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Our Ref: 2466
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66 Eccleston Street, Prescott, Liverpool, L34 5QL

ODOUR CONTROL RISK ASSESSMENT

1. EMAQ ODOUR IMPACT RISK ASSESSMENT METHODOLOGY

1.1 EMAQ Risk Assessment Guideline Extract

Appendix 3: 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 ¹ .
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 ¹ .
Cooking type (odour and grease loading)	Very high	10	Pub (high level of fried food), fried chicken, burgers or fish & chips. <i>Turkish, Middle Eastern or any premises cooking with solid fuel</i>
	High	7	<i>Vietnamese, Thai, Indian, Japanese, Chinese, steakhouse</i>
	Medium	4	<i>Cantonese, Italian, French, Pizza (gas fired),</i>
	Low	1	Most pubs (<i>no fried food, mainly reheating and sandwiches etc</i>), <i>Tea rooms</i> ¹

Note 1: A planner may take a pragmatic view when assessing whether certain low risk kitchens require any odour abatement to be fitted. In reaching this decision the Planner may consider the nature of the food being cooked and/or the size of kitchen and/or its location.

1.2 Assessment Criteria of Planned Kitchen Extract Vent

From the available information the risk of odour impact on nearby receptors has been assessed using the guidance in the EMAQ, (2018) Control of Odour and Noise from Commercial Kitchen Exhaust Systems.

1. Dispersion; If the vent from the kitchen discharges vertically at 15-20 m/s and is located at least 1m above the highest roof height of the building, dispersion may be classed as good. Suggesting a score of 5 in the EMAQ criteria.
2. Proximity of receptors; The closest residential property receptors are over 20m away on Aspinall Street, with the next closest receptor on Chapel street at 25m, placing both in the 20-100m category. Suggesting a score of 5 in the EMAQ criteria.
3. Size of kitchen; the kitchen will be sized for a small takeaway suggesting a score of 1 in the EMAQ criteria.
4. Cooking type (odour-grease loading); The types of meals to be prepared are undetermined at the time of this application, however as a hot food takeaway there is likely to be a medium-high grease & odour produced. Suggesting a variable score of between 4-10.

Criteria	Score	Score	Details
Dispersion	Good	5	Discharging 1m above ridge at 15 m/s
Proximity of receptors	Medium	5	Closest sensitive receptor between 20-100m from kitchen discharge
Size of kitchen	Small	1	Small take away
Cooking type (odour-grease loading)	Medium-Very High	4-10	Cooking type not known however as a hot food take away there are likely to be medium-very high grease & odour produced
Total Score		15-21	Medium-High level of odour control needed

2. DETAILS OF ODOUR ABATEMENT SYSTEM

High level odour control may include:

Option 1

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

Option 2

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

OPTION 2: Recommended Details

Stage 1

It is proposed to utilise a system of high efficiency stainless steel **baffle type grease filters** set within the extract hood/s as a first line of defence, which are designed to remove airborne grease prior to entering the extraction system.

Stage 2

Following the baffle filters **G4 pleated panel filters** are proposed, which are designed to effectively capture and remove airborne contaminants.

Stage 3

Further to the panel filters a high performance **F7 multi pocket bag filter** is proposed, with a high particulate holding capacity. This will form an additional layer of grease and particle capture, as part of the overall system.

Stage 4

The filters will be supplemented by an **Ozone Generator (oxidation) unit** injecting ozone and activated oxygen ions into the extract duct to treat emissions by reacting and oxidising with odours.

Alternatively, the filters may be supplemented by an **Odour Counteraction and Neutralisation** unit discharging ionised vapour into the centre of the duct which due to an electrostatic difference between the contaminant and the neutralising vapour causes the two to combine before a chemical reaction treats the odour.

(Refer to Appendix for Specification Sheets)



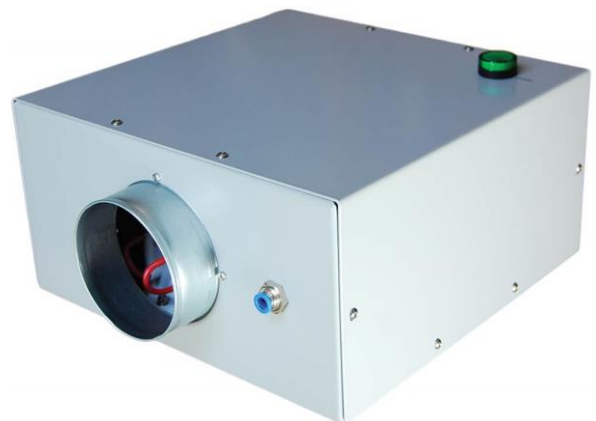
Stage 1. Stainless steel grease filters



Stage 2. G4 Pleated panel filter



Stage 3. F7 Multi pocket bag filter



Stage 4. Ozone generator (oxidation) unit

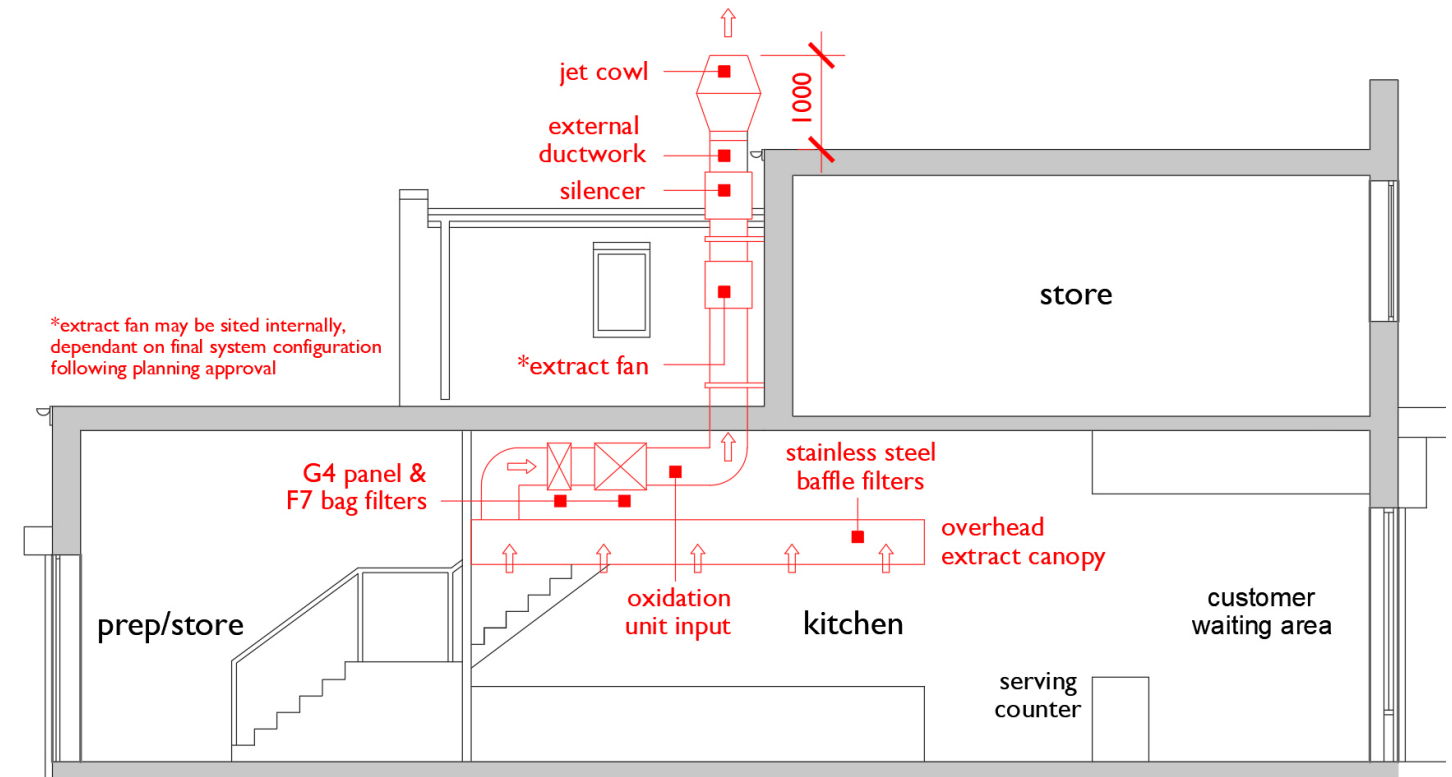


Stage 4 Alternative. Odour neutraliser

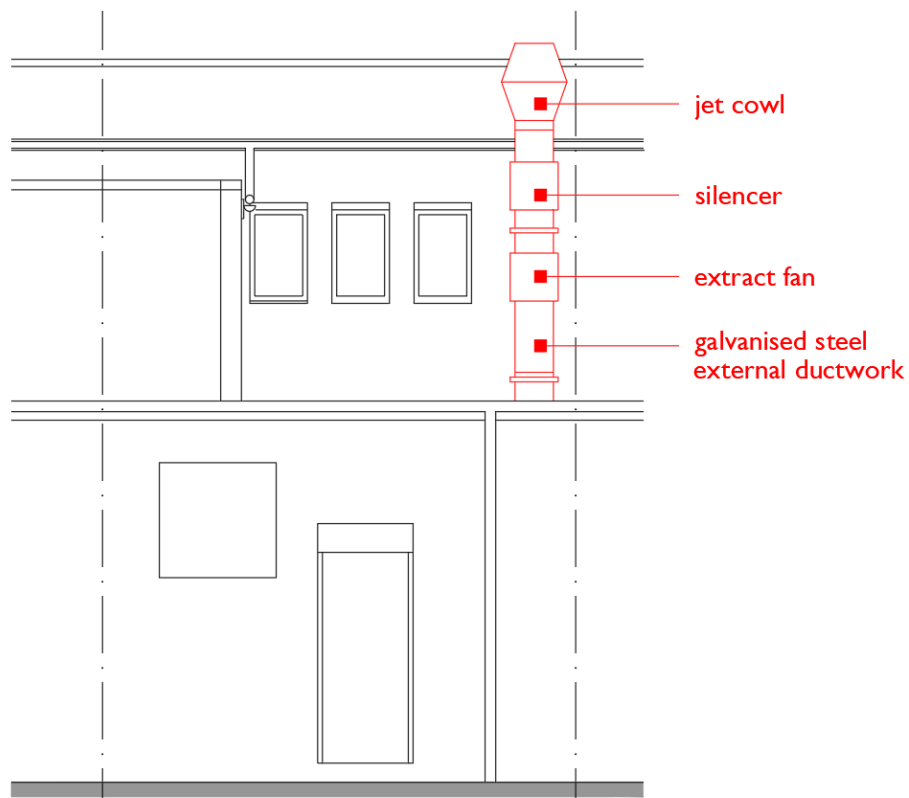
3. PROPOSED EXTRACT SYSTEM SCHEMATICS

Illustrative extract plans based on current layout. Details may vary dependant on final system design.

3.1 Proposed Section



3.2 Proposed Rear Elevation



4. DISPERSION & EXTRACTION FLUE DETAILS

4.1 Jet Cowl

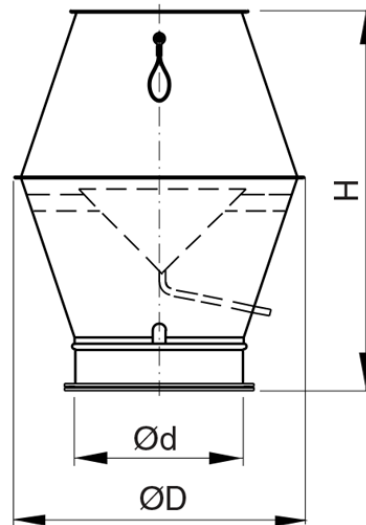
Stack dispersion is proposed to take place 1 metre above the highest roof level of the premises which is also the highest roof level of the three adjoining retail units - No's 64 to 70 Eccleston Street - thus ensuring good dilution.

The proposed jet cowl ventilation hood with integral drain does not impede the flow of discharge air and increases efflux velocity.

Expected discharge rate is to be approximately 15 m/s, dependant on the cooking type.



Stainless steel jet cowl with integral drain



4.2 Ductwork

Ducting will be circular as far as possible (spiral or otherwise), which is an efficient way of conveying air with low pressure drop and allow for better acoustic performance.

Ductwork on a kitchen ventilation system may include:

- Galvanised ducting
- Straight ducts of various lengths, rectangular or circular
- Bends (elbows), right angled or curved
- Branches which may have 1 or more outlets
- Termination Grills
- Transition Pieces



5. EXTRACTION FAN DETAILS

Technical Information

Fan Code	ePowerBox 67-500-1-4 (6HF)
Fan Diameter/Size	500
Velocity	5.1-7.2 m/s
Form of Running	B (Horizontal)

Requested Duty (147V)	1.4m³/s @ 300 Pa (static)
Control Adjustment	147V
Full speed (230V)	71m³/s @ 446 Pa (static) no controller
Outlet Dynamic Pressure	31 Pa

Duty Shaft Power	1.12 kW
Max Shaft Power	1.38 kW

Motor Frame	Integral [Class F]
Motor Rating	1.38 kW
Full Load Current	6.22 A
Starting Current	19.9 A
Electrical Supply	220-240 Volts 50 Hz 1 Phase
Start Type	Enquire
Motor Winding	Standard

Regulation 1253/2014	
UVU Efficiency	53.5%
UVU Target Efficiency	44.0%
Nominal Flow Rate	1.2 - 1.61m³/s @ 461 Pa
Effective Input Power	1.38 kW
Nominal RPM	1383 rpm

SFP value	0.80 W/(l/s) @ Requested Duty
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Sound Information

	Lw								LwA	
	63	125	250	500	1k	2k	4k	8k	Lw*	LpA @ 3 m**
Inlet*	67	68	67	62	59	54	51	47	73	44
Outlet*	65	81	85	65	65	57	54	51	82	51
Breakout*	59	65	54	38	31	<20	<20	<20	66	30

*Lw dB re 10⁻¹² W

**dBA re 2x10⁻⁵ PA

Decibel Readings

@ 3 Metre Distance = 51DB(A) (excluding silencer)

@ 3 Metre Distance = 41DB(A) (including silencer)

6. NOISE MITIGATION

6.1 Installation

The extract fan produces approximately 51 decibels dB(A) noise without the use of a silencer (refer to previous spec).

Proposed noise mitigation will include proprietary anti-vibration and shock isolators to be used throughout the ductwork installation internally and externally as applicable, to provide medium to high frequency isolation from vibration and noise transmitted to the installation.

Extract fan supports will be fixed using rubber or neoprene high-frequency isolation pads with lagging around the fan, as required.

A 1D Attenuator (silencer) applied jointly with the sound-insulated fan will reduce noise absorption produced during the ventilating equipment operation and spread along the ducting systems.

Further to the above, the extract fan may be sited internally within the premises (dependant on final system configuration following planning approval), which would further reduce external airborne sound transmission.

6.2 Silencer

1D straight through silencer can be supplied to either bolt directly to any manufacturer of cased axial or with spigots to mount inline with ducting.

The attenuator will reduce the noise level at a distance of 3 metres by a minimum of 7-10dBA.



7. MAINTENANCE SCHEDULE

It is recommended that:

A visual inspection of the ventilation system be carried out periodically. All metal surfaces should be checked to ensure that there is no accumulation of grease or dirt and that there is no surface damage.

Baffle type filters should be cleaned weekly.

For the fine filtration system;

G4 pleated panel filters: change filters every two months

F7 multi pocket bag filter: change filter quarterly

Extract fan to be serviced annually by a fully qualified engineer along with the canopy and ductwork.

Ozone Generator (oxidation) unit to be serviced annually by a fully qualified engineer.

8. CONCLUSION

Assessing the risk of odour impact on nearby receptors using the guidance in EMAQ (2018) 'Control of Odour and Noise from Commercial Kitchen Exhaust Systems' and considering the dispersion, proximity of receptors, likely food type and kitchen size, the resultant risk assessment score is between 15-21, dependant on the type of cooking which will be taking place.

This suggests that a medium-high level of odour control is required in order to reduce the risk of odour impact.

The proposed outline kitchen ventilation system, fan and ductwork, including jet cowl discharging at 15m/s 1 metre above the ridge, along with panel, bag filtration and oxidation unit as outlined in the previous sections, will provide a high level of odour control as per the guidance.

Appendices:

Airclean Baffle Type Grease Filters
Airclean G4 Pleated Panel Air Filter
Airclean F7 High Performance Multi-Pocket Bag Filter
OC2 Ozone Generator Unit
ON 100 Odour Neutraliser
ePowerBox AC 67-500-1 Extract Fan
CDA Straight Through Silencer

Baffle Type Grease Filters for Kitchen Extracts and Canopies

Applications

The Airclean Baffle Type Grease Filter is designed for use in commercial kitchens to remove airborne grease prior to entering the extraction system.

It is recognised that there is an increasing need to maintain and improve hygiene standards in kitchens and to reduce the fire hazards above the heat source.

The Airclean Baffle Type Grease Filter reduces fire hazard with their unique design concept of non-grease loading (negligible grease accumulation), and interlocking baffle walls which restrict the passage of flames into the ductwork.

The Baffle Type Grease Filter's smooth surface enables deposited grease to run off via the drainage holes, to grease collecting trays in the canopy or grease filter housing, where it can be easily disposed of. Efficient grease removal by Baffle Type Grease Filters minimises grease build-up in the kitchen extract ductwork system and ensures that duct cleaning requirements are kept to a minimum.

Description

Airclean Baffle Type Grease Filters are manufactured in either Aluminium or Stainless Steel (Mirrored Finish Stainless Steel Grade 430, or Dull Polished Finish Stainless Steel Grade 304).

Housed in a channel framework, a series of vertical air baffles are strategically aligned to change the direction of the grease-laden air. This action causes the deposition of the grease quickly, without re-entrainment onto the baffles, whilst the grease-free air passes through the filter. The Baffle Type Grease Filter's smooth surface enables deposited grease to run off via the drainage holes into collecting trays within the housing, minimising grease build-up.

Baffle type Grease Filters each have layflat handles to facilitate easy removal from the kitchen canopy or grease filter housing.



Size		Flow Rate		Part Numbers	
OT Inches	Actual mm	m ³ /s based on FV 1.5m/s	Pressure Drop Pa	ST STEEL ECO 2" (47mm) Grade 430 St/St	ST STEEL HD 2" (47mm) Grade 304 St/St
16 x 16	394 x 394	0.25	125	1321119	1320119
20 x 10	495 x 242	0.19	125	1321120	1320120
20 x 16	495 x 394	0.31	125	1321121	1320121
20 x 20	495 x 495	0.39	125	1321122	1320122
18 x 18	445 x 445	0.31	125	1321123	1320123
24 x 24	597 x 597	0.54	125	1321124	1320124

FOR NON-STANDARD SIZES CONTACT THE SALES TEAM

Notes

- * Actual sized filters will be manufactured as ordered +/- 3mm
- * Handles and Drain Holes come as standard
- * Handles are located on the shortest side of the grease filter as standard.

PLEATED PANEL AIR FILTER G4 to EN779:2012

Applications

The Pleated Panel Air Filter is a medium efficiency disposable air filter, suitable for ventilation and air conditioning systems which require a higher efficiency and greater dust holding capacity than can be achieved with glass or synthetic panels.

The G4 filter can be used where glass panels are undesirable, such as in the food industry and hospitals.

Typically, G4 panel filters are used as pre filters on supply air systems to High Performance Bag Filters, or to protect heating or cooling coils from dust build up which leads to system inefficiency. Another common place to see G4 Pleated Panel Air Filters is to protect fans in extract systems for office blocks or kitchen extract systems.

Description

Pleated Panel Filters consist of a dry non-woven fabric media which is pleated to give an extended surface area, producing a low initial resistance for the same air volume, making this an energy efficient filter. The pleat is supported by an expanded galvanised steel mesh.

The pleated air filter media is contained within the air filter by a rigid all-cardboard casing. The filter is sealed together using hot melt adhesive glues to ensure a highly rigid and quality disposable panel air filter.

Three frame options are available; Standard, Airclean Moisture Resistant (AMR) and Metal. Each offering an increased strength and resilience against moisture and humidity experienced in supply air from atmosphere.

Technical

The pleated air filter media is Flame Retardant to UL Class II

Max Operating Temp 80 Deg C

Dust Holding Capacity for 50mm Filter = 840 g/m² Dust Holding Capacity for 100mm Filter = 1260 g/m²

Nominal to Actual Size: less 6mm on H & W, 3mm on Depth

Filter Grade to ISO 16890: Coarse 75%

PLEATED PANEL FILTER STANDARD SIZES

Size		Flow Rate			Part Numbers					
OT Inches	Actual mm	22mm m ³ /s	47mm m ³ /s	97mm m ³ /s	1" (22mm)		2"(47mm)		4"(97mm)	
					STD	AMR	STD	AMR	STD	AMR
10 x 10	242 x 242	0.12	0.15	0.18	1130101	1134121	1130201	1134221	1130401	1134421
12 x 12	289 x 289	0.17	0.21	0.25	1130102	1134122	1130202	1134222	1130402	1134422
15 x 15	369 x 369	0.27	0.34	0.41	1130103	1134123	1130203	1134223	1130403	1134423
18 x 18	445 x 445	0.40	0.50	0.59	1130104	1134124	1130204	1134224	1130404	1134424
20 x 10	495 x 242	0.24	0.30	0.36	1130106	1134125	1130206	1134225	1130406	1134425
20 x 16	495 x 394	0.39	0.49	0.59	1130108	1134126	1130208	1134226	1130408	1134426
20 x 20	495 x 495	0.49	0.61	0.74	1130110	1134127	1130210	1134227	1130410	1134427
25 x 16	620 x 394	0.49	0.61	0.73	1130111	1134128	1130211	1134228	1130411	1134428
25 x 20	620 x 495	0.61	0.77	0.92	1130112	1134129	1130212	1134229	1130412	1134429
24 x 12	594 x 289	0.34	0.43	0.51	1130113	1134130	1130213	1134230	1130413	1134430
24 x 20	594 x 495	0.59	0.74	0.88	1130114	1134131	1130214	1134231	1130414	1134431
24 x 24	594 x 594	0.71	0.88	1.06	1130115	1134132	1130215	1134232	1130415	1134432

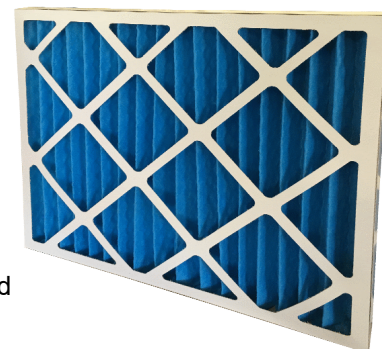
STD: Standard Cardboard Frame

AMR: Airclean Moisture Resistant Cardboard Frame

FOR NON-STANDARD SIZES CONTACT THE SALES TEAM

Airclean Ltd reserve the right to amend or delete the product as they decide, without prior notification. E&OE.

Code AC1.3 Ref 10/19 Page 1 of 2



High Performance Multi-Pocket Bag Filter **Grades M5, M6, F7, F8 and F9 to EN779:2002**

Applications

The Airclean **multi-pocket bag filter** is a high efficiency filter and is designed for a wide range of air conditioning and general ventilation applications where large volumes of air are to be handled and systems dictate high dust holding capacity coupled with a low resistance.

High performance bag filters are available in five efficiency grades, which gives a choice of characteristics to meet customer requirements for dust holding capacity, efficiencies and pressure loss.

High Performance Bag Filters are generally used for providing a high quality air and are typically used on supply air to buildings, including offices, schools and restaurants. High Performance bag filters are associated with reductions in PM10 (Particulates less than 10 microns) and also PM2.5 (Particulates less than 2.5 microns).

Description

The high performance multi pocket bag filter comprises a corrosion resistant heavy gauge galvanised header frame housing the air filter media which is supported by a copper coated rod assembly and tags, which keep the media pockets in place.

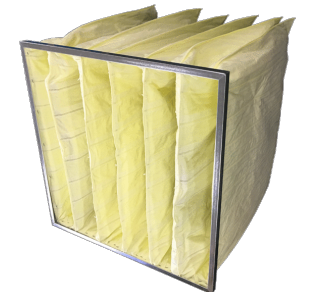
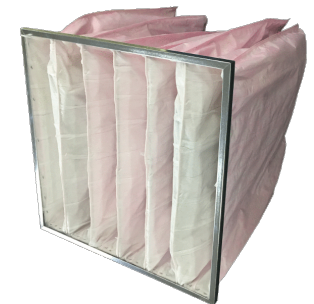
The continuous support down each HVAC Bag Filter pocket prevents them from blinding each other when inflated. *Synthetic Air Filter Media (HPS), supplied as standard in Airclean Bag Filters is a non woven polyester fabric, ultrasonically welded to form the multi pocket design of the bags.

Technical

Filter Classification:	HPS 5 Bag - M5 to EN779 Brown, ePM10 55% to ISO16890
	HPS 6 Bag - M6 to EN779 Green, ePM10 65% to ISO16890
	HPS 7 Bag – F7 to EN779:2002 , 80% Eff. At 0.4µm Pink, ePM2.5 70% to ISO16890
	HPS 8 Bag – F8 to EN779:2002 , 90% Eff. At 0.4µm Yellow
	HPS 9 Bag – F9 to EN779:2002 , 95% Eff. At 0.4µm Off White

For F7, F8 and F9 to EN779:2012 please contact sales about Glass HP Bag Filters, Rigid Bag Filters, or High Performance Rigid Pleat Filters.

Maximum Operating Temperature : 100°C (212°F)
Media Fire Rating :- DIN 53438-3 (F1)



HIGH PERFORMANCE BAG FILTERS STANDARD SIZES

Size					Part Numbers				
H x W Nominal (actual)	Bag Length		Poc- kets	Flow Rate m³/s	M5 to EN779	F6 to EN779	F7 to EN779 Clean 80 Pink	F8 to EN779 Clean 90 Yellow	F9 to EN779 Clean 95 White
	inch	mm			Tan/White	Green			
24 x 12 (594 x 292mm)	15	375	3	0.29	1440990	1440200	1440210	1440220	1440230
	23	550	3	0.47	1440993	1440203	1440213	1440223	1440233
	30	750	3	0.59	1440996	1440206	1440216	1440226	1440236
24 x 20 (594 x 492mm)	15	375	4	0.47	1440991	1440201	1440211	1440221	1440231
	23	550	4	0.76	1440994	1440204	1440214	1440224	1440234
	30	750	4	0.94	1440997	1440207	1440217	1440227	1440237
24 x 24 (594 x 594mm)	15	375	6	0.59	1440992	1440202	1440212	1440222	1440232
	23	550	6	0.94	1440995	1440205	1440215	1440225	1440235
	30	750	6	1.18	1440998	1440208	1440218	1440228	1440238
NON STANDARD					1440999	1440209	1440219	1440229	1440239

FOR NON-STANDARD SIZES CONTACT THE SALES TEAM

Notes

- * Actual Header Sizes are as stated in table, and 22mm deep (other depths available upon request)
- * Efficiencies quoted are average at 0.4 micron particles
- * Nominal Industry standards include 24x24, 610x610, and 600x600, 24x12, 610x305, 600x300, and 24x20, 610x508, 600x500, will be made as above actual, unless we are instructed otherwise.
- * Stainless steel headers Grade 304 available upon request - Part No. 1440901
- * Bag Loops Available for vertical airflow - Part No. 1410902
- * Non standard sizes are available upon request
- * Pressure Drops at Rated Airflow
M5 (Brown) 75Pa / M6 (Green) 85Pa / F7 80% (Pink) 110Pa / F8 90% (Yellow) 140 Pa /
F9 95% (Off White) 150Pa

Holding Frames and Cases

Holding frames and casings for High Performance Bag Filters are available singularly or in multiples, and can be manufactured to suit non-standard sizes and special applications.

See Catalogue Section 8 (code AC8) for full information.



Front Withdrawal
Frame (1810)



MEZ Flanged Side
Access Housing (1820)



Duct Mounted Filter
Housing (1825)



Fully Welded Side
Withdrawal Filter Housing
(1840)

OC INNOVATIONS - OC2

Process Information

Oxidation using ozone and activated oxygen ions is used to treat odour emissions from commercial and industrial kitchen processes (DEFRA, 2005: Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems).

The OC2 has been specifically designed for use in commercial kitchens. The system injects ozone into the kitchen extraction canopy or associated duct work where it reacts with odours, which are oxidized in a chemical reaction, which results in the production of carbon dioxide and water vapour. The ozone itself is consumed during the process and is converted back into oxygen.

The benefits of purchasing an OC2 unit over traditional UV/Ozone systems are as follows:

- Compact, lightweight and quiet operation so is less obtrusive
- Quick and easy low cost installation
- Low capital and running costs – up to 50% less than traditional UVC systems
- Injection into ductwork – adding negligible back pressure to the system so requiring less energy to push air through the air handling system. This means less ductwork modifications
- The OC2 maintains efficiency as they remain outside of the air stream, they also require less maintenance and require less cleaning.
- Tested to EN13725:2003, CE Approved



Spec sheet overleaf >

OC INNOVATIONS - OC2 (SPECIFICATIONS)

Technical Information

Ozone Output	24g/hr ozone output
Housing dimensions	300mm wide x 300mm length x 150mm height
Housing material	Stainless Steel powder coated white/grey
Duct work connection	100mm circular
Volume flow rate in ductwork	Up to 2m ³ /s per unit, subject to cooking odours.
Air residence time inside chamber	>0.1 seconds
Pressure drop	N/A
Weight of unit	5Kg approx.
Two individual Light Indicators	Green Power On / Green Ozone On
Electrical requirements	240V / 1 ph / 50/60Hz
Power requirements	168W
Safety	Built in Air pressure switch

Installation

It is recommended to locate the units with an injection point located closest to the source of odours (i.e. Canopy plenum or nearest accessible point on ductwork, in order to maximize dwell time. In any case the dwell time must be no less than 1 second.

The units in built air pressure switch is activated by the installation of the black three pinned connector to the unit to the sensor lock connector.

Maintenance

An optional service contract is available which entails a yearly inspection of the unit.
Please contact us for further information and pricing.

THE O.N.100 ODOUR NEUTRALISER

How it works and its use in the control of odours from commercial kitchen extract systems

The O.N.100 has been developed by Purified Air Limited using patented technology which combines physics and chemistry to encapsulate and treat cooking odours being emitted from restaurants and other commercial cooking applications. There is high demand worldwide for the O.N.100 and associated products which are easy to install and maintain. When applied correctly the O.N.100 can reduce the odours emanating from cooking premises by as much as ninety percent.

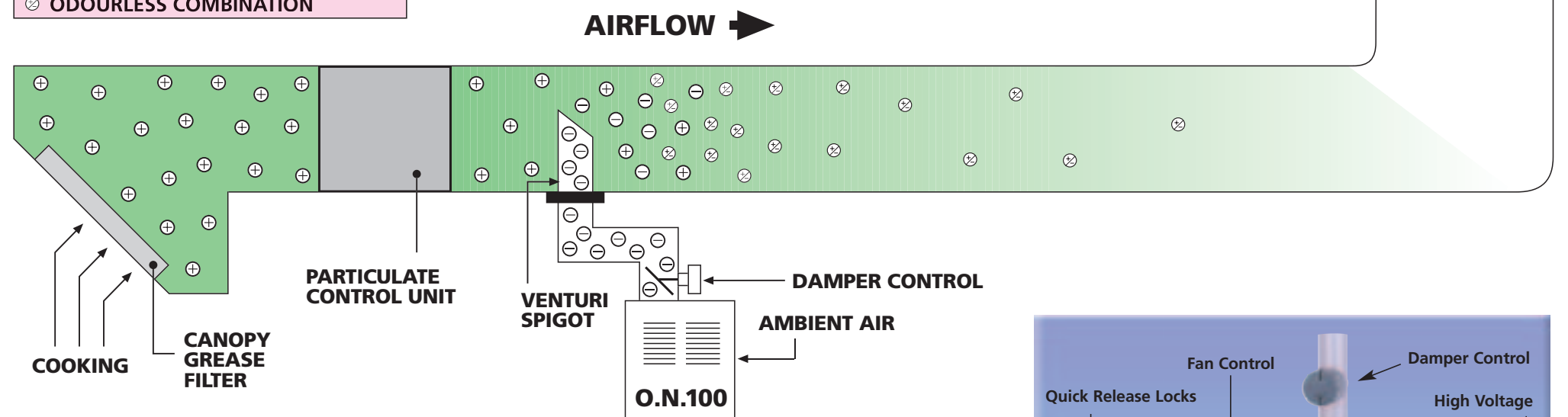
THE FOLLOWING ARE SOME OF THE MAJOR ADVANTAGES OF THE O.N.100:-

- Instant Control of Odours
- Efficiency up to 90%
- Visual Awareness of Neutralising Agent
- Fully adjustable
- Easy and Economical to Maintain
- Installed easily into new/existing systems
- No resistance to the Airflow
- User Friendly



The O.N.100 in situ on a flat roof installation with the ESP 3000 E Pre-filtration unit.

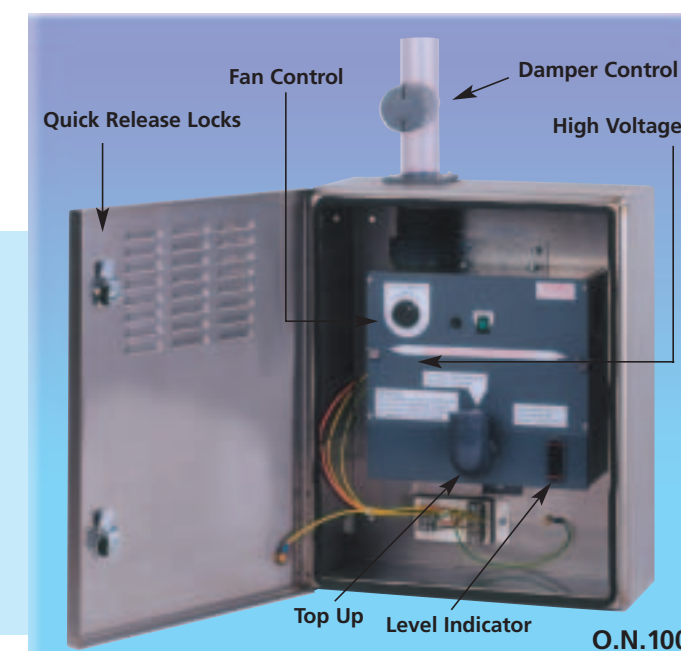
- ⊕ POSITIVELY CHARGED GREASE
- ⊖ NEGATIVELY CHARGED ELIMINODOR
- ⊗ ODOURLESS COMBINATION



ODOUR NEUTRALISER

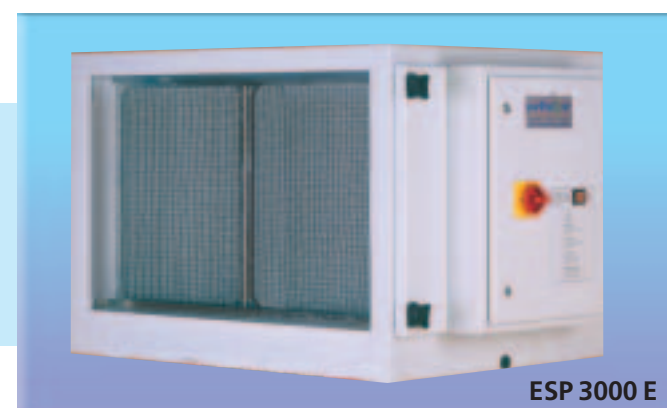
HOW IT WORKS: The airstream must first be cleaned of the majority of particulate contaminants made up of hydrocarbons and grease vapour leaving the gaseous phase (odour) to be treated by the O.N.100. Ambient air is drawn into the unit and mixed with a specially blended neutralising chemical. A vapour is formed which is then ionised to a negative potential of 15,000 volts. The ionised vapour passes along a non-conductive tube and is discharged into the centre of the duct via a venturi spigot, the metal ducting is earthed through the same high tension circuit which makes the contaminant at an opposite potential to the negatively charged vapour. The electrostatic difference between the contaminant and the neutralising vapour causes the two to combine electrically after which a chemical reaction takes place to treat the malodour.

MAINTENANCE: The O.N.100 needs to be topped up with a chemically formulated neutralising agent called 'Eliminodor' on a regular basis. In an average situation we would envisage two to six weekly servicing, dependent on usage.



ELECTROSTATIC PRECIPITATORS

Electrostatic Precipitators are used to clean the airstream of grease and hydrocarbons (smoke). These highly efficient units can remove particles as small as 0.01 micron at an efficiency in excess of ninety percent. This equipment would be used before the O.N.100 in systems with a high 'carry over' of grease or smoke. The units come in modular form, shown right is the ESP 3000 E which is suitable for airflows of up to 5000 cubic metres per hour (3000 cfm). For Technical information see ESP brochure.



purified air[®]
providing a better environment



This unique product has been blended solely for use in Purified Air Products to counteract cooking odours from the exhaust of restaurants and commercial cooking premises. **ELIMINODOR®** has been developed using space age technology and is a finely balanced blend of oils and other chemicals which neutralise cooking odours. This blend must not become unbalanced by mixing with any other products as this will render **ELIMINODOR®** ineffective and result in damage to equipment. The design of this unique system provides that only minimal quantities are required for optimum results.

Approximate dosage : one litre per three weeks under normal conditions.

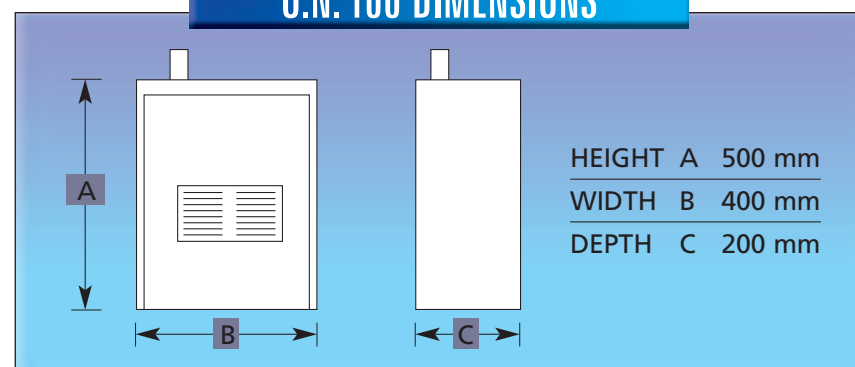
GUARANTEED PROCESS

ELIMINODOR® combined with Purified Air Systems can reduce nuisance caused by cooking odours by up to 90%.

O.N. 100 TECHNICAL DATA

Electrical Supply:	220/240V 50 Hz (others can be manufactured)
Power consumption Max:	40 Watts
Weight:	12.25 Kg
Capacity:	up to 15,000m ³ /h exhaust air
Ionisation voltage:	15 Kv negative

O.N. 100 DIMENSIONS



purifiedair®
providing a better environment

Purified Air LTD, Lyon House, Lyon Road,
Romford, Essex RM1 2BG ENGLAND
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e-mail: enq@purifiedair.co.uk
website: www.purifiedair.co.uk



Distributed by:



O.N.100

Odour Neutraliser



The O.N. 100 is a high tech, simple to install machine, designed to help neutralise odour laden air in the exhaust ducts of restaurants and industrial plants of all types.



GUARANTEED PATENTED PROCESS!

SIMPLE TO FIT IN ANY NEW OR EXISTING SYSTEM
VERY LOW MAINTENANCE EXPENDITURE PER ANNUM

purifiedair®
providing a better environment

PRODUCT FACTS

- Air flow up to 5.2 m3/s
- Static pressures up to 1130 Pa
- Speed controllable external rotor motors
- Multiple outlet orientations
- All panels interchangeable to offer flexible outlet position

ELECTRICAL SUPPLY

220-240V/50Hz/1PH & 380-420V/50Hz/3PH

TEMPERATURE RANGE

Maximum temperature from +40°C to +70°C (depending on the model)

SIZES

355, 400, 450, 500, 560, 630 and 710 mm

CONSTRUCTION

The ePowerBox AC casing is made from galvanized sheet steel with double chambered aluminum supporting frames and plastic made corners. The acoustic insulation made from mineral wool with a thickness of 20 mm.

IMPELLER

The ePowerBox AC has a backward curved centrifugal impellers made of plastic with galvanised steel support plates for those up to 560 mm. Fans with a diameter of 630 mm and larger have high efficiency backward curved centrifugal impellers made of aluminium.

MOTOR

The impellers together with the external rotor motors are dynamically balanced to quality standard G2,5 DIN ISO 19410.

SPEED CONTROLLER

Speed is 100% infinitely variable using auto transformers or inverter control.

NB; Performance reduction in straight through configuration. Please refer to performance curve.



PRODUCT CODE

ePowerBox AC 50-355-3

- ePowerBox AC - Product Name
- 50 = Box Size ie, 50 = 500mm; 67 = 670mm; 80 = 800mm; 102 = 1020mm
- 355 = Spigot Diameter size (mm)
- 1 = 1PH or 3 = 3PH

ACCESSORIES

The range of accessories include dampers, flexible connectors, service doors, outlet covers, guards, side covering and insulating connections. A quick reference guide is shown below.



220-240V/50Hz/1PH & 380-420V/50Hz/3PH

Performance Table

Product Code	m3/s @ Pa (Static)										
	0	100	200	300	400	500	600	700	800	900	1000
ePowerBox AC 50-355-1	0.91	0.79	0.66	0.45							
ePowerBox AC 67-400-1	1.30	1.17	1.04	0.87	0.58						
ePowerBox AC 67-450-1	1.91	1.77	1.61	1.44	1.21	0.91	0.13				
ePowerBox AC 67-500-1	2.61	2.43	2.24	2.04	1.83	1.55	1.16	0.40			

Product Code	m3/s @ Pa (Static)										
	0	100	200	300	400	500	600	700	800	900	1000
ePowerBox AC 50-355-3	0.92	0.80	0.66	0.43							
ePowerBox AC 67-400-3	1.29	1.15	1.01	0.81	0.40						
ePowerBox AC 67-450-3	1.81	1.66	1.49	1.29	1.03	0.59	0.03				
ePowerBox AC 67-500-3	2.58	2.40	2.23	2.03	1.81	1.55	1.16	0.39			
ePowerBox AC 80-560-3	3.61	3.40	3.19	2.98	2.75	2.47	2.13	1.69	0.88	0.21	
ePowerBox AC 80-630-3	4.03	3.84	3.65	3.44	3.28	3.05	2.84	2.56	2.24	1.73	0.09
ePowerBox AC 102-710-3	4.81	4.47	4.06	3.63	3.13	2.59	0.92				

Product and Electrical Details

Product Code	Product Number	Speed rpm	Motor Frame	Electrical Supply	Electrical Current			Wiring Diagrams	**Speed Controllers Transformer	Maximum Operating Temp°C	Breakout *Sound Level db(A) (3m)
					Motor (kW)	Full Load Current (A)	Starting Current (A)				
ePowerBox AC 50-355-1	BE355017	1325	Integral	220-240 V-50 Hz-1 Ph	0.28	1.35	4.46	CD3028	TEID 1.5	65	33
ePowerBox AC 67-400-1	BE400018	1360	Integral	220-240 V-50 Hz-1 Ph	0.51	2.45	7.11	CD3028	TEID 2.2	65	45
ePowerBox AC 67-450-1	BE450022	1270	Integral	220-240 V-50 Hz-1 Ph	0.85	4.1	15.58	CD3028	TEID 3.5	45	41
ePowerBox AC 67-500-1	BE500003	1310	Integral	220-240 V-50 Hz-1 Ph	1.38	6.22	19.90	CD3028	TEID 7.5	40	45

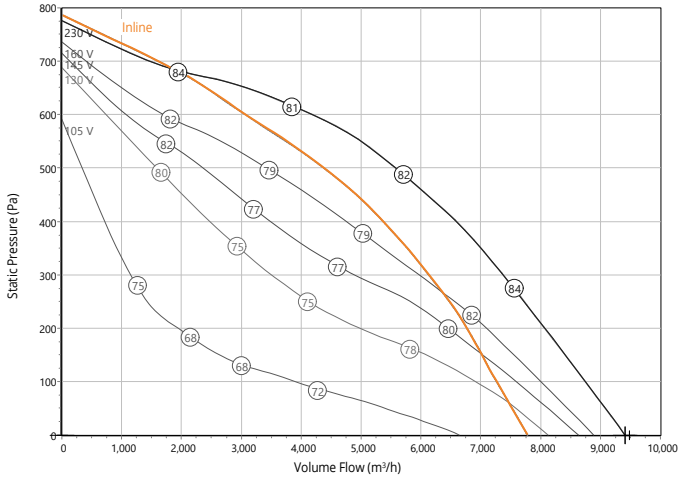
Product Code	Product Number	Speed rpm	Motor Frame	Electrical Supply	Electrical Current			Wiring Diagrams	**Speed Controllers Transformer	Maximum Operating Temp°C	Breakout *Sound Level db(A) (3m)
					Motor (kW)	Full Load Current (A)	Starting Current (A)				
ePowerBox AC 50-355-3	BE355018	1355	Integral	380-420V-50 Hz-3 Ph	0.28	0.67	2.68	CD3030	IDDXF54 2.2	70	34
ePowerBox AC 67-400-3	BE400019	1335	Integral	380-420V-50 Hz-3 Ph	0.44	0.88	3.34	CD3030	IDDXF54 2.2	70	37
ePowerBox AC 67-450-3	BE450023	1345	Integral	380-420V-50 Hz-3 Ph	0.73	1.47	4.85	CD3030	IDDXF54 2.2	50	37
ePowerBox AC 67-500-3	BE500004	1380	Integral	380-420V-50 Hz-3 Ph	1.29	2.82	14.95	CD3030	IDDXF54 3.7	60	44
ePowerBox AC 80-560-3	BE560023	1350	Integral	380-420V-50 Hz-3 Ph	2.1	4.07	16.28	CD3030	IDDXF54 5.3	50	47
ePowerBox AC 80-630-3	BI101234	1380	Integral	380-420V-50 Hz-3 Ph	3.28	6.1	34.20	CD3030	IDDXF54 7.2	60	55
ePowerBox AC 102-710-3	BI101237	890	Integral	380-420V-50 Hz-3 Ph	2.17	4.79	19.16	CD3030	IDDXF54 5.3	70	49

*Sound power levels are average dBA at 3 metres distance over sphere, under free field conditions and are presented for comparative purposes only. Values shown are those at the mid-point of the performance curve.

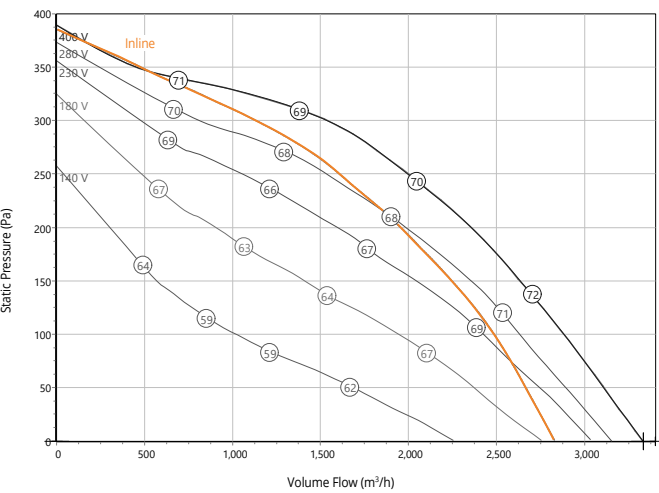
** For speed controllers, please refer to accessories section. For ErP efficiency ratings and grades please refer to our Fan Selector for more information.

Performance charts

ePOWERBOX AC 67-500-1 - BE500003

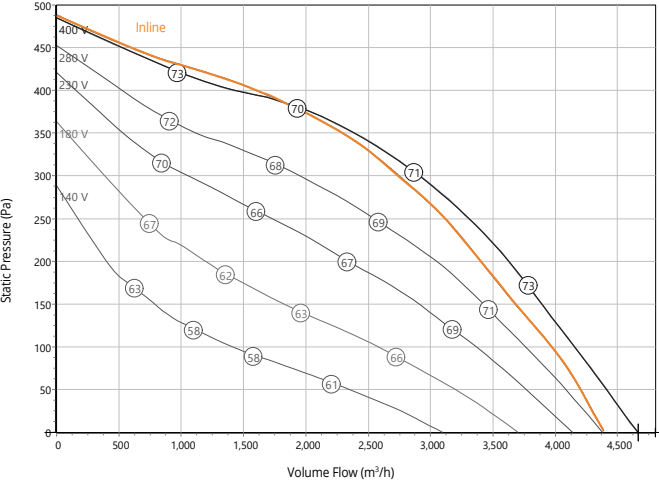


ePOWERBOX AC 50-355-3 - BE355018



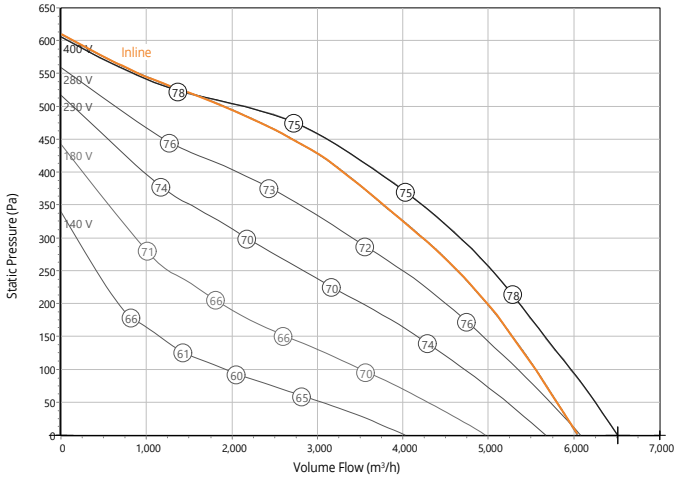
Please note : -
The performances shown are based on the centrifugal 90 degrees discharge, for the axial flow performance please contact our sales team.

ePOWERBOX AC 67-400-3 - BE400019

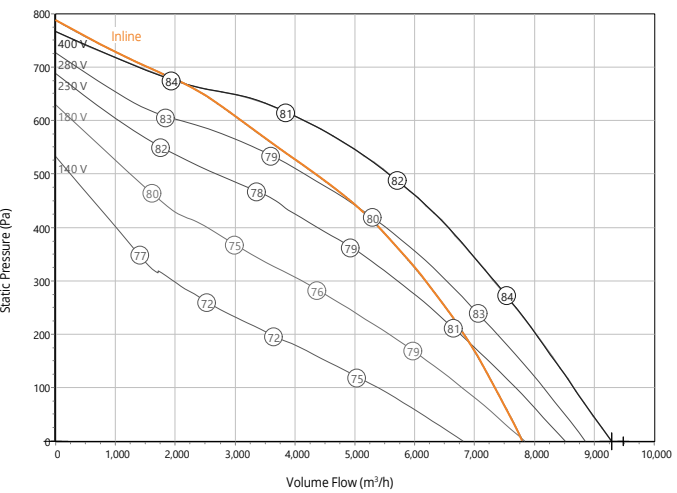


Performance charts

ePOWERBOX AC 67-450-3 - BE450019

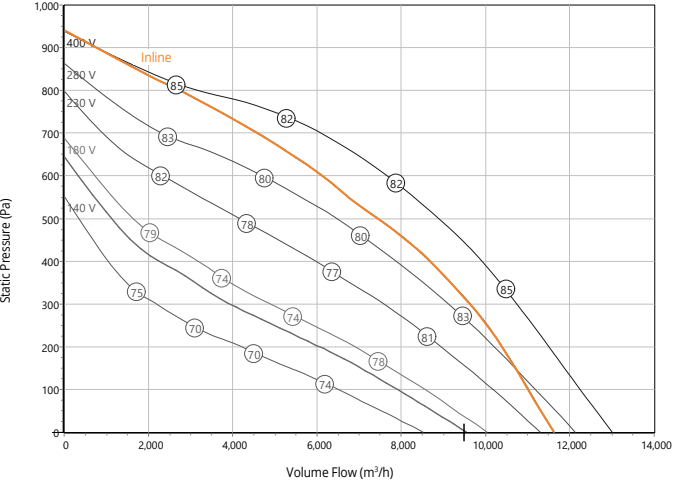


ePOWERBOX AC 67-500-3 - BE500004



Please note : -
The performances shown are based on the centrifugal 90 degrees discharge, for the axial flow performance please contact our sales team.

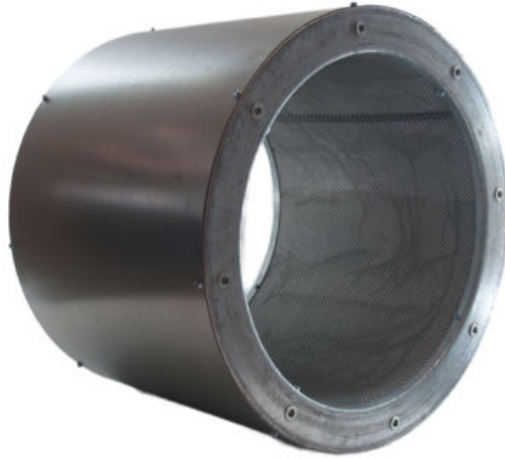
ePOWERBOX AC 67-560-3 - BE560023





CDA 500 X 1D STRAIGHT THROUGH SILENCER

Elta, Flakt Woods, Helios, Soler and Palau, Systemair, Vent-Axia, Ziehl-Abegg



Overview

500mm dia x 500mm long straight through silencer (generally reduces a fan noise level by 7 – 10dB (A)* Can be supplied to either bolt directly to any manufacturer of cased axial or with spigots to mount inline with ducting.

The addition of this silencer to a system will act in the same way a silencer does on a car, so if you've ever heard a car with no silencer fitted, this gives you an idea of the impact a silencer can have on a system.

Please Note — for a straight through silencer to work to have the maximum impact on a system, a silencer should be fixed either side of the fan, this will give 3 benefits to the overall noise level of the system.

1. System side (usually the noise level inside building) noise level is reduced
2. Atmospheric side (usually the noise level outside a building) noise level is reduced
3. The breakout from the fan is reduced, this could be a big factor depending where the fan is fitted, such as a false ceiling in a class room or office area

*Noise is a complicated medium to get right, if in doubt or you have specific target levels to achieve, please contact us via any means you feel comfortable with and we'll find a solution to your problem