



Extraction Report And Proposed Plans

April 2022

This report takes into account the particular instructions and requirement of our clients

Kitchen Extract System (Pizza Oven)

(Based on DEFRA 2005 "The Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems")

This Publication was withdrawn September 2007.

New Publication not yet released .

Report by Lewis Duct Clean

Lewis Duct Clean Ltd
24 Hayes Street,
Hayes,
Kent
BR2 7LD
www.lewisductclean.co.uk
0203 011 0234

Company Registration no:
4680170
VAT no: 833034361



DW172 Canopy Flow Rate Calculation

26 February 2022

Catering Equipment beneath relevant canopy requiring ventilation

[illegible]

Client to confirm that cooking equipment is listed correctly

Extract System Pa

<u>Item</u>	<u>Friction loss (Pa)</u>
Baffle filters	100
Carbon cells (clean)	60
Type 4 grease filters	60
Synthetic Bag filter	60
Ductwork Route	20
	Total. 300 PA



Site Details

Report Aims

This report aims to outline the specific measures taken to control any increase in odor nuisance resulting from the proposed kitchen extract system.

It allocates a score to give an overall risk rating from three possible levels Low to Medium, High and Very High. Each of the four factors is scored according to the criteria above and a total "significance score" obtained. This score is used to assess the level of odour control required for the particular situation as follows:

Criteria	Score	Score	Details
Dispersion	Very poor	20	Low level discharge, discharge into courtyard or restriction on stack.
	Poor	15	Not low level but below eaves, or discharge at below 10 m/s.
	Moderate	10	Discharging 1m above eaves at 10 -15 m/s.
	Good	5	Discharging 1m above ridge at 15 m/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.
	Fair	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 or medium sized take away.
	Small	1	Less than 30 covers or small take away.
Cooking type (odour and grease loading)	Very high	10	Pub (high level of fried food), fried chicken, burgers or fish & chips.
	High	7	Kebab, Vietnamese, Thai or Indian.
	Medium	4	Cantonese, Japanese or Chinese.
	Low	1	Most pubs, Italian, French, Pizza or steakhouse.



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

Impact Risk	Odour Control Requirement	Significance Score
High	High Levels Of Odour Control	31

Low to medium level control may include:

Fine filtration or electrostatic precipitation (ESP) followed by carbon filtration (carbon filters rated with a 0.1 second residence time).

Fine filtration followed by a counteractant/neutralising system to achieve the same level of control as 1.

High level odour control may include:

Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.2-0.4 second residence time).

Fine filtration or ESP followed by a UV ozone system to achieve the same level of control as 1.

Very high level odour control may include:

Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.4-0.8 second).

Fine filtration or ESP followed by carbon filtration and by a counteractant/neutralising system to achieve the same level of control as 1.

Fine filtration or ESP followed by a UV ozone system to achieve the same level of control as 1.

Fine filtration or ESP followed by wet scrubbing to achieve the same level of control as 1. Maintenance must be carried out to ensure these performance levels are always achieved.

Odour Control Requirement –

In order to follow the DEFRA reports guidelines we would recommend:

High level odour control

Fine filtration or ESP followed by carbon filtration (**carbon filters rated with a 0.2 / 0.4 second residence time**).

Fine Filtration - Canopy Mesh

To prevent some on the grease/odour moving through the system

Fine Filtration -Mesh & Pre Bag Filters-

Catch small grease particles that pass through the coarse initial grease filters.

Carbon Filtration - Carbon Unit

To give dwell times of 0.2 - 0.4 seconds :

$0.6 \times 0.6 \times 0.6$ (1 x Activated Carbon Blocks 600 x 600 x 600) = 0.216

$0.216 \div 1.0 \text{ m}^3/\text{s}$ (Airflow) = **0.2 Seconds (Dwell Time)**



System / Filter Maintenance

Canopy Baffle Filters

Depending on the cooking volume of a particular kitchen, cleaning the baffle filters should be done either daily, weekly or once a month. Busy establishments like restaurants should consider cleaning the baffle filters daily or at least once every two days to ensure they are functioning at optimum levels at all times.

Grease Filters :

These are washable metal filters that are typically removed and cleaned by restaurant owners. A set of spares can be obtained to make this job more manageable, however a weekly wash is often acceptable dependant on the type and frequency of the cooking.

Pre Paper /Bag Filters :

These disposable secondary filters are designed to catch small grease particles that pass through the coarse initial grease filters. These filters offer protection to the Carbon filters that follow.

These filters should be changed at twice their initial resistance. The time period can vary depending on covers but it is commonly between 1-3 monthly.

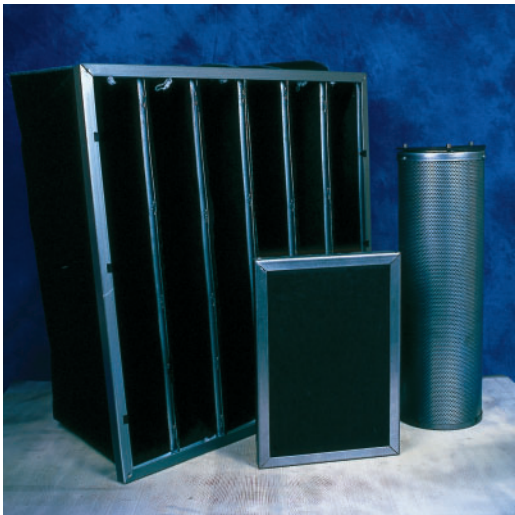
Carbon Filters :

Carbon Filters take on gases rather than particulates making it difficult to determine their life, however typically they will last 6 months to a year.

We would also recommend that a full comprehensive clean is carried out to the Kitchen ventilation system on a 6 monthly basis our price to carry out the first clean to TR19 guidelines,. Deliverables include a ventilation system clean, to include all accessible ductwork, the inspection of all equipment, pre and post clean photographs (held electronically by us for one year and available on request), issue of a clean certificate, (which you may find is a requirement of your insurers) and suggested schedule for the next 12 months.

Site Specific Filter Replacements/Cleaning Recommendations

Filter Type	Cleaning/ Replacement Period
Mesh Canopy Filters	Cleaning Daily (In house).
Mesh Filter	Cleaned Weekly. Inspection on cleaning date. Replaced if levels of grease are excessive.
Synthetic Bag Filter	Replaced between 1/3 Months
Carbon Filters	Typically 6 monthly replacement. Inspection on cleaning date. Replaced if levels of grease are excessive.



FEATURES

- High quality carbon
- Robust modular construction
- High carbon content
- Special sizes available on request
- Available with handles and seals
- Low pressure losses

ACTIVATED CARBON UNITS (ACU)

For a modular approach to fume removal the ACU is the ideal solution. The ACU unit is manufactured from a number of carbon biscuits held in a vee formation within a corrosion proof metal casing. The carbon biscuits inside the units are 25mm thick and are also sealed into the frames using polymer which eliminates the possibility of any air by-pass around the carbon.

PRE-FILTRATION

Carbon filters are designed to remove fumes and odours and are therefore not able to filter fine particles and dust. If left unprotected, the life of the carbon is severely reduced. To protect the filters use pleated and bag filters to the correct grade; this will depend on the environment.

SIDE ACCESS HOUSINGS

These are housings which encompass the Activated Carbon Unit along with the Pre-Filtration (such as Bag/Panel Filters). All housings have a side panel which is removable so that access can be gained easily to replace the filters.

This type of housing is ideal for adding to existing installations such as catering extracts or industrial ventilation systems.

Options are available depending on the application.

APPLICATIONS

Activated Carbon dates back many years. In the first World War gas masks were filled with activated carbon granules to remove chlorine gas. Today Longar produces a wide range of carbon filters to deal with many noxious fumes and gases, whilst maintaining high levels of strength and low pressure loss.

Major uses of carbon are in areas where toxic or offensive odours need eliminating. For example sewage works, hospitals, slaughterhouses, restaurant kitchens, airports, toilets, wash rooms, laboratories, office blocks and many more.

ACTIVATED CARBON

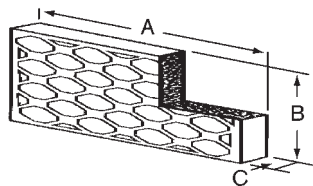
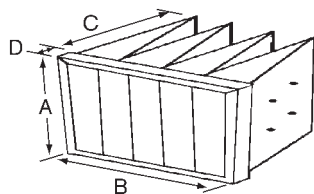
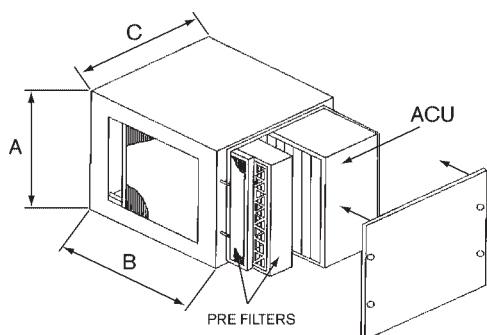
Activated carbon is different from the normal type of loose carbon granule panel in some ways. Firstly, and most importantly, activated carbon granules are fixed and set in position through a thermo-chemical process. With the loose fill granule carbon filters there is a tendency for the granules to rub against each other causing bedding down of the granules and excess dust which would need further filtration.

In addition, bedding down will also allow odours and toxic fumes to by-pass the filter.

The bonding process in our activated carbon filters joins the carbon granules by the points, leaving the pores free to absorb the unwanted contaminants.

This type of construction produces a strong carbon biscuit, which requires no internal structure to support the filter.

Width	Height	Depth	Panels	Flow and pressure loss @ 0.12 secs contact time		Flow and pressure loss @ 0.24 secs contact time	
				M ³ /sec	PA	M ³ /sec	PA
mm	mm	mm					
597	597	147	12	0.230	125	0.115	40
597	597	297	12	0.450	125	0.225	40
597	597	447	12	0.705	125	0.353	40
597	597	597	12	0.940	125	0.470	40
292	597	147	6	0.115	125	0.058	40
292	597	297	6	0.225	125	0.113	40
292	597	447	6	0.353	125	0.176	40
292	597	597	6	0.470	125	0.235	40



CARBON PLEATED PANEL & BAG FILTERS

The Pleated Panels like the Carbon Bag filters are made from non-woven synthetic filter media which is impregnated with activated carbon.

This type of filter is a good solution for less demanding applications, and an inexpensive alternative to the granular carbon filters.

Due to the nature of the product, they can not offer the same life or dwell time associated with ACUs or the Carbon panel filters.

Available in various sizes.

ACTIVATED CARBON PANELS

The carbon biscuits are sealed into steel frames, a scrim is then added to protect the carbon surface from dust contamination. Sealing the carbon blocks in a frame stops any air by-pass, whilst protecting and supporting the carbon block. Please view the price list for stock sizes. Custom sizes are also available.

Longar Industries Limited

Unit 25, Glenmore Business Park, Colebrook Way, Weyhill Road, Andover SP10 3GZ

Tel: 01264 332993 Fax: 01264 332994

Airgard is a registered trademark

Longar Industries Limited reserves the right to change any of the information within this literature.

DW172 Canopy Flow Rate Calculation



Contact :

Project :

Canopy Type : Wall Type Extract Canopy (Pizza Oven)

Revision: A

These calculations are based upon DW172

the HVCA Standard and relate ONLY to the equipment

under the relevant canopy and do NOT include for

general Kitchen ventilation

Flow rate calculation method one

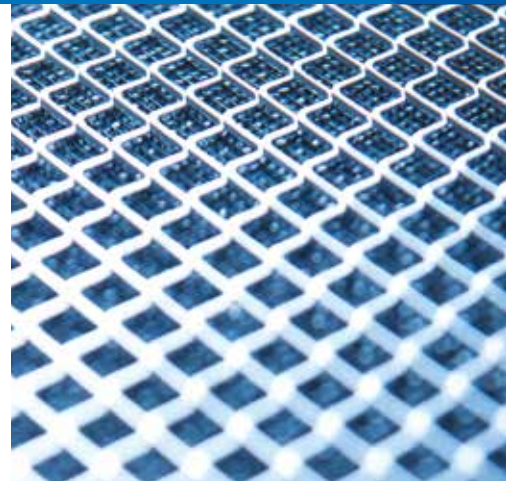
Catering Equipment beneath relevant canopy requiring ventilation

Item	Description	Power	Width	Depth	Coeff	Area ²	Flow rate
1	Pizza Oven (Dimensions To Be Confirmed)	Gas	2000	1000	0.40	2.00	0.80
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
						0.00	0.00
Theoretical Extract Volume Required addition of the above							0.80
Canopy Factor						Overhead Wall Type Open Both Ends	1.25
Specific Extract Flow Rate Required M3/S taking into account canopy factor							1.00
Total Extract Flow Rate Including Safety Margin for equipment under canopy only							1.00
Duct and Canopy Spigot sizes				Number	Velocity M/S	SQ	Diameter
Single Extract Duct				1	7	378	426

Client to confirm that cooking equipment is listed correctly

LONGAR® Type 4

Mesh Filter



LONGAR® TYPE 4 FEATURES:

- The LONGAR® Type 4 Mesh filter is manufactured using a patented expanded mesh, this offers a unique design based on many years of R&D. This results in a mesh that delivers greater air or grease arrestance, integral strength and low pressure loss.
- Comes with a safety edge channel to offer greater strength and safety over conventional products available on the market place.
- Using an Expanded metal multi-layer pad we are able to offer a panel with greater rigidity and importantly the pad cannot migrate particles, which can be found in 'knit mesh' filters, these types of panels can be hazardous where strands can break away from the filter.
- Due to the nature of the material that we use, its integral strength means when it comes to cleaning it will stand up well, and outlast panels of lesser constructions.
- Tested to Eurovent 4/5.
- Handles and drain holes are available.
- Available in Galvanised Steel, Stainless Steel and Aluminium.

APPLICATIONS

- Primary air filtration G2/G3
- Kitchens
- Cooker hoods
- All types of grease extraction
- General heating and ventilation pre-filtration

LONGAR® TYPE 4 MESH FILTER

The LONGAR® Type 4 Mesh filter is the result of years of experience in the manufacture and development of filters for the HEVAC world. With over 40 years of manufacturing experience the products brought to the market place today are clearly world class in price and product.

The LONGAR® Type 4 is a superior grease filter, available in a large selection of sizes and materials options.

Our Mesh filters are of robust construction and are used for a variety of applications, grease and air or dust collection applications, coalescer and spark arrestance, ideal as a prefilter for large particle contaminants and widely used in high air volume applications.

CONSTRUCTION DETAILS / MATERIAL SPECIFICATION

Media: Expanded metal patented design to aid filtration, available in stainless steel, galvanised steel, and aluminium.

Frame: U shaped section supplied with safety edge, available in stainless steel, galvanised steel and aluminium.

Filter thickness: Filter panels are available in actual thicknesses of: 8,10,12,20,25,40,45,50 and 95mm. Other sizes available on request.

Support mesh: Our own Q14 mesh is used in the grease filter as the support mesh.

Handles and drain holes: Folding handles and drain holes can be supplied as an option when required. They are fitted by default to the short dimension, unless otherwise stated by the customer at the time of ordering.

Housings: We can supply front withdrawal housings where required, see separate data sheet.

For technical specifications, part numbers and ordering information, please see overleaf.

LONGAR® Type 4

Mesh Filter

FITTING INSTRUCTIONS

- Fit products, handles in direction of air in.
- Product vertical in air stream.
- Drain holes lower edge to exit into drip tray if installed.

HANDLING

- Handle with care when unpacking.
- Store in dry and frost protected place.

MAINTENANCE

- All maintenance should be carried out in accordance with the planned maintenance set by installation contractor.
- When handling any components suitable PPE should be used - gloves, eye protection and access equipment.
- Filters should be cleaned by a trained operative either daily for heavy use or weekly for light use.
- For more exact guide to cleaning you should contact a cleaning specialist.

PACKAGING

All units are packaged in double wall boxes with separators for standard sizes, glued closed for protection whilst in transit against contamination.

TECHNICAL SPECIFICATIONS

Tested to Eurovent 4/5

Fire rating = UL Class 2

100% relative humidity

Longar specifies the Grease Filter as height x width x thickness. The handles are fixed to the height and drain holes punched on the width. Please ensure correct orientation is given when ordering.

SIZE ORDERING GUIDE (TOLERANCES +/- 2mm)			
Part Number	Actual Size HxWxD	Nominal Size HxWxD	Weight
ALIGLV49524145	241 x 495 x 45mm	254 x 508 x 50mm	1.58kgs
	9.49 x 19.49 x 1.77"	10 x 20 x 2"	3.48lbs
ALIGLV39439445 CANOPY FILTERS	394 x 394 x 45mm	406 x 406 x 50mm	1.90kgs
	15.51 x 15.51 x 1.77"	16 x 16 x 2"	4.18lbs
ALIGLV49539445	394 x 495 x 45mm	406 x 508 x 50mm	2.39kgs
	15.51 x 19.49 x 1.77"	16 x 20 x 2"	5.26lbs
ALIGLV44444445	444 x 444 x 45mm	457 x 457 x 50mm	2.43kgs
	17.48 x 17.48 x 1.77"	18 x 18 x 2"	5.35lbs
ALIGLV49549545	495 x 495 x 45mm	508 x 508 x 50mm	2.92kgs
	19.49 x 19.49 x 1.77"	20 x 20 x 2"	6.42lbs
ALIGLV59759745 Carbon Filter Pre Filters	597 x 597 x 45mm	609 x 609 x 50mm	3.90kgs
	23.50 x 23.50 x 1.77"	24 x 24 x 2"	8.58lbs

Pressure drop and airflow information available on request.



LONGAR INDUSTRIES

FILTERS AND FABRICATIONS FOR A CLEANER ENVIRONMENT

Longar Industries Limited, Unit 25, Glenmore Business Park, Colebrook Way Weyhill Road, Andover, Hampshire SP10 3GZ United Kingdom

T +44 (0)1264 332 993 F +44 (0)1264 332 994 E info@longarind.com W www.longarind.com

As part of our program for continuous improvement, Longar Ltd reserves the right to change specifications without notice. 15-01-2016.

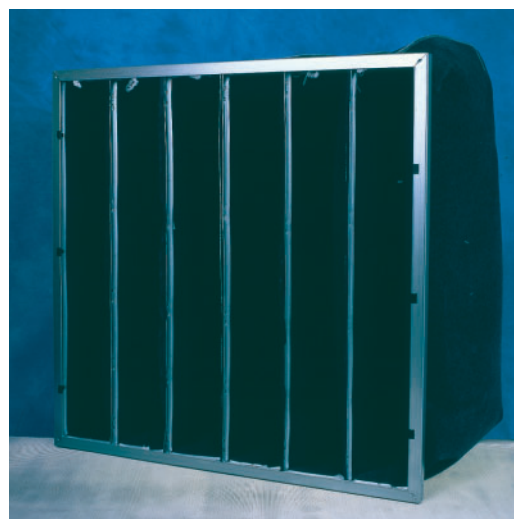


FEATURES

- Very strong metal header frame
- Long life
- Airtight header
- Low Pressure drops
- Stock sizes available for quick delivery

CONSTRUCTION

- The filter media is thermally bonded, non-woven, non-toxic synthetic fibre.
- Strong airtight header frame for trouble free use and ease of maintenance.
- Special bend at pocket inlet to prevent media disintegration.
- Distance ribbon to guarantee space between the pockets.
- All filter pockets have strings of glue to cover the sewing holes.
- Controlled media spacing means long life and low pressure drops.



APPLICATIONS

The Type 14 Bag Filters are medium to high efficiency filters which benefit installations by combining high air-cleaning efficiencies with a long filter life.

There is a range of efficiencies to choose from, designed to:

- Achieve high levels of air cleanliness required in the manufacture of many products.
- Protect equipment in air-conditioning plants, computer suites and gas turbine intake equipment.

The air cleaned by these filters benefits people, processes and equipment.

Rating	Efficiency
F5	>40%<50%
F6	>55%<65%
F7	>80%<85%
F8	>90%<95%

PACKAGING

All panel filters are packed in secure corrugated cardboard cartons, tape sealed for protection against dust and other contaminants. All parcels are marked with international handling symbols. Filters are packed 3 or 4 to the carton depending on header size and pocket depth. Individual filters are protected with wrapper bands.

Size (W × H × D) mm	Filter Grade EN 779	Number of pockets	Media Surface Area m ²	Airflow/Pressure Drop m ³ /hr/Pa	Unit Weight kg
592 × 592 × 600	F5	6	4.7	3400/55	2.4
592 × 592 × 380	F5	6	2.9	2700/70	2.0
287 × 592 × 600	F5	3	2.3	1700/55	1.5
287 × 592 × 380	F5	3	1.5	1350/70	1.3
592 × 592 × 600	F6	6	4.7	3400/70	2.4
592 × 592 × 380	F6	6	2.9	2700/95	2.0
287 × 592 × 600	F6	3	2.3	1700/70	1.5
287 × 592 × 380	F6	3	1.5	1350/95	1.3
592 × 592 × 600	F7	6	4.7	2700/105	2.4
592 × 592 × 380	F7	6	2.9	2150/135	2.0
287 × 592 × 600	F7	3	2.3	1350/115	1.5
287 × 592 × 380	F7	3	1.5	1100/145	1.3
592 × 592 × 600	F8	6	4.7	2700/175	2.4
592 × 592 × 380	F8	6	2.9	2150/220	2.0
287 × 592 × 600	F8	3	2.3	1350/170	1.5
287 × 592 × 380	F8	3	1.5	1100/215	1.3

Longar Industries Limited

Unit 25, Glenmore Business Park, Colebrook Way, Weyhill Road, Andover SP10 3GZ

Tel: 01264 332993 Fax: 01264 332994

Airgard is a registered trademark

Longar Industries Limited reserves the right to change any of the information within this literature.