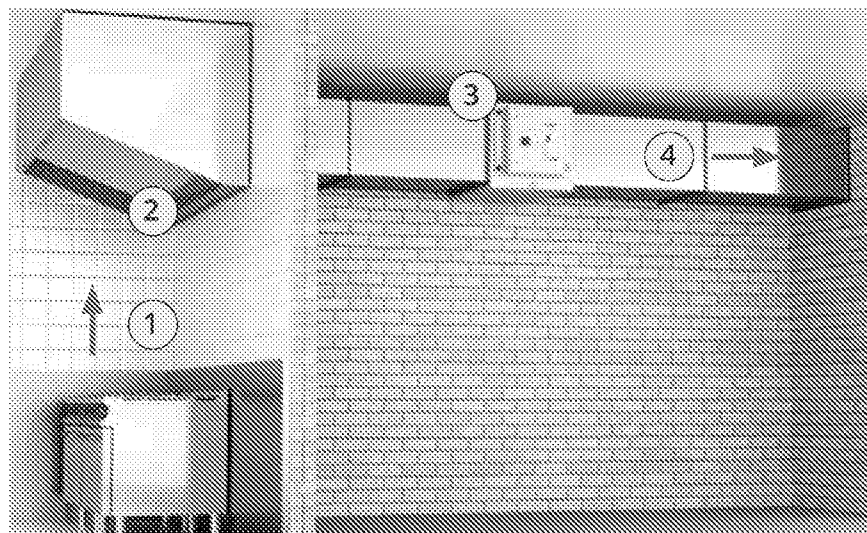
Our ESP units fit in-line with the kitchen ducting and can be configured modularly to cope with all extract volume requirements.

KEY FEATURES

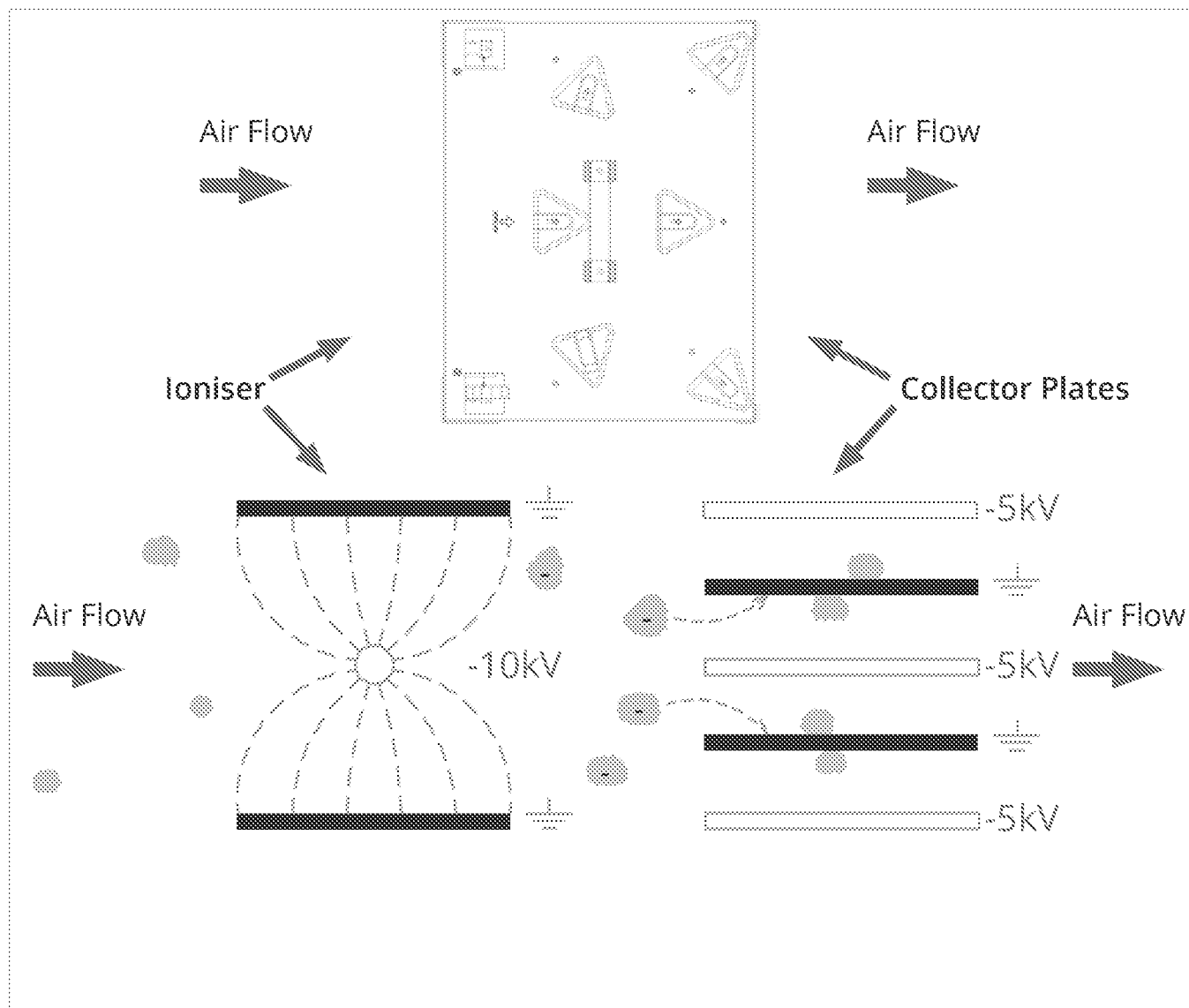
- Eliminates up to 98% of oil, grease and smoke particles
- Filters particles down to sub-micron levels
- Produces Ozone to help reduce malodours
- Designed with an integral sump
- Modular in design
- Specifically designed for commercial kitchen application
- Energy efficient: - uses no more than 50W
- Greatly reduces grease build-up within the duct run

Technical Specification

	ESP 1500E	ESP 3000E	ESP 4500E	ESP 6000E
Electrical Supply	220/240V 50Hz	220/240V 50Hz	220/240V 50Hz	220/240V 50Hz
Power Consumption	20 Watts	30 Watts	40 Watts	50 Watts
Max Air Volume	up to 0.7m ³ /sec	up to 1.4m ³ /sec	up to 2.1m ³ /sec	up to 2.8m ³ /sec
Dimensions W/H/D	450mm/630mm/ 640mm	900mm/630mm/ 640mm	1350mm/630mm/ 640mm	1800mm/630mm/ 640mm
Weight	55Kg	85Kg	118Kg	153Kg



1. Cooking particulates and odours
2. Canopy Grease Filter
3. ESP - Particulate Control Unit
4. Airflow



The above diagram shows, in a basic visual, how an electrostatic precipitator works. As air passes into the combined ioniser / collector cell, the particulates in the air stream are polarised to a negative potential. As they continue through the ioniser and between the collector cell plates, the polarised particulates are repelled away from the negatively charged plates and attracted to the earthed plates where they stick and so are filtered out of the air flow.

An Autowash option can be provided for our entire ESP range.

The autowash nozzle attachment sits inside our standard ESP units. Once connected to the control / wash station the collection cells can be automatically cleaned at regular frequency. The system is usually factory fitted but can also be retro fitted in existing installations, dependant on the generation of units installed.

Daily cleaning keeps the filters working at their optimum efficiency and will greatly reduce the number of service visits required through the year.

For more information please contact our sales team.

The DEFRA Guide

When the Environmental Protection Act 1990 was brought in, "an Act to make provision for the improved control of pollution arising from certain industrial and other processes", Councils up and down the country had the power to enforce pollution levels across their boroughs.

In 2004 Netcen, an operating division of AEA Technology Plc was asked to produce a report on behalf of the Department for Environment, Food and Rural Affairs exclusively covering Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems and in January 2005 the DEFRA Guide was published.

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DEFRA Guide Risk Assessment for Odour Table 1

Criteria	Score	Score	Details
Dispersion	Very Poor	20	Low level discharge into courtyard or restriction on stack
	Poor	15	Not low level but below eaves, or discharge at below 10m/s
	Moderate	10	Discharging 1m above eaves at 10-15m/s
	Good	5	Discharging 1m above ridge at 15m/s
Proximity of receptors	Close	10	Closest sensitive receptor less than 20m from kitchen discharge
	Medium	5	Closest sensitive receptor between 20 and 100m from kitchen discharge
	Far	1	Closest sensitive receptor more than 100m from kitchen discharge
Size of Kitchen	Large	5	More than 100 covers or large sized take away
	Medium	3	Between 30 and 100 covers for medium sized take away
	Small	1	Less than 30 covers or small sized take away
Cooking Type (odour and grease loading)	Very High	10	Pub (high level of fried food), fried chicken, burgers or fish and chips
	High	7	Kebab, Vietnamese, Thai or Indian
	Medium	4	Cantonese, Japanese or Chinese
	Low	1	Most pubs, Italian, French, Pizza or Steakhouse

DEFRA Guide Risk Assessment for Odour Table 2

Impact Risk	Odour Control Requirement	Significance Score*
Low to Medium	Low level odour control	Less than 20
High	High level odour control	20 to 35
Very high	Very high level odour control	more than 35

*Based on the sum of contributions from dispersion, proximity of receptors, size of kitchen and cooking type

- Annex B of the DEFRA Guide lays out the information required to support the planning application for a commercial kitchen.
- Annex C of the DEFRA Guide outlines risk assessment for odour control for a commercial kitchen.

To establish what odour control equipment your premises may require, calculate your score from the Risk Assessment for Odour Table 1.

This score can then be applied to the Risk Assessment for Odour Table 2 which will dictate the broad level of control that you require.

These levels are expanded upon in the Risk Assessment for Odour Table 2 Notes.

Specifying the right equipment at the right level is not an exact science and takes years to perfect, our specialist field team are all highly experienced and only too pleased to give you a free site survey.

Risk Assessment for Odour Table 2 Notes

Low to medium level odour control may include:

- 1. Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.1 second residence time).**
- 2. Fine filtration followed by counteractant/neutralising system to achieve the same level of control as point 1.**

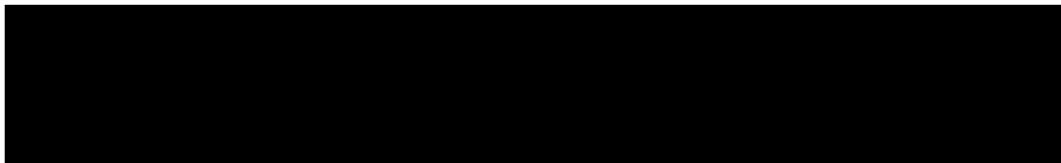
High level odour control may include:

- 1. Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.2 – 0.4 second residence time).**
- 2. Fine filtration or ESP followed by UV ozone system to achieve the same level of control as point 1.**

Very high level odour control may include:

- 1. Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.4 – 0.8 second residence time).**
- 2. Fine filtration or ESP followed by carbon filtration and counteractant/neutralising system to achieve the same level of control as point 1.**
- 3. Fine filtration or ESP followed by UV ozone system to achieve the same level of control as point 1.**
- 4. Fine filtration or ESP followed by wet scrubbing to achieve the same level of control as point 1.**

The above are excerpts from the DEFRA Guide, a full copy of the guide is available upon request



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