

# POWERED VENTILATION LTD.

Kitchen Extract system Solutions  
[www.poweredventilation.co.uk](http://www.poweredventilation.co.uk)

## SPECIFICATION ON CURRENT EXTRACTION SYSTEM WITH RECOMENDATIONS:

### SITE REF:

DA VILLAGE ROAD,  
387 OXFORD ROAD,  
READING,  
RG30 1HA

### PLANNING ENFORCEMENT REF:

#### Current Canopy Hoods Details

##### Extract hood (a)

Dimensions of hood : 4.0 x 1.2 x 300 / 500

The canopy is manufactured from stainless steel grade 304, with a 300mm front and 500mm back design. The canopy hoods is supplied with 500\*500\*45 stainless steel baffle filters, with grease drain off taps on each end of the extraction hood.

|                    |              |
|--------------------|--------------|
| Face velocity hood | = 4.8m2      |
| Design volume      | = 1.73m3/sec |

Total number of grease filters 6 / Dimensions 495\*495\*45

Design Volume 1.73m3/s / 6 = 0.28m3/s

1.73m3/s / 0.28m3/s = 6.18 (7- min 6)

6 off stainless steel baffle filters

**Recommendation : The extraction hoods filter bank needs modification to allow for 1 extra baffle filters in order to get the correct velocity.**

##### Extract hood (b)

Dimensions of hood : 3.0 x 1.2 x 300 / 500

The canopy is manufactured from stainless steel grade 304, with a 300mm front and 500mm back design. The canopy hoods is supplied with 500\*500\*45 stainless steel baffle filters, with grease drain off taps on each end of the extraction hood.

|                    |              |
|--------------------|--------------|
| Face velocity hood | = 3.6m2      |
| Design volume      | = 1.29m3/sec |

Total number of grease filters 4 / Dimensions 495\*495\*45

# ***POWERED VENTILATION LTD.***

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Design Volume  $1.29\text{m}^3/\text{s} / 4 = 0.32\text{m}^3/\text{s}$   
 $1.29\text{m}^3/\text{s} / 0.32\text{m}^3/\text{s} = 4.03$  (5- min 4)

5 off stainless steel baffle filters

**Silencer Details:**

Please see Noise Assessment report regards to noise attenuations.

**Odour Control Details:**

Before the fan will be a purpose built carbon filtration discarb unit and will house a pre-filter (to prolong the life of the activated carbon cells) and hold approximately 105 carbon bonded panel cells.

For 0.1 seconds contact time- Typically recommended for English / Chinese cuisine, very light moderate spice(1 single carbon panel @ 594 x 594 x 25mm framed will achieve a 0.1 second contact time at 0.029m<sup>3</sup>/s)

$$\text{DESIGN AIR FLOW RATE } 3.02\text{m}^3/\text{s} / 0.029\text{m}^3/\text{s} = 104.13$$

Therefore a minimum of 105 Extra Duty carbon cells panels must be used.

By rounding the number of carbon filters up from the calculations, it allows some room for any inefficiency in the odour control.

**Cleaning and maintenance**

The carbon cells should be inspected for carbon testing every 3 months for results in changing, this will be done by Powered Ventilation Ltd, unless clients changes service provider, the changing of the Carbon Filters should take place every 3 to 6 months to maintain its optimum efficiency.

The canopy and the stainless steel baffle filters should be cleaned on a daily basis. The stainless steel baffle grease filters are of a 304 grade, the grease filters are to be cleaned on the regime and use of the kitchen, typically a grease filter is cleaned on a daily basis.

The inspection and service of the fan is required every 6 months which will have to be carried out by Powered Ventilation ltd. This again will be inspected by the installers. We recommend that the canopy and the duct work should receive a full deep clean 6 months after installations and then every 6 months thereafter by our recommend cleaning company, to maintain the maximum efficiency of the extraction system.

The carbon filter/pre-filters and system will be kept on a data base by the installers which will contact the user when inspection is due, the customer will have a inspection book which will be stamped after inspection and service by Powered Ventilation ltd.

Annex B:

## **Information Required To Support Planning Application For Commercial Kitchen**

### **Information on Premises:**

The number of meals which will be served per day will be around 30-100.

The methods and preparation of cooking will take place during business hours only and not before or after. The cooking style involves using fresh produce with light touches of fresh dry ingredients.

The type of meal that are being served are a light spiced afghan cuisine which consists of light broths of soups and meats dishes general induction cooked brought to boil and simmered very different from Indian cuisine were heavy use of garlic and general ground spices and cooking fat is used on a larger scale.

### **Plans and drawings:**

Please find the scaled drawing submitted with this form in the ventilation design scheme.

### **Pre-filters:**

Disposable Synthetic Panel Filters Manufacturers AirClean ltd please see o&m instructions and technical supplied information see documents in ventilation report. To be used with the carbon filtrates system before the carbons which come after the stainless steel baffle filters which are installed on the canopy extract hood. Dimensions 495\*495\*45

### **Electrostatic precipitators:**

n/a

### **Carbon filters (where proposed):**

Manufacturers of carbon: Airclean ltd details of carbons shown on the ventilation report. Carbon filter data sheet for carbon filter spec which shows dimensions. Total number of carbon cells 105 off 595\*595\*22, Pre-filters total 1 off 595\*595\*45 see data sheets and operation and maintenance in ventilation report.

Dimensions of carbon cells: 595\*595\*22

The nature of the product is shown on the grade 50 activity sheet of Aircleans data sheet.

For total volume of carbon expressed in cubic metres please see Aircleans data sheet.

For total mass of carbon expressed in kg please see Aircleans data sheet.

For total surface area of panels exposed in the exhausted air: 1000\*650

### **Odour Control Details**

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For 0.1 seconds contact time- Typically recommended for English / Chinese cuisine, very light moderate spice(1 single carbon panel @ 594 x 594 x 25mm framed will achieve a 0.1 second contact time at 0.029m3/s)

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By rounding the number of carbon filters up from the calculations, it allows some room for any inefficiency in the odour control.

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### **Odour counteract ant or neutralising system (where applied):**

n/a

### **Cooker hood:**

#### **Extract hood (a)**

Dimensions of hood : 4.0 x 1.2 x 300 / 500

The canopy is manufactured from stainless steel grade 304, with a 300mm front and 500mm back design. The canopy hoods is supplied with 500\*500\*45 stainless steel baffle filters, with grease drain off taps on each end of the extraction hood.

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Design Volume  $1.73\text{m}^3/\text{s} / 6 = 0.28\text{m}^3/\text{s}$

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6 off stainless steel baffle filters

**Recommendation :** The extraction hoods filter bank needs modification to allow for 1 extra baffle filters in order to get the correct velocity.

**Extract hood (b)**

Dimensions of hood :  $3.0 \times 1.2 \times 300 / 500$

The canopy is manufactured from stainless steel grade 304, with a 300mm front and 500mm back design. The canopy hoods is supplied with  $500*500*45$  stainless steel baffle filters, with grease drain off taps on each end of the extraction hood.

|                    |                               |
|--------------------|-------------------------------|
| Face velocity hood | = $3.6\text{m}^2$             |
| Design volume      | = $1.29\text{m}^3/\text{sec}$ |

Total number of grease filters 4 / Dimensions  $495*495*45$

Design Volume  $1.29\text{m}^3/\text{s} / 4 = 0.32\text{m}^3/\text{s}$

$1.29\text{m}^3/\text{s} / 0.32\text{m}^3/\text{s} = 4.03$  (5- min 4)

5 off stainless steel baffle filters

**System operation:**

The duct work at present spigots off the side of both canopy extract hood (a) and (b) which is also hard fixed onto the horizontal header of the extract duct which is running on the external rear wall of the building into the plant section above external of the residents flats above. The extract hoods has a clearance of 2mtr to the front underside. The extract duct is external of the building up to the plant system before connecting up to the vertical discharge flue 1mtr above eaves.

The plant section consists carbon filtration unit before the Acoustic enclosed extractor fan it also has been fixed onto anti-vibration mounts to help nullify any further transmitting noise and vibrations.

The extractor fan is speed controlled via Transformer regulator which is to stop causing harmonic sounds which are made when operated by electronic controllers.

The extractor fan is Acoustically enclosed this has helped to some degree to prevent external outbreak noise of the extract fan. The vertical discharge flue has support brackets and is above eaves level and has been fixed with a high Velocity Discharge cowl in order to give good dispersion of fumes.

The duct work dimensions off hood (a) and (b) is  $600*600$

$3.02\text{m}^3/\text{s}$  (combined design volume) /  $0.36 = 8.38\text{m}/\text{second}$  ( air speed in duct )

(ideal air speed 8-12m/s in accordance to dw regulation)

The current efflux velocity is  $18.99\text{m}/\text{second}$  (  $3.02\text{m}^3/\text{s} / 0.1590\text{m}^3$  (free area inside 450 diameter duct) =  $18.99\text{m}/\text{s}$  velocity )

The efflux velocity required is  $18.99\text{m}/\text{second}$  which will allow the duct work to be free from grease and disperse all fumes to high level after treatment by carbons.

### **Flue design:**

The current efflux velocity is 18.99m/second (  $3.02\text{m}^3/\text{s} / 0.1590\text{m}^3$  (free area inside 450 diameter duct) = 18.99m/s velocity )

The efflux velocity required is 18.99m/second which will allow the duct work to be free from grease and disperse all fumes to high level after treatment by carbons.

### **Noise:**

Please see Noise Assessment report regards to noise attenuations provided by Randtech Consultants.

### **Maintenance:**

The carbon cells should be inspected for carbon testing every 3 months for results in changing, this will be done by Powered Ventilation Ltd, unless clients changes service provider, the changing of the Carbon Filters should take place every 3 to 6 months to maintain its optimum efficiency.

The canopy and the stainless steel baffle filters should be cleaned on a daily basis. The stainless steel baffle grease filters are of a 304 grade, the grease filters are to be cleaned on the regime and use of the kitchen, typically a grease filter is cleaned on a daily basis.

The inspection and service of the fan is required every 6 months which will have to be carried out by Powered Ventilation ltd. This again will be inspected by the installers. We recommend that the canopy and the duct work should receive a full deep clean 6 months after installations and then every 6 months thereafter by our recommend cleaning company, to maintain the maximum efficiency of the extraction system.

The carbon filter/pre-filters and system will be kept on a data base by the installers which will contact the user when inspection is due, the customer will have a inspection book which will be stamped after inspection and service by Powered Ventilation ltd.

### **Additional notes for guidance:**

n/a

## Annex C: Risk Assessment for Odour

Odour control must be designed to prevent odour nuisance in a given situation. The following score methodology is suggested as a means of determining odour control requirements using a simple risk assessment approach. The odour control requirements considered here are consistent with the performance requirements listed in this report.

| 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.                        |

POWERED VENTILATION LTD.  
ALEXANDER HOUSE,  
60 TENBY STREET NORTH,  
BIRMINGHAM, B1 3EG EMAIL:  
info@poweredventilation.co.uk

Client: 387 OXFORD ROAD  
READING  
RG30 1HA

Project: REAR ELEVATION  
SHOWING EXTRACT SYSTEM

Scale: 1/100

Drawing no: 1

Job no:N/A

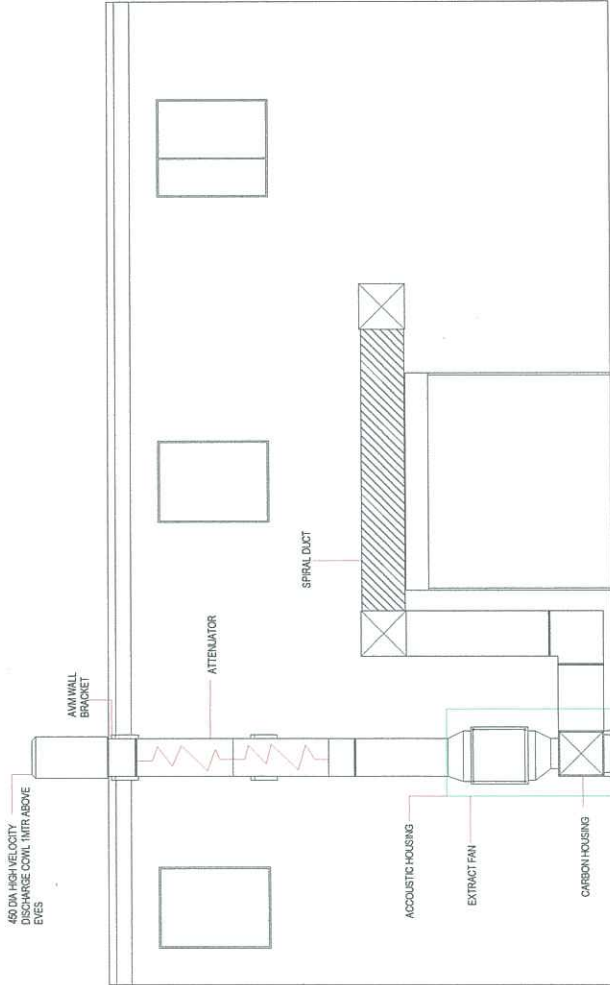
NOTES:

Council ref:

Officer:

Date: 4-3-19

Drawn: ABU IBRAHIM



REAR VIEW

POWERED VENTILATION LTD.  
ALEXANDER HOUSE,  
60 TENBY STREET NORTH,  
BIRMINGHAM, B1 3EG EMAIL:  
info@poweredventilation.co.uk

Client: 387 OXFORD ROAD  
READING  
RG30 1HA

Project: SIDE VIEW  
SHOWING EXTRACT SYSTEM

Scale: 1/100

Drawing no: 2

Job no:N/A

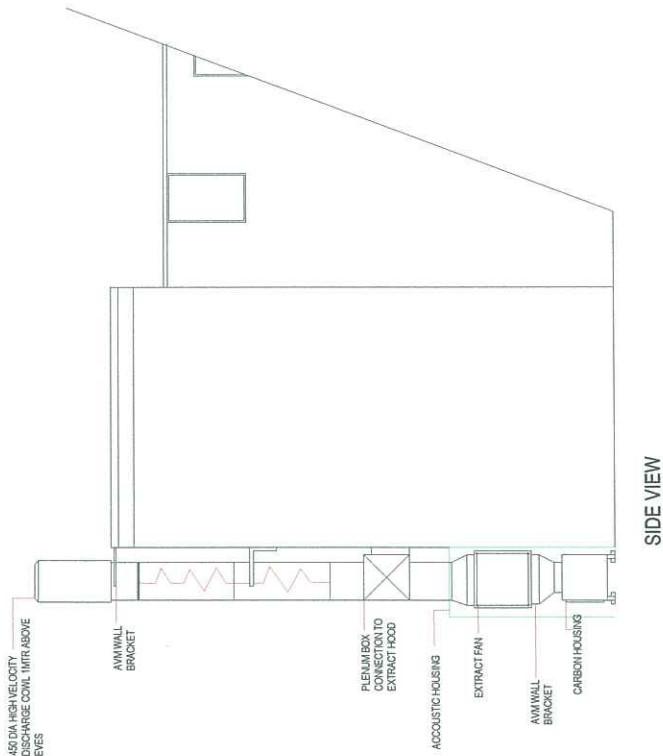
NOTES:

Council ref:

Officer:

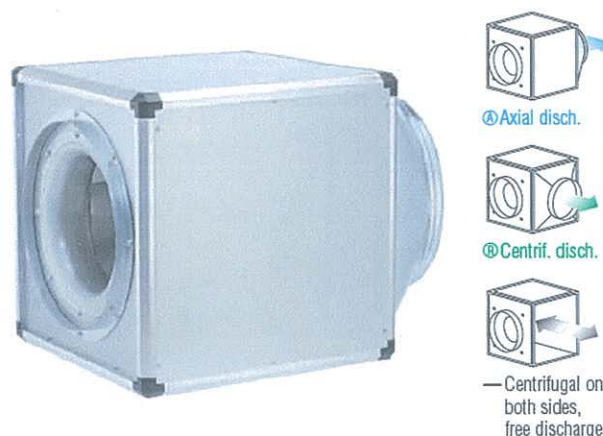
Date: 4-3-19

Drawn: ABU IBRAHIM



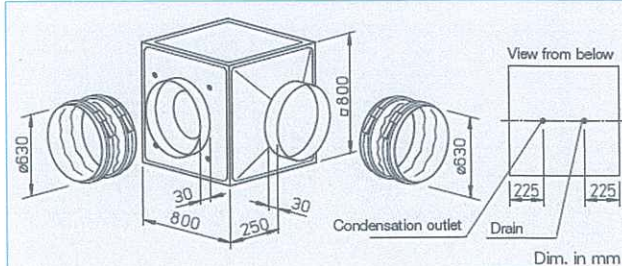
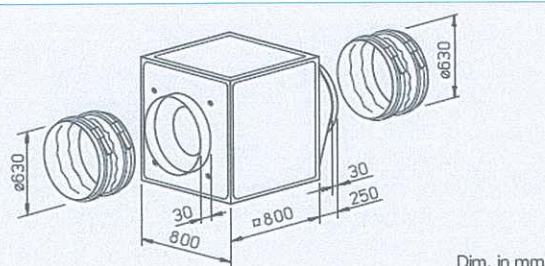
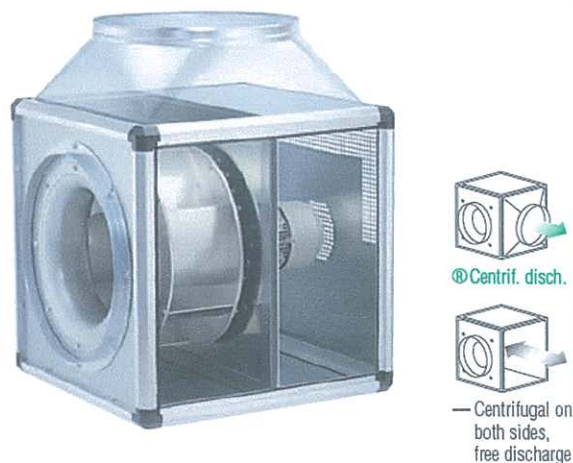
## GB

Arbitrary installation position and flexible assembly by five possible discharge directions.



## GB T120

Designed for moving dirty, humid and hot air up to max. 120° C. Motor located outside the air flow.



### ■ Special features of types GB T120

- Designed for moving dirty, humid and hot air volumes up to max. 120° C.
- Motor located outside of air flow.
- Temperature insulated partition panel between motor and impeller, lined with 20 mm thick flame-retardant mineral wool.
- Easily accessible motor and impeller unit, removable without disassembling the system components.
- Inspection cover with handle, simply remove for cleaning and maintenance.
- Condensate collector with condensate spigot included in delivery. Drill hole for rain drainage (accessories) for outdoor installation is prepared.

### □ Assembly GB T120

Installation must be carried out with condensation discharge showing downward. Flexible assembly by three possible centrifugal discharge directions via the discharge adapter. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

### ■ Feature

#### □ Assembly of types GB

Arbitrary installation position and flexible assembly by five possible discharge directions via the discharge adapter. For wall mounting the wall bracket (accessories) have to be used. Outdoor installation is possible using outdoor cover

hood and external weather louvers (accessories).

### ■ Specification of both types

#### □ Casing

Self-supporting frame construction from aluminium hollow profiles. Double-walled side panels from galvanised sheet steel, lined with 20 mm thick temperature insulating and flame-retardant mineral wool. Intake cone for ideal inflow as well as spigot and flexible sleeve (for the respective max. permissible air flow temperature) for duct connection. With discharge adapter (from square to circular) on the pressure side for low-loss discharge and flexible sleeve to reduce vibration transmission. Simple positioning by standard crane hooks.

#### □ Impeller

Smooth running backward curved aluminium centrifugal impeller highly efficient and direct driven. Energy efficient with a low noise development. Dynamically balanced together with the motor to DIN ISO 1940 Pt.1 – class 6.3.

#### □ Motor

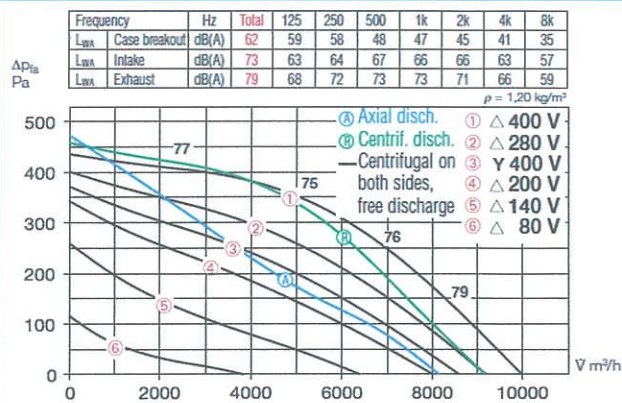
Maintenance-free external rotor motor or IEC-standard motor protected to IP 54. With ball bearings and interference-free as standard.

#### □ Electrical connection

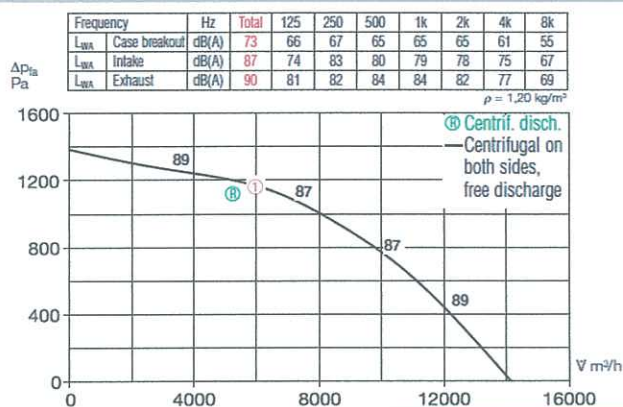
Standard terminal box (IP 54) fitted on the motor; with GB T120 fitted on the motor support plate.

| Type                                                                                 | Ref. no. | Air flow volume (FID) | R.P.M.    | Sound press. case breakout | Motor power (nominal) | Current full load | Current speed controlled | Wiring diagram | Maximum air flow temperature | Weight (net) | 5 step transformer controller with mot. protect. unit | Full motor protection unit using the thermal contacts |
|--------------------------------------------------------------------------------------|----------|-----------------------|-----------|----------------------------|-----------------------|-------------------|--------------------------|----------------|------------------------------|--------------|-------------------------------------------------------|-------------------------------------------------------|
|                                                                                      |          | V m³/h                | min⁻¹     | dB(A) in 4 m               | KW                    | A                 | A                        | No.            | +°C                          | kg           | Type Ref. no.                                         | Type Ref. no.                                         |
| 2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/Δ wiring, protection to IP 54 |          |                       |           |                            |                       |                   |                          |                |                              |              |                                                       |                                                       |
| GBD 630/6/6                                                                          | 5524     | 8600/9990             | 723/893   | 42                         | 0.64/0.93             | 1.08/1.88         | 2.03                     | 867            | 60                           | 86           | RDS 4 1316                                            | TSD 5,5 1503 MD 5849                                  |
| GBD 630/4/4                                                                          | 5523     | 12954/14430           | 1128/1383 | 51                         | 2.40/3.45             | 4.10/6.20         | 7.20                     | 867            | 75                           | 105          | RDS 11 1332                                           | TSD 11,0 1513 MD 5849                                 |
| 3 Phase motor, 3~, 400 V, 50 Hz, protection to IP 54                                 |          |                       |           |                            |                       |                   |                          |                |                              |              |                                                       |                                                       |
| GBD 630/4 T120                                                                       | 5779     | 14200                 | 1445      | 53                         | 4.40                  | 8.0               | —                        | 499            | 120                          | 105          | —                                                     | — MD 5849                                             |

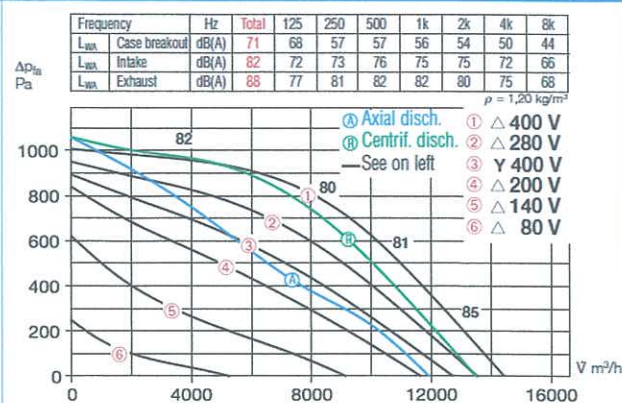
**GBD 630/6/6**



**GBD 630/4 T120**



**GBD 630/4/4**



### Motor protection

Types GBD with thermal contacts embedded on the terminal strip, which must be wired with the full motor protection device. Type GBD T120 with PTC thermistor for direct wiring with the full motor protection device or frequency inverter FU-BS (see table below, accessories).

### Speed control

All types (except GB T120) are speed controllable by voltage reduction using a transformer controller. The 3-phase models can also be 2 speed controlled by Y/Δ switch or full motor protection unit M4; Type GBD T120 is exclusively controllable via frequency inverter with Sine filter. The duties at different speeds are given in the performance curve.

### Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for:  
 — Sound level case breakout  
 — Sound level intake  
 — Sound level exhaust  
 In the table below as well as underneath the performance curve you can find additionally the sound pressure levels at 4 m (free field conditions).

### Accessories of both types

Anti vibration mounts for installation indoors. Set of 4.

**SDD-U** Ref. no. 5627

Wall bracket for wall mounting.

**GB-WK 630** Ref. no. 5626

External weather louvers to cover exhaust opening.

**GB-WSG 630** Ref. no. 5640

Outdoor cover hood for outdoor installation.

**GB-WSD 630** Ref. no. 5749

### Specific accessories

#### for types GB

Condensate collector with condensate spigot for pipe connection.

**GB-KW 630** Ref. no. 5645

(Condensate collector with condensate spigot included in delivery with GB T120).

On/Off and 2-speed switch for 3-phase Y/Δ motors.

**Type DS 2<sup>1)</sup>** Ref. no. 1351

<sup>1)</sup> full motor protection unit recommended: MD Ref. No. 5849

#### for types GB T120

Rain drainage for outdoor installation (drill holes for rain drainage is already prepared).

**GB-RA** Ref. no. 9418

| Information                                     | Page   |
|-------------------------------------------------|--------|
| Information for planning                        | 10 on  |
| General techn. information, speed control       | 15 on  |
| Accessory-Details                               | Page   |
| Speed controller and full motor protection unit | 525 on |



Ref: MDR/J3910b

28<sup>th</sup> April 2019

Powered Ventilation Ltd

Alexander House

60 Tenby Street North

Birmingham

B1 3EG

Dear Sirs

**Re: 387 Oxford Road, Reading, RG30 1HA – Kitchen Ventilation Systems External Noise Assessment - REVISED**

Further to the receipt of your revised ventilation system design information, we are pleased to forward our external noise assessment for the kitchen ventilation systems based on a site background noise measurement as follows:-

We visited site on 20/3/19 and measured the background noise level from 23.00hrs for a period of 60 minutes in the middle of the yard area at the rear of the building. The background noise level recorded was of 44.0dB LA90, measured in good weather condition and this represents the background noise level outside the nearest residential windows which are the 1<sup>st</sup> floor flat window where the ventilation system is located. The background noise was primarily from road traffic noise in the locality and plant noise sources at the location. The nearest residential windows are approximately 2m distance from the extract discharge above roof eaves level and approximately 1m distance to the extract fan. The existing extract ventilation system when in operation created a noise level of 60.4dBA when measured in the middle of the rear yard.



Ref: MDR/J3910b

We advise a design criterion for the extract discharge and fan box should be at least 5dBA below the prevailing background noise level at the nearest residential windows.

In the existing ventilation system layout the fan is mounted on the rear wall of the building adjacent to a residential 1<sup>st</sup> floor window, as there is no practical noise control solution to prevent fan casing break-out noise from impacting the adjacent residential window. The ventilation system layout had to be revised, to locate the extract fan away from residential windows in a location where an acoustic enclosure could be installed around the fan casing to control the noise break-out; the revised ventilation system layout will achieve this and the operational noise can be controlled.

The instrumentation used for the measurement was a Rion NL-52 precision grade real time analysing sound level meter, serial number 00610205. The instrument was calibration checked before and after the measurement and seen to be calibrated correctly. Please see the attached copy of the current calibration certificate for the instrument.

We have selected a silencer for the extract discharge system, the silencer would be a 33% free area splitter silencer, typically 600mm wide x 600mm high x 2700mm long. The silencer should reduce the radiated discharge noise to 32dBA at 2m distance.

With regard to the noise breaking out of the extract fan casing and radiating to the 1<sup>st</sup> floor flat windows at a revised distance of 3m, the calculated break-out noise, when the fan casing is fitted within an acoustic enclosure is 33dBA @3m. The advised acoustic enclosure would be mounted on the rear yard surface and extend upward to fully enclose the fan casing and the lower end of the advised discharge ventilation duct silencer. The enclosure construction should be based typically on a 50mm thick acoustic panel construction, with an outer skin of 1.6mm galvanised mild steel, with an inner lining of 50mm thick mineral wool insulation retained by 1.0mm galvanised mild steel perforate sheet, or an equivalent construction of similar mass.

The estimated combined operational noise of the silenced discharge and enclosed fan casing, at the nearest 1<sup>st</sup> floor residential window would be 36dBA, 8dBA below the measure LA90 background noise level of 44.0dBA.

In addition, the fan and ductwork systems should be supported off the building structure using anti-vibration mounts/hangers to avoid vibration transmission into the building structure.



Ref: MDR/J3910b

We have attached our revised noise level design calculation sheets and supporting information for your reference.

We trust the design information meets with your approval and we remain.

Yours faithfully

A handwritten signature in dark ink, appearing to read 'MD Randall', with a stylized flourish at the end.

M D Randall BSc(Eng) CEng MCIBSE MIOA





## CERTIFICATE OF CALIBRATION



**Date of Issue:** 05 October 2018

**Certificate Number:** UCRT18/2022

Issued by:

ANV Measurement Systems

Beaufort Court

17 Roebuck Way

Milton Keynes MK5 8HL

Telephone 01908 642846 Fax 01908 642814

E-Mail: [info@noise-and-vibration.co.uk](mailto:info@noise-and-vibration.co.uk)

Web: [www.noise-and-vibration.co.uk](http://www.noise-and-vibration.co.uk)

Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 2 Pages

Approved Signatory

K. Mistry

**Customer** ANV Measurement Systems  
Beaufort Court  
17 Roebuck Way  
Milton Keynes  
MK5 8HL

**Order No.** ANV MS HIRE  
**Description** Sound Level Meter / Pre-amp / Microphone / Associated Calibrator  
**Identification**

| Manufacturer | Instrument                            | Type  | Serial No. / Version |
|--------------|---------------------------------------|-------|----------------------|
| Rion         | Sound Level Meter                     | NL-52 | 00610205             |
| Rion         | Firmware                              |       | 1.9                  |
| Rion         | Pre Amplifier                         | NH-25 | 10199                |
| Rion         | Microphone                            | UC-59 | 02547                |
| Rion         | Calibrator                            | NC-74 | 34536109             |
|              | Calibrator adaptor type if applicable |       | NC-74-002            |

**Performance Class** 1

**Test Procedure** TP 2.SLM 61672-3 TPS-49

*Procedures from IEC 61672-3:2006 were used to perform the periodic tests.*

**Type Approved to IEC** 61672-1:2002 YES **Approval Number** 21.21 / 13.02

*If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003*

**Date Received** 04 October 2018

**ANV Job No.** UKAS18/10630

**Date Calibrated** 05 October 2018

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

| Previous Certificate | Dated            | Certificate No. | Laboratory |
|----------------------|------------------|-----------------|------------|
|                      | 20 November 2017 | UCRT17/2046     | 0653       |

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.



# CERTIFICATE OF CALIBRATION

UKAS Accredited Calibration Laboratory No. 0653

Certificate Number

UCRT18/2022

Page 2 of 2 Pages

Sound Level Meter Instruction manual and data used to adjust the sound levels indicated.

|                                                                          |                   |                                            |
|--------------------------------------------------------------------------|-------------------|--------------------------------------------|
| SLM instruction manual title                                             | Sound Level Meter | NL-42 / NL-52                              |
| SLM instruction manual ref / issue                                       |                   | 11-03                                      |
| SLM instruction manual source                                            | Manufacturer      |                                            |
| Internet download date if applicable                                     | N/A               |                                            |
| Case corrections available                                               | Yes               |                                            |
| Uncertainties of case corrections                                        | Yes               |                                            |
| Source of case data                                                      | Manufacturer      |                                            |
| Wind screen corrections available                                        | Yes               |                                            |
| Uncertainties of wind screen corrections                                 | Yes               |                                            |
| Source of wind screen data                                               | Manufacturer      |                                            |
| Mic pressure to free field corrections                                   | Yes               |                                            |
| Uncertainties of Mic to F.F. corrections                                 | Yes               |                                            |
| Source of Mic to F.F. corrections                                        | Manufacturer      |                                            |
| Total expanded uncertainties within the requirements of IEC 61672-1:2002 | Yes               |                                            |
| Specified or equivalent Calibrator                                       | Specified         |                                            |
| Customer or Lab Calibrator                                               | Lab Calibrator    |                                            |
| Calibrator adaptor type if applicable                                    | NC-74-002         |                                            |
| Calibrator cal. date                                                     | 03 October 2018   |                                            |
| Calibrator cert. number                                                  | UCRT18/2010       |                                            |
| Calibrator cal cert issued by                                            | 0653              |                                            |
| Calibrator SPL @ STP                                                     | 94.01 dB          | Calibration reference sound pressure level |
| Calibrator frequency                                                     | 1001.98 Hz        | Calibration check frequency                |
| Reference level range                                                    | 25 - 130 dB       |                                            |

Accessories used or corrected for during calibration - Extension Cable & Wind Shield WS-15

Note - if a pre-amp extension cable is listed then it was used between the SLM and the pre-amp.

| Environmental conditions during tests | Start  | End    |            |
|---------------------------------------|--------|--------|------------|
| Temperature                           | 23.90  | 23.70  | ± 0.40 °C  |
| Humidity                              | 47.6   | 47.2   | ± 3.00 %RH |
| Ambient Pressure                      | 100.37 | 100.33 | ± 0.03 kPa |

Response to associated Calibrator at the environmental conditions above.

|                                                                                    |         |                          |         |
|------------------------------------------------------------------------------------|---------|--------------------------|---------|
| Initial indicated level                                                            | 94.0 dB | Adjusted indicated level | 94.0 dB |
| The uncertainty of the associated calibrator supplied with the sound level meter ± |         |                          | 0.10 dB |

Self Generated Noise This test is currently not performed by this Lab.

|                                                                |        |             |
|----------------------------------------------------------------|--------|-------------|
| Microphone installed (if requested by customer) = Less Than    | N/A dB | A Weighting |
| Uncertainty of the microphone installed self generated noise ± | N/A dB |             |

Microphone replaced with electrical input device - UR = Under Range indicated

| Weighting                                            | A          | C          | Z          |
|------------------------------------------------------|------------|------------|------------|
|                                                      | 12.4 dB UR | 16.4 dB UR | 21.9 dB UR |
| Uncertainty of the electrical self generated noise ± |            |            | 0.12 dB    |

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k=2$ , providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

For the test of the frequency weightings as per paragraph 12. of IEC 61672-3:2006 the actual microphone free field response was used.

The acoustical frequency tests of a frequency weighting as per paragraph 11 of IEC 61672-3:2006 were carried out using an electrostatic actuator.

END

Calibrated by: A Patel

Additional Comments

None

R 1



EXISTING EXTRACT VENTILATION  
System

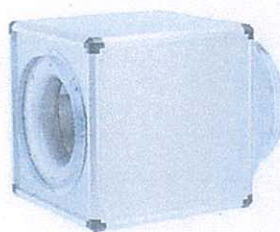
Ref: 1006/53910



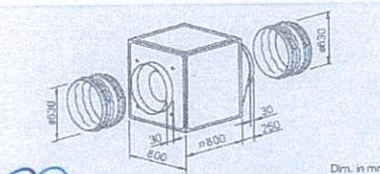
630 mm Ø GigaBox centrifugal fan

**Helios**

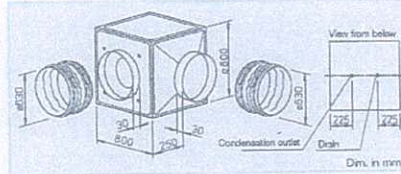
**GB**  
Arbitrary installation position and flexible assembly by five possible discharge directions.



**GB T120**  
Designed for moving dirty, humid and hot air up to max. 120° C. Motor located outside the air flow.



Dim. in mm



Dim. in mm

- Special features of types GB T120**
- Designed for moving dirty, humid and hot air volumes up to max. 120° C. Motor located outside of air flow.
  - Temperature insulated partition panel between motor and impeller, lined with 20 mm thick flame-retardant mineral wool.
  - Easily accessible motor and impeller unit, removable without disassembling the system components.
  - Inspection cover with handle, simply remove for cleaning and maintenance.
  - Condensate collector with condensate spigot included in delivery. Drill hole for rain drainage (accessories) for outdoor installation is prepared.

- Assembly GB T120**  
Installation must be carried out with condensate discharge showing downward. Flexible assembly by three possible centrifugal discharge directions via the discharge adapter. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).
- Feature**  
**Assembly of types GB**  
Arbitrary installation position and flexible assembly by five possible discharge directions via the discharge adapter. For wall mounting the wall bracket (accessories) have to be used. Outdoor installation is possible using outdoor cover

hood and external weather louvers (accessories).

**Specification of both types**

**Casing**  
Self-supporting frame construction from aluminium hollow profiles. Double-walled side panels from galvanised sheet steel, lined with 20 mm thick temperature insulating and flame-retardant mineral wool. Intake cone for ideal inflow as well as spigot and flexible sleeve for the respective max. permissible air flow temperature for duct connection. With discharge adapter (from square to circular) on the pressure side for low-loss discharge and flexible sleeve to reduce vibration transmission. Simple positioning by standard crane hooks.

**Impeller**  
Smooth running backward curved aluminium centrifugal impeller highly efficient and direct driven. Energy efficient with a low noise development. Dynamically balanced together with the motor to DIN ISO 1940 Pt.1 - class 6.3.

**Motor**  
Maintenance-free external rotor motor or IEC-standard motor protected to IP 54. With ball bearings and interference-free as standard.

**Electrical connection**  
Standard terminal box (IP 54) fitted on the motor; with GB T120 fitted on the motor support plate.

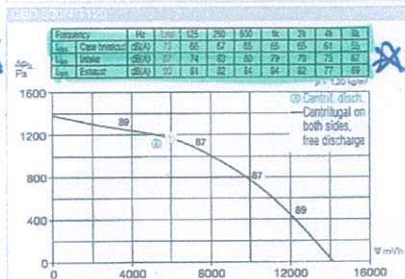
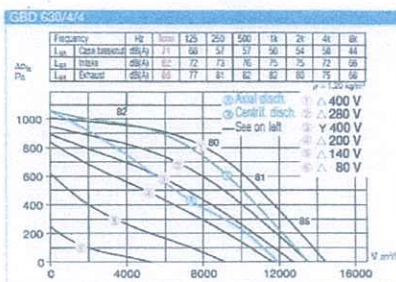
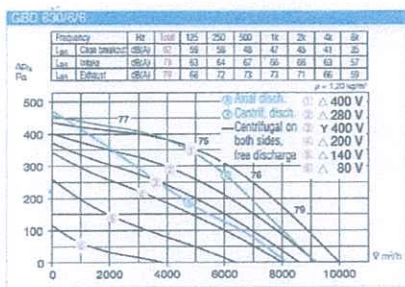
| Type                                                                                 | Ref. no. | Air flow volume (F10) | R.P.M.    | Sound press. crest level | Motor power (nominal) | Full load | Speed controlled | Wiring diagram | Maximum air flow temperature | Weight (kg) | 5 slip transformer controller with protect. unit | Full motor protection unit using the thermal contacts |
|--------------------------------------------------------------------------------------|----------|-----------------------|-----------|--------------------------|-----------------------|-----------|------------------|----------------|------------------------------|-------------|--------------------------------------------------|-------------------------------------------------------|
|                                                                                      |          | m³/h                  | min⁻¹     | dB(A) @ 4 m              | kW                    | A         | A                | No.            | °C                           | kg          | Type Ref. no.                                    | Type Ref. no.                                         |
| 2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/Δ wiring, protection to IP 54 |          |                       |           |                          |                       |           |                  |                |                              |             |                                                  |                                                       |
| GBD 630/4/5                                                                          | 5524     | 8600/5000             | 725/803   | 42                       | 0.64/0.83             | 1.08/1.88 | 2.03             | 857            | 60                           | 60          | RDS 4                                            | 1315 TSD 8.8 1503 MD 5846                             |
| GBD 630/4/4                                                                          | 5523     | 12954/14430           | 1128/1383 | 51                       | 2.40/3.45             | 4.10/6.20 | 7.29             | 867            | 75                           | 50          | RDS 11                                           | 1332 TSD 11.0 1513 MD 5846                            |
| 3 Phase motor, 3-, 400 V, 50 Hz, protection to IP 54                                 |          |                       |           |                          |                       |           |                  |                |                              |             |                                                  |                                                       |
| GBD 630/4 T120                                                                       | 5779     | 14200                 | 1445      | 53                       | 4.40                  | 8.0       | —                | 499            | 120                          | —           | —                                                | — MD 5849                                             |

*Ref: 1000/13910*



**Helios**

GigaBox centrifugal fan 630 mm ø



#### Motor protection

Types GBD with thermal contacts embedded on the terminal strip, which must be wired with the full motor protection device. Type GBD T120 with PTC thermostat for direct wiring with the full motor protection device or frequency inverter FU-BS (see table below, accessories).

#### Speed control

All types (except GB T120) are speed controllable by voltage reduction using a transformer controller. The 3-phase models can also be 2 speed controlled by Y/Δ switch or full motor protection unit M4; Type GBD T120 is exclusively controllable via frequency inverter with Sine filter. The duties at different speeds are given in the performance curve.

#### Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for:  
- Sound level case breakout  
- Sound level intake  
- Sound level exhaust  
In the table below as well as underneath the performance curve you can find additionally the sound pressure levels at 4 m (free field conditions).

#### Accessories of both types

Anti vibration mounts for installation indoors. Set of 4.  
**SDD-U** Ref. no. 5627

Wall bracket for wall mounting.  
**GB-WK 630** Ref. no. 5626

External weather louvers to cover exhaust opening.  
**GB-WSG 630** Ref. no. 5640

Outdoor cover hood for outdoor installation.  
**GB-WSD 630** Ref. no. 5749

#### Specific accessories

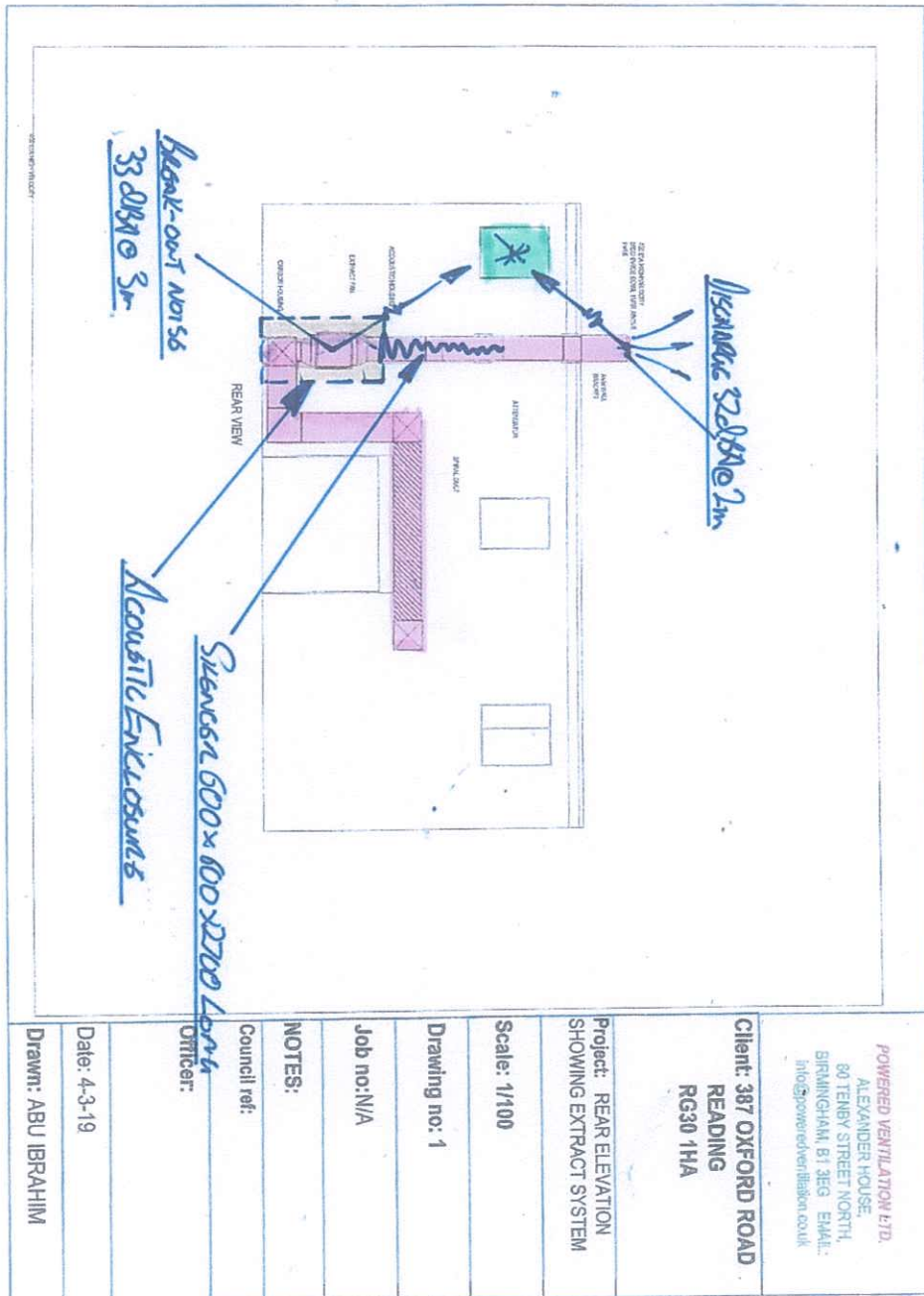
for types GB  
Condensate collector with condensate spigot for pipe connection.  
**GB-KW 630** Ref. no. 5645  
(Condensate collector with condensate spigot included in delivery with GB T120).

On/Off and 2-speed switch for 3-phase Y/Δ motors.  
**Type DS 2<sup>3</sup>** Ref. no. 1351  
<sup>1</sup> full motor protection unit recommended.  
MD Ref. No. 5849

for types GB T120  
Rain drainage for outdoor installation (drill holes for rain drainage is already prepared).  
**GB-RA** Ref. no. 9418

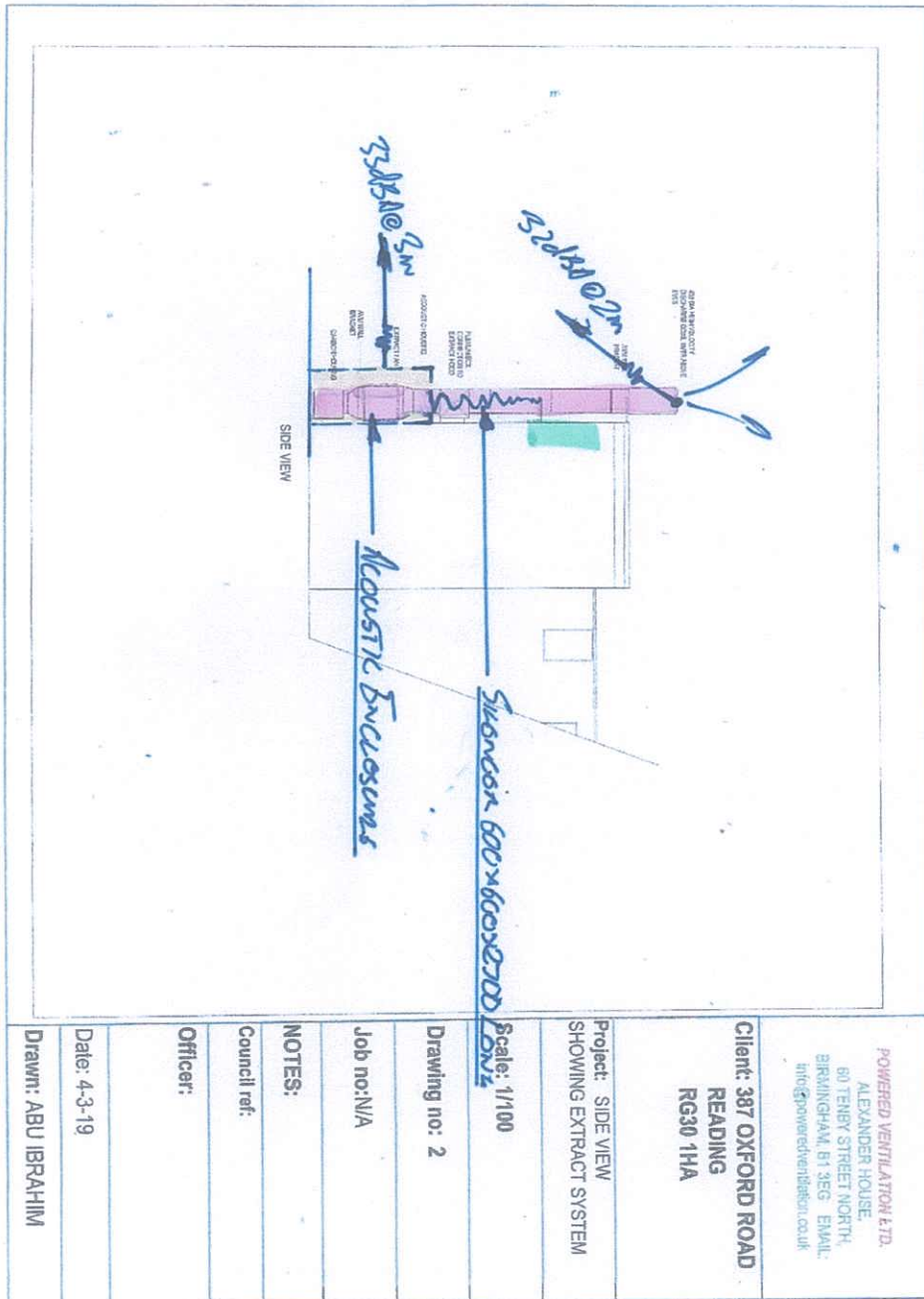
| Information                                     | Page   |
|-------------------------------------------------|--------|
| Information for planning                        | 10 on  |
| General techn. information, speed control       | 15 on  |
| Accessory-Details                               | Page   |
| Speed controller and full motor protection unit | 525 on |

*Prof. M. J. J. J.*



Revised

Ref: MW/J5390



REVISED

Ref: MW02/53910

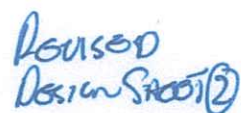


REVISED  
DESIGN SHEET ①

387 Oxford Road, Reading - KITCHEN EXTRACT DISCHARGE NOISE

|                                          | L/A | 63 | 125 | 250 | 500  | 1k   | 2k | 4k | 8k |
|------------------------------------------|-----|----|-----|-----|------|------|----|----|----|
| EXTRACT FAN HELIOS CUBA 800              | /   | 81 | 82  | 84  | 84   | 82   | 77 | 66 |    |
| GRD 630/4-T20 SWL <sub>A</sub>           |     |    |     |     |      |      |    |    |    |
| 4500 Duct 5m                             | /   | 0  | 0   | 0   | 0    | 1    | 1  | 1  |    |
| 4500 BR DISCHARGE 0.16m <sup>2</sup>     | /   | 6  | 2   | 0   | 0    | 0    | 0  | 0  |    |
| SWL <sub>A</sub> @ DISCHARGE             | /   | 75 | 80  | 84  | 84   | 82   | 77 | 66 |    |
| SWL <sub>A</sub> → SPL <sub>A</sub> @ 2m | /   | 17 | 17  | 17  | 17   | 17   | 17 | 17 |    |
| SPHERICAL RADIATION                      |     |    |     |     |      |      |    |    |    |
| SPL <sub>A</sub> @ 2m                    | /   | 58 | 63  | 67  | 67   | 65   | 60 | 49 |    |
|                                          |     |    | 64  |     | 70   |      | 66 | 49 |    |
|                                          |     |    |     | 71  |      | 66   |    |    |    |
| * SPL <sub>A</sub> @ 2m (No Silencing)   |     |    |     |     | 72dB |      |    |    | *  |
| SILENCER LEADING                         |     |    |     |     |      |      |    |    |    |
| RDS 20/100/2700 RECTANGULAR              | /   | 26 | 45  | 55  | 55   | 55   | 55 | 51 |    |
| SPLITTER SILENCER 33 1/3 FRA             | /   | 32 | 18  | 12  | 12   | 10   | 5  | 0  |    |
| AREA 600W x 600H x 2700 L                |     |    | 32  |     | 15   |      | 11 | 0  |    |
| ΔP = 50Pa @ 1.66m <sup>3</sup> /s        |     |    |     | 32  |      |      | 11 |    |    |
| * SILENCER SPL <sub>A</sub> @ 2m         |     |    |     |     |      | 32dB |    |    | *  |

Ref: M002/53910



|                                          | L/A | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|------------------------------------------|-----|----|-----|-----|-----|----|----|----|----|
| EXTRACTED FROM AGILIOS CIGAR BOX         |     |    |     |     |     |    |    |    |    |
| GBD 630/4 TPO SWL <sub>A</sub>           | /   | 66 | 67  | 65  | 65  | 65 | 61 | 55 |    |
| SWL <sub>A</sub> → SPL <sub>A</sub> @ 3m | /   | 17 | 17  | 17  | 17  | 17 | 17 | 17 |    |
| HEMISPHERICAL RADIATION                  |     |    |     |     |     |    |    |    |    |
| SPL <sub>A</sub> @ 3m                    | /   | 49 | 50  | 48  | 48  | 48 | 44 | 38 |    |
| ACOUSTIC ENCLOSURE                       | /   | 17 | 24  | 30  | 35  | 40 | 46 | 49 |    |
| 1.6mm GALV MILD STEEL, 50mm              |     |    |     |     |     |    |    |    |    |
| MINERAL WOOL, 1.0mm GALV                 |     |    |     |     |     |    |    |    |    |
| MILD STEEL PERFORATE                     |     |    |     |     |     |    |    |    |    |
| BREAK-OUT SPL <sub>A</sub> @ 3m          | /   | 32 | 26  | 18  | 13  | 8  | 0  | 0  |    |
| WITH ACOUSTIC ENCLOSURE                  |     | 33 |     | 19  |     | 8  |    | 0  |    |
|                                          |     |    | 33  |     |     |    | 8  |    |    |
| SILENCED BREAK-OUT SPL <sub>A</sub> @ 3m |     |    |     |     | 33  |    |    |    |    |

Ref: MEM/J3910

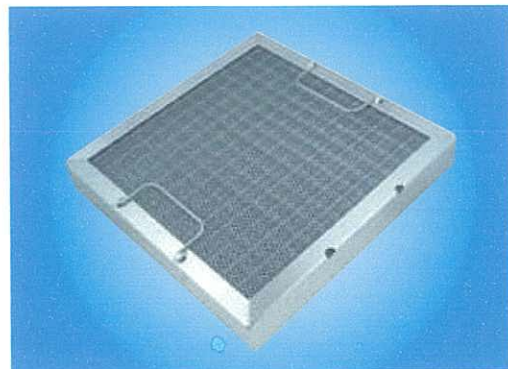
## Grease Filters

by Express-air

### Aluminium Frame Galvanised Mesh Grease Filters

| Order Ref | Size Inches | Size mm |     |    | Capacity            |
|-----------|-------------|---------|-----|----|---------------------|
|           | W x H x D   | W       | H   | D  | m <sup>3</sup> /s * |
| EAGF12121 | 12 x 12 x 1 | 292     | 292 | 20 | 0,19                |
| EAGF12122 | 12 x 12 x 2 | 292     | 292 | 45 | 0,19                |
| EAGF16161 | 16 x 16 x 1 | 394     | 394 | 20 | 0,33                |
| EAGF16162 | 16 x 16 x 2 | 394     | 394 | 45 | 0,33                |
| EAGF18181 | 18 x 18 x 1 | 445     | 445 | 20 | 0,42                |
| EAGF18182 | 18 x 18 x 2 | 445     | 445 | 45 | 0,42                |
| EAGF20101 | 20 x 10 x 1 | 495     | 241 | 20 | 0,26                |
| EAGF20102 | 20 x 10 x 2 | 495     | 241 | 45 | 0,26                |
| EAGF20161 | 20 x 16 x 1 | 495     | 394 | 20 | 0,41                |
| EAGF20162 | 20 x 16 x 2 | 495     | 394 | 45 | 0,41                |
| EAGF20201 | 20 x 20 x 1 | 495     | 495 | 20 | 0,52                |
| EAGF20202 | 20 x 20 x 2 | 495     | 495 | 45 | 0,52                |
| EAGF24241 | 24 x 24 x 1 | 597     | 597 | 20 | 0,75                |
| EAGF24242 | 24 x 24 x 2 | 597     | 597 | 45 | 0,75                |
| EAGF25202 | 25 x 20 x 2 | 662     | 495 | 45 | 0,65                |

\*capacity based on Initial clean resistance of 30Pa @ 2.5m/s velocity



### Aluminium Baffle Filters

| Order Ref  | Size Inches | Size mm |     |    | Capacity m <sup>3</sup> /s against Resistance Pa * |       |       |       |
|------------|-------------|---------|-----|----|----------------------------------------------------|-------|-------|-------|
|            | W x H x D   | W       | H   | D  | 50pa                                               | 100pa | 150pa | 200pa |
| EABFA16162 | 16 x 16 x 2 | 394     | 394 | 45 | 0,12                                               | 0,16  | 0,20  | 0,24  |
| EABFA18182 | 18 x 18 x 2 | 445     | 445 | 45 | 0,20                                               | 0,28  | 0,35  | 0,39  |
| EABFA20102 | 20 x 10 x 2 | 495     | 241 | 45 | 0,12                                               | 0,16  | 0,20  | 0,24  |
| EABFA20162 | 20 x 16 x 2 | 495     | 394 | 45 | 0,20                                               | 0,28  | 0,35  | 0,39  |
| EABFA20202 | 20 x 20 x 2 | 495     | 495 | 45 | 0,26                                               | 0,38  | 0,46  | 0,51  |
| EABFA24242 | 24 x 24 x 2 | 597     | 597 | 45 | 0,35                                               | 0,50  | 0,66  | 0,71  |



### Stainless Steel Baffle Filters

| Order Ref  | Size Inches | Size mm |     |    | Capacity m <sup>3</sup> /s against Resistance Pa * |       |       |       |
|------------|-------------|---------|-----|----|----------------------------------------------------|-------|-------|-------|
|            | W x H x D   | W       | H   | D  | 50pa                                               | 100pa | 150pa | 200pa |
| EABFS16162 | 16 x 16 x 2 | 394     | 394 | 45 | 0,12                                               | 0,16  | 0,20  | 0,24  |
| EABFS18182 | 18 x 18 x 2 | 445     | 445 | 45 | 0,20                                               | 0,28  | 0,35  | 0,39  |
| EABFS20102 | 20 x 10 x 2 | 495     | 241 | 45 | 0,12                                               | 0,16  | 0,20  | 0,24  |
| EABFS20162 | 20 x 16 x 2 | 495     | 394 | 45 | 0,20                                               | 0,28  | 0,35  | 0,39  |
| EABFS20202 | 20 x 20 x 2 | 495     | 495 | 45 | 0,26                                               | 0,38  | 0,46  | 0,51  |
| EABFS24242 | 24 x 24 x 2 | 597     | 597 | 45 | 0,35                                               | 0,50  | 0,66  | 0,71  |

\* The resistance quoted above is both the initial and operating resistance due to the self draining capacity of the filter.

## **O & M INSTRUCTION**

### **PRODUCT GROUP 1610 ACTIVATED CARBON PANEL FILTERS**

#### **Safety**

It is recommended that industrial gloves, overalls, eye protection and nuisance dust masks are utilised when changing filters which have been subjected to natural air, as opposed to air drawn from processes, where full risk assessments should be performed prior to changing. For some filters, an assessment regarding manual handling will need to be made.

Changing of filters should be carried out by experienced or trained personnel, in accordance with safety requirements as defined by the "Control of Substances Hazardous to Health (COSHH) Regulations. ie. Someone who fully understands the design, operation and implications of the product and its use.

#### **General**

Withdraw and dispose of the filter to be replaced.

Replace with new filter panel.

Unlike a particulate filter the resistance will not vary as the carbon adsorbs the odours, and the time that a carbon filter will last before a new one is needed will vary according to the range and amount of odours.

A test sample filter can be supplied which you return to ourselves for analysis, which knowing how long it has been in service, we can then provide an approximate prediction as to when the filter will require replacement.

#### **Disposal of Air Filters Including Personal Protective Equipment**

- Filters and PPE have been damaged prior to use can be disposed of as normal industrial waste.
- Filters and PPE soiled with exterior air can be disposed of as normal industrial waste.
- Filters and PPE soiled by process air, bacterial, toxic and/or radioactive matter must be disposed of as Hazardous Waste in accordance with local regulations of the site and Environmental Health. Legislation prohibits removal of this waste from the site location.

For further information please contact Airclean Ltd

# AIRCLEAN

YOUR AIR FILTER MANUFACTURER

P.O. BOX 147,  
MAIDSTONE, ME14 2LA.

TEL:01622 832777  
FAX:01622 832507

sales@airclean.co.uk www.airclean.co.uk

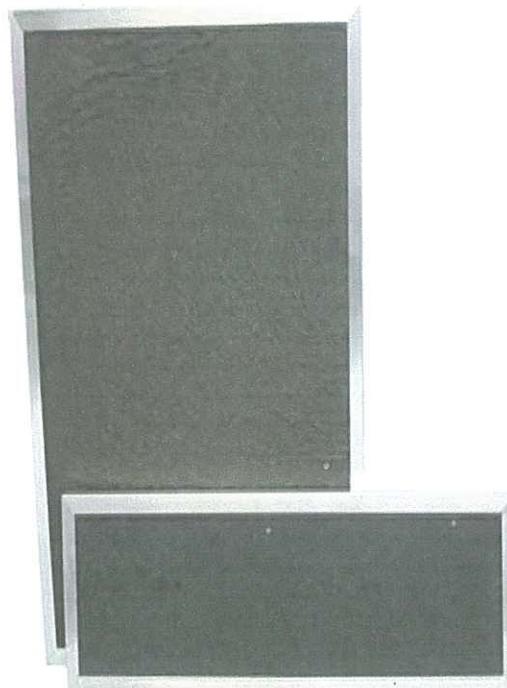
## Activated Carbon Filters—Panels

### Applications

The disposable activated carbon filter panel, can be sized and used in a wide variety of odour reduction applications. They can be fitted into duct mounted casings to provide the required contact time and airflow.

### Construction

The panels are generally manufactured using the bonding process to provide a rigid panel which is framed in a metal channel. The panel is finished in a "fabric facia" which minimises the dusting from the panel. Panels can also be produced using a loose fill technique, whilst this offers an improved rate of adsorbancy, the activated capacity remains the same. The panels are designed to minimise the risk of by pass due to settlement, and for this reason their installation should be designed to be horizontal,



### Technical:

Maximum Operating Temperature:  
Maximum Operating Humidity

40 Deg C  
80% RH

| Nominal thickness | Actual thickness | Pressure drop | Face velocity m/s |
|-------------------|------------------|---------------|-------------------|
| 25mm              | 22mm             | 45 Pa         | 0.22 (43fpm)      |
| 22mm              | 19mm             | 40 Pa         | 0.19(37fpm)       |

| SIZE | Nominal Inches | SIZE | Actual mm        |
|------|----------------|------|------------------|
|      | 12" x 12" x 1" |      | 302 x 302 x 22mm |
|      | 15" x 15" x 1" |      | 379 x 379 x 22mm |
|      | 18" x 18" x 1" |      | 454 x 454 x 22mm |
|      | 20" x 20" x 1" |      | 505 x 505 x 22mm |
|      | 24" x 24" x 1" |      | 606 x 606 x 22mm |

The company reserves the right to change specifications without notice. E&OE

Code AC6/1h Ref 06/06

# AIRCLEAN

YOUR AIR FILTER MANUFACTURER

P.O. BOX 147,  
MAIDSTONE, ME14 2LA.

TEL:01622 832777  
FAX:01622 832507

sales@airclean.co.uk www.airclean.co.uk

**Grade 50 Activity** Carbons are rated 55% on their ability to 'adsorb' carbon tetrachloride (CTC) in testing; have a typical surface area per weight of between 1100-1200 m<sup>2</sup>/g by the BET N2 method (the area being a measure of the area of the walls of the cavern like structure of the activated carbon): Bulk density is between 0.49 - 0.53 g/cc

## Guide to the Gaseous Adsorption Level for Grade 50 Activity Carbon

A = 20 - 50% adsorption  
B = 10 - 20%

C = 1 - 10%  
D = under 1%

|    | Chemical              | Index | Common Source of Chemical                       |
|----|-----------------------|-------|-------------------------------------------------|
| 1  | ACETALDEHYDE          | C     | REAGENT                                         |
| 2  | ACETIC ACID           | A     | REAGENT, SOUR VINEGAR                           |
| 3  | ACETIC ANHYDRIDE ACID | A     |                                                 |
| 4  | ACETONE               | B     | SOLVENT                                         |
| 5  | ACETYLENE             | D     | WELDING AND CUTTING                             |
| 6  | ACROLEIN              | B     |                                                 |
| 7  | ACRYLALDEHYDE         | B     | AEROLEIN, BURNING FATS                          |
| 8  | ACRYLIC ACID          | A     |                                                 |
| 9  | ADHESIVES             | A     |                                                 |
| 10 | AMINES                | C     |                                                 |
| 11 | AMMONIA               | D     |                                                 |
| 12 | AMYL ACETATE          | A     | LACQUER SOLVENT                                 |
| 13 | AMYL ALCOHOL          | A     | FUSEL OIL                                       |
| 14 | AMYL ETHER            | A     |                                                 |
| 15 | ANILINE               | A     |                                                 |
| 16 | ANIMAL ODOURS         | A     |                                                 |
| 17 | BENZALDEHYDE          | A     |                                                 |
| 18 | BENZENE               | A     | BENZOL, PAINT SOLVENT & REMOVER                 |
| 19 | BROMINE               | A     |                                                 |
| 20 | BUTADIENE             | C     |                                                 |
| 21 | BUTANE                | C     | HEATING GAS                                     |
| 22 | BUTYL ACETATE         | A     | LACQUER SOLVENT                                 |
| 23 | BUTYL ALCOHOL         | A     | SOLVENT                                         |
| 24 | BUTYL CHLORIDE        | A     | SOLVENT                                         |
| 25 | BUTYL ETHER           | A     | SOLVENT                                         |
| 26 | BUTYLENE              | B     |                                                 |
| 27 | BUTYRALDEHYDE         | B     | PRESENT IN INTERNAL COMBUSTION EXHAUST - DIESEL |
| 28 | BUTYRIC ACID          | A     |                                                 |
| 29 | BUTYRIC ACID          | A     | SWEAT, BODY ODOUR                               |
| 30 | CAMPOR                | A     |                                                 |
| 31 | CAPROALDEHYDE         | A     |                                                 |
| 32 | CAPRYLIC ACID         | A     | ANIMAL ODOUR                                    |

Code AC6/1b Ref 05/06

# AIRCLEAN

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|    |                            |   |                                          |
|----|----------------------------|---|------------------------------------------|
| 33 | CARBOLIC ACID              | A |                                          |
| 34 | CARBON DIOXIDE             | A |                                          |
| 35 | CARBON DISULPHIDE          | B |                                          |
| 36 | CARBON MONOXIDE            | D |                                          |
| 37 | CARBON TETRACHLORIDE       | A | SOLVENT,CLEANING FLUID,FIRE EXTINGUISHER |
| 38 | CELLOSOLVE ACETATE         | A |                                          |
| 39 | CELLOSOLVE ETHER           | A |                                          |
| 40 | CHLORINE                   | B |                                          |
| 41 | CHLORO PICRIN              | A |                                          |
| 42 | CHLOROBENZINE              | A |                                          |
| 43 | CHLOROBUTADEINE            | A |                                          |
| 44 | CHLOROFORM                 | A |                                          |
| 45 | CHLORONITROPROPANE         | A |                                          |
| 46 | CITRUS FRUITS              | A |                                          |
| 47 | COOKING ODOURS             | A |                                          |
| 48 | CRESOL                     | A | WOOD PRESERVATIVE                        |
| 49 | CRONTONALDEHYDE            | A | SOLVENT,TEAR GAS                         |
| 50 | CYCLOHEXANE                | A |                                          |
| 51 | CYCLOHEXANOL               | A |                                          |
| 52 | DECANE                     | A | INGREDIENT OF KEROSENE                   |
| 53 | DEGREASING SOLVENTS        | A |                                          |
| 54 | DEODERISERS                | B |                                          |
| 55 | DETERGENTS                 | A |                                          |
| 56 | DIBROMOETHANE              | A |                                          |
| 57 | DICHLOROBENZINE            | A |                                          |
| 58 | DICHLORODIFLUORO ETHANE    | A |                                          |
| 59 | DICHLORODIFLUORO METHANE   | B |                                          |
| 60 | DICHLOROETHANE             | A |                                          |
| 61 | DICHLOROETHYL ETHER        | A |                                          |
| 62 | DICHLOROETHYLENE           | A |                                          |
| 63 | DICHLOROMETHANE            | A |                                          |
| 64 | DICHLOROMONOFUORO METHANE  | B |                                          |
| 65 | DICHLOROPROPANE            | A |                                          |
| 66 | DICHLOROTETRAFLUORO ETHANE | B |                                          |
| 67 | DIETHYL AMINE              | B |                                          |
| 68 | DIETHYL ANILINE            | A |                                          |
| 69 | DIETHYL KETONE             | A | SOLVENT                                  |
| 70 | DIMETHYL AMINE             | B |                                          |
| 71 | DIMETHYL SULPHATE          | A |                                          |
| 72 | DIOXAN ETHER               | A |                                          |
| 73 | DIPROPYL KETONE            | A |                                          |
| 74 | ETHANE                     | D |                                          |
| 75 | ETHYL ACETATE              | A | LACQUER SOLVENT                          |
| 76 | ETHYL ACRYLATE             | A |                                          |
| 77 | ETHYL ALCOHOL              | A | GRAIN ALCOHOL Code AC6/1c Ref 05/06      |

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|     |                        |   |                                               |
|-----|------------------------|---|-----------------------------------------------|
| 78  | ETHYL AMINE            | B |                                               |
| 79  | ETHYL BROMIDE          | B |                                               |
| 80  | ETHYL CHLORIDE         | B | REFRIGERANT, ANESTHETIC                       |
| 81  | ETHYL ETHER            | B | MEDICAL ETHER, REAGENT                        |
| 82  | ETHYL FORMATE          | B |                                               |
| 83  | ETHYL MERCAPTAN        | A | GARLIC, ONION, SEWER                          |
| 84  | ETHYLENE               | D | MORE RETENTIVITY BY REACTION,                 |
| 85  | ETHYLENE CHLOROHYDRIN  | A |                                               |
| 86  | ETHYLENE DICHLORIDE    | A |                                               |
| 87  | ETHYLENE OXIDE         | B |                                               |
| 88  | EXYLENE                | A |                                               |
| 89  | FLUOROTRICHLOROMETHANE | B |                                               |
| 90  | FORMALDEHYDE           | C | DISINFECTANT, PLASTIC INGREDIENT              |
| 91  | FORMIC ACID            | B | REAGENT                                       |
| 92  | FREON                  | C |                                               |
| 93  | GARLIC                 | A |                                               |
| 94  | HEPTANE                | A | INGREDIENT OF GASOLINE                        |
| 95  | HEPTYLENE              | C |                                               |
| 96  | HEXANE                 | B | INGREDIENT OF GASOLINE                        |
| 97  | HOSPITAL ODOURS        | A |                                               |
| 98  | HUMAN ODOURS           | A |                                               |
| 99  | HYDROGEN BROMIDE       | C |                                               |
| 100 | HYDROGEN CHLORIDE      | C |                                               |
| 101 | HYDROGEN CYANIDE       | B |                                               |
| 102 | HYDROGEN FLUORIDE      | C |                                               |
| 103 | HYDROGEN IODIDE        | B |                                               |
| 104 | HYDROGEN SULPHIDE      | C | OXIDIZES TO INCREASE RETENTIVITY CONSIDERABLY |
| 105 | INDOLE                 | A | IN EXCRETIA                                   |
| 106 | IODINE                 | A |                                               |
| 107 | ODOFORM                | A | ANTISEPTIC                                    |
| 108 | ISO BUTANE             | B |                                               |
| 109 | ISOPROPYL ACETATE      | A | LACQUER SOLVENT                               |
| 110 | ISOPROPYL ALCOHOL      | A | SOLVENT                                       |
| 111 | ISOPROPYL ETHER        | A | SOLVENT                                       |
| 112 | LACTIC ACID            | A |                                               |
| 113 | LEATHER                | A |                                               |
| 114 | MERCAPTANS             | A |                                               |
| 115 | MESITYL OXIDE          | A |                                               |
| 116 | METHANE                | D |                                               |
| 117 | METHANOL (METHYL)      | B |                                               |

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|     |                            |   |                                       |
|-----|----------------------------|---|---------------------------------------|
| 118 | METHYL ACETATE             | B | SOLVENT                               |
| 119 | METHYL ACRYLATE            | A |                                       |
| 120 | METHYL ALCOHOL             | B | WOOD ALCOHOL                          |
| 121 | METHYL BROMIDE             | B |                                       |
| 122 | METHYL BUTYLKETONE         | A |                                       |
| 123 | METHYL CELLOSOLVE          | Q |                                       |
| 124 | METHYL CHLORIDE            | B | REFRIGERANT                           |
| 125 | METHYL ETHER               | A |                                       |
| 126 | METHYL FORMATE             | B |                                       |
| 127 | METHYL ETHYLKETONE         | A | SOLVENT                               |
| 128 | METHYL FORMATE             | B |                                       |
| 129 | METHYL ISOBUTYLKETONE      | A | SOLVENT                               |
| 130 | METHYL MERCAPTAN           | A |                                       |
| 131 | METHYLENE CHLORIDE         | A |                                       |
| 132 | MONOCHLOROBENZINE          | A |                                       |
| 133 | MONOFLUOROTRICHORO METHANE | B |                                       |
| 134 | n-DECANE                   | D |                                       |
| 135 | n-HEPTANE                  | D |                                       |
| 136 | n-NONANE                   | D |                                       |
| 137 | n-OCTANE                   | D |                                       |
| 138 | n-OCTYLENE                 | D |                                       |
| 139 | NAPHTHALENE                | A | REAGENT, MOTH BALLS                   |
| 140 | NICOTINE                   | A | TOBACCO                               |
| 141 | NITRIC ACID FUMES          | B |                                       |
| 142 | NITROBENZENE               | A | OIL OF BITTER ALMONDS, OIL OF MIRBANE |
| 143 | NITROETHANE                | A |                                       |
| 144 | NITROGEN DIOXIDE           | C | HYDROLYZES TO INCREASE RETENTIVITY    |
| 145 | NITROGLYCERENE             | A |                                       |
| 146 | NITROMETHANE               | A |                                       |
| 147 | NITROPROPANE               | A |                                       |
| 148 | NITROTOLUENE               | A |                                       |
| 149 | NONANE                     | A | INGREDIENT OF KEROSENE                |
| 150 | OCTANE                     | A | INGREDIENT OF GASOLENE                |
| 151 | OZONE                      | A | GENERATED BY ELECTRICAL DISCHARGE     |
| 152 | PALMITIC ACID              | A | PALM OIL                              |
| 153 | PARADICHLOROBENZENE        | A |                                       |
| 154 | PENTANE                    | B | LIGHT NAPHTHA                         |

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|     |                      |   |                                                          |
|-----|----------------------|---|----------------------------------------------------------|
| 155 | PERCHLOROETHYLENE    | A |                                                          |
| 156 | PERFUMES             | A |                                                          |
| 157 | PETROL               | A |                                                          |
| 158 | PHENOL ACID          | A | CARBOLIC ACID, PLASTIC INGREDIENT                        |
| 159 | PHOSGENE             | B |                                                          |
| 160 | PLASTIC              | A |                                                          |
| 161 | POULTRY ODOURS       | A |                                                          |
| 168 | PROPYL CHLORIDE      | A |                                                          |
| 169 | PROPYL ETHER         | A |                                                          |
| 170 | PROPYL MERCAPTAN     | A |                                                          |
| 171 | PROPYLENE            | B | COAL GAS                                                 |
| 172 | PURIFYING ODOURS     | B |                                                          |
| 173 | PUTRESCINE           | A | DECAYING FLESH                                           |
| 174 | PYRIDINE             | A | BURNING TOBACCO                                          |
| 175 | RANCID OILS & FATS   | A |                                                          |
| 176 | RESINS               | A |                                                          |
| 177 | RUBBER               | A |                                                          |
| 178 | SKATOLE              | A | IN EXCRETA                                               |
| 179 | STABLE ODOURS        | A |                                                          |
| 180 | STALE ODOURS         | A |                                                          |
| 181 | STYRENE MONOMER      | A |                                                          |
| 182 | SULPHUR TRIOXIDE     | B | HYDROLYZES TO SULPHURIC ACID                             |
| 183 | SULPHUR DIOXIDE      | C | OXIDIZES TO SULPHUR TRIOXIDE, COMMON IN CITY ATMOSPHERES |
| 184 | SULPHURIC ACID       | A |                                                          |
| 185 | TAR ODOURS           | A |                                                          |
| 186 | TETRACHLORO ETHANE   | A |                                                          |
| 187 | TETRACHLORO ETHYLENE | A |                                                          |
| 188 | TETRAHYDROTHIOPHENE  | A |                                                          |
| 189 | TOBACCO SMOKE        | C |                                                          |
| 190 | TOILET ODOURS        | A |                                                          |
| 191 | TOLUENE              | A | MANUFACTURE OF TNT                                       |
| 192 | TOLUIDINE            | A |                                                          |

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|     |                     |   |                           |
|-----|---------------------|---|---------------------------|
| 193 | TRICHLORO ETHYLENE  | A |                           |
| 194 | TURPENTINE          | A | SOLVENT                   |
| 195 | UREA                | A |                           |
| 196 | URIC ACID           | A |                           |
| 197 | VALERALDEHYDE       | A |                           |
| 198 | VALERIC ACID        | A | SWEAT, BODY ODOUR, CHEESE |
| 199 | VALERIC ALDEHYDE    | A |                           |
| 200 | VARNISH             | A |                           |
| 201 | VENTILATION SYSTEMS | A |                           |
| 202 | VINEGAR             | A |                           |
| 203 | VINYL CHLORIDE      | B |                           |
| 204 | WOOD ALCOHOL        | B |                           |
| 205 | XYLENE              | A | SOLVENT                   |

## Free Carbon Testing Service

It is extremely difficult to calculate in advance the life expectancy of an activated carbon filter.

Generally speaking, accurate information regarding concentration and details of all contaminants in the airstream are not available and in any case these are often constantly changing.

However, reasonably accurate life expectancy levels can be obtained by a method known as CTC testing.

Either a small sample of carbon from one of the cells, or a complete panel, should be returned to us together with the date of installation. From this information the contamination level will be assessed in the laboratory, which will indicate the likely remaining useful life of the carbon.

This testing service is totally free of charge to our customers.

The company reserves the right to change specifications without notice. E&OE