The Principle of Electrostatic Precipitators

The ESP units are used to clean the **airstream** of grease and hydrocarbons (smoke) in kitchen exhaust systems. They are highly efficient and can remove particulate down to sub-micron (0.01micron) size. The filter efficiency of up to 98% is attained during a single pass through the ESP, based on the charging of particles by an ionisation section 2 which are then trapped on the earth plates in the collector cell 3 Larger particulate in the airstream would be removed by the pre-filter 1 and lastly through an afterfilter 4 to prevent any re-entrainment and provide good air distribution.

Construction

ESP air cleaners are precision engineered to current industrial standards.

The case is of galvanised construction, spot welded and fitted with heavy duty hinges and bolt-on door equipped with compression locks.

Industrial neoprene seals fitted all round.

Efficiency Achievable

Particulate Micron	Efficiency
0.01	up to 98%
0.1	up to 97%
10.0	up to 98%

Efficiency varies with different particulate and air volumes.

Maintenance

ESP air cleaners require only routine maintenance as all filter components are cleanable by means of steam, detergent, or pressure jet.*

*excluding media filters where used.

Controls

A separate enclosure houses the HT supply, and operating lights, with individual indication of mains and filter operation.

Filter Technology

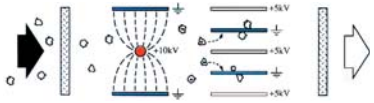
1 **Pre-filter**
Eurovent Class 2

2 **Ionisation section**

3 **Collector section**
Eurovent class 9
Filter surface 28.4m²

4 **Final filter**
Eurovent Class 2

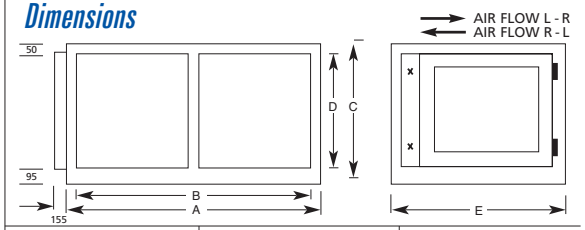




Standards

The ESP Units comply with current IEE, CE and other European standards, including the Health and Safety at Work Act. Rated to IP 53.

Dimensions



	ESP 1500 E	ESP 3000 E	ESP 4500 E
A - Width	450mm	900mm	1350mm
B - Width	350mm	800mm	1250mm
C - Height	630mm	630mm	630mm
D - Height	485mm	485mm	485mm
E - Depth	660mm	660mm	660mm

AIR VOLUME MAX	2500m³/h 1500cfm	5000m³/h 3000cfm	7500m³/h 4500cfm
ELECTRICAL SUPPLY	220/240V 50Hz 1ph	220/240V 50Hz 1ph	220/240V 50Hz 1ph
POWER CONSUMPTION	30W	50W	50W
WEIGHT	60kg	100kg	140kg
MIN/MAX WORKING TEMP	4/56°C	4/56°C	4/56°C
MAX RELATIVE HUMIDITY	75%	75%	75%

The design of cooking exhaust control systems varies. Different types of cooking and location have separate requirements and may require additional equipment. The equipment in this brochure is designed to be used in conjunction with other items of our manufacture. Purified Air Limited offer a free consultation service and will assist you with design, please discuss your project with us before selecting equipment.

purified air®
providing a better environment

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ACMA Air Cleaner Manufacturers' Association

TÜV UKQA UKAS QUALITY MANAGEMENT GB00267

NOV 2007

Electrostatic Precipitator



purified air®
providing a better environment

a solution to grease and smoke pollution...

Local Legislation
Local Legislation requires increasingly that the amount of grease and smoke in kitchen exhaust fumes is reduced to lessen the nuisance of smells to the neighbourhood. Our ESP system gives the restaurant a clean, non-polluting image, while complying with local legislation.

Fire Risk Reduction
Grease build up in the ducting is significantly reduced with an ESP. This reduces the risk of fire in the ducts and fire spreading from the source to different parts of the building.

Efficiency
The ESP system is a very efficient means for removing particles and it can remove particles down to sub-micron size (0,01). When installed correctly, the unit can achieve an efficiency up to 98%.

Pre and After Filters and Oil Drain
Each unit is provided with standard mesh filters designed to protect the electrostatic filter section. We can also provide specialist oil demisters and other pre filters for different applications. The units are all fitted with an angled drip tray and an oil drain to allow collected waste grease and oil to be drained away.

Installations
The ESP is installed inline in the ducting. The unit should be located as close as possible to the extraction hood to reduce grease build up within the ducting. This reduces the need for regular duct cleaning. If space is limited in the kitchen then the unit(s) can also be installed outside, upstream of the extraction fan. Several ESP units can, stacked as modules, be used as a central filter installation with a virtually unlimited capacity.

Pressure Loss
The ESP is characterised by a remarkably low pressure drop (120-170 Pa). The advantage is that existing extract fans often do not need to be replaced.

Maintenance
Only regular cleaning of the filters, ioniser and collector cells with warm water and detergents is needed. Purified Air offer a cleaning and maintenance service operating on an exchange system. This is a cost effective service available in the UK direct from the manufacturer and in other selected countries via our agents. Taking out a maintenance contract ensures that your system is in full working condition at all times. This assures an appropriate maintenance frequency and professional cleaning. The maintenance of the ducting and any other filter present in the ducting can be reduced (lower frequency) because of the effectiveness of the ESP.

The Electrostatic Precipitator is suitable for the removal of all grease and odour emissions from commercial kitchens



Any amount of grease and smoke can be eliminated. Purified Air has the complete solution for any kitchen or cooking method. The ESP system is supplemented by a number of other technologies manufactured by Purified Air designed to combat cooking odours, these systems compromise UV-C, electronic and chemical neutralising and specially designed media and micro porous filters.

Solving kitchen emission problems
Kitchen fume problems are not exclusively about the nuisance of grease or exclusively about odours. Both problems need to be solved 'at source'. The ESP system is the second stage of a sacrificial system, the first being the canopy filters and the third being methods for gaseous or odour control. The ESP is part of a family of products designed to eliminate grease, smoke and odour problems from commercial kitchens. The duct-installed ESP systems trap the smaller grease particles and other contaminant that pass the grease filters in the cooker hood.

The ESP Modular System



ESP 3000 E

All units can be used individually or combined for greater air flows.



ESP 1500 E



Two ESP 3000E in modular format



ESP 4500 E