

Electrostatic Precipitator



purified  **air**®
providing a better environment

a solution to grease and smoke pollution...

Local Legislation

Local Legislation requires increasingly that the amount of grease and smoke in kitchen exhaust fumes is reduced to lessen the nuisance of smells to the neighbourhood. Our ESP system gives the restaurant a clean, non-polluting image, while complying with local legislation.

Fire Risk Reduction

Grease build up in the ducting is significantly reduced with an ESP. This reduces the risk of fire in the ducts and fire spreading from the source to different parts of the building.

Efficiency

The ESP system is a very efficient means for removing particles and it can remove particles down to sub-micron size (0.01). When installed correctly, the unit can achieve an efficiency up to 98%.

Pre and After Filters and Oil Drain

Each unit is provided with standard mesh filters designed to protect the electrostatic filter section. We can also provide specialist oil demisters and other pre filters for different applications. The units are all fitted with an angled drip tray and an oil drain to allow collected waste grease and oil to be drained away.

Installations

The ESP is installed inline in the ducting. The unit should be located as close as possible to the extraction hood to reduce grease build up within the ducting. This reduces the need for regular duct cleaning. If space is limited in the kitchen then the unit(s) can also be installed outside, upstream of the extraction fan. Several ESP units can, stacked as modules, be used as a central filter installation with a virtually unlimited capacity.

Pressure Loss

The ESP is characterised by a remarkably low pressure drop (120-170 Pa). The advantage is that existing extract fans often do not need to be replaced.

Maintenance

Only regular cleaning of the filters, ioniser and collector cells with warm water and detergents is needed. Purified Air offer a cleaning and maintenance service operating on an exchange system. This is a cost effective service available in the UK direct from the manufacturer and in other selected countries via our agents. Taking out a maintenance contract ensures that your system is in full working condition at all times. This assures an appropriate maintenance frequency and professional cleaning. The maintenance of the ducting and any other filter present in the ducting can be reduced (lower frequency) because of the effectiveness of the ESP.

The Electrostatic Precipitator is suitable for the removal of all grease and odour emissions from commercial kitchens

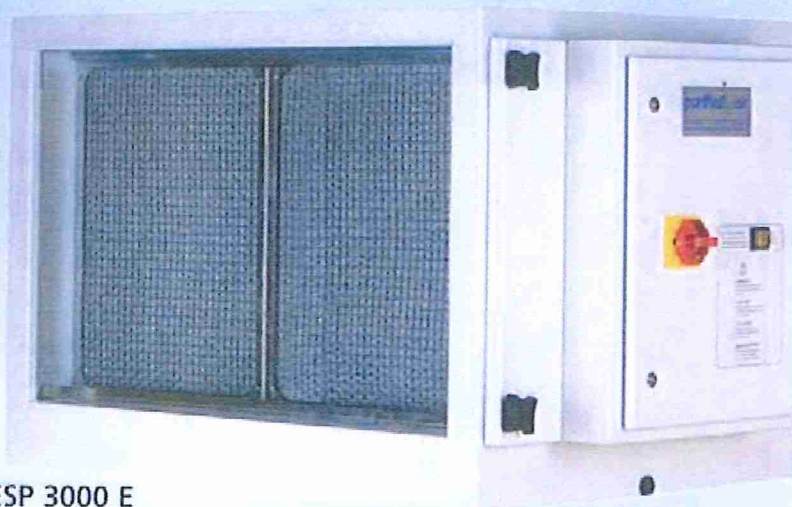


Any amount of grease and smoke can be eliminated. Purified Air has the complete solution for any kitchen or cooking method. The ESP system is supplemented by a number of other technologies manufactured by Purified Air designed to combat cooking odours, these systems comprise UV-C, electronic and chemical neutralising and specially designed media and micro porous filters.

Solving kitchen emission problems

Kitchen fume problems are not exclusively about the nuisance of grease or exclusively about odours. Both problems need to be solved 'at source'. The ESP system is the second stage of a sacrificial system, the first being the canopy filters and the third being methods for gaseous or odour control. The ESP is part of a family of products designed to eliminate grease, smoke and odour problems from commercial kitchens. The duct-installed ESP systems trap the smaller grease particles and other contaminant that pass the grease filters in the cooker hood.

The ESP Modular System

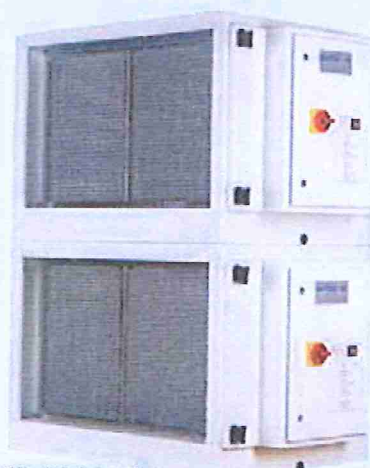


ESP 3000 E

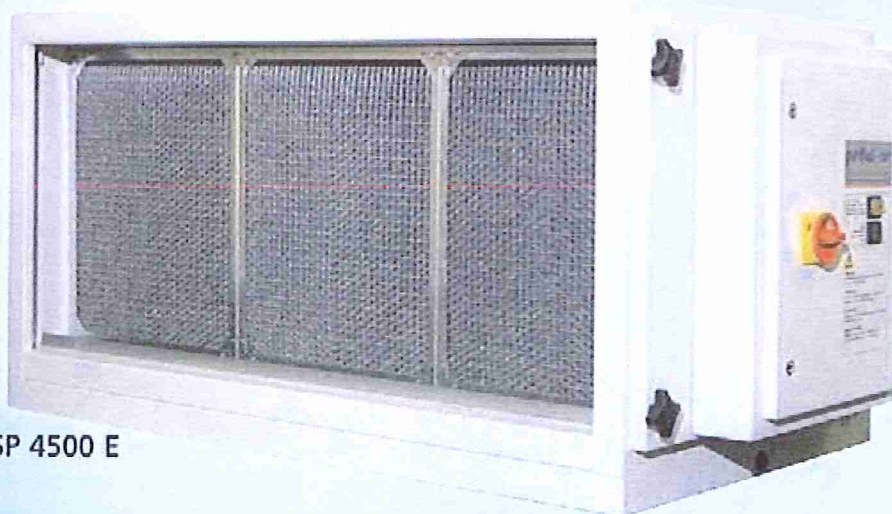
All units can be used individually or combined for greater air flows.



ESP 1500 E



Two ESP 3000E in modular format



ESP 4500 E

The Principle of Electrostatic Precipitators

The ESP units are used to clean the airstream of grease and hydrocarbons (smoke) in kitchen exhaust systems. They are highly efficient and can remove particulate down to sub-micron (0.01micron) size. The filter efficiency of up to 98% is attained during a single pass through the ESP, based on the charging of particles by an ionisation section 2 which are then trapped on the earth plates in the collector cell 3. Larger particulate in the airstream would be removed by the pre-filter 1 and lastly through an afterfilter 4 to prevent any re-entrainment and provide good air distribution.

Construction

ESP air cleaners are precision engineered to current industrial standards.

The case is of galvanised construction, spot welded and fitted with heavy duty hinges and bolt-on door equipped with compression locks.

Industrial neoprene seals fitted all round.

Efficiency Achievable

Particulate Micron	Efficiency
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0.01	up to 98%
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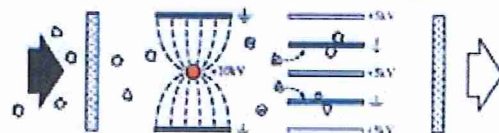
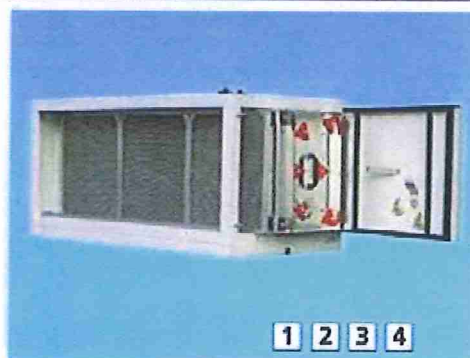
0.1	up to 97%
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10.0	up to 98%
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Efficiency varies with different particulate and air volumes.

Filter Technology

- 1 Pre-filter
Eurovent Class 2
- 2 Ionisation section
- 3 Collector section
Eurovent class 9
Filter surface 28.4m²
- 4 Final filter
Eurovent Class 2



Standards

The ESP Units comply with current IEE, CE and other European standards, including the Health and Safety at Work Act. Rated to IP 53.

Maintenance

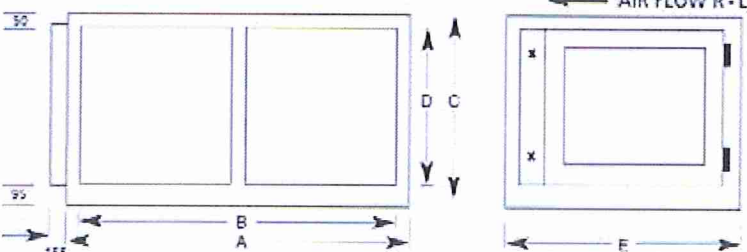
ESP air cleaners require only routine maintenance as all filter components are cleanable by means of steam, detergent, or pressure jet.*

*excluding media filters where used.

Controls

A separate enclosure houses the HT supply, and operating lights, with individual indication of mains and filter operation.

Dimensions



ESP 1500 E

A - Width	450mm
B - Width	350mm
C - Height	630mm
D - Height	485mm
E - Depth	660mm

ESP 3000 E

A - Width	900mm
B - Width	800mm
C - Height	630mm
D - Height	485mm
E - Depth	660mm

ESP 4500 E

A - Width	1350mm
B - Width	1250mm
C - Height	630mm
D - Height	485mm
E - Depth	660mm

AIR VOLUME MAX	2500m ³ /h 1500cfm
ELECTRICAL SUPPLY	220/240V 50Hz 1ph
POWER CONSUMPTION	30W
WEIGHT	60kg
MIN/MAX WORKING TEMP	4/56°C
MAX RELATIVE HUMIDITY	75%

AIR VOLUME MAX	5000m ³ /h 3000cfm
ELECTRICAL SUPPLY	220/240V 50Hz 1ph
POWER CONSUMPTION	50W
WEIGHT	100kg
MIN/MAX WORKING TEMP	4/56°C
MAX RELATIVE HUMIDITY	75%

AIR VOLUME MAX	7500m ³ /h 4500cfm
ELECTRICAL SUPPLY	220/240V 50Hz 1ph
POWER CONSUMPTION	50W
WEIGHT	140kg
MIN/MAX WORKING TEMP	4/56°C
MAX RELATIVE HUMIDITY	75%

The design of cooking exhaust control systems varies. Different types of cooking and location have separate requirements and may require additional equipment. The equipment in this brochure is designed to be used in conjunction with other items of our manufacture. Purified Air Limited offer a free consultation service and will assist you with design, please discuss your project with us before selecting equipment.

purified air[®]
providing a better environment

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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.

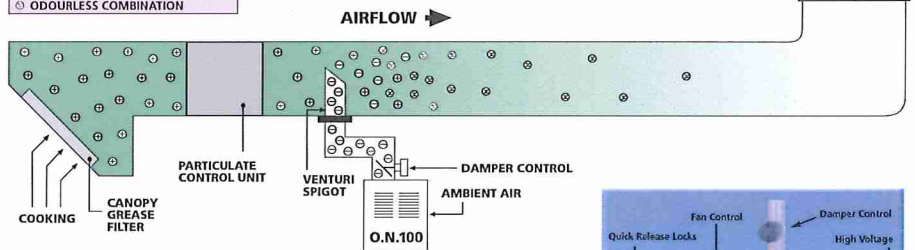
THE FOLLOWING ARE SOME OF THE MAJOR ADVANTAGES OF THE O.N.100:-

- 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.

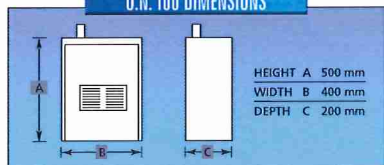
GUARANTEED PROCESS

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



HEIGHT A 500 mm
WIDTH B 400 mm
DEPTH C 200 mm

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providing a better environment

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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

Revisions

EXTRACTION SYSTEM SPECIFICATION

1. DUCTING TO BE MANUFACTURED FROM 0.7mm GALVANISED STEEL SHEETS WITH A DIAMETER OF 300mm AND OVERALL LENGTHS OF 1000mm TESTED TO 30 MINUTES FIRE RESISTANCE
2. EXTRA SUPPAGE IS TO BE ALLOWED WITHIN THE MANUFACTURE TO ENSURE AN OIL TIGHT SEAL
3. ANY/ALL LOCKFORMED JOINTS TO BE SITUATED AT THE HIGHEST PART OF THE HORIZONTAL DUCTING RUN SO ANY CONDENSED OIL CANNOT LEAK THROUGH
4. JOINTS TO BE SEALED WITH HIGH TEMPERATURE SEALANT THEN SCREWED AND TAPED TO ELIMINATE LEAKAGE
5. ANY SQUARE TO ROUND SECTIONS TO BE FITTED WITH ACCESS DOORS FOR CLEANING TO ALLOW USE AS MINI SUMP BOXES WHERE ANY CONDENSED OIL CAN COLLECT AND ALSO TO BE PROVIDED WITH DRAIN TUBES TO ALLOW RUN OFF OF CONDENSED STEAM
6. SOME INSTALLATIONS WILL INCORPORATE HEAT ACTIVATED FIRE DAMPERS WITH CIRCULAR SPIGOTS AND BLADES OUT OF AIRSTREAM TESTED TO EUROPEAN STANDARD EN1366-2:1999 BETWEEN EACH FIRE COMPARTMENT AS PER THE FIRE OFFICERS REQUIREMENTS (SEE FULL SPEC BELOW)
7. A FULL SIZED SUMP BOX WITH DRAIN WILL ALWAYS BE PROVIDED ADJACENT TO THE FRYING RANGE AND OCCASIONALLY AT THE LOWEST POINTS OF THE VERTICAL RISERS TO ALLOW COLLECTION AND REMOVAL OF CONDENSED OIL AND WATER
8. ALL DUCTWORK TO BE ATTACHED TO WALLS / CEILINGS USING STEEL DUCTING BRACKETS WITH ANTI VIBRATION MOUNTINGS TO MINIMISE NOISE
9. A HIGH VOLUME BACKWARD CURVED SINGLE INLET DIRECT DRIVEN CENTRIFUGAL FAN ASSEMBLY WILL BE INSTALLED ON ALL RANGE INSTALLATIONS
10. IN SOME INSTANCES DIRECTLY ABOVE THE FAN ASSEMBLY WILL BE INSTALLED A CIRCULAR POD ATTENUATOR TO FURTHER MINIMISE NOISE
11. DUCTWORK SHALL BE EXITED FROM THE BUILDING BY THE ADAPTATION OF AN EXISTING HOLE OR THE CREATION OF A NEW OPENING AND SEALED USING A RUBBER SLEEVE, THEN MADE DECKTIGHT WITH A STEEL SLEEVE SEALED TO THE WALL OR ROOF FABRIC. ROOF INSTALLATIONS BY PROFESSIONAL BUILDERS
12. AN DISCHARGE COWL TERMINATION WITH ANTI BIRD MESH WILL BE SUPPLIED TO FINISH THE SYSTEM AND VENT AIR TO ATMOSPHERE
13. INSPECTION HATCHES WILL BE INSTALLED AT REGULAR INTERVALS TO AID CLEANING AND MAINTENANCE

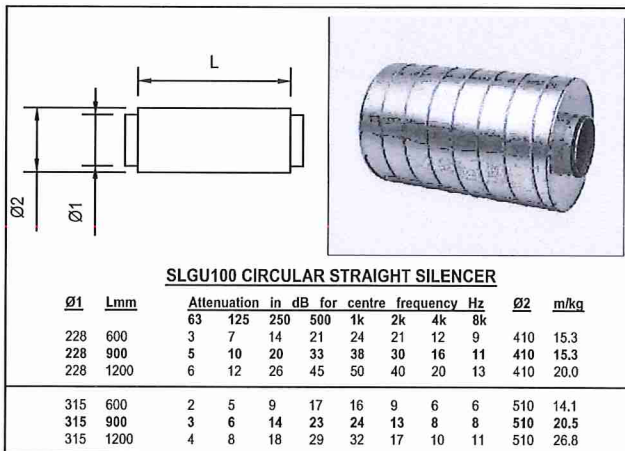
FIRE DAMPER SPECIFICATION

FEATURES

- CIRCULAR SPIGOT, BLADES OUT OF AIRSTREAM
- GALVANISED OR STAINLESS STEEL BLADES AND CASINGS
- FACTORY FITTED HEVAC APPROVED INSTALLATION FRAME OR OTHER APPROVED METHOD
- FULLY WELDED CONSTRUCTION
- COMPREHENSIVE STATUS AND CONTROL OPTIONS
- TESTED FOR 4 HOUR DURATION

SPECIFICATIONS AND TESTS

- FIRE TESTED TO:
 - EUROPEAN STANDARD EN1366-2:1999
 - ISO 10294 - 1:1996(E)
- HORIZONTAL TEST REPORT FOR 4 HOUR DURATION TE 201814
- VERTICAL TEST REPORT FOR 4 HOUR DURATION TE 201633
- BS 476 PART 20:1987 FOR 4 HOUR DURATION
 - WARRINGTON REPORT WFRG C43264 STAINLESS STEEL BLADES
 - WARRINGTON REPORT WFRG C43265 GALVANISED BLADES
- 28 DAY SALT CORROSION TEST CHATFIELD REPORTS C72178
- CONFORMS TO DW144 AND EUROVENT 2/2 AS RELEVANT

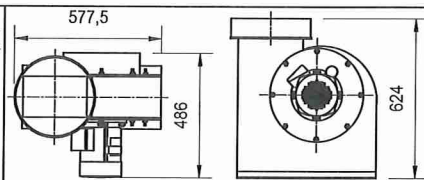


NOTE:-

1. SOME ITEMS SHOWN ON THIS SPEC SHEET MIGHT NOT BE USED ON THE PROJECT REFERENCED, REFER TO CLIENT APPROVAL AND DUCTWORK DRAWINGS FOR DETAILS OF EQUIPMENT

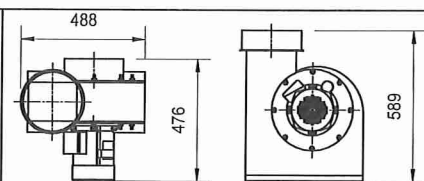
HOPKINS 12" FAN MOTOR SPECIFICATION

MANUFACTURER:	VEM
ITEM NUMBER:	EB212 90 S 4 / 3364
No OF PHASES:	1
VOLTAGE:	230V
Hz:	50
AMPS:	4.7A
WATTS:	0.75kW
IP RATING:	IP55
dBA @ 1m:	54dBA
WEIGHT:	1.6kg



HOPKINS 9" FAN MOTOR SPECIFICATION

MANUFACTURER:	VEM
ITEM NUMBER:	EB212 90 S 4 / 3364
No OF PHASES:	1
VOLTAGE:	230V
Hz:	50
AMPS:	4.7A
WATTS:	0.75KW
IP RATING:	IP55
dBA @ 1m:	54dBA
WEIGHT:	1.6m



CANOPY: TURBOPROP TP560-14 PERFORMANCE GUIDE

1 PHASE, 4 POLE

Nom RPM	Phase	M/3 S @ Pa	Motor KW	SC Amps	FLC Amps
1340	1	3.193	3.25	58.00	15.50

SOUND DATA

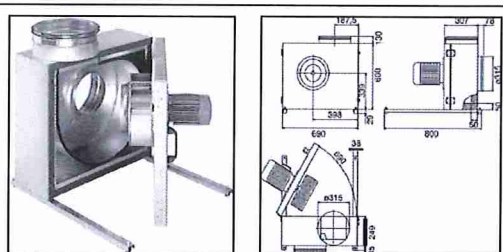
	Mid Octave Bands								
	63	125	250	500	1k	2k	4k	8k	dBA @ 3'
Inlet	83	95	92	89	89	83	77	73	72
Outlet	96	98	93	91	92	86	80	75	75

ATTENUATOR INSERTION LOSSES

Dia	63	125	250	500	1k	2k	4k	8k
560	3	4	8	15	18	14	11	7


DIMENSIONS

Size	ID	Length	FCDØ	Flange OD	Fixing Ø	No of Fixings	kg Approx
560	560	520	620	655	12mm	12	56



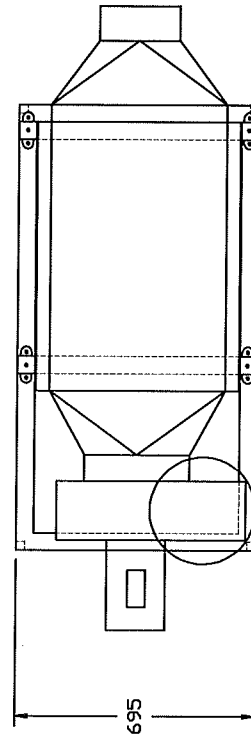
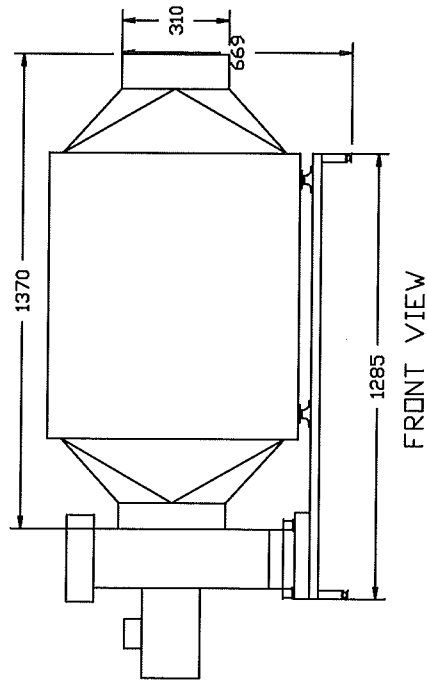
KBR 315 DZ KITCHEN EXTRACT FAN

<u>Parameter</u>	<u>Value</u>	<u>Unit</u>
Voltage	400	V
Frequency	50	Hz
Phase	3	~
Power at Shaft	1500	W
Current	3.4	A
Max Airflow	4097	m ³ /hr
Revs Per Minute	2850	r.p.m.
Max. temperature of transported air	120	°C
Sound pressure level at 4m	51	dB(A)
Sound pressure level at 10m	43	dB(A)
Weight	67.1	kg
Insulation class-motor	F	-
Enclosure class-motor	54	IP


Drawn	I.B.	Date	19-11-2009	Designer	M.H.	Checked	M.H.	Scale	1:50	Revision	D	Drawing Number	MHQ51 (Sheet 3of3)	
Client				Project				Title						
COLIN BRIGHTON 01424 460 900 07973 329 7055 colin.brighton@adgenerator.co.uk				CATCH 22 470 OLD LONDON ROAD HASTINGS EAST SUSSEX TN35 5BG				VENTILATION EQUIPMENT SPEC SHEET				Hopkins Catering Equipment Ltd. Valley Mills, 151 Kent Road, Pudsey, West Yorkshire. LS28 9NF. Tel: 0113 257 7934-Fax: 0113 257 6769-Email: sales@hopkins.biz-Website: www.hopkins.biz		

END VIEW

TOTAL WEIGHT = 270kg



RevNo	Revision note	Signature	Checked
		Date	



HOPKINS

Item#	Quantity	Thickness	Article No./Reference
Designed by AC	Quoted by	Approved by - date	Platinum
		Date	01/04/05
		Material	NIS

Customer

Hopkins Catering Equipment Ltd
 151 Kent Road, Pudsey, LEEDS
 Tel 0113 2577934
 Fax 0113 2576759

Order

CARBON FILTER

Ordering member

Member No. A