The Commercial Kitchen Filtration Experts

Specification & Defra Report

Project:	B10413-AEW-PJ003029_Pratt Street, Camden
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Interpretation of Requirements

Further to your recent email we are pleased to provide an equipment selection for an odour control solution.

As with any project we get involved in we always recommend to our clients that they should closely follow the DEFRA guide for guidance on odour control equipment selection.
This ensures that what they propose will be in line with local authority's requirements and if the system is maintained correctly they will not exhaust nuisance odours leading to complaints from nearby residents.

With this in mind I carried out a risk assessment as detailed in Annex C of the DEFRA Guide.
Taking into consideration the level of discharge, proximity of receptors, size of kitchen and cooking type your project requires a high level of odour control to comply.

We have scored as below and as taken from Annex C: Risk Assessment for Odour;

Dispersion: Very Poor = 20 Low Level Horizontal Discharge
Proximity of receptors: Close = 10 Sensitive receptors within 20m of kitchen discharge
Size of kitchen : Medium = 3 Medium sized takeaway
Cooking type : Low = 1 Pizza
Total score = 34
The type of odour abatement system that complies is as below, taken directly from the DEFRA Guide and must be to a low level of control;

Odour arrestment plant performance

High level odour control may include

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

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:

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.
	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 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.

The System

Passive Filtration

At Purified Air we supply a range of passive filtration that can be used both in conjunction with our powered units or as standalone filters dependant on the situation.
These filters include:-

- Carbon Filters
- Bag Filters
- Pleated Panels

Carbon Filters

We manufacture Sitesafe carbon filters, these innovative carbon units measure 594x196x597mm, three combining to 594x594x597mm, directly replacing our original carbon blocks whilst providing exactly the same filter performance as an existing full size cell.
Their advantage is that they only weigh 18kg each against the 68kg of our original blocks. This takes the strain out of fitting and servicing, allowing only one engineer to complete the task where two had been previously required.
Our Sitesafe carbon filters use panels of activated carbon to remove the malodourous gases within the commercial kitchen extract duct through the process of chemical adsorption. By installing our ESP units before our Sitesafe filters, the carbon life span is greatly increased, allowing it to nullify

malodours at optimum efficiency for much longer. The carbons have been sized for a .4 Second dwell time with an extract volume of 1.5m³/second.

Bag Filters

Our general purpose bag filters are manufactured using a galvanised steel header to retain the pocket sets. The pockets are produced from synthetic micro-fibres specifically designed for use in air filtration. They can be applied as a pre filter to carbon cells in malodour extraction, taking out oil and grease particles ahead of the carbon filter stage.

Pleated Panels

Our pleated panel filters are constructed using a core of pleated fibrous media designed specifically for use in air filtration. This is then thermally bonded onto a galvanised steel support mesh for maximum rigidity which is then fully bonded into a moisture resistant rigid white lined card frame. These filters are used as stand-alone pre filters or as a pre filter to bag filters filtering oil and grease particles.

As you can see the system that has been specified is in line with DEFRA guidance.

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Specification

1) 18 No. 594 x 196 x 597 Sitesafe Carbon Filters
2) 6 No 594 x 594 x 45 pleated panel filters
3) 6 No 594 x 594 x 300 bag filters

Casing dimensions: H1210 x W1800 x 1250mm Length in air flow direction

V Line Panel Filter Economy Pleated Intrepid Media

General Description

The V Line pleated Panel filter is a standard capacity disposable product offering a better than basic level of filtration, or pre-filtration in HEVAC applications. This product is made using patented Kimberly Clark media which delivers a constant level of filtration over its life.

Construction

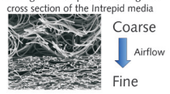
This product is constructed by bonding a pleat pack of Intrepid V Line media into a water repellent AquaKote card frame

Features

The Frame is made from AquaKote card which has

- Superior tear resistance when wet
- Great dry tear resistance and
- Manufactured from a renewable source.

Kimberley Clark Patented Intrepid Media



- Has a Graduated Density for even dirt loading , resulting in greater dust holding
- Hydrophobic – so will not load with moisture in the air
- Has a constant efficiency due to its extra electrostatic charge
- Superior Efficiency V's Particle size (see table)
- Has a low pressure drop
- Is made form continuous fibres so will not shed

Filter Class EN 779:2012		G4
Filter Depth	**Rated Airflow**	**Initial Pressure Drop**
20mm	1.5m/sec	45Pa
45mm	2.0m/sec	45Pa
95mm	2.7m/sec	53Pa
Final Recommended Pressure Drop		200Pa

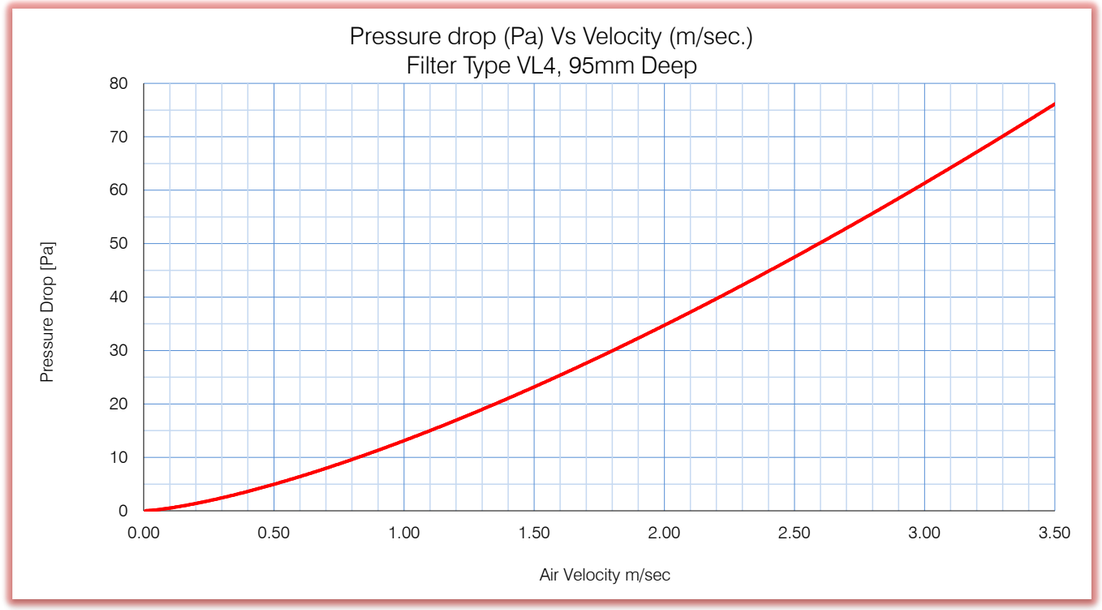
Operating Temperature

Continuous 80 °Centigrade

Test Comparing Filtration efficiency V's different sized particles. Intrepid Media V's Cotton Polyester Filters		
Particle Size Rang(mm)	Initial Fractional Efficiency(%)	
	V Line Intrepid	The "best" Cotton Poly Alternative
0.3-0.4	7	2
0.4-0.55	15	6
0.55-0.7	28	11
0.7-1.0	41	19
1.0-1.3	52	24
1.3-1.6	58	28
1.6-2.2	63	32
2.2-3.0	67	36
3.0-4.0	70	37
4.0-5.5	71	38
5.5-7.0	72	38
7.0-10.0	73	39

STANDARD SIZES VL4

No.	Nominal Size Inches	Height (mm)	Width (mm)	Depth (mm)	Rated Airflow m^3/hr
VL4-1010	10x10x4	241	241	95	565
VL4-1020	10x20x4	241	495	95	1160
VL4-1212	12x12x4	292	292	95	829
VL4-1224	12x24x4	292	594	95	1686
VL4-1515	15x15x4	368	368	95	1316
VL4-1520	15x20x4	368	495	95	1771
VL4-1616	16x16x4	394	394	95	1509
VL4-1620	16x20x4	394	495	95	1896
VL4-1625	16x25x4	394	622	95	2382
VL4-1818	18x18x4	445	445	95	1925
VL4-1831	18x31x4	445	775	95	3352
VL4-2020	20x20x4	495	495	95	2382
VL4-2024	20x24x4	495	594	95	2858
VL4-2025	20x25x4	495	622	95	2993
VL4-2424	24x24x4	594	594	95	3404



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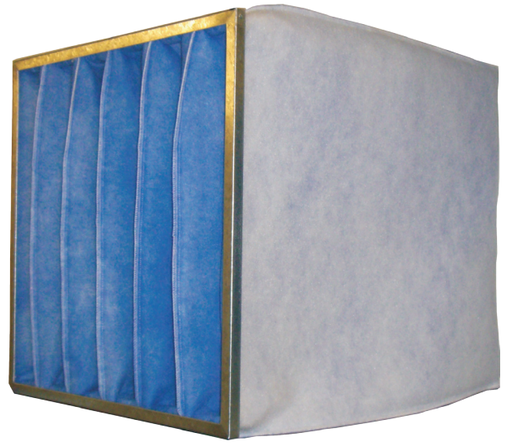
CleanPak CP4 Bag Filter
Fire Rated CP413



General Description

The Cleanak, fire rated range of bag filters are used widely in government buildings, hospitals and other sensitive areas. This grade of filter is suitable for air condition to offices, theatres, computer rooms and spray booths.

Meets NHS HTM03 Filter Specification

Construction

Cleanpak bag filters are manufactured by mounting the 100% polyester synthetic media into a galvanised steel header frame. Corrosion resistant

Features

- Efficient mechanised manufacturing techniques delivery cost effective filtration
- Polyester Media delivers fire rating to CP413
- Rolled safety edge to prevent the material being cut and to prevent injury to the engineers who handle them
- Extra depth filter layer which provides extended filter life
- Versatile manufacture - available in most sizes and pocket configuration
- FREE gasket - simply specify side, face or back.
- Packed individually in a plastic bag and then into strong cartons for safe transportation and storage.

Filter Media

- Is polyester
- Deep Filtration layered
- Is available any size
- Is totally non toxic and non irritant
- Is very inexpensive
- Is fire retardant
- No Fibre Shedding

Operating Temperature

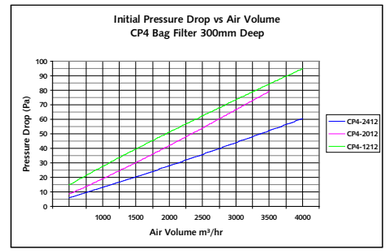
Continuous 80 °Centigrade

Filter Efficiency to BS EN 779:2012		G4
Pocket Depth	**Rated Airflow**	**Initial Pressure Drop**
300mm	1.70m/sec	30Pa
355mm	2.46m/sec	30Pa
600mm	3.30m/sec	50Pa
Maximum Final Recommended Pressure Drop		250Pa
Minimum Velocity required		2m/sec

STANDARD SIZES

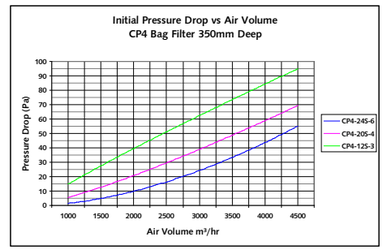
Series 300 - Economy Configuration

Part Number	Header Dimensions			Pocket Details		Capacity m³/hr
	Height (mm)	Width (mm)	Thickness (mm)	Depth (mm)	No. of Pockets	
CP4-1212	592	287	20	300	2	1000
CP4-2012	592	492	20	300	3	1800
CP4-2412	592	592	20	300	4	2100



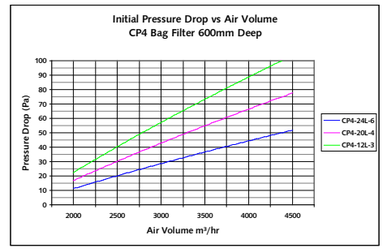
Series 350 - Low Initial Pressure Drop Configuration

Part Number	Header Dimensions			Pocket Details		Capacity m³/hr
	Height (mm)	Width (mm)	Thickness (mm)	Depth (mm)	No. of Pockets	
CP4-12S-3	592	287	20	350	3	1500
CP4-20S-4	592	492	20	350	4	2500
CP4-24S-6	592	592	20	350	6	3100



Series 600 - Long Pocket, long Life, High Capacity Configuration

Part Number	Header Dimensions			Pocket Details		Capacity m³/hr
	Height (mm)	Width (mm)	Thickness (mm)	Depth (mm)	No. of Pockets	
CP4-12L-3	592	287	20	600	3	2000
CP4-20L-4	592	492	20	600	4	3460
CP4-24L-6	592	592	20	600	6	4200



Options

Standard header frame depth is 20mm, also available 12mm, 15mm, 25mm, 33mm

Pocket Depths of 229mm(9”), 300mm(12”), 380mm (15”), 450mm (18”) 530mm (21”), 635mm(25”), 760mm(30”) Also available.

Other Pocket configurations available to order, for instance 8 pockets across a 592mm wide frame.

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Sitesafe Carbon Units

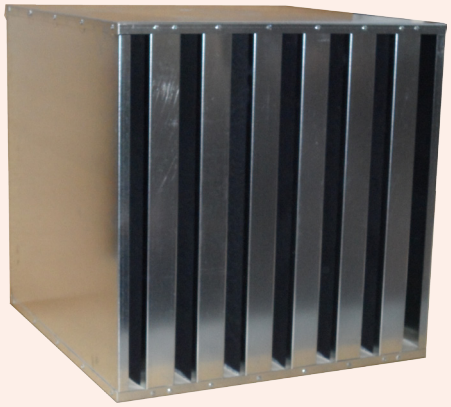
General Description

Standard Carbon multipanel carbon units have been in circulation for many years and there are many tens of thousand of units in service today. These filters are very heavy and nearly always installed in situations with very poor access.

With the new appreciation of risk which we have in the 21st Century it has become apparent that these units represent a real danger to health and potentially offer risk in the work place when a filter change is required.

The new Sitesafe Carbon cells provide exactly the same filter performance with a set of filters which will retrofit exactly for an existing full size cell.

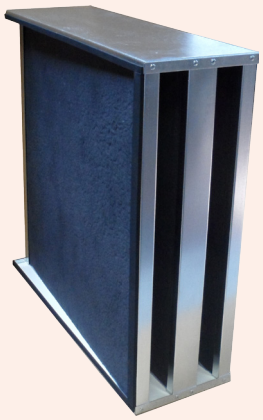
Will require two people plus lifting gear to carry and install



Carbon PA242424

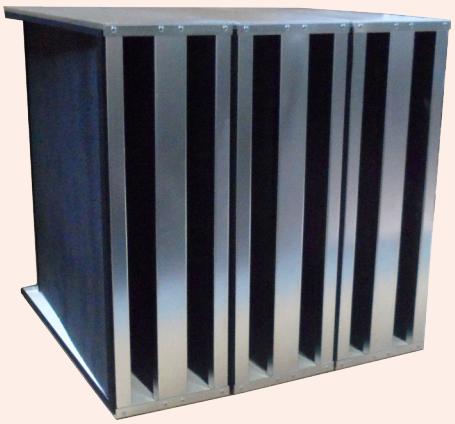
Size 594x594x597
Gross Weight 68.2Kg
Carbon Weight 50kg
Rated Airflow 3600m³/hr*
Pressure Drop 120Pa

Safe for one person to carry, no special lifting gear required.



Sitesafe PA240824

Size 594x196x597
Gross Weight 17.95Kg
Carbon Weight 16.6kg
Rated Airflow 1200m³/hr*
Pressure Drop 120Pa



Sitesafe 3xPA240824

Size 594x594x597
Gross Weight 53.85Kg
Carbon Weight 50kg
Rated Airflow 3600m³/hr*
Pressure Drop 120Pa

*Rated Airflow based on a dwell time of 0.1 seconds.
Available in all sizes to retrofit carbon cells