

Kitchen Grease and Odour Control

Kitchen extract systems are designed to effectively draw residual grease and odours from the cooking process away from the “cooking zone” and kitchen environment to keep food clean and safe, and also to offer chefs and kitchen staff a cool, safe and clean working environment.

The grease and odour laden atmosphere is captured by the canopy above the cooking range, and is drawn away from the kitchen through the ductwork system by an extract fan.

Efforts must be made in the design of the kitchen extract system to prevent grease, smoke and odours being discharged from the kitchen extract, through capture and containment. This requirement is backed up by current legislation and environmental health due to the risk of fire hazard and also nuisance created by smoke and odours to the local surroundings.

Grease must be captured as early as possible in the extract system, to minimise fire risks. Grease is captured primarily in the canopy using baffle type grease filters, which utilise centrifugal force to capture the grease within the filters. The more traditional mesh type grease filters are often seen in commercial kitchens and these use impingement to capture the grease. Neither of these filters are 95% efficient, so additional grease collection methods will be required to ensure an effective grease collection, such as bag filters, or Electrostatic Precipitator filters.

Baffle Type Filters : Data Sheet AC10.2



- Centrifugal Action removes grease from air stream.
- Recommended by Specification DW 172
- Easily Cleaned and Maintained

Grid Mesh Type Filters : Data Sheet AC10.3



- Impingement Filtration Mechanism
- Low Resistance to Airflow

Smoke is a particulate, and can be removed by either HEPA filtration, or by using an Electrostatic Precipitator Filter. Both methods have been proven to be very effective with efficiencies of up to 95%. Both of these methods will also clean up any carry over of grease, left in the air stream.

HEPA Filters : Data Sheet AC10.4



- Effective against sub-micron particles
- 95% efficiency against smoke and grease
- Disposable

Electrostatic Precipitator Filters : Data Sheet AC10.5



- 95% efficiency against smoke and grease
- Low resistance to air flow

Odours can be captured using Activated Carbon filters which adsorb the odours within the cells. As an alternative Ultra Violet light can provide an effective method of odour control through the generation of Ozone. Ozone is a powerful oxidising agent due to its unstable nature by holding three oxygen atoms (O₃). Ozone wants to stabilise itself to its natural O₂ state, and therefore loses an oxygen atom which will then latch onto other molecules in the air stream. The result of this chemical reaction is changing the state, and breaking down the odorous organic compounds in the air stream, and so reducing overall odours in the extract discharge.

Activated Carbon Filter : AC10.6 , AC6.2



- Effective Gas Adsorption removing the odours from airstream
- Minimum contact times required
- Disposable Filter Units

It must be noted that despite its effectiveness and advantages there are risks involved with the use of UV Ozone, and any residual ozone that may be discharged at low level or near public spaces must be either removed or neutralised. This can be achieved by using either activated carbon, or an Ultra Violet neutraliser which can be offered.

Odour Neutraliser : UV Ozone : AC10.7



- Odour removal by oxidation of organic compounds
- No pressure differential
- Low maintenance
- Minimum contact time of 2 seconds required
- Fits to negative pressure side of ductwork

Ozone Neutraliser : AC10.8



- Ultra violet Ozone Neutraliser operating at 253nm
- Stab in style
- Also can be used as an air purifier killing up to 99% of all germs and viruses in the air stream.

Odour neutralisers and maskers are the last line of odour removal in a duct. These can be used where there are bursts of excess odours which can't be accommodated by Activated Carbon or UV Ozone. The odour neutraliser is a chemical which can be injected into the duct run, to work on the odours and further reduce, and / or mask the odours that are left in the duct.

Atomising Odour Neutraliser / Masker : AC10.9



- Neutralising agent injected into duct.
- Effective with strong odour purges.
- No pressure differential
- Masking scents also available
- Fits to negative pressure side of ductwork

What do I need in a kitchen extract system?

Not all of the components offered are required for all kitchen extract systems. When designing the system consideration must be made to all the potential components, to ensure that all of the requirements are met with regards, to Hygiene, Health and Safety and any Nuisance Discharge.

The following table shows the various combinations of Airclean Kitchen Extract Products, and what they offer to the system. We have your solution but it is up to you decide what you want to achieve.

<i>Kitchen Extract Grease, Odour and Smoke Removal System Configurations</i>						
	Baffle Gridmesh F5 Bag Activated Carbon	Baffle Gridmesh F5 Bag Activated Carbon HEPA	Baffle E.S.P. UV Ozone	Baffle E.S.P. F5 Bag Activated Carbon	Baffle E.S.P. UV Ozone UV Neutraliser	Baffle E.S.P. UV Ozone F5 Bag Activated Carbon
Grease Removal	✓	✓	✓	✓	✓	✓
Odour Removal	✓	✓	✓	✓	✓	✓
Smoke Removal	✗	✓	✓	✓	✓	✓
Pressure Drop	HIGH	VERY HIGH	LOW	HIGH	LOW	HIGH
Ozone Emissions	NO	NO	YES	NO	MINIMAL	MINIMAL
Purchasing Cost	£	££	£££	££	£££	£££
Maintenance Cost per year	££	£££	£	££	£	£££

For further information or assistance please contact our technical team.

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