



Unit 17
Milland Road Industrial Estate
Neath
SA11 1NJ

209 New Road

Skewen

1st July 2025

209 – New Road - Skewen

Commercial Kitchen Canopy, Ventilation, Noise and Odour Assessment Report

Dear Phil Johnson

The HVAC specification DW172 shall be used as the basis for Kitchen ventilation Systems design and installation.

Extraction – The calculations for the extract volume flow rate for each canopy shall be determined by the equipment beneath the canopy and its location. The procedure for design shall be the 'thermal convection' method as detailed in DW172. The calculation as follows:-

Plan size of appliance (m²) x Thermal convection coefficient (m³/s/m²) = Flow Rate (m³/s) per appliance.

Fresh Supply Air – The calculations used to provide sufficient fresh air to ensure complete combustion of fuel and provide safe operation for gas equipment (BS6173:2009) will be based on a maximum of 85% of the extract volume of air to ensure the kitchen is kept under a negative pressure.

Fresh Air Temperature – An air supply temperature of 12deg C is considered a minimum for comfort directly below the supply terminals (BSRIA Study Feb 2013). This will be gained by using an Electric Heater Battery or Low Pressure, Hot Water Coil and offered as a separate item.

Noise Generating Equipment – By virtue the plant is noise generating and measures shall be taken to reduce & mitigate plant noise break out to local residential receptors/premises. We will design the acoustic measures to comply with criterion as indicated within a noise report

These can be controlled using measures such as:-

- Acoustic Silencers
- Low Velocity Ductwork Sizing
- Acoustic Fan Jackets
- Anti-Vibration Ancillaries

Odour Abatement – To counteract and control emissions, residual and spillage nuisance odours we recommend that the following measures are taken to control this.

- Primary Baffle Filters
- Pre Filtration (Mesh and Bag G4)
- Extra Duty Carbon Filters
- OC1 Ozone Neutralising Unit
- Electro Static Precipitators
- UV Light

Conclusion

<u>Specification</u>	<u>Type</u>	<u>Size/Flow Rate/Required Y/N</u>	
<u>Canopy Type/Size</u>	<u>4000 x 1500 x 500</u>	<u>1.6m³/s</u>	
<u>Extract Fan</u>	<u>MUB500</u>	<u>1.8m³/s</u>	
<u>Supply Fan</u>	<u>AR450</u>	<u>1.2m³/s</u>	
<u>Heating Element</u>	<u>N/A</u>	<u>N/A</u>	
<u>Noise Measures</u>	<u>LDK Silencer – Extract</u>		<u>1no Discharge Side</u>
<u>Odour Measures</u>	<u>UVO500</u>	<u>Purified Air Unit</u>	<u>2 Required</u>

I hope the above information is acceptable and contains sufficient information with the proposed development and if any other information is required, please do not hesitate to contact us on the numbers below.

Yours Sincerely

Ashley Daniels

Managing Director

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Risk Assessment for Odour Control

Odour control must be designed to prevent nuisance in a given situation. The following score methodology is suggested as a means of determining odour control requirements require at the aforementioned site.

<u>Measure</u>	<u>Score</u>	<u>Details</u>
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Dispersion

<u>Very poor</u>	<u>40</u>	<u>Low Level Discharge into courtyard/public access</u>
<u>Poor</u>	<u>30</u>	<u>Below eaves @ 10m/s</u>
<u>Moderate</u>	<u>20</u>	<u>1mtr above eaves but low velocity</u>
Good	10	1mtr above eaves with high velocity cow

Proximity of dwellings

Close	30	Within 10mtrs from kitchen discharge
<u>Medium</u>	<u>20</u>	<u>Within 20mtrs from kitchen discharge</u>
<u>Fair</u>	<u>10</u>	<u>Over 20mtrs from kitchen discharge</u>

Size of Kitchen

<u>Large</u>	<u>30</u>	<u>More than 100covers or large Takeaway</u>
Medium	20	Between 50-100 covers or medium Takeaway
<u>Small</u>	<u>10</u>	<u>Less than 30 covers or small Takeaway</u>

Cooking Type (Odour and Grease)

<u>Very High</u>	<u>40</u>	<u>Pub with high level of fried food/chargrill/charcoal</u>
High	30	Kebab, Thai, Indian
<u>Medium</u>	<u>20</u>	<u>Chinese, Japanese, Small Pub</u>
<u>Low</u>	<u>10</u>	<u>Carvery, Italian, French</u>

Total Score	90
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Impact Risk

<u>Low to Medium</u>	<u>Low Level Odour Control if any</u>	<u>Lower than 60</u>
High	High Level Odour Control	Between 60-100
<u>Very High</u>	<u>Very High Level Odour Control</u>	<u>Over 100</u>

Discharge Stack

The discharge stack shall:-

1. Discharge the extracted air not less than 1mtr above the eaves of any building within 10mtrs of the closest property housing the commercial kitchen.
2. If 1 cannot be complied for planning reasons, then the extracted air shall be discharged 1mtr above eaves or window of the building housing the commercial kitchen. Additional odour reduction methods maybe required
3. If 1 or 2 cannot be complied with for planning reasons, exceptionally high level of odour control will be required. See Impact Risk – Very High

Odour neutralising performance

Low to Medium level control may include:-

- i. Baffle Filters / Veritech Filters within Canopy
- ii. Odour Control Neutraliser or Carbon Filters with Dwell time of 0.3

High level of odour/smoke control may include:-

- i. Baffle Filters / Veritech Filters within Canopy
- ii. Odour Control Neutraliser and Carbon Filters with Dwell time of 0.3
- iii. Electro Static Precipitators to suit air volume
- iv. UV System for smoke

Very high level of odour/smoke control may include:-

- i. Veritech Filters within Canopy
- ii. Odour Control Neutraliser and Carbon Filters with Dwell time of 0.5 – 0.6
- iii. Double Pass Electro Static Precipitators to suit air volume
- iv. UV System for smoke

Maintenance

Proprietors of commercial kitchens have a duty to ensure that the ventilation system has regular maintenance checks and servicing. Good maintenance ensures the designed system works effectively and efficiently and conforms to the local planning authorities guidelines given at the redevelopment stage.

<u>Light Use</u>	<u>12-16 Hours per Day</u>	<u>6-12 months</u>
<u>Moderate Use</u>	<u>6-12 Hours per Day</u>	<u>3-6 months</u>
<u>Heavy Use</u>	<u>2-6 Hours per Day</u>	<u>1-3 months</u>

Baffle Grease Filters

Applications

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 filter reduces this 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.



Construction

Housed in a stainless steel channel framework are a series of vertical stainless steel air baffles which 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's smooth surface enables deposited grease to run off via the drainage holes to collecting trays in the housing, minimising grease build-up.

The retractable handle facilitates easy removal from the housing.

Materials available:

- Aluminium
- Stainless steel Grade 304
- Stainless steel Grade 430 - ECO.

Capacity Chart

Data based on Face Velocity of 1.5 m/s (300 fpm)

SIZE	SIZE	Flow Rate	
OT Inches	Actual mm	m ³ /s	Pa
18 x 18	394 x 394	0.25	125
20 x 10	495 x 242	0.19	110
20 x 18	495 x 394	0.31	125
20 x 20	495 x 495	0.39	125
18 x 18	445 x 445	0.31	125
24 x 24	594 x 594	0.54	110

Actual Face Size = Nominal Size less 12mm (0.5")

Actual thickness = Nominal thickness less 3mm (0.125")

Code AC3/3a Ref 01/13



MUB Insulated duct fans

Efficient fans for supply or exhaust ventilation systems

- Acoustic and thermal insulation 30 mm
- Flexible airflow direction due to removable panels
- Indoor and outdoor installation
- Modular system of accessories
- Available with AC and EC motors for 50 and 60Hz

[Find more details in our online catalogue.](#)

Flexibility

The MUB fans are intended to use for **supply** or **extract** air, designed to be installed in **any position**.

The MUB fans are designed for straight through airflow but can easily be rebuilt due to **removable panels** for 90° air discharge. The construction of the casing and thermal insulation permits **outdoor** and **indoor** use.

Modularity

Thanks to variety types of **accessories** as flexible connections, dampers, roof, base frame, etc. it is easy to design any ventilation system according to your demand.

By using special **modular systems**, where some accessories as **heaters, coolers, silencers, filters** or **carbon filters** are built-in in the **same type of casing**, you can even design a simple supply or exhaust **air handling unit**.

Performance

High-performance impeller together with **highly efficient** motors are designed to ensure high-level performance to **minimise power consumption** and **maximise efficiency**.

Noise

The **casing** of **MUB** fans have a perfect **acoustic** and **thermal** insulation capacity.

Certifications



Eco Platform: EPD Verified



Ecodesign (ErP) compliant

Technical parameters

Nominal data

Voltage (nominal)	230	V
Frequency	50	Hz
Phases	1~	
Input power	1,137	W
Input power kW	1.137	kW
Input current	5.32	A
Impeller speed	1,386	rpm
Air flow	max 2.08	m³/s
Capacitance of capacitor	30	µF
Temperature of transported air	max 60	°C
Max temperature of transported air, when speed controlled	60	°C

Protection/Classification

Enclosure class, motor	IP54
Insulation class	F

Data according to ErP

ErP ready	ErP 2018
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Dimensions and weights

Weight	61	kg
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Others

Motor type	AC
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Supply Air Fan

 systemair **AR 450E4 sileo Axial fan**

Item Number: #37385 Operating Mode: 230V 1~ 50Hz



AR Axial Fans

Low-pressure axial duct fan

- Available with AC motors for 50 and 60Hz
- Installation in any position
- Noise and energy-optimised impeller

[Find more details in our online catalogue](#)

Flexible

The AR fans are **designed** for extracting air in **low pressure systems**. They can be installed in any position and way according to your demands.

This ensures that the fans can be used in a variety of **commercial** and **industrial** applications.

Performance

The **noise-optimised** axial impellers together with the **highly efficient** external rotor motors are designed to ensure high-level performance to **minimise power consumption** and **maximise efficiency**.

Features

Construction

The round casing is made of galvanised steel with powder coating in RAL9005. The **complete** range is provided **with inlet protection grid**. An **outlet protection grid** is **available as accessory**.

Depending on type, the fans are equipped with an external **terminal box**, protection class **IP44** or **IP54**.

Impeller

The AR fans use **axial impellers**. These are made of **coated steel**, **composite** material or **aluminium**, are dynamically **balanced** and are paired with corresponding external rotor motors.

Motor

AR fans are equipped with an **AC external rotor motor**. The motors are suitable for **50Hz** and **60Hz**.

Motor protection

The **AC** motors are equipped with prewired integral **thermal contact** with leads to be connected to a **motor protection unit**.

Control

The **AC motor** can be controlled by **5-step**, **stepless** speed regulator or **frequency inverter**.

Installation

The AR fans can be installed in **any position** in the **duct** in **indoor** environments.

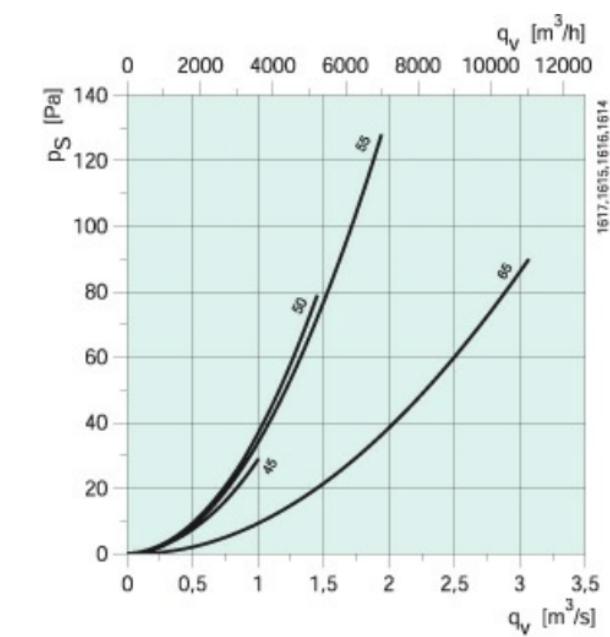
Technical parameters

Nominal data		
Voltage (nominal)	230	V
Frequency	50	Hz
Phases	1~	
Input power	600	W
Input power kW	0.6	kW
Input current	2.9	A
Impeller speed	1,390	rpm
Air flow	max 2.028	m³/s
Air flow at max. efficiency	1.39	m³/s
Specific ratio	1	
Capacitance of capacitor	14	µF
Temperature of transported air	max 70	°C
Max temperature of transported air, when speed controlled	70	°C
Protection/Classification		
Enclosure class, motor	IP54	
Insulation class	F	
Data according to ErP		
ErP ready	ErP 2018	
Measurement category	A	
Efficiency grade	41.8	η_{actual}
Efficiency, static	34	η_{statA}
Target efficiency grade ErP2013	36	$\eta_{\text{target2013}}$
Target efficiency grade ErP2015	40	$\eta_{\text{target2015}}$
Dimensions and weights		
Duct dimension; Circular, inlet	450	mm
Duct dimension; Circular, outlet	450	mm
Weight	17	kg
Others		
Duct connection type	Circular	
Color name, casing	Black	
Motor type	AC	

Extract

Silencer

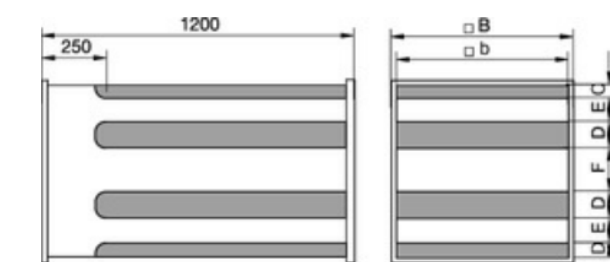
Performances



Noise suppression dB frequency band Hz

	125	250	500	1k	2k	4k	8k
LDK 45	5	8	13	12	8	7	7
LDK 50	7	8	13	12	9	8	7
LDK 55	9	9	13	12	10	9	8
LDK 65	6	7	14	13	9	8	7
LDK 70	5	7	19	24	23	15	10

Dimension



	b	B	C	D	E	F
LDK 65	661	703	50	100	93	175

KITCHEN EXTRACT

UV-O RANGE

500 | 1000



Unlike other UV-C systems, our UV-O units are located outside of the kitchen extract duct and are connected via a spigot and spiral ducting.

KEY FEATURES

- Easy to install
- Can be retro-fitted into existing duct
- Virtually no pressure loss
- No monthly maintenance needed

UV-O TECHNOLOGY

The UV-O range uses UV-C technology which is based on the synergy of oxygen and ultraviolet light to produce ozone. The ozone acts on the gases by changing their molecular structure, reduce the smells and breaking down odours in the ductwork ready for extraction.

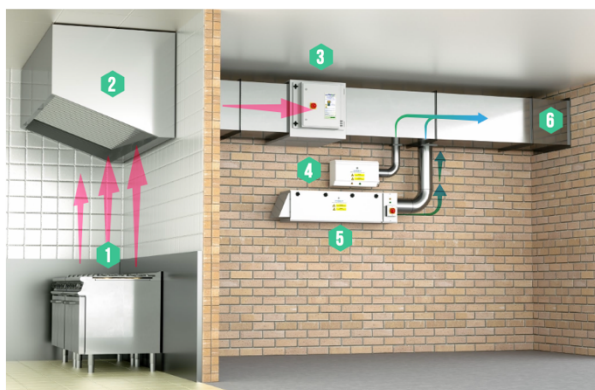
Unlike other UV-C systems, our UV-O units are located outside of the kitchen extract duct and are connected via a spigot and small diameter ducting.

Although it is widely accepted that the best way to apply UV-C light is directly in-line with the air stream itself, performance will be impacted as the lamps get dirty.

With our UV-O units the air flow does not come from the exhaust duct but from the ambient air around the unit, which is filtered on entry. This means that it is able to provide a uniform supply of ozone and hydroxyl free radicals into the extract system with an extremely low pressure loss.

For optimum performance we would recommend between 2 & 6 seconds of dwell time to allow the ozone to work effectively upon the malodorous gasses within the duct.

HOW IT WORKS



For optimum performance, we would recommend between 2 & 6 seconds of dwell time to allow the ozone to work effectively upon the malodorous gasses within the duct.

When installed correctly our UV-O systems can reduce cooking odours by up to 90%.

- | | |
|---|--|
| 01 Cooking particulates and odours | 04 UV-O 500 |
| 02 Canopy Grease Filter | 05 UV-O 1000 |
| 03 ESP - Particulate Control Unit | 06 Ozone breaks down odours within the duct |

THE BENEFITS OF UV-O TECHNOLOGY

- | | | | |
|-----------------------------|-------------------|-----------------|-------------------|
| Reduces odours by up to 90% | Easy to retro fit | Low maintenance | Low pressure loss |
|-----------------------------|-------------------|-----------------|-------------------|

TESTED & VERIFIED BY

This unit's tried and tested UV-C technology allows commercial kitchens to be sited in locations such as residential areas and shopping centres, where previously planning permission may not have been granted. After extensive research and development Purified Air are able to devise the best combination of lamps to provide the most effective odour control.

OUR SERVICES



Design



Manufacture



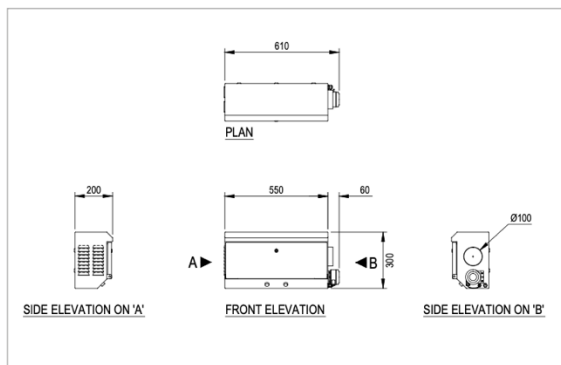
Maintain

TECHNICAL SPECIFICATION

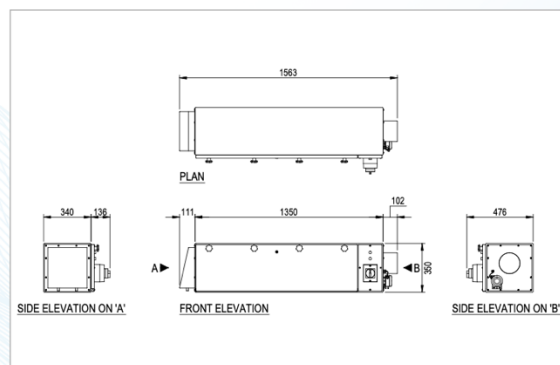
	UV-O 500	UV-O 1000
Supply	220-240 V 50HZ	220-240 V 50HZ
Power Consumption	140 _W	640 _W
Maximum Airflow	1.5 M ³ /SEC (UP TO)	2.5 M ³ /SEC (UP TO)
Dimensions (mm)	W 610 H 630 D 200	W 1521 H 350 D 404
Weight	10.5 KG (APPROX)	50 KG (APPROX)

DRAWINGS

UV-O 500



UV-O 1000



purifiedair®



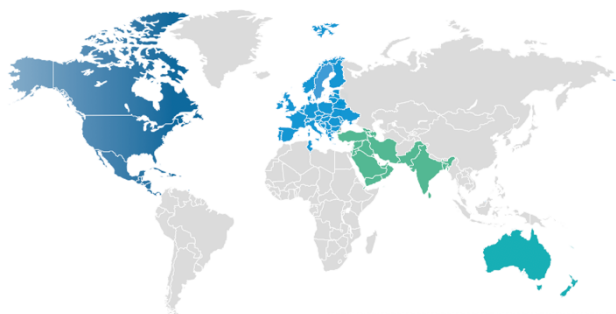
ABOUT US

Purified Air Ltd. has been striving to find the best and most cost-effective way to filter and control oil, smoke, fat and odour produced by commercial kitchens and service since 1984.

Purified Air manufactures filtration and odour control products for stock and bespoke systems, supplying systems to many sectoral brands. The design of each solution is based on the type of food cooked, the cooking process used, and the extracted air volume providing tried and tested purified kitchen exhaust air for Fast Food, Casual Dining and Luxury Concept Restaurant (Fine Dining) markets. By working with these variables, we can design and supply some of the world's best commercial kitchen filtration and odour control systems.

WORLDWIDE COVERAGE

- United Kingdom
- Middle East
- Europe
- North America
- Asia
- Australasia



GET IN TOUCH

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