



Integrated Commercial Kitchen Exhaust Solutions

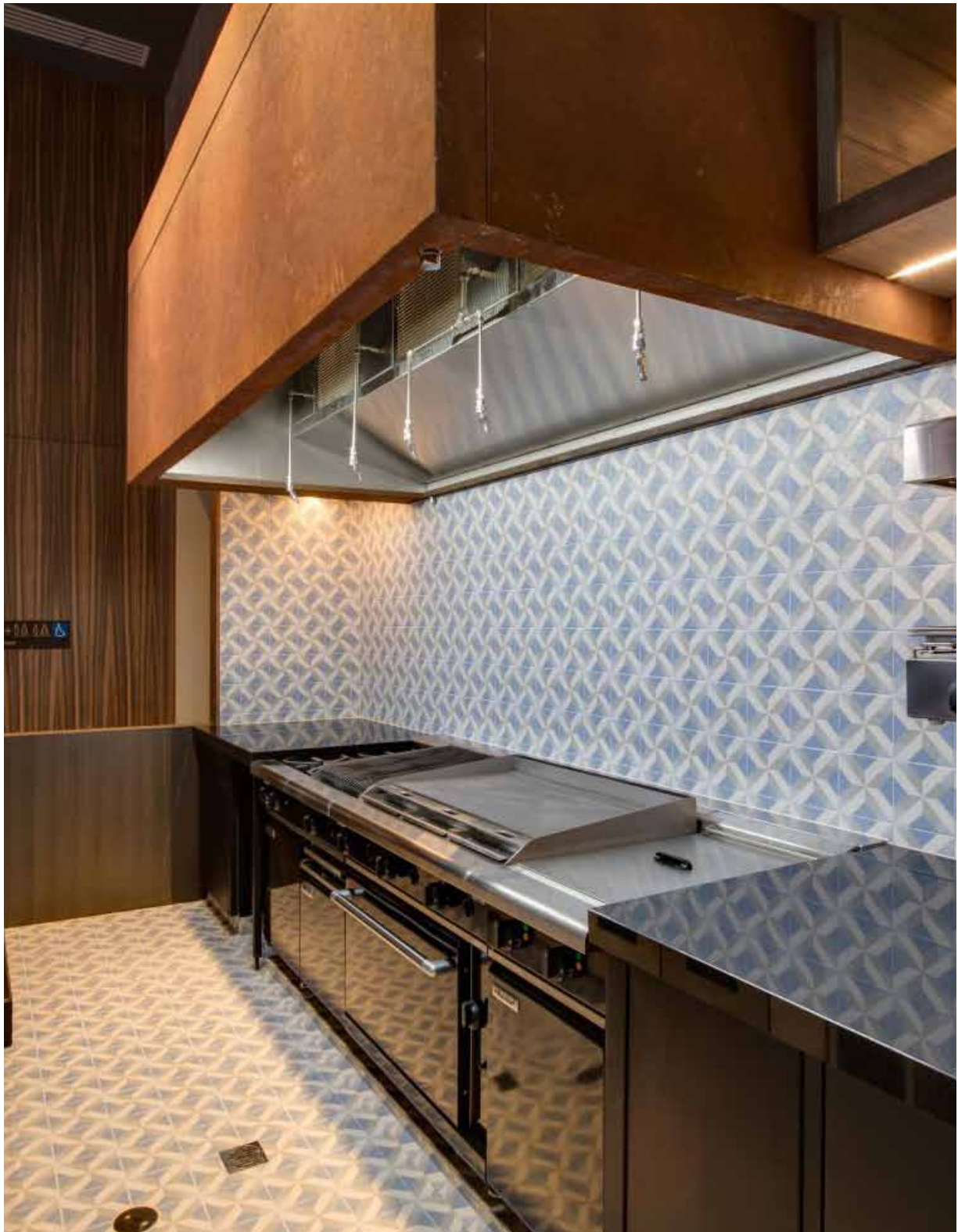


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Air and Odour Management

Engineering Confidence

Air & Odour Management Australia (AOM Australia) is a fully integrated commercial kitchen exhaust, filtration and air quality solutions company headquartered in Sydney, Australia.

With hundreds of commercial kitchen exhaust projects behind us in Australia, New Zealand and across Asia, we have grown into a trusted brand within the hospitality and building services industries.

More than just an equipment supplier, AOM Australia has developed as a stand-alone **competence centre for commercial kitchen exhaust and filtration solutions**. We have worked tirelessly with industry groups such as the Australian Institute of Refrigeration, Air Conditioning and Heating (AIRAH) to improve **industry knowledge** in commercial kitchen exhaust system design, installation and maintenance.

On the back of this industry experience and expertise, our product development has been on **innovation** with the integration of new products and developments into our catalogue in order to offer a larger range of products better adapted to different project circumstances.

2020 has been a dark year for hospitality and major changes are in place in the way that restaurants operate and consequently, in the way that project fit-outs are completed.

The focus is now on working with trusted brands, manufactured locally to meet the quality requirements of Australian Standards, whilst still ensuring cost effectiveness and customisation to different project requirements.

That is an engineering challenge that AOM Australia has accepted and we have moved to develop a range of licenced **Australian Made Products**.

Our belief is that we can supply a range of locally manufactured products that will be easier to maintain and will allow for added customisation and flexibility in design, installation and maintenance.

AOM Australia has significantly invested in this development which is presented for the first time within this catalogue of products.

We hope that our partners and clients appreciate these improvements, and we look forward to further working with you all in the (better) years to come.

Sven Bolomey
Managing Director, AOM Australia
Sydney, October 2020

AOM Engineering Bulletin 1

Quick guide to designing a commercial kitchen exhaust system

AOM Australia Design Team views hundreds of commercial kitchen exhaust projects yearly and have a solid experience in designing to Australian Standards in many different project scenarios.

Here is a quick step by step guide to designing a commercial kitchen exhaust system with reference to AS1668 and the contents of this catalogue.

1. Estimate an exhaust airflow

Case	Estimate airflow
I only have an empty tenancy shell and need to define a potential airflow	Define the airflow based on a prospective use: <ul style="list-style-type: none"> • cafe: 1500 - 2000 L/s • take away/small restaurant: 3000 - 4000 L/s • large restaurant: >5000 L/s
I have rough dimensions of an exhaust hood and a potential cooking type	Use AS1668.2 Table 3.1 to calculate a preliminary airflow Or use the AOM Cheat Calculation of 500 L/s per linear meter of hood- this covers 90% of cases, with exception of solid fuel and heavy chargrill applications
I have a detailed cooking line and/or equipment specifications	Get a detailed exhaust airflow and potential in-hood make up air value direct from the AOM Design Team

2. Define if the system has any filtration requirements

This depends strongly on the location/constraints of the exhaust discharge point and/or if the building has any imposed requirements.

Use the **Engineering Bulletin 4** of this document to get an idea of what (if any) filtration equipment would be best suited to the project.

Case	Filtration options
The discharge point is fully compliant to AS1668.2 vertical discharge with no risk of nuisance	There are no specific requirements for filtration, other than a quality grease filter in the exhaust hood. Check to see if the grease filter needs to comply with AS1668.1 section There may be a case to minimise the build-up of grease in ducting (fire risk)
The discharge point is compliant to AS1668.2 but there is a risk of a local nuisance or separation distances to intakes are an issue	Contact AOM Australia to specify the best adapted filtration system depending on the cooking type. When little information is available the right balance needs to be found between over or under engineering a filtration. system.
There is a clear risk of local nuisance to the discharge and it system needs to meet the concession requirements to AS1668.2 section C3.10.3	Contact AOM Australia to specify the most adapted filtration system to the requirements of the project and benefit from the AOM Australia Performance Certification which will ensure that all the requirements of AS1668.2-2012 section C3.10.3 are meet.

3. Get detailed specifications to the exhaust hood

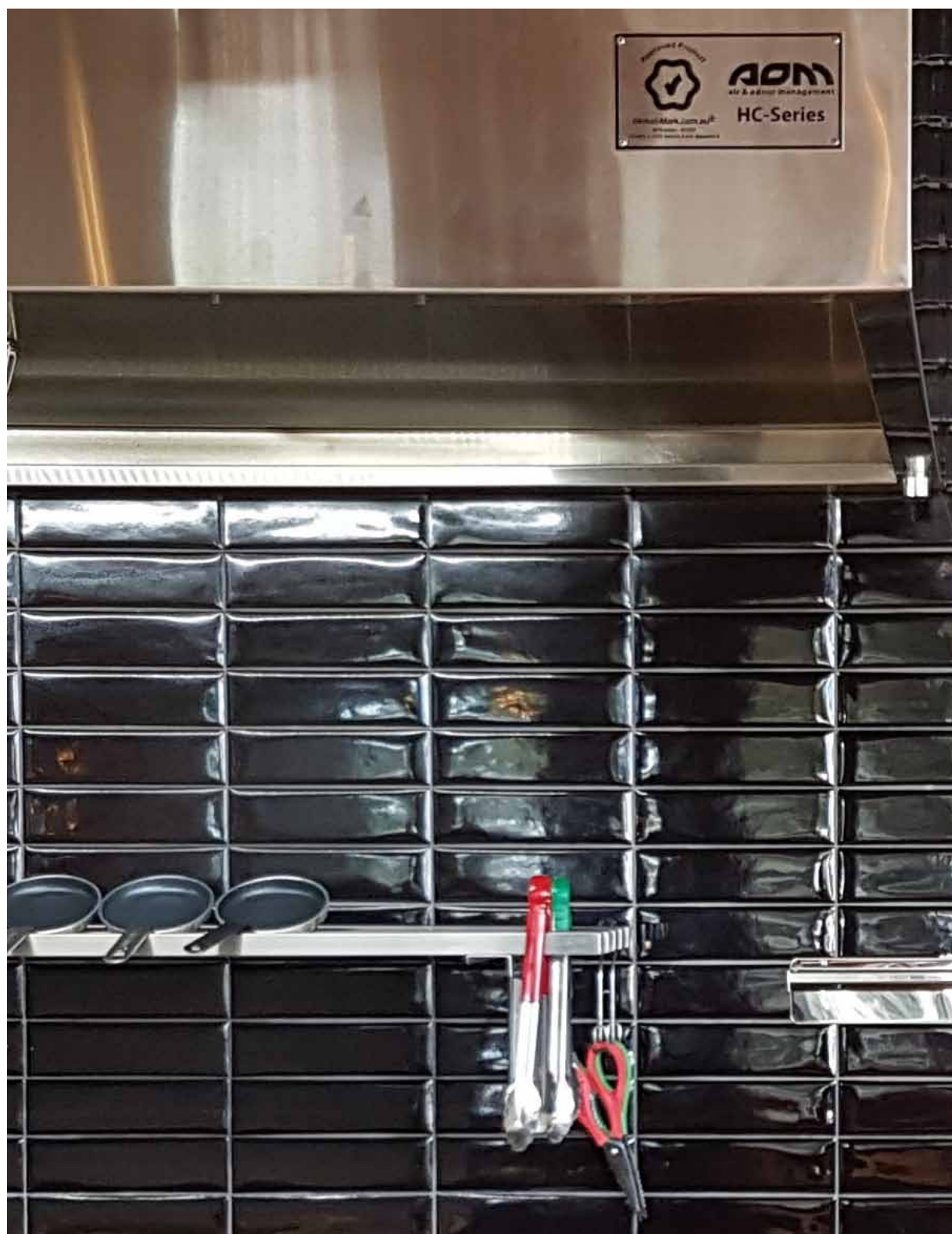
Decide where potential filtration equipment should be located:

- **in the exhaust hood** to minimise spatial and access requirements to filtration systems and to filter contaminants close to the source: AOM Australia has a full range of exhaust hoods to cater multiple situations. **See the Engineer Bulletin 3 to aid your selection.**
- **in the ducting** so that filtration is located away from the cooking and ensure continuous access.
- **in a plant room** equipped together with an exhaust fan.

On this basis, get a detailed specification sheet for the exhaust hood, potentially with a calculation sheet based on AS1668.2-2012 Section 3.6 to minimise the exhaust and make-up-air requirements. AOM Australia can provide you with this information.

4. Define the other elements to the exhaust system

Based on the above, design the ducting, specify the exhaust and make up air fans and finalise the system by making sure that the kitchen space is well balanced (remains negatively balanced).



AOM Engineering Bulletin 2

Composition of commercial kitchen exhaust

The following document is a summary of the expected emissions from different types of commercial kitchen cooking as per Australian Standards AS1668.2-2012. The information provided is based on an international bibliography study of different types of cooking methods and equipment as well as the results from an Australian Government funded AOM Australia/University of Sydney joint research project on commercial kitchen exhaust composition.

Commercial kitchen exhaust emissions are composed of the following main components:

- **Vapour and Grease Vapour:** grease vapour is the combination of grease particles and water vapour. Water vapour may condense in exhaust ducting causing grease vapour to build up in the ducting.
- **Particle Matter (PM):** generally referred to as smoke and mainly composed of grease particles in different sizes, though solid fuel emissions also contain high concentrations of ash particles. AOM Australia research has shown that emissions are mainly (>90%) composed (in concentration) of fine and ultra-fine particles (<PM2.5) which are significant contributors to urban air quality as well as a major health risk.
- **Volatile Organic Components (VOCs):** highly volatile gas compounds which form the majority of the odour component of commercial kitchen exhaust. Depending on their structure, these can also have significant health implications.
- **Other gases** emitted from combustion processes (CO₂, CO, PAHs, etc).

The following table summarises the composition of different cooking types detailed in AS1668.2-2012. AOM Australia uses this knowledge to optimise the specification of exhaust system equipment.

Cooking Type	Description (AS1668.2-2012)	Total Grease (in all forms) and other PM emissions	Grease Vapour % (remaining is Grease PM %)	VOC content
Type 1	Non-grease producing equipment and void spaces under hoods	Very Low (prep area)	100% Vapour	Very Low to negligible
Type 2	Low-grease, medium heat producing equipment such as griddles, ranges, conventional fryers, gas ovens	Low (Ovens, Fryers) Medium (Griddle, Ranges)	80-90% Vapour (Ovens, Ranges) 60-70% Vapour (Fryers, Griddles)	Medium
Type 3	High grease, low heat producing equipment such as electric deep-fat fryers, grooved griddles, hot tops and hot top ranges	Low (Fryers) Medium (Griddles, hot tops)	60-70% Vapour (Fryers, Griddles)	Medium-High
Type 4 (light)	High grease, medium heat producing equipment such as countertop BBQs and gas fired deep fat fryers	Low - Medium (Fryers) High (Electric BBQ)	60-70% Vapour (Fryers, Griddles) 30-50% Vapour (BBQ)	High
Type 4 (heavy)	Same description as previous though AOM Australia describes heavy as the use of open gas flamed char-grills for meat cooking	Very High	30-40% Vapour	Very High
Type 5	High grease, high heat producing equipment such as open flame charcoal equipment utilising solid fuel	Very High	30-40% Vapour	Very High
Type 6	Oriental cooking tables and/or woks	High	50-60% Vapour	Very High - High
Type 7	Bread ovens and steam producing combination ovens.	Low	100% Vapour	Low

AOM Engineering Bulletin 3

Kitchen exhaust hood selection guide

AOM Australia commercial kitchen exhaust hoods are certified to comply to Australian Standards AS1668.2-2012, section 3.6. Hoods are fully manufactured in stainless steel and equipped with LED lights, meeting food safety lighting requirements. Airflows are calculated using the European Standard method EN16282-1/VDI 2052 to reduce exhaust requirements. Hood models differ as per the type of in-built filtration equipment.

I'm looking for a custom-made exhaust hood in stainless steel with integrated make up air connections, high quality grease filters & LED lights. I have no requirements to treating emissions as the discharge is fully compliant and has no risk of causing a nuisance.

➤ AOM HCE Series

I'm looking for a high quality exhaust hood similar to the HCE Series exhaust hood, but I need it in a very short lead-time.

➤ AOM HCE Modular Series

depending on the requirements, our off-the-shelf modules can be dispatched from our warehouse within one week.

I'm looking for a high quality exhaust hood similar to the HCE Series model with integrated UV treatment for basic emissions treatment from light cooking.

➤ AOM HCU Series (UV)

I have requirements to treat exhaust emissions to high filtration efficiencies, as I need to ensure compliance to Australian Standards or there is a risk that emissions will cause a nuisance. I need a hood similar to the HCE model that will meet these requirements and that is backed by recognised independent testing.

➤ AOM HCFO Series with high efficiency particle filtration and odour mitigation

This exhaust hood comes with an AOM Performance Certificate

I have solid fuel cooking and need to minimise the risk of spark/embers entering the ducting. I need a high quality exhaust hood similar to the HCE Series model that meets these requirements.

➤ AOM HCM Series (Misting)

I have a light cooking process but I do not have access to an exhaust system. I need a high quality exhaust hood - either wall mounted or supplied as a table exhaust - equipped with filtration that will allow for exhaust recirculation. This needs to be backed by recognised independent testing.

➤ AOM Zurich Range (Plasma filtration)

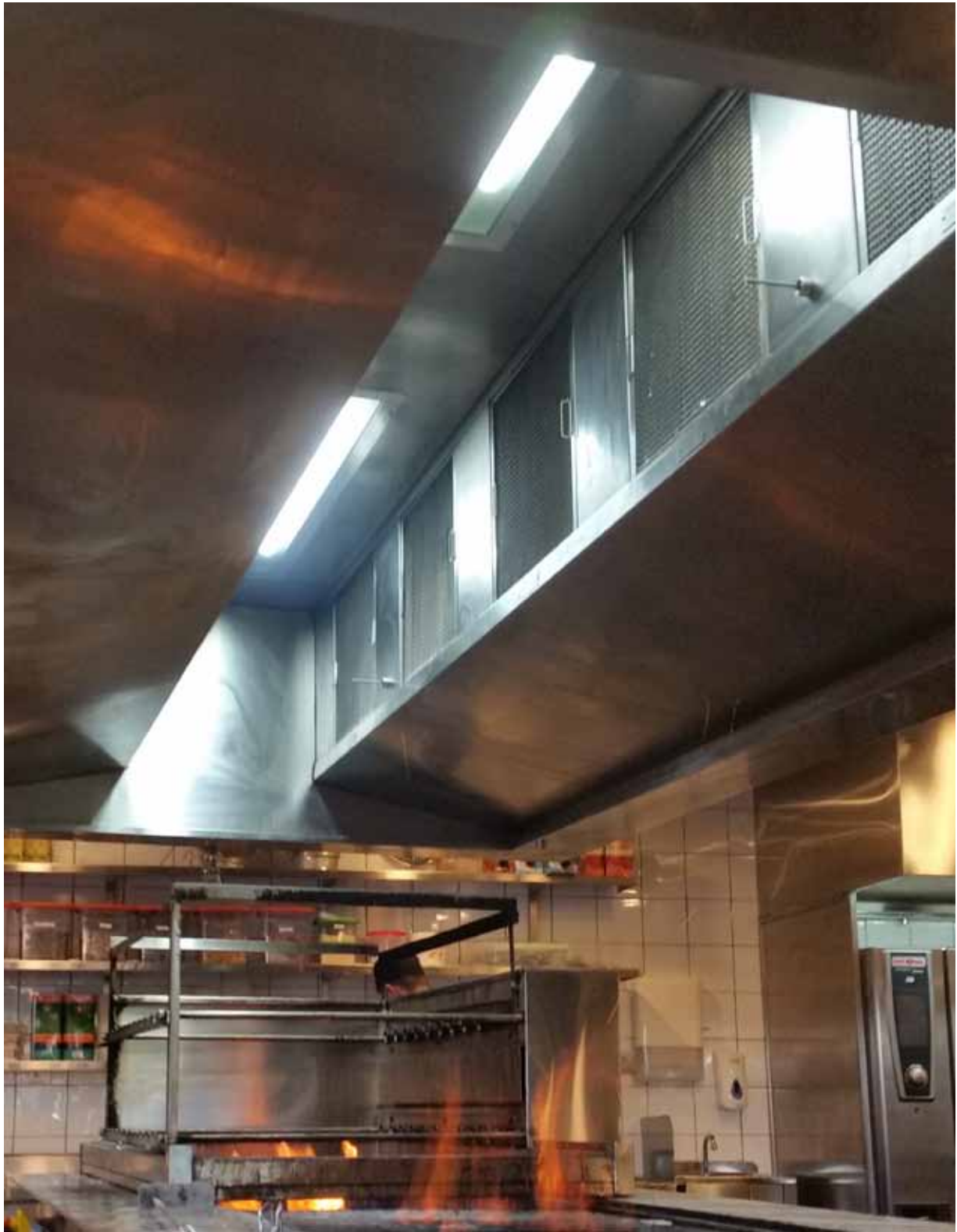
This exhaust hood comes with an AOM Performance Certificate

I need a high quality designed and manufactured residential exhaust hood and do not want to install an exhaust system. I want to benefit from high efficiency filtration that also improves my home's general indoor air quality.

➤ Galvamet Range Residential Hoods (Plasma filtration)

I'm looking for a low-quality cheap exhaust box with poor external finishes that will end up leaking grease with no or poor quality lighting and cheap aluminium grease filters.

➤ Unfortunately AOM Australia is not the right fit for you





Kitchen Exhaust Hoods

AOM range of high performance commercial kitchen exhaust hoods



HCE Series

12



HCE Modular Series

14



HCU Series (UV)

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HCFO Series (Electrostatic/Ozone)

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HCM Series (Misting)

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Zurich Range (Plasma filtration)

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Galvamet Range Residential Hoods
(Plasma filtration)

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Customised HC Series Hoods

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HCE Series Exhaust Hood

Custom-built high performance low velocity kitchen exhaust hoods certified to Australian Standards AS1668.2-2012

- **Decrease the energy consumption of the kitchen exhaust system by optimising exhaust and make up airflow values**
AOM provides detailed airflow calculation sheets based on the VDI 2052 method (now EU Standard) to support this
- **Benefit from high-quality stainless steel finishes, energy saving LED lights and connections to in-built make up air**
- **Integrate the ANSUL range of fire suppression systems**
AOM Australia is a certified supplier of ANSUL R-102 and Piranha restaurant fire suppression systems



Features

Designed to be the most efficient, cost effective and sustainable solution for kitchen exhaust air collection and treatment.

- High quality manufacturing in 304 SS 1.2mm stainless steel
- Equipped with high efficiency AOM range of **stainless steel grease filters** (either honeycomb or baffle filters)
- Energy efficient LED lighting to Australian Standards
- Integrated Make Up Air solutions include front face low velocity as well as **AOM AirStream** capture jet.

Performance hood as per Australian Standards AS1668.2-2012 section 3.6

Exhaust airflows calculation sheet provided with every exhaust hood based on VDI Standard 2052

Custom-made to suit the project's needs

With a network of manufacturers covering Australia, New Zealand, Asia-Pacific as well as further international partners, AOM HCE series hoods are manufactured locally and custom-made to meet the requirements for each individual commercial cooking line.

Certification and Testing

- Exhaust hoods certified by Globemark certification to Australian Standard AS1668.2-2012 Mechanical Ventilation in Buildings

Key Clients

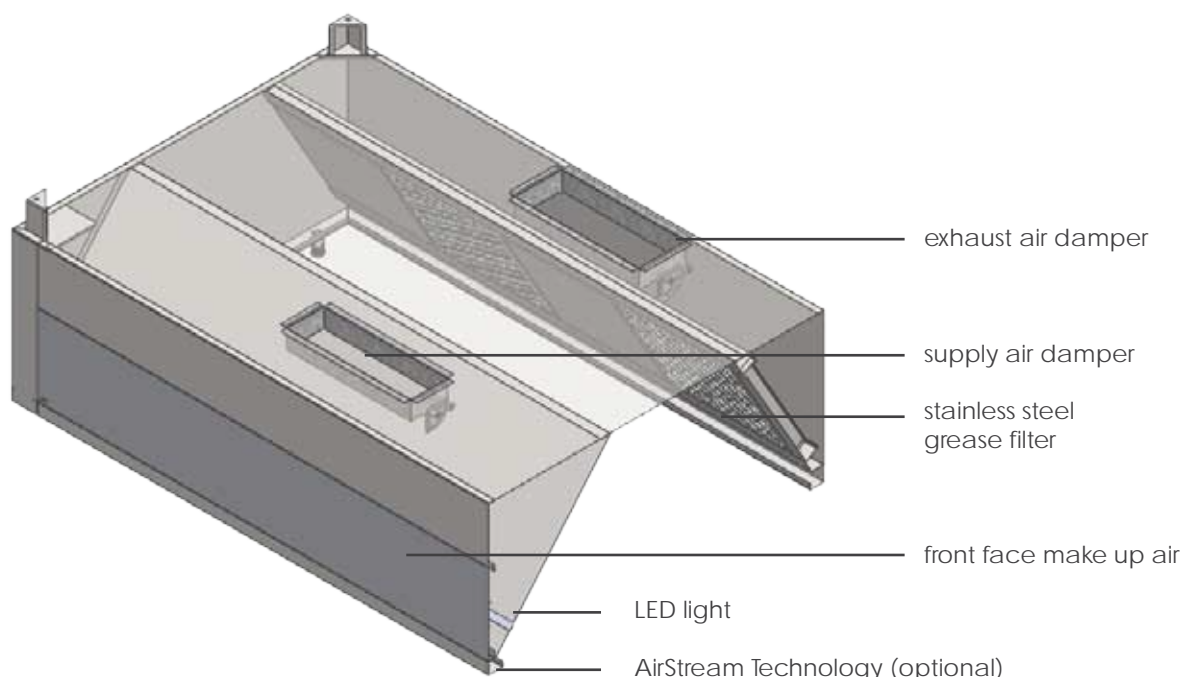




Technical Data

Hood Models

HCE	Standard wall-mounted exhaust hood with air supply plenum
HCIE	Standard island configuration exhaust hood with air supply plenum



Standard Specifications

Dimensions (mm)	Length	Based on the requirements of Australian Standards AS1668.2-2012/
	Width*	International standards and using the additional experience of AOM
	Height**	Based on the available space and the floor to ceiling to slab dimensions
Airflow (l/s)	Exhaust	Based on the requirements of Australian Standards AS1668.2-2012, German Standard VDI 2052 section 3.6, EU Standards & US Standards
	Supply	In-hood make up air supply generally fixed at 60% of exhaust airflow AirStream technology 10% of make up air supply (optional)
Material		Stainless steel 304 No.4 at 1.2mm thickness
Pressure drop (clean)	Exhaust	65-125 pa depending on the choice of grease filter
	Supply	45 pa
Potential extras		Scroll fans for make up air supply SCRUBBOX electrostatic units for high efficiency particle filtration Ozone Generators for odour mitigation ANSUL in hood fire suppression systems (R-102 or Piranha)

* The width range for HCE: 1200mm-1900mm; HCIE: 1900mm-3600mm

** The height range for HCE & HCIE: 400mm-1000mm;

HCE Modular Series Exhaust Hood

Off-the-shelf modules of high quality AOM designed HCE Series kitchen exhaust hoods

- Significantly lower manufacturing lead-times whilst benefiting from all the advantages of a custom-made HCE Series commercial kitchen exhaust hood
- Benefit from the price advantage of a modular build
Modular hoods are 20-30% cheaper than a custom-made equivalent



Features

The AOM Modular hoods are off-the-shelf variants of the AOM HCE Series range of commercial kitchen exhaust hoods, to eliminate lengthy manufacturing lead times and positively impact project timelines.

- High quality manufacturing in 304 SS 1mm stainless steel
- Equipped with high efficiency AOM range of **stainless steel grease filters** (either honeycomb or baffle)
- Energy efficient LED lighting to Australian Standards
- Integrated Make Up Air solution includes front face low velocity.

No manufacturing lead times

Modules are available off-the-shelf from our NSW warehouse, thus removing the need for lengthy manufacturing lead times and positively influencing hospitality project timelines.

Competitive pricing for a high-quality product

In addition to high quality manufacturing and equipment, the modules have the added advantage of being highly cost effective.

Certification and Testing

- Exhaust hoods certified by Globemark certification to Australian Standard AS1668.2-2012 Mechanical Ventilation in Buildings

Key Clients





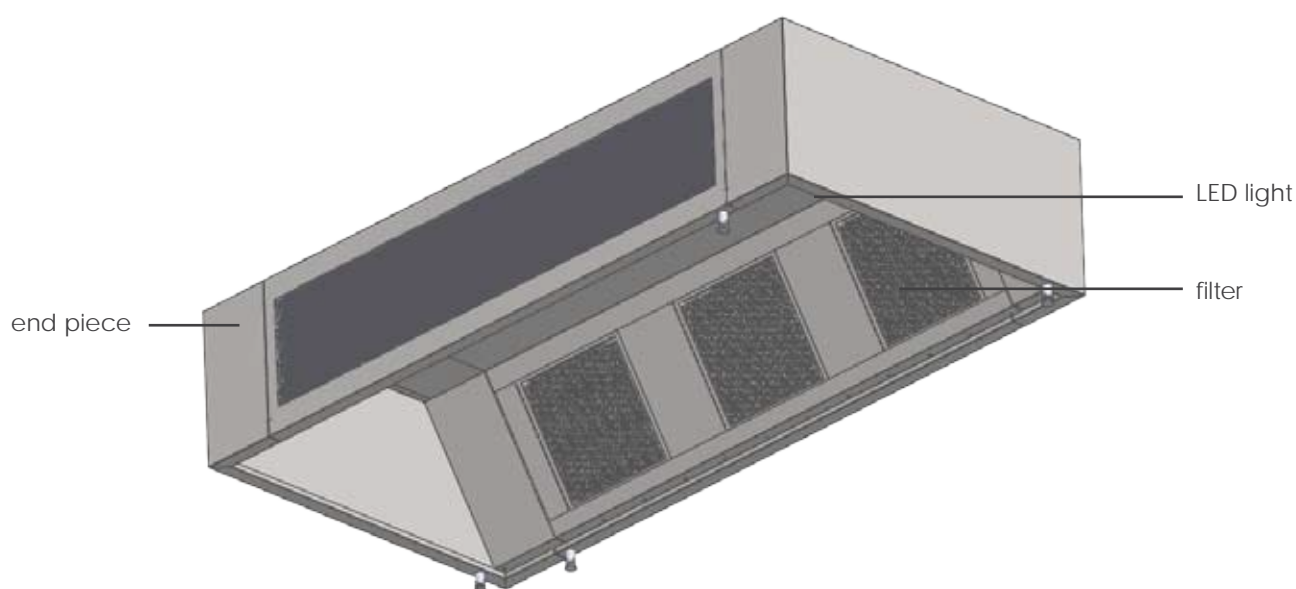
Technical Data

Modules come in three sizes and are open ended to be either assembled together or fitted with the required end piece. End pieces are also available in two different sizes to allow for additional flexibility with regards to side overhangs.

Modules are manufactured to a fixed 1400 mm width which meets the requirements of the front overhang for many standard commercial kitchen equipment selections ranging from chargrills to woks and combination ovens.

Modules are manufactured to a fixed height of 550 or 600 mm, depending on availability.

Modules can either be wall mounted or can be attached back to back to be installed in an island hood configuration.



Standard Specifications

Model		M1	M2	M3
Dimensions (mm)	Length	1500	2250	2900
	Width	1400	1400	1400
	Height	550 or 600	550 or 600	550
Airflow (L/s)	Exhaust	max 1000 L/s	max 1500 L/s	max 2000 L/s
	Supply	in-hood make up air supply generally fixed at 50% of exhaust airflow		
Material		Stainless Steel 304 No. 4 at 1 mm thickness		
Pressure drop (clean)	Exhaust	65-125 pa depending on the choice of grease filter		
	Supply			
End pieces	E1	Additional 160 mm end piece able to be fixed on right and left hood ends		
	E2			

HCU Series Exhaust Hood [UV Treatment]

High performance low velocity kitchen exhaust hood for cost-effective grease and odour control using UV technology

- **Improve a base model HCE Series hood particle and odour treatment** by including built-in UV treatment thus decreasing the build-up of grease in the ducting
- **Minimising the risk of nuisance of exhaust discharges** for light type cooking processes by benefiting from both the capacity for particle and odour breakdown of the UV treatment
- **Integrate the ANSUL range of fire suppression systems**
AOM Australia is a certified supplier of ANSUL R-102 and Piranha restaurant fire suppression systems



Features

Designed to be the most efficient, cost effective and sustainable solution for kitchen exhaust air collection and treatment.

- High quality manufacturing in 304 SS 1.2mm stainless steel
- Equipped with high efficiency AOM range of **stainless steel baffle grease filters**
- Energy efficient LED lighting to Australian Standards
- Integrated Make Up Air solutions include front face low velocity as well as **AOM AirStream** capture jet.

UV treatment system supplied by a recognised Australian UV lamp supplier as ozone producing 254 nm wavelength certified to 100,000 hours of typical service life.

Key Clients



Performance hood as per Australian Standards AS1668.2-2012 section 3.6

Exhaust airflows calculation sheet provided with every exhaust hood based on VDI Standard 2052

Custom-made to suit the project's needs

With a network of manufacturers covering Australia, New Zealand, Asia-Pacific as well as further international partners, AOM HCU series hoods are manufactured locally and custom-made to meet the requirements for each individual commercial cooking line.

Certification and Testing

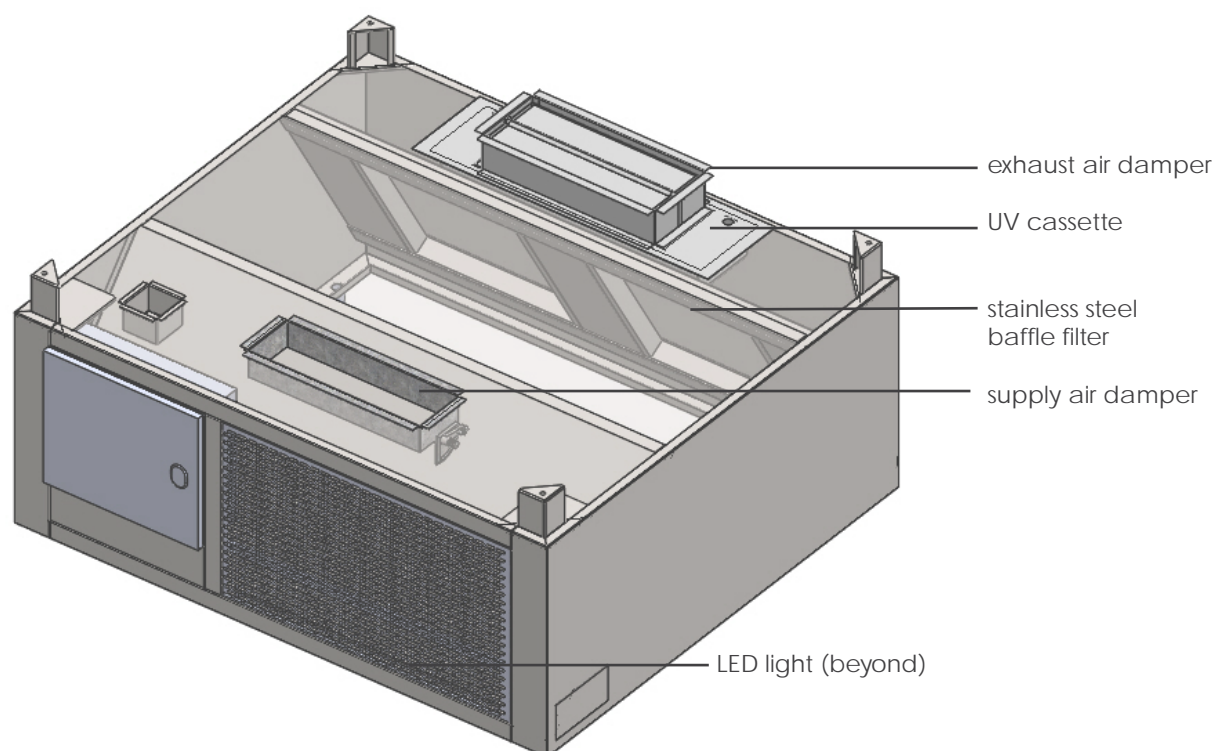
- Exhaust hoods certified by Globemark certification to Australian Standard AS1668.2-2012 Mechanical Ventilation in Buildings



Technical Data

Hood Models

HCU	Standard wall-mounted exhaust hood with UV cassette & air supply plenum
HCIU	Standard island exhaust hood with UV cassette & air supply plenum



Standard Specifications

Dimensions (mm)	Length	Based on the requirements of Australian Standards AS1668.2-2012/
	Width*	International standards and using the additional experience of AOM
	Height**	Based on the available space and the floor to ceiling to slab dimensions
Airflow (l/s)	Exhaust	Based on the requirements of Australian Standards AS1668.2-2012, German Standard VDI 2052 section 3.6, EU Standards & US Standards
	Supply	In-hood make up air supply generally fixed at 60% of exhaust airflow AirStream technology 10% of make up air supply (optional)
Material		Stainless steel 304 No.4 at 1.2mm thickness
Pressure drop (clean)	Exhaust	125 Pa
	Supply	45 pa
Potential extras		Scroll fans for make up air supply SCRUBBOX electrostatic units for high efficiency particle filtration Ozone Generators for odour mitigation ANSUL in hood fire suppression systems (R-102 or Piranha)

* The width range for HCU: 1200mm-1900mm; HCIU: 1900mm-3600mm

** The height range for HCU & HCIU: 500mm-1000mm

HCFO Series Exhaust Hood [Electrostatics]

High performance low velocity kitchen exhaust hood for high efficiency filtration of grease and smoke with in-built electrostatic precipitators as well as odour mitigation

- **Decrease Fire Risk of Exhaust System** through high efficiency particle/grease filtration (98%) built into the exhaust hood
- **Comply to AS1668.2-2012 section C3.10.3 Concessions for horizontal discharge** for all cooking process types based on the AOM Performance Certification for this model hood
- **Minimise the risk of nuisance of exhaust discharges** through high efficiency particle filtration and odour mitigation
- **Integrate the ANSUL range of fire suppression systems**
AOM Australia is a certified supplier of ANSUL R-102 and Piranha restaurant fire suppression systems



Features

The AOM HCFO Series hoods eliminate grease, smoke and odour from all types of cooking processes.

- High quality manufacturing in 304 SS 1.2mm stainless steel
- Energy efficient LED lighting to Australian Standards
- Integrated Make Up Air solutions include front face low velocity as well as **AOM AirStream** capture jet

Equipped with AOM FILTRAIR™ technology

AOM high efficiency FILTRAIR™ technology is comprised of a three-stage filtration system:

1. AOM stainless steel grease filters
2. AOM electrostatic cells for grease and smoke filtration (in-built in hood)
3. AOM OG Series Ozone Generators for odour mitigation (optional).

Certification and Testing

- Exhaust hoods certified by Globemark certification to Australian Standard AS1668.2-2012 Mechanical Ventilation in Buildings
- Performance Certification supplied to fully comply with AS1668.2-2012 Section C3.10.3 Concessions to horizontal discharge of commercial kitchen exhaust
- Particle Filtration tested and certified to 98% at 0.3 micron to a range of international standards as well as local independent testing (University of Sydney)
- Odour mitigation tested and certified up to 90% based on relevant Australian Standard to Odour Assessments (AS 4323.3)

Key Clients

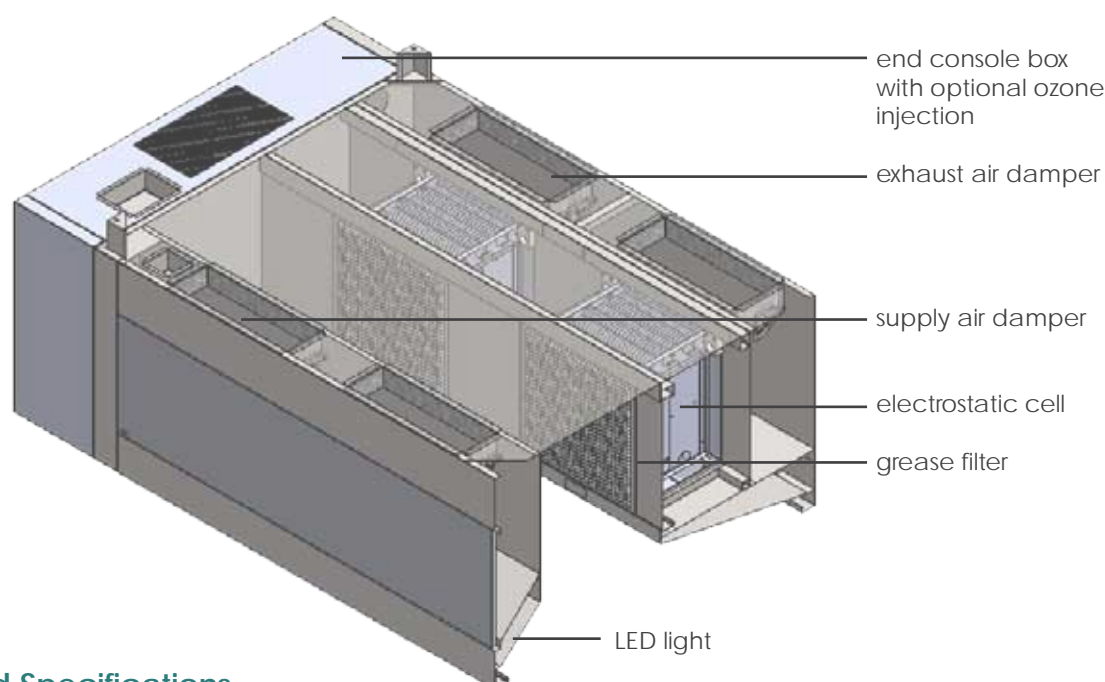




Technical Data

Hood Models

HCFO	Standard wall-mounted exhaust hood with single pass electrostatic filters, ozone generators and air supply plenum
HCF	Standard wall-mounted exhaust hood with electrostatic filters and air supply plenum
HCPFO	Standard wall-mounted exhaust hood with double pass electrostatic filters, ozone generators and air supply plenum



Standard Specifications

Dimensions (mm)	Length	Based on the requirements of Australian Standards AS1668.2-2012/ International standards and using the additional experience of AOM
	Width*	
	Height**	
Airflow (l/s)	Exhaust	Based on the requirements of Australian Standards AS1668.2-2012, German Standard VDI 2052 section 3.6, EU Standards & US Standards
	Supply	In-hood make up air supply generally fixed at 60% of exhaust airflow AirStream technology 10% of make up air supply (optional)
Material		Stainless steel 304 No.4 at 1.2mm thickness
Pressure drop (clean)	Exhaust	75 pa depending on the choice of grease filter
	Supply	45 pa
Potential extras		Scroll fans for make up air supply SCRUBBOX electrostatic units for high efficiency particle filtration CARBONBOX carbon modules for final odour mitigation ANSUL in hood fire suppression systems (R-102 or Piranha)

* The width range for HCFO: 1200mm-1900mm; HCIFO: 1900mm-3600mm

** The height range for HCFO & HCIFO: 500mm-1000mm

HCM Series Exhaust Hood [Misting]

High performance low velocity kitchen exhaust hood for in-built cold misting and/or hot water wash

- **Decrease Fire Risk of Exhaust System when cooking solid fuel:** through ember and spark capture/containment through cold water mist filtration
- **Decrease Hood Maintenance:** through in-built hot water wash in the hood exhaust plenum



Features

The AOM HCM Series hoods are used mainly for solid fuel cooking in order to intercept spark and embers at the hood level.

- High quality manufacturing in 304 SS 1.2mm stainless steel
- Energy efficient LED lighting to Australian Standards
- Integrated Make Up Air solutions include front face low velocity as well as **AOM AirStream** capture jet
- Fine Cold Water mist for spark and ember interception
- Optional Hot Water in-hood washing to decrease the manual servicing maintenance of the exhaust hood

Performance hood as per Australian Standards AS1668.2-2012 section 3.6

Exhaust airflows calculation sheet provided with every exhaust hood based on VDI Standard 2052

Custom-made to suit the project's needs

With a network of manufacturers covering Australia, New Zealand, Asia-Pacific as well as further international partners, AOM HCM series hoods are manufactured locally and custom-made to meet the requirements for each individual commercial cooking line.

Certification and Testing

- Exhaust hoods certified by Globemark certification to Australian Standard AS1668.2-2012 Mechanical Ventilation in Buildings

Key Clients

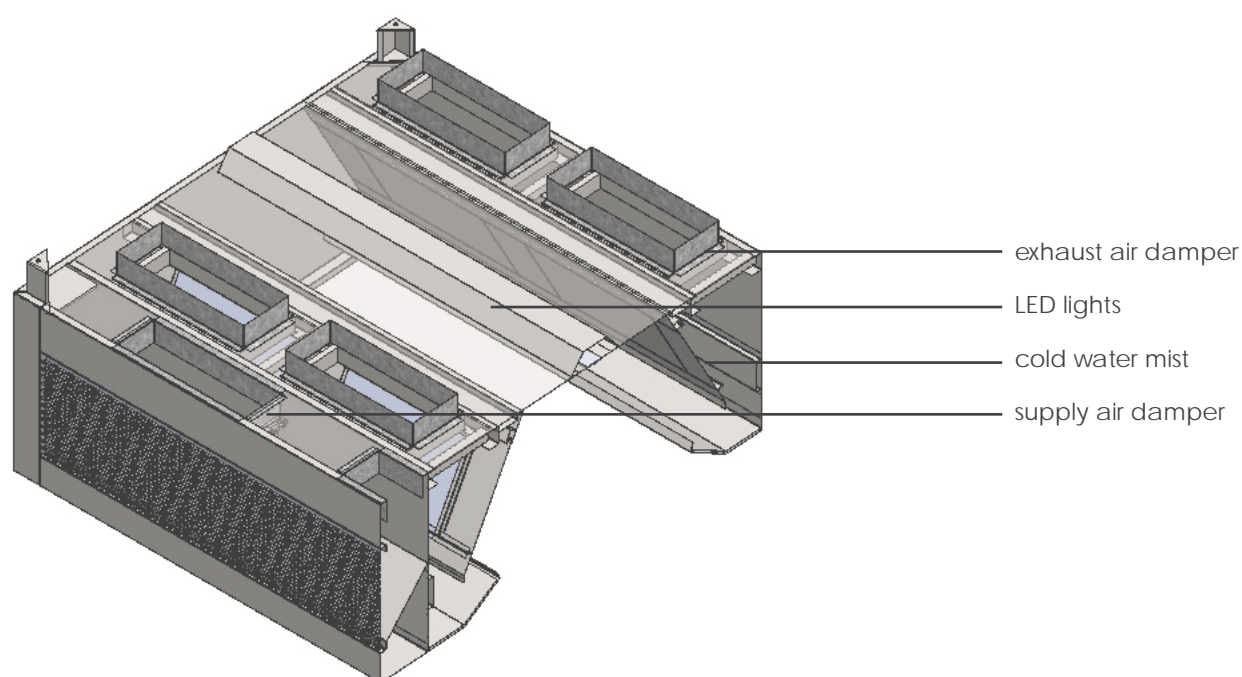




Technical Data

Hood Models

HCM	Standard wall-mounted exhaust hood with cold water mist
HCM+	Standard wall-mounted exhaust hood with cold water mist and hot water wash
HCIM	Standard island exhaust hood with cold water mist
HCIM+	Standard island exhaust hood with cold water mist and hot water wash



Standard Specifications

Dimensions (mm)	Length	Based on the requirements of Australian Standards AS1668.2-2012/
	Width*	International standards and using the additional experience of AOM
	Height**	Based on the available space and the floor to ceiling to slab dimensions
Airflow (l/s)	Exhaust	Based on the requirements of Australian Standards AS1668.2-2012, German Standard VDI 2052 section 3.6, EU Standards & US Standards
	Supply	In-hood make up air supply generally fixed at 60% of exhaust airflow AirStream technology 10% of make up air supply (optional)
Material	Stainless steel 304 No.4 at 1.2mm thickness	
Pressure drop (clean)	Exhaust	90 pa
	Supply	45 pa
Potential extras	Scroll fans for make up air supply SCRUBBOX electrostatic units for high efficiency particle filtration Ozone Generators for odour mitigation ANSUL in hood fire suppression systems (R-102 or Piranha)	

* The width range for HCM: 1200mm-1900mm; HCIM: 1900mm-3600mm

** The height range for HCM: 500mm-1000mm

Zurich Range Exhaust Hood [Plasma Filtration]

High quality exhaust hood integrating state of the art plasma/activated carbon filtration for high efficiency treatment of light commercial kitchen exhaust

- **Decrease odour emissions from light cooking process types:** using state of the art compact plasma/activated carbon filters designed, manufactured and tested in Germany
- **Comply to AS1668.2-2012 section C3.10.3 Concessions for horizontal discharge** for light cooking types based on the AOM Performance Certification for this model hood
- **Allow for high efficiency treatment of kitchen exhaust in recirculating residential hoods** either using off-the-shelf exhaust hoods or custom stainless steel built



Introducing Plasma Air filtration technology

AOM Zurich Range of hoods integrate plasma air filtration technology to achieve incomparable filtration efficiencies. Plasma is produced using high voltage with a very little current and has therefore a low energy consumption.

Cold plasma breaks down odour gases (as well as smoke particles, viruses, bacteria) which get caught by the high tech activated carbon mosaic. This in turns leaves the activated carbon pores free and clean, meaning the filter works without maintenance.

Available in a large range of shapes and sizes to suit many different applications.

Key advantages of plasma filtration

- High efficiency odour mitigation and air filtration allowing for recirculating hoods
- No maintenance and long duration: no consumables to be changed during its entire lifetime
- Low energy consumption
- Low resistance filter which can be fitted and retrofitted into existing exhaust hoods or supplied in custom-made/off-the-shelf Zurich range hoods.

Certification and Testing

- VDE Approved and manufactured to all relevant EU/German norms including non ozone producing device
- Tested to 98% odour mitigation efficiency for light type cooking processes
- Tested without fail for 20,000 hours of working state generating plasma and treating air

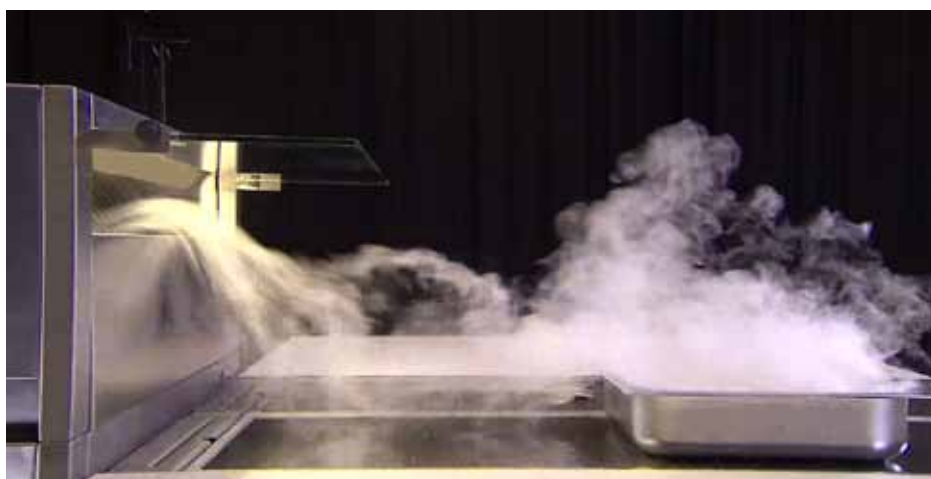


Technical Data

Hood Models available with Integrated Plasma Filtration

Zurich Range Table Exhaust	With integrated fan and plasma filtration Specifically designed table exhaust hood for cooking of light meals in front of customers in a buffet type situation
Zurich Range Wall Mount	With integrated fan and plasma filtration Specifically designed for recirculation of light cafe cooking where no mechanical exhaust system is available
AOM HCE Series hoods	Integrate plasma filtration into the range of AOM HCE Series kitchen exhaust hoods
Galvamet Residential Hoods	Italian designed and manufactured residential exhaust hoods with integrated fan and plasma filtration allowing for recirculation of the kitchen exhaust

AOM Zurich Range Table Exhaust Hood with integrated plasma filtration



Galvamet Range Residential Hood

AOM Australia stocks Galvamet model residential exhaust hoods which integrate Plasma filtration within a high quality manufactured and Italian designed exhaust hood

- Allow for **high efficiency treatment of kitchen exhaust** in recirculating residential hoods
- Benefit from high quality Italian manufacturing and design for a luxurious residential kitchen finish without external ducting requirements
- Exhaust hoods can be run as indoor air purifiers to maintain indoor air free from odours, viruses, bacteria, VOCs and odours



Key Features

Adjustable with a time delay switch: a feature that allows you to set the delayed shutdown of the unit, so that the right level of air cleanliness in your kitchen is restored within the shortest possible time.

Light indicator for anti-grease filter maintenance: Automatic warning for filter cleaning required. Appropriate cleaning of these filters ensures protection of internal components of the hood.

Plasma filter technology: guarantees a 95% odour reduction capacity (EN 61591), as well as the total mitigation of viruses, microbes and bacteria present in the air.

Remote control: with radio technology to remotely control all the functions of the hood.

Certification and Testing

- VDE Approved and manufactured to all relevant EU/German norms including non ozone producing device
- Tested to 98% odour mitigation efficiency for light type cooking processes
- Tested without fail for 20,000 hours of working state generating plasma and treating air
- Exhaust hood manufactured to European Standards and with the requirements included in the following Directives: 2006/95EC (Low Voltage Directive), 2004/108 (Electromagnetic Compatibility)



Technical Data

Current hood models available with Integrated Plasma Filtration

Other models (wall mounted, island, stainless steel) available upon request

GLOBO (PLASMA)



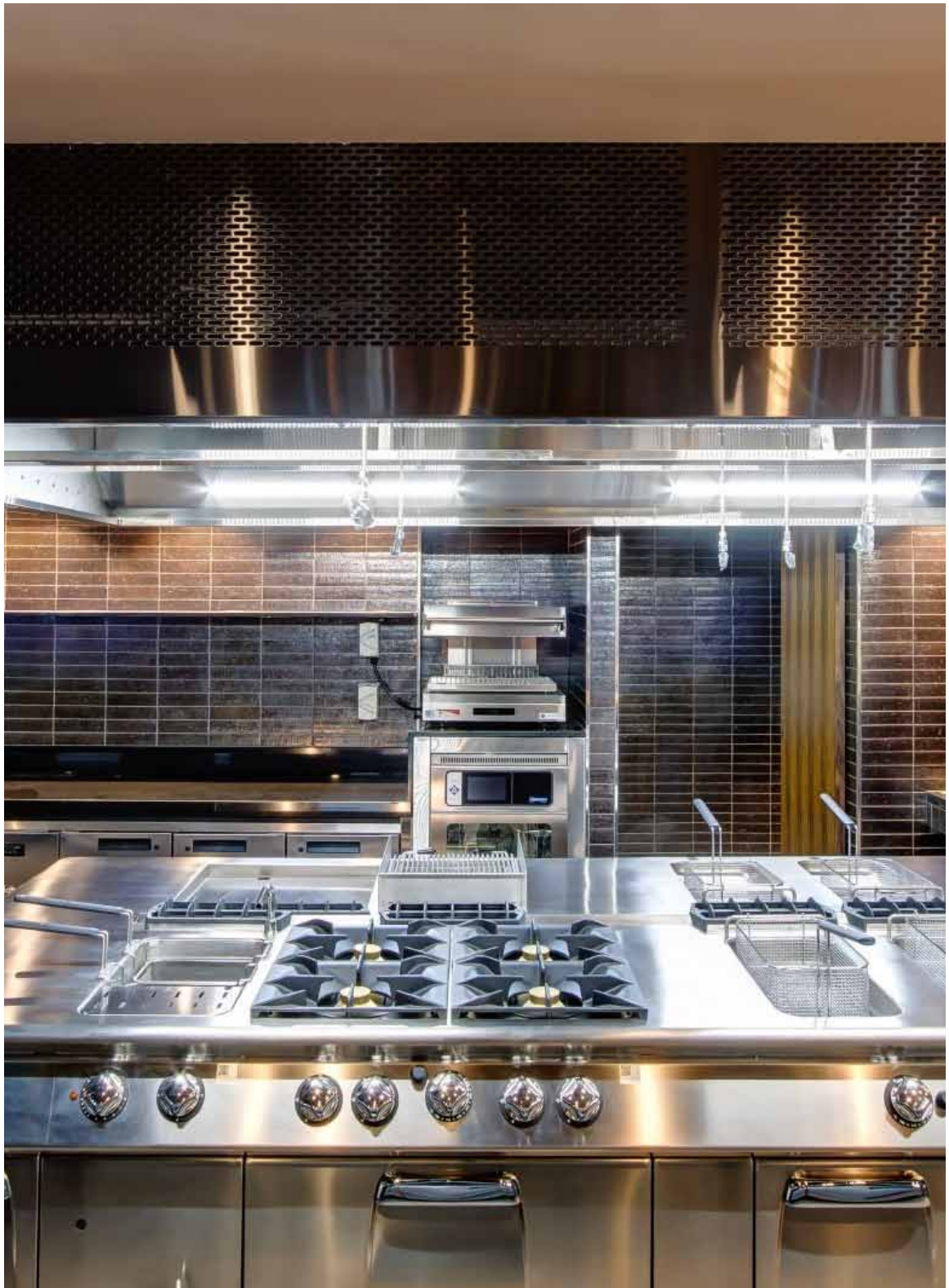
MASAI (PLASMA)



Standard Specifications

	GLOBO	MASAI
Installation	Ceiling	Ceiling
Dimensions (mm)	57 cm Diameter	60 x 100 cm
Finishing	Murano black/White blow glass	Inox
Versions	Recycling with Plasma Filtratio	Recycling with Plasma Filtration
Controls	Radio remote control	Radio remote control
Lights	LED	LED
Max Airflow	450 m3/hour	450 m3/hour
Motor Power	275 W	170 W
Lighing Power	10 W	3 x 1.3 W
Plasma Filter Power	10 W (max)	10 W (max)
Max noise	67 dB	69 dB

Note: Masai unit has a 24 hr Comfort feature: a function that sets the unit to rhythmic cycles: 5 min ON - 25 minutes OFF and created to clean the air of latent odours and residues, such as tobacco smoke, air cleaners or others. The function is easily activated and/or deactivated, or left on until the end of 24 hours, when it will automatically turn off. The function is designed to purify the air in the room when hob and hood are not in use.





Customised HC Series Hoods

AOM HC Series Hoods can be fully customised to meet specific interior design requirements

AOM design team members can liaise directly with Clients or interior designers to produce a customised kitchen exhaust hood.

Options include:

- Pre-installed cladding supports
- Stainless steel based cladding finishes
- Hood manufactured in coloured stainless steel



Key Clients



Black stainless steel hoods as well as cladded rusted hoods were supplied to the Intercontinental project in Perth



Black coated hoods were supplied to the Momi Bay project in Fiji







Kitchen Filtration Solutions

AOM range of filtration equipment for different project scenarios

HS Series Stainless Steel Honeycomb Filters

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BF Series Stainless Steel Baffle Filters

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SCRUBBOX Electrostatic Precipitators

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T Series MISTBOX

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T Series ECOBOX

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T Series ECOBOX+

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T Series ECOBOXeasy

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AOM Engineering Bulletin 4

Cooking types and filtration needs

Commercial kitchen exhaust composition as per AS1668.2-2012 Cooking Types were presented in the Engineering Bulletin 2. The following document provides a synopsis of different filtration requirements to achieve specific outcomes under different project scenarios on the basis of these cooking types.

AOM Australia has summarised three different project scenarios that may require different forms of filtration equipment. On this basis, the adjacent table provides options for the selection of Particle Matter filtration and Odour mitigation equipment. Three scenarios are defined as:

- 1. Do Nothing Scenario:** this scenario summarises the impact of cooking emissions when no treatment solution - other than a standard in-hood grease filter - is proposed.
- 2. Voluntary Treatment Scenario:** This scenario summarises the recommended treatment should a filter be chosen to treat the commercial kitchen exhaust emissions even though the air discharge point is compliant to Australian Standards and the risk of causing a nuisance is small. The main objective in this case is often to remove Particle Matter (visible smoke at discharge, build-up of grease in ducting).
- 3. Compulsory Treatment Scenario:** This scenario summarises the recommended treatment for a non-compliant discharge point, requiring an Engineered Solution designed on the basis of a proven filtration performance to the AS1668.2-2012 section 3.10.3 *Concession* requirements. An AOM Performance Certification is required to ensure compliance and can be presented during the course of the Development Application process.

Notes to filtration efficiencies presented in the adjacent table:

- The choice of single/double or double/triple pass electrostatic precipitators depends upon the sensitivity of the discharge point.
- UV treatment: current research shows that UV treatment has an insignificant impact of grease particle matter but that it may decrease grease vapour loads as well as breakdown VOC content (ozone). A similar outcome can be achieved with direct ozone injection into the exhaust hood using an ozone generator.
- Single pass in-hood or in-duct electrostatic precipitator: proven to remove up to 98% of particle matter for the selected cooking types.
- Double pass in-hood or in-duct electrostatic precipitator: proven to remove up to 98% of particle matter for selected cooking types (triple pass recommended in highly sensitive cases as a backup filter).
- Ozone injection (20 g/h for every 1000 l/s of exhaust) and Activated Carbon: proven to remove up to 90% of Volatile Organic Compounds (VOC) content allowing for significant odour mitigation fractional efficiencies.
- Misting systems: AOM Australia recommends using a misting system for solid fuel to mitigate the risk of spark and embers entering the exhaust system. Ideally, the misting system is located after electrostatic precipitators have removed grease vapour and particle matter.

Cooking Type	Do Nothing Minimal filtration- preliminary grease filter (honeycomb or baffle) at the hood level	Compliant Voluntary Treatment For particle matter filtration and/or minimising build-up of grease in ducting	Non-Compliant Compulsory Treatment High efficiency particle filtration coupled with odour mitigation to independently tested odour removal efficiencies allowing for an AS1668.2-2012 concessions
Type 1	No issue	No specific treatment	No specific treatment
Type 2	<ul style="list-style-type: none"> - Build-up of grease in ducts - Low concentrations of particle matter emissions - Odour discharge that may cause a nuisance 	<ul style="list-style-type: none"> - In-hood UV treatment OR direct ozone injection - In-hood or in-duct single pass electrostatic precipitator - Plasma filtration (in-hood or in-duct) for smaller airflows 	<ul style="list-style-type: none"> - Single pass electrostatic precipitators (in hood or in duct) and odour control through ozone injection or activated carbon - Plasma filtration (in-hood or in-duct) for smaller airflows.
Type 3	<ul style="list-style-type: none"> - Build-up of grease in ducts - Low concentrations of particle matter emissions - Odour discharge that may cause a nuisance 	<ul style="list-style-type: none"> - In-hood UV treatment OR direct ozone injection - In-hood or in-duct single pass electrostatic precipitator - Plasma filtration (in-hood or in-duct) for smaller airflows 	<ul style="list-style-type: none"> - Single pass electrostatic precipitators (in-hood or in-duct) and odour control through ozone injection or activated carbon - Plasma filtration (in-hood or in-duct) for smaller airflows.
Type 4 (light)	<ul style="list-style-type: none"> - Significant build-up of grease in ducts - High concentrations of particle matter emissions - Significant odour discharge that may cause a nuisance 	<ul style="list-style-type: none"> - In-hood or in-duct single pass electrostatic precipitator 	<ul style="list-style-type: none"> - Single or Double pass electrostatic precipitators (in-hood or in-duct) and odour control through ozone injection or activated carbon
Type 4 (heavy)	<ul style="list-style-type: none"> - Significant build-up of grease in ducts - Very high concentrations of particle matter emissions - Significant odour discharge that may cause a nuisance 	<ul style="list-style-type: none"> - Hood grease filter to be high efficiency UL listed - In-hood or in-duct single or double pass electrostatic precipitator 	<ul style="list-style-type: none"> - Double or Triple pass electrostatic precipitators (potential for single pass in-hood and secondary filtration in-duct) and odour control through ozone injection or activated carbon
Type 5	<ul style="list-style-type: none"> - Significant build-up of grease in ducts - Very high concentrations of particle matter emissions - Significant odour discharge that may cause a nuisance 	<ul style="list-style-type: none"> - Hood grease filter to be high efficiency UL listed - In-hood or in-duct single or double pass electrostatic precipitator - In-hood or in-duct water misting system to mitigate sparks and embers 	<ul style="list-style-type: none"> - Double or Triple pass electrostatic precipitators (potential for single pass in-hood and secondary filtration in-duct) and odour control through ozone injection or activated carbon - In-hood or in-duct water misting system to mitigate sparks and embers
Type 6	<ul style="list-style-type: none"> - Significant build-up of grease in ducts - High concentrations of particle matter emissions - Significant odour discharge that may cause a nuisance 	<ul style="list-style-type: none"> - In-hood single pass electrostatic precipitator for high efficiency grease filtration 	<ul style="list-style-type: none"> - Single or Double pass electrostatic precipitators (in-hood or in-duct) and odour control through ozone injection or activated carbon
Type 7	<ul style="list-style-type: none"> - Little build-up of grease in ducts - Very low concentrations of particle matter emissions - Odour discharge that may cause a nuisance 	<ul style="list-style-type: none"> - In-hood UV treatment OR direct ozone injection - Plasma filtration (in-hood or in-duct) for smaller airflows 	<ul style="list-style-type: none"> - Odour control through ozone injection or activated carbon - Plasma filtration (in-hood or in-duct) for smaller airflows

HS Series Stainless Steel Honeycomb filters

Efficient first step high quality stainless steel in-hood grease filter certified to AS1668.2-2012 (tested to AS1530.1 as a non-combustible product)

- Lower resistance and higher efficiency than an equivalent baffle filter, to be used when AS1668.1-2015 section 6.2.9 *Flame and Spark Arrestance* conditions to Grease Filters are not applicable

Technical Data

Model	HS04	HS02
Dimensions (mm)	495 x 254 x 50 mm	495 x 495 x 50 mm
Maximum capacity	230 L/s at 2.54 m/s	515 L/s at 2.54 m/s



AOM currently stocks two sizes HS02 & HS04 however other sizes can be supplied with a minimum quantity order

Suggested specifications

The kitchen exhaust hood shall be fitted with AOM HS Series stainless steel honeycomb filters, which are tested and certified to AS 1530.1. The manufacturing and installation shall meet all relevant Australian/NZ Standards. The honeycomb filters should clearly be engraved with the AOM logo and no other filter should be fitted into the kitchen exhaust hood.

The filter's construction (filter frame and medium) shall be in stainless steel. The maximum airflow and velocity recommended shall be respected. The filters shall be installed and maintained according to AOM specifications.

Certification and Testing

Fully compliant to relevant Australian and International standards

- AS1668 Mechanical ventilation in buildings Part 1-2015 and Part 2-2012
- Tested and certified as a non-combustible material to AS1530.1

High efficiency filtration of large grease particles with low resistance tested to:

- Velocity: 1.78 m/s Clean resistance: 15 Pa Average efficiency: 97% (to 8 micron particles)
- Velocity: 2.54 m/s Clean resistance: 25 Pa Average efficiency: 96% (to 8 micron particles)



BF Series Stainless Steel Baffle filters

Efficient first step high quality stainless steel in-hood grease filter compliant to UL 1046 & ULC-S649

- Used when AS1668.1-2015 section 6.2.9 *Flame and Spark Arrestance* conditions to Grease Filters are applicable
- **UL1046 Compliant** as a **flame barrier** and made of **non combustible materials**, cost effective and easy to clean

Technical Data

Model	BF04	BF02
Nominal dimensions (mm)	495 x 254 x 46 mm	495 x 495 x 46 mm
Maximum capacity	148 L/s at 1.53 m/s	328 L/s at 1.53 m/s
		

AOM currently stocks two sizes BF02 & BF04 however other sizes can be supplied with a minimum quantity order

Suggested specification

The kitchen exhaust hood shall be fitted with AOM BF Series stainless steel baffle filters, which are tested and certified to UL 1046. The manufacturing and installation shall meet all relevant Australian/NZ Standards. The baffle filters should clearly be engraved with the AOM logo and no other filter should be fitted into the kitchen exhaust hood.

The filter's construction (filter frame and medium) shall be in stainless steel. The maximum airflow and velocity recommended shall be respected. The filters shall be installed and maintained according to AOM specifications.

Certification and Testing

Fully compliant to relevant Australian and International standards

- AS1668 Mechanical ventilation in buildings Part 1-2015 and Part 2-2012
- Tested and certified as a non-combustible material and as a flame barrier to UL1046

Meets the requirements to NFPA Standard 96 when properly installed

AOM Engineering Bulletin 5

Understanding key design/manufacturing parameters influencing electrostatic precipitator efficiency

A range of Electrostatic Precipitators (ESPs) can be found on the market, most of which have been imported from manufacturing countries in Asia. Though the design and the functionality of the units are similar, differences exist within the units that result in significant performance and durability discrepancies. The following document looks at available research in ESP performance and provides a comparison between certain ESP units currently used for the particle filtration of commercial kitchen exhaust.

General parameters influencing ESP particle capture efficiencies

Multiple international studies have been carried out on the means of improving Electrostatic Precipitator (ESP) particle filtration efficiencies – notably since ESPs are one of the main filtration methods for removal of hazardous particles originating from industrial processes (coal burning, etc).

Skodras (2006) breaks down the main parameters as:

- The Gas Flow Field (pressure, velocities, turbulence): generally, high velocities lead to lower contact times and higher airflow turbulence, significantly affecting the performance of units.
- The Particle History (trajectories, charge, velocities, residence time, fate, etc.) including Eulerian variables (concentration, charge density, etc.): high particle concentrations, dry particles (with higher charging resistances), duct trajectories which influence turbulence all negatively impact ESP efficiency.
- Electrostatic parameters (potential, strength, ion current density): this relates to the capacity of the ESPs to charge and then capture particles and include the electrical and the mechanical parameters of the units.

The following document will look into more detail into the electrostatic parameters which are influenced by design / manufacturing choices and will review equipment specifications associated to them.

General use of Electrostatic Precipitators in treatment of commercial kitchen exhaust

ESP units are successfully employed for particle filtration of commercial kitchen exhaust, notably because:

- Commercial kitchen exhaust is composed mainly of grease particles and grease vapour, both of which are highly susceptible to electrical charging and therefore electrostatic capture.
- The viscosity of these particles means that they easily precipitate into grease trays generally located below electrostatic cells and therefore these units do not require rapping to remove particles (as used in large coal fire power plant applications).
- The units are generally made in materials adapted to the highly contaminated and corrosive nature of commercial kitchen exhaust and therefore do not increase the fire risk of the exhaust system.

Electrostatic precipitators used for the treatment of commercial kitchen exhaust have a similar design. High voltage is applied to a series of charging electrodes that create a corona charge in which particles pass through. Alternately charge collecting plates then attract particles which precipitate into trays located out of the exhaust airflow.

Minor design/manufacturing parameters can significantly influence the efficiency of the units to charge, capture and then contain particles and ensure their removal from the exhaust airflow. The following document will look into: electrical voltage, electrostatic cell design and cabinet design.

Electrical Voltage

Multiple international studies have underlined the importance of the applied voltage to the particle capture efficiencies of ESPs. As an example, Skodras (2006) states that research parameters revealed that small particles are harder to collect and that the most efficient way to increase the collecting performance is to increase the wire voltage or lower the entry velocity.

Voltages generally applied in ESP units for commercial kitchen exhaust systems are in the range of 12-14 kV for charging wires and 6-7 kV for collection plates. This range of applied voltages already generates significant differences in ESP unit filtration efficiencies when a standardised test method is compared (ASHRAE 52.2) at a similar test velocity. This is shown in the following table of a selection of units available on the local market:

Unit (Australian Supplier)	RydAir (AOS Australia)	CFM (CMF Australia)	SCRUBBOX (AOM Australia)
Applied High/Low voltage (as per suppliers' specifications)	12 kV/6 kV	13.5 kV/6.5 kV	14 kV/7 kV
ASHRAE 52.2 efficiencies for particle range 0.3-0.4 micron	91.6% @ 2.54 m/s	91% @ 2.59 m/s	95.7% @ 2.97 m/s
MERV Rating	15		16



Electrostatic Cell design

The design of the electrostatic cell – and notably the collection plate stage - is a recognised means of ensuring high collection efficiency in an ESP unit. Yong (2019) underlined in their testing of two stage ESPs that extending the collection stage is an effective way to improve the dust removal capacity.

The Babcock.com learning centre states that operational problems significantly influence the performance of ESP units. The main one of these being warper collecting plates which cause electrical shorts which in turn results in stops to the electrostatic cells power supply as well as increased electrical faults.

Overall, the electrostatic cells are a vital component of the ESP. Electrostatic cell manufacturing will influence the long-term equipment performance since cells require manual handling for cleaning purposes and as such are subject to mechanical damage. Cells are generally manufactured in aluminium (5052 grade has good corrosion resistance properties), but low-grade aluminium cells are found on the market. These generally result in material rusting early in the equipment life span.



low grade aluminium cell showing signs of rust in a RydAir unit (AOS Australia)



significant difference in cell sizes between a CFM unit (left) & the SCRUBBOX (AOM) electrostatic cell (right)



thin aluminium collector plates (0.5-0.6 mm) that bend easily as found in RydAir units (AOS Australia), SCRUBBOX units (AOM) have 1 mm plates which cannot be bent

Cabinet design

A major parameter to the overall performance of an ESP is the ability of the unit to limit particle re-entrainment into the airflow. Studies carried out on ESP units used for coal ash filtration have shown that up to 12% of fly ash can be re-entrained into the airflow after having been collected, due to the units inability to contain particles (see EPA/452/B-02-001 (1999)).

Grease particles found in commercial kitchen exhaust have high viscosity, notably at temperatures found in commercial kitchen exhaust ducting. This means that ESPs can benefit from gravitational flow to direct the collected grease particles towards an in-built grease tray, in order to ensure that the particles are removed from the ducting (decrease the fire risk of the exhaust system) and to decrease the risk of re-entrainment of particles.

Certain commercial kitchen exhaust filtration systems can filter out and remove from the ducting and airflow up to 2-3 litres of grease per day. This can only be achieved if the ESP cabinet is designed with an internal slope that allows grease to flow into a grease tray. This is not a standardised feature of all ESP units currently available on the market, meaning that certain units are not able to contain and evacuate grease, but ultimately increase the build-up of grease in the exhaust system.



Rydair unit casing (AOS Australia) show no internal slope or internal grease capture capacity meaning the unit increases the build-up of grease in the exhaust system. Unit is made in 1.4 mm galvanised steel.



SCRUBBOX unit (AOM Australia) showing the internal grease tray which is located under the unit and out of the exhaust flow. An internal sloping system means that these units extract up to 2-3 litres of grease per day in certain applications. The units are made of 2 mm galvanised steel meaning that they are more durable than the RydAir units.

SCRUBBOX Electrostatic Precipitators

High efficiency particle filtration equipment ideal for filtration of a large range of commercial kitchen exhaust emissions

- **Decrease Fire Risk of Exhaust System:** through high efficiency grease filtration (98%) allowing for the collection and removal of grease particles from the exhaust system
- **Comply to AS1668.2-2012 for horizontal discharge** of all cooking process types: guaranteeing compliance through AOM Performance Certification when equipped with AOM odour mitigation equipment.
- **Comply to AS1668.1-2015 for the filtration of grease effluent** using non-combustible material.
- **Minimising the risk of nuisance of exhaust discharges:** through high efficiency particle filtration removing visible smoke at the discharge point.

Proven technology for commercial kitchen exhaust filtration

Electrostatic precipitators are widely used internationally to treat commercial kitchen exhaust. Made of materials compliant to AS 1530 and UL1046 they fully meet the requirements of AS1668.1-2015 and AS1668.2-2012.

Features

The AOM SCRUBBOX Electrostatic Precipitators come equipped with prefilters, electrostatic cells and BMS connection points. The units can be coupled either with the AOM Ozone Generators or CARBONBOX Carbon Modules to ensure odour mitigation of the exhaust. The units can also be supplied with integrated UV lamps.

Durable design and low maintenance

The SCRUBBOX units are engineered to operate in heavy duty cooking environments, for extended hours and require comparatively minimal service maintenance for the high level filtration efficiency that they achieve.

Solution for limited space in the duct

The arrangement of AOM SCRUBBOX Electrostatic Precipitator units is flexible. They can be stacked or be placed side by side in a double pass formation to achieve even higher filtration efficiencies if required.

Certification and Testing

University of Sydney certified to removed 98% of grease and smoke particles from heavy duty cooking exhaust

ASHRAE Standard Method 52.1-1992 - tested to MERV 15-16 equivalent to F9 classification following EN 799 2002

Quality Certification



**T Series SCRUBBOX
MODELS NOW
AVAILABLE**

CUSTOM BUILT OR STANDARD SIZE MODELS
MADE IN AUSTRALIA (LICENSE 11096)
IN DURABLE STAINLESS STEEL

AUSTRALIAN MADE

Key Clients





Technical Data

Model	200	300	400	600	800
					
Weight (kg)	60 kg	75 kg	90 kg	120 kg	160 kg
Airflow (L/s)* Recommended maximum airflow	up to 945 L/s	up to 1415 L/s	up to 1890 L/s	up to 2800 L/s	up to 4000 L/s
Recommended airflow for high efficiency filtration	up to 470 L/s	up to 725 L/s	up to 1000 L/s	up to 1500 L/s	up to 2000 L/s
Size (mm) L x W x H	690 x 550 x 650	930 x 550 x 650	1170 x 550 x 650	1640 x 550 x 650	2100 x 550 x 650
Exhaust outlet/ inlet(mm) W x H	450 x 500	670 x 500	930 x 500	1400 x 500	1860 x 500
Number of cells	1 cell	1 cell	2 cells	3 cells	4 cells
Size of cells (mm) L x W x H	470 x 325 x 465	300 x 700 x 465	470 x 325 x 465	470 x 325 x 465	470 x 325 x 465
Housing material	Powder-Coated Galvanized Steel (2.0mm)				
Electrostatic cell	Aluminium Alloy (Thickness: 1.0 mm)				
Insulation material	Aluminium (II) Oxide				
High Voltage Power Pack	High Voltage 14,000 V / Low Voltage 7,000 V				
Power supply	220~240 V / 1P / 50-60Hz				
Power consumption	70 - 140 Watt				
Resistance (clean)	25 – 50 pa depending on the speed though the filter				

*Chosen airflow values filters will significantly affect final filtration efficiencies. When choosing airflows, factors such as the type of cooking and the requirements of the discharge point need to be considered. Contact your AOM distributor should you have any questions.

UL Listed SCRUBBOX equipment available
Note: equipment technical data may vary.
Contact your AOM representative for more details.



Installation Options

Single Pass Filtration
Single pass unit installed outdoors with a protective weather cover



Stacked

EAN stacked configurations for higher airflows



Double Pass Filtration

High contaminant exhaust &/or sensitive discharge point requires very high filtration efficiency



AOM T Series MISTBOX

Misting module designed for solid fuel cooking to extinguish sparks and embers



- **Decrease the Fire Risk of an Exhaust System:** a fine mist injected into the unit ensures that sparks or embers are extinguished prior to moving through the duct system where fuel (grease) has been accumulated in a highly oxygenated environment
- **Minimising the risk of nuisance of exhaust discharges:** by integrating odour mitigation agents into the misting spray



Features

AOM Australia has developed a unique technology to mitigate heavy contaminants produced by high heat loads such as solid fuel equipment and open flame cooking equipment.

As the cold mist acts as a spark arrestor and air cooler, the risk of fire in the ductwork is significantly decreased.

The AOM MISTBOX is designed to be used in conjunction with AOM SCRUBBOX electrostatic precipitators for particle filtration. Together with a final odour mitigation step either using AOM OG Series Ozone Generators or AOM CARBONBOX activated carbon modules, this has been proven to be a very efficient method of minimising smoke and odour discharges from heavy solid fuel cooking.



Key Clients

PACIFIC
BONDI BEACH



Technical Data

Model	200	300	400	600	800
Weight (kg)	45 kg	60 kg	70 kg	80 kg	100 kg
Airflow (L/s)* Maximum airflow for: Type 3, Type 6 or light Type 4 cooking	up to 945 L/s depending on situation	up to 1415 L/s depending on situation	up to 1890 L/s depending on situation	up to 2800 L/s depending on situation	up to 4000 L/s depending on situation
Recommended airflow for: heavy Type 4 or Type 5 cooking	470 L/s	725 L/s	1000 L/s	1500 L/s	2000 L/s
Dimensions (mm) L x W x H	705 x 760 x 560	945 x 760 x 560	1185 x 760 x 560	1655 x 760 x 560	2115 x 760 x 560
Exhaust outlet/ inlet(mm) W x H	450 x 510	670 x 510	930 x 510	1400 x 510	1860 x 510
Number of nozzles	1	2	3	5	7
Water Consumption (L/hr) at 50 psi pressure	10-15 L/hr	15-25 L/hr	20-30 L/hr	40-50 L/hr	50-60 L/hr
Housing material	Stainless Steel 304 1.2 mm				
Maintenance space (mm)	825 L x 875 W at front of door				
Power supply	220~240 V / 1P / 50-60Hz				
Power consumption	120				

Note: As per all AOM T Series modules filtration units, customised units are also available

* Chosen airflow values filters will significantly affect final filtration efficiencies. When choosing airflows, factors such as the type of cooking and the requirements of the discharge point need to be considered. Contact your AOM distributor should you have any questions.

AOM T Series ECOBOX



A fully integrated and customisable commercial kitchen exhaust filtration plant ideally used in plant room locations for high efficiency commercial kitchen exhaust particle filtration and odour mitigation

- **Comply to AS1668.2-2012 for horizontal discharge** of all cooking process types: guaranteeing compliance through AOM Performance Certification
- **Minimising the risk of nuisance of exhaust discharges:** through high efficiency particle filtration together with odour mitigation equipment (AOM OG Series Ozone Generator or AOM CARBONBOX activated carbon module) thus removing visible smoke and odour impacts at the discharge point

The AOM T Series ECOBOX filtration units are built around the certified high efficiency filtration of the AOM T Series SCRUBBOX Electrostatic Precipitators which form the core of the filtration equipment.

The units are then customised to project requirements and exhaust airflows as per the following options:

PARTICLE FILTRATION



S

Single Pass Electrostatic Precipitator

Using AOM SCRUBBOX technology, high efficiency electrostatic precipitators to filter out particle matter including grease, smoke, ash, etc



D

Double Pass Electrostatic Precipitator

Double pass to filter out highly contaminated exhausts (Type 4 or 5 cooking processes)



T

Triple Pass Electrostatic Precipitator

Triple pass for added security and performance for very sensitive discharge points

ODOUR MITIGATION



O

Ozone injection

AOM Ozone Generators use high voltage corona discharge in order to produce unstable molecules of ozone from the oxygen available in ambient air. Two units are available, capable of producing 35g/hr and 50g/hr of ozone respectively.



C

Carbon Modules with optional UV treatment

The AOM CARBONBOX captures VOCs to mitigate odours. Equipped with microporous granular activated carbon which is adapted to the treatment of air streams containing volatile organic compounds.

ADDITIONAL OPTIONS



F

Exhaust fan

AOM Australia works either with Soler & Palau or Aerovent to select the most optimal inline exhaust fan. Integrated with a VSD and pressure sensors, the fan functions in harmony with the ECOBOX filtration unit.



AC

AutoClean

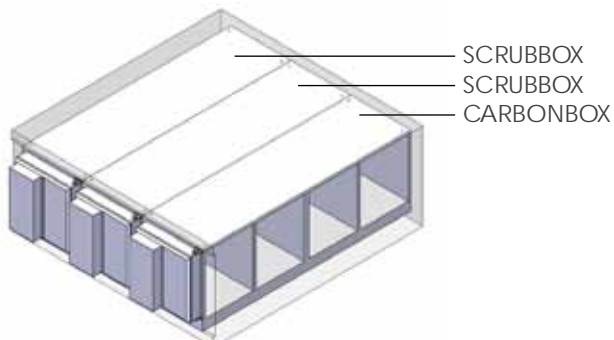
Programmable cleaning cycles and connections to water and waste allow for the units to run independently and minimise the need for third party cleaning of the cells and filters. BMS (BACnet) connections allow for the real time status information.

Key Clients



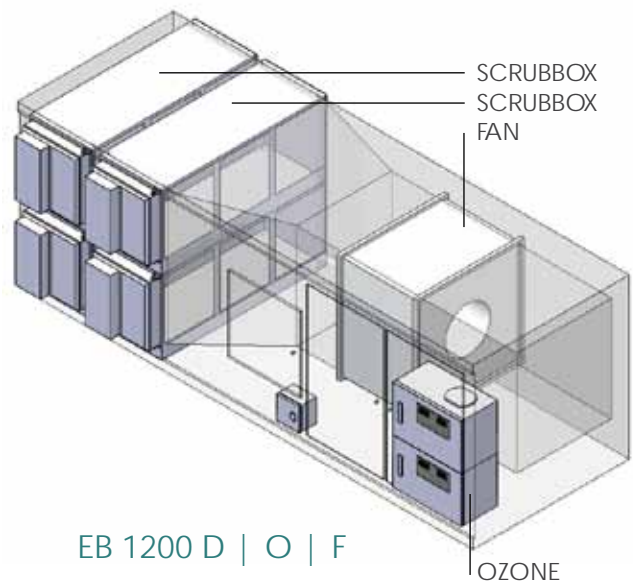


Typical examples

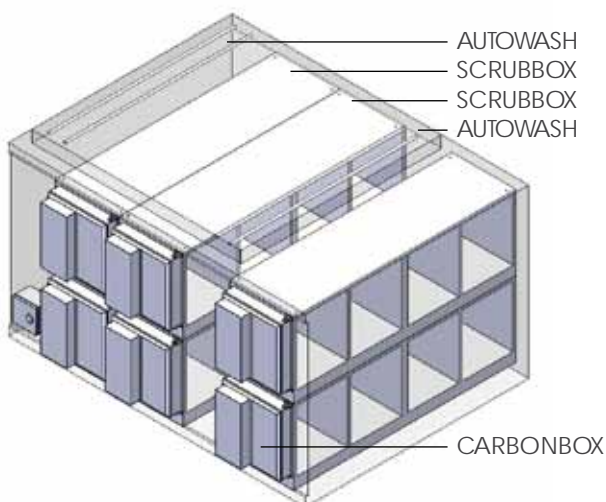


EB 800 D | C

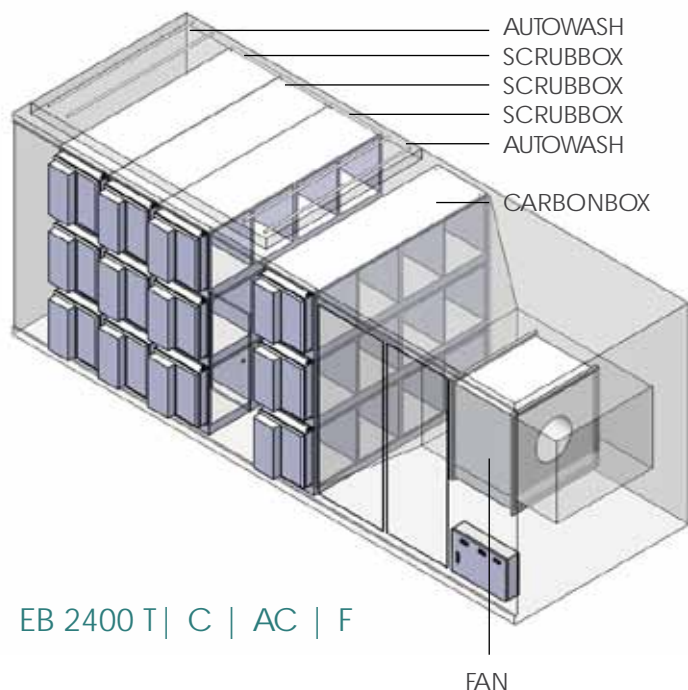
high efficiency particle
matter filtration to 2000 L/s AS1668.2-2012
compliance for horizontal discharge



EB 1200 D | O | F



EB 1600 D | C | AC



EB 2400 T | C | AC | F

Certification and Testing

- Performance Certification supplied to fully comply with AS1668.2-2012 Section C3.10.3 Concessions to horizontal discharge of commercial kitchen exhaust
- Particle Filtration tested and certified to 98% at 0.3 micron to a range of international standards as well as local independent testing (University of Sydney)
- Odour mitigation tested and certified up to 90% based on relevant Australian Standard to Odour Assessments (AS 4323.3 - Determination of odour concentration by dynamic olfactometry)

AOM T Series ECOBOX+



An industry standard high efficiency commercial kitchen exhaust particle filtration and odour mitigation unit using AOM SCRUBBOX single pass electrostatic precipitators equipped with AutoWash features, secondary bag filters and activated carbon for odour mitigation

- **Comply to AS1668.2-2012 for horizontal discharge** of all cooking process types: guaranteeing compliance through AOM Performance Certification
(Note: depending on the discharge point, heavy type 4 and type 5 cooking processes may not be adapted to the ECOBOX+ range)
- **Minimising the risk of nuisance of exhaust discharges:** through high efficiency particle filtration together with odour mitigation equipment (AOM OG Series Ozone Generator or AOM CARBONBOX activated carbon module) thus removing visible smoke and odour impacts at the discharge point
- **Decrease manual maintenance costs:** through in-built Autowash functions that ensure periodic cleaning of the electrostatic precipitators to maintain performance
- **Ensure monitoring of the filtration system:** through a PLC/BACnet connection to the BMS

Benefit from the AOM Australia advantage

Know-how: AOM Australia supplies a wide range of equipment for commercial kitchen exhaust systems. AOM Australia is not just a filter supplier: from exhaust hoods to filtration equipment through to fans and VSDs, AOM has supplied hundreds of projects in Australia over the course of the last 10 years and is able to support customers to efficiently use their equipment.

High Quality Manufacturing: All AOM ECOBOX+ Series filtration units are designed and manufactured in Australia. Units are manufactured in AOM standard sizes whilst custom manufacturing/sizes are also possible, to meet site constraints. Similar to a commercial kitchen exhaust hood, AOM ECOBOX Series filtration units are built in Stainless Steel to withstand the conditions of highly contaminated commercial kitchen exhaust.

National Sales and After Sales support: AOM Australia products are backed by a network of sales and after sales resources that no other company is able to offer. Our expertise in servicing filtration units means that our servicing teams currently carry out routine maintenance of competitor autoclean products.

Service and maintenance

AOM Australia can supply an upfront servicing cost and will offer warranty extensions when regular maintenance is carried out by our teams. Though these units are defined as AutoClean, they do require periodic maintenance, which AOM Australia is able to offer through its servicing department.

Certification and Testing

- Performance Certification supplied to fully comply with AS1668.2-2012 Section C3.10.3 Concessions to horizontal discharge of commercial kitchen exhaust
- Particle Filtration tested and certified to 98% at 0.3 micron to a range of international standards as well as local independent testing (University of Sydney)
- Odour mitigation tested and certified up to 90% based on relevant Australian Standard to Odour Assessments (AS 4323.3 - Determination of odour concentration by dynamic olfactometry)

Standard Configuration



FILTER

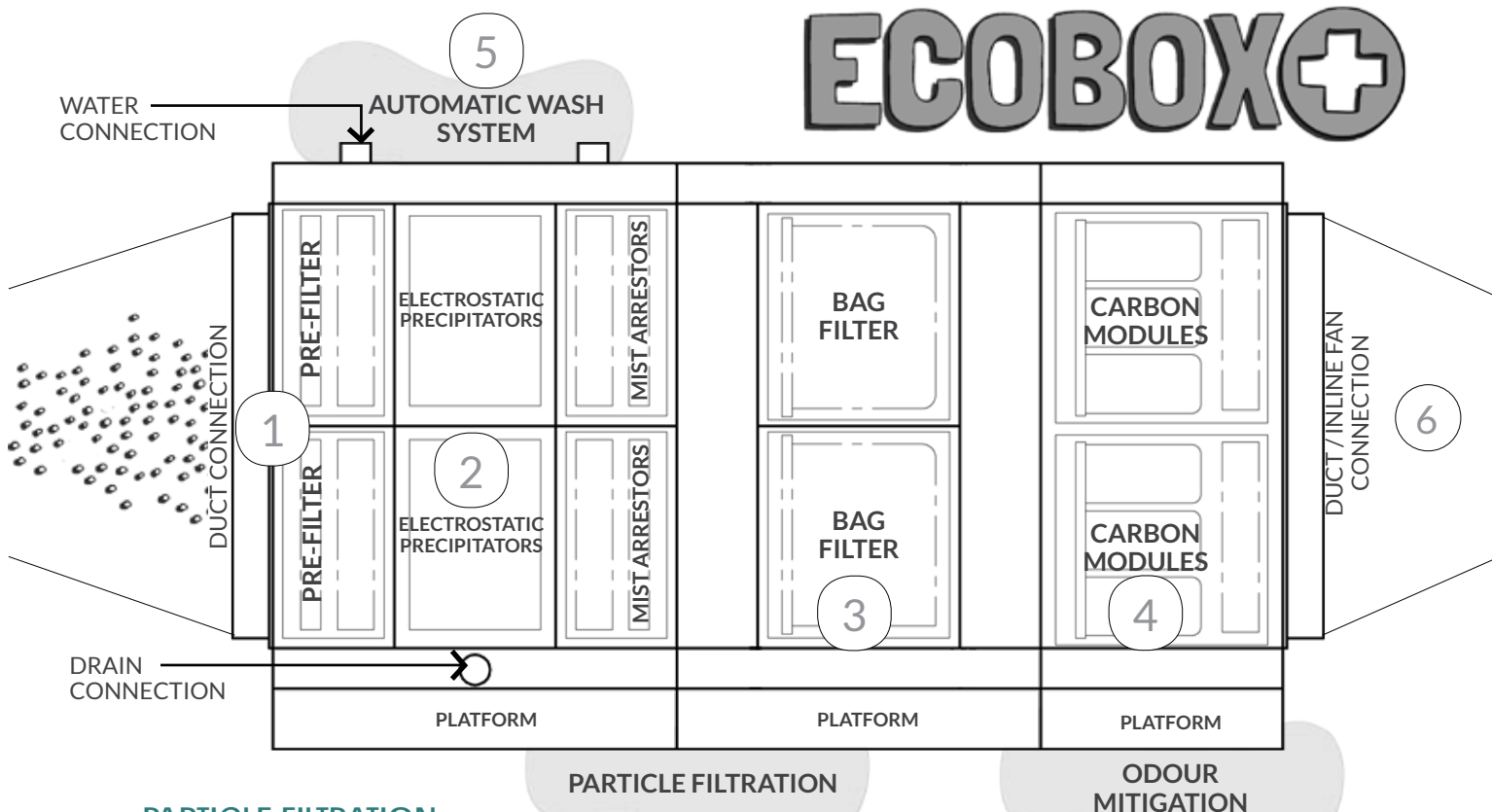


VENT



ODOUR

ECOBBOX+



PARTICLE FILTRATION

1

Pre filtration and Mist Filters: 50 mm deep aluminium mesh pre filters/mist filters ensures that large particles and solid materials are stopped prior to entering into the electrostatic precipitator.

2

Electrostatic Precipitator: AOM electrostatic precipitators are performance tested and certified specifically to the extreme particle concentrations found in commercial kitchen exhaust. The 380 mm deep electrostatic precipitator UL 876 certified cells function as follows:

- High Voltage 14 kV stainless steel spiked ionisers which are mounted within an aluminium frame distribute an electrical charge to particle matter.
- Equally spaced 7kV low voltage aluminium collection plates attract the charged particles. The particles precipitate into the drain area below.

3

Glass fiber bag safety filter: M6 to F8 (depending on the cooking process) Eurovent certified glass micro bag filters offering greater performance then standard synthetic bag filters.

ODOUR MITIGATION

4

Activated carbon modules: Either cylinder or V Bank refillable carbon modules supplied with Australian sourced Acticarb activated carbon specifically manufactured for filtering of organic micropollutants from air. Optional ozone producing UVC lamps or remote ozone injection is available as a final disinfection step.

AUTOMATIC WASH SYSTEM

5

Programmable cleaning cycles and connections to water and waste allow for the units to run independently and minimise the need for third party cleaning of the cells and filters. BMS connections through BACnet protocols allow for the real time status information.

6

INTEGRATED INLINE FAN (option)

AOM Australia works either with Soler & Palau or Aerovent to select the most optimal inline exhaust fan. Integrated with a VSD and pressure sensor, the fan functions in harmony with the ECOBOX+ filtration unit.

AOM Engineering Bulletin 6

Using mechanical filters (Bag, Pleat, HEPA) as primary filters in commercial kitchen exhaust systems

Commercial kitchen exhaust systems have been shown to be significant fire risks. Australian Standards AS1668.1-2015 underline the requirements to designing systems to minimise the fire risk. This bulletin reviews these requirements and recommends industry best practices to minimise risk - particularly by limiting the use of mechanical filters as primary grease particle filters.

Are mechanical filters compliant?

Australian and NZ standards *The use of ventilation and air conditioning in buildings, Part 1: Fire and smoke control in building* (AS1668.1-2015) states the following.

6.2.9 Flame and Spark Arrestance

Where the length of an exhaust duct within the building exceeds 10 m and where an exposed flame or embers may be present as part of the cooking process, devices that prevent the spread of flames in accordance with UL 1046 shall be incorporated into kitchen exhaust hoods (or filtration systems).

UL 1046 provides the following key statements with regards to the above:

Introduction

5 Glossary

5.4 NON-COMBUSTIBLE – A material that, in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion or release flammable vapors when subjected to fire or heat.

Construction

6 General

6.2 Parts of grease filters that are exposed to cooking effluent shall be constructed of non-combustible materials.

As per the above clauses, AS1668.1-2015 refers to UL1046 regarding grease filtration of kitchen exhaust systems that are a significant fire risk (potential for build-up of fuel (grease and oil) in the ducting and a high risk of ignition (open flame in the cooking line)).

UL1046 states that any part of a grease filter exposed to cooking effluent shall be constructed of non-combustible material – of which Bag Filters, Pleat filters, HEPA filters, etc are not.

In these cases, AOM Australia recommends that mechanical filters should not be used as the main means to filter out grease particles. When used, there is a risk that the filtration equipment is not compliant to AS1668.1 as they are not certified as non-combustible.

Furthermore the filters accumulate grease in the airflow (as opposed to precipitating grease like an electrostatic precipitator) which further exacerbates the fire risk of the whole exhaust system.



Are mechanical filter units a good option?

AOM Australia does not recommend the use of mechanical filters in commercial kitchen exhaust systems for the following reasons, particularly when cooking is Type 3, 4, 5 or 6 processes as per AS1668.2-2012.

- **High system resistance:** equivalent filters have a clean resistance roughly 10 times higher than an equivalent electrostatic precipitator unit.
- **Very large system resistance on a dirty system.** Overall when coupled with Carbon Filtration, the dirty system resistance can reach over 500 pa, which is close to double the initial clean resistance. The large difference between clean and dirty resistance means that the exhaust fan power needs to be interlocked to filtration system resistance, which adds complexity to the balancing of the overall system.
- **Decreased overall performance of the exhaust system:** unless serviced frequently, mechanical filters will build up with grease thus significantly increasing system resistance. This leads to a decreased performance of the exhaust system, resulting in: underperformance of the hood leading to build up of smoke in the kitchen (indoor air quality issues); increase build-up of grease in the ducts; decrease in performance of the filtration equipment resulting in visible emissions at the discharge point.
- **Mechanical filters are generally tested to international standard methods used to measure dry dust samples.** These results are applicable to return air systems which are not representative of commercial kitchen exhaust systems which contain particle concentration ranging from 100 to 1 million times the amount of particles found in dry dust standard methods.
- **Odour efficiencies have not been tested to the Australian Standards method to Odour Assessments (AS 4323.3 Determination of odour concentration by dynamic olfactometry).** Only the performance of AOM Australia filtration units have been tested to this standard in real conditions of commercial kitchen exhaust in Australia.
- **Mechanical filters result in the accumulation of grease in the filters:** as opposed to the precipitation of grease into a grease pan in electrostatic systems. This adds to the fire risk of the system.

Are mechanical filter units cheaper to service?

The following table is an example of the servicing costs associated with a 3000 l/s mechanical filter unit as presented by the supplier of the equipment.

Annual Estimated Operating Costs for Particulate Filtration- Various Cooking Loads				
Airflow rate (l/s) 3,000 l/s				
Filter system (all options achieve 95% efficiency at 0.3 micron and will remove the required amount of grease and smoke)	Operating cost low cooking AS1668.2 Type 1 & 7 Cafe	Operating cost medium cooking AS1668.2 Type 2 & 3 Pub Food	Operating cost high cooking AS1668.2 Type 4 & 6 Wok cooking	Operating cost very high cooking AS1668.2 Type 4 & 5 Marinated grilled meats
Kaire Unit- Multi-stage filter pack (1.85 m/s max.)	\$2,200	\$4,300	\$8,600	\$25,900

In comparison, the servicing of an equivalent AOM filtration system equipped with electrostatic precipitators (6 cells in single or double pass with odour mitigation) is as follows:

Filter system (all options achieve 95%+ efficiency at 0.3 micron and will remove the required amount of grease and smoke)	Operating cost low cooking AS1668.2 Type 1 & 7 Cafe	Operating cost medium cooking AS1668.2 Type 2 & 3 Pub Food	Operating cost high cooking AS1668.2 Type 4 & 6 Wok cooking	Operating cost very high cooking AS1668.2 Type 4 & 5 Marinated grilled meats
AOM ECOBOX 1200- single/double pass electrostatic precipitator and carbon or ozone injection for odour mitigation (as per AOM Australia performance certification)	\$2,000 - \$2,500 pa (estimated servicing every 3 months)	\$4,000 - \$5,000 pa (estimated servicing every 6-8 weeks)	\$6,000 - \$7,000 pa (estimated servicing every 4 weeks)	\$15,000 - \$20,000 pa (estimated servicing every 4 weeks)

The above values are based on actual servicing projects and AOM Australia can provide example quotes to back all values. AOM Australia can provide pricing for servicing costs prior to supply of the equipment.

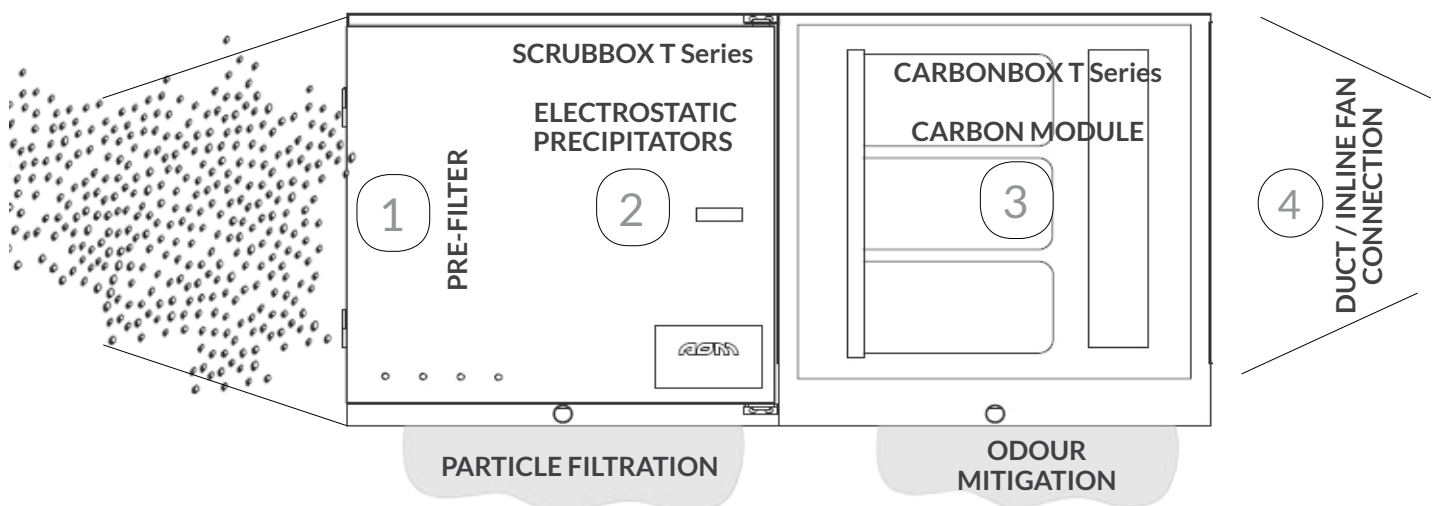
Hence, the servicing of an AOM electrostatic based filtration unit are similar to a mechanical filter type unit for low contaminant type cooking however are significantly lower for heavy type cooking.

AOM T Series ECOBOXeasy

Fully compliant cost effective commercial kitchen exhaust filtration unit adapted to AS1668.2-2012 cooking processes Type 2,3 and 7



- **A simple cost effective and fully compliant solution to replace high resistance Mechanical Filter units:** competitor products containing high resistance and high maintenance mechanical filters which accumulate grease and are not made of non combustible materials, increase the fire risk of a system and are often non-compliant to AS1668.1
- **Comply to AS1668.2-2012 for horizontal discharge** with a particular focus on cooking process types 2, 3 and 7: guaranteeing compliance through AOM Performance Certification
- **Minimise the risk of nuisance of exhaust discharges:** through high efficiency particle filtration together with activated carbon odour mitigation thus removing visible emissions and odour impacts at the discharge point



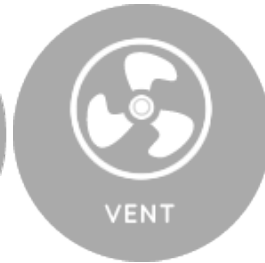
- 1 Pre filtration:** 50 mm deep aluminium mesh pre filters ensures that large particles and solid materials are stopped prior to entering into the electrostatic precipitator.
- 2 Electrostatic Precipitator:** AOM SCRUBBOX T Series electrostatic precipitators are performance tested and certified specifically to the extreme particle concentrations found in commercial kitchen exhaust.
- 3 Activated carbon modules:** AOM CARBONBOX T Series cylinder carbon modules supplied with Australian sourced Acticarb activated carbon specifically manufactured for filtering of organic micropollutants from air.
- 4 Inline Fan option:** AOM Australia works either with Soler & Palau or Aerovent to select the most optimal inline exhaust fan. Integrated with a VSD and pressure sensor, the fan functions in harmony with the ECOBOXeasy filtration unit.

Certification and Testing

- Performance Certification supplied to fully comply with AS1668.2-2012 Section C3.10.3 Concessions to horizontal discharge of commercial kitchen exhaust
- Particle Filtration tested and certified to 98% at 0.3 micron to a range of international standards as well as local independent testing (University of Sydney)
- Odour abatement tested and certified up to 90% based on relevant Australian Standard to Odour Assessments (AS 4323.3 - Determination of odour concentration by dynamic olfactometry)



FILTER



VENT



ODOUR

ECOBXeasy Advantages

Australian Made Product (Licence 11096) and Australian Owned Company

All AOM ECOBOX T Series filtration units are designed and manufactured in Australia. Units are manufactured in AOM standard sizes whilst custom manufacturing/sizes is also possible to meet site constraints.



Filtration equipment that is built to withstand commercial kitchen exhaust

Similar to a commercial kitchen exhaust hood, **AOM ECOBOXeasy** T Series filtration units are built in Stainless Steel to withstand the conditions of highly contaminated commercial kitchen exhaust.

Backed by AOM Performance Certification based on robust independent testing in Australia by Australian organisation on Australian projects

AOM Australia is a national leader in research on commercial kitchen exhaust and testing of equipment under these conditions. This has resulted in equipment performance certification that is second to none.

Piece of mind knowing that AOM Australia exhaust and filtration solutions are installed and operating in hundreds of restaurants and buildings nationwide

AOM Australia supplies a wide range of equipment for commercial kitchen exhaust systems. AOM Australia is not just a filter supplier. From exhaust hoods to filtration equipment through to fans and VSDs, AOM has supplied hundreds of projects in Australia over the course of the last 10 years. AOM Australia understands kitchen exhaust systems and is able to support customers to efficiently use their equipment.

Backed by an Australian National Sales and After Sales network

AOM Australia products are supported by a network of sales and after sales resources that no other company is able to offer. Our expertise in servicing filtration units means that our servicing teams also carry out routine maintenance of competitor products. It is our belief that if you can't maintain it, it won't work.

Servicing and Maintenance piece of mind with additional benefit of equipment Warranty Extensions

AOM Australia can supply an upfront servicing cost and will offer indefinite limited warranty extensions when regular maintenance of the filtration equipment is carried out by our teams.





Odour Mitigation Solutions

AOM range of odour mitigation equipment for different project scenarios

OG Series Ozone Generators

52

CARBONBOX Activated Carbon module

54

Plasma Air Filtration System

56

Ducted UVC Emitter

58

AOM Engineering Bulletin 7

Engineering compliant air discharges

Odour emissions are the main air emissions from food outlets, followed closely by particle matter (smoke and fumes). These emissions are considered nuisances and complaints to Local Councils are common. This Engineering Bulletin provides more information into what can be done to minimise the risk of nuisance of commercial kitchen exhaust system air discharges.

AS1668.2 Requirements to Air Discharges

- Section 3.10.1: All exhaust air shall be discharged to atmosphere in such a manner as not to cause danger or **nuisance** to occupants of the building, occupants of the neighbouring buildings or members of the public.
- Section 3.10.2 (c) for discharges not deemed objectionable (airflow under 1000 l/s): the discharge shall be emitted to the outside at velocities and in a direction that will ensure, to the extent practicable, no danger to health or prevent a nuisance from occurring.
- Section 3.10.3 for discharge deemed objectionable (over 1000 l/s): (a) the discharges will be arranged vertically (...) (d) treated to reduce the concentration of **contaminants** where necessary.
- Section C3.10.3 Concessions 1. Where it can be demonstrated, by reference to results of independent testing, that special **odour** filtration processes will remove the odour contaminants from kitchen exhaust airstreams (...) horizontal discharge of kitchen exhaust with airflow greater than 1000 l/s may be acceptable.

Key Definitions

Nuisance: An environmental nuisance is generally defined as: unreasonable interference (or likely interference) with an environmental value caused by emissions of aerosols, fumes, light, noise, odour, particles (including dust) or smoke; or Unhealthy, offensive or unsightly conditions caused by contamination.

Contaminants: Contaminants are substances that are either present in an environment where they do not belong or are present at levels that have the potential to harm human or environmental health.

Odour: An odour is a mixture of volatile chemical compounds that humans perceive with the sense of olfaction and Dynamic Olfactometry is a technique that allows to assign to an odour its concentration, which is defined as the number of dilutions with odourless air required for an odour to be detected by 50% of a panel of human evaluators and expressed in Odour Units (OU).

Local regulations regarding restaurant emissions

Local Councils are responsible for the regulation of restaurant air quality emissions, following the document: *Local Government Air Quality ToolKit - Air Quality Guidance Note - Food Outlets*.

- Local government officers have an important role in managing the compliance process for food outlets and enforcing positive environmental outcomes via the use of statutory notices
- In cases where odour modelling and testing is to be undertaken, odours from the premises to comply with the requirements of DEC draft policy *Assessment and management of odour from stationary sources in NSW (2001)*
- A typical compliance test condition would require: tests to be carried out in accordance with the DEC publication *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (2005)* by an accredited testing body.

As part of the evaluation process, a key element that Local Councils will evaluate is: *Is the facility doing everything practicable to minimise the impact, and not expanded or changed its method of operation?*

Hence, if a tenancy has been designed with a compliant exhaust system with the objective of minimising the risk of nuisance, Local Councils will favour the restaurant should complaints arise. This assumes that the exhaust system is being correctly maintained.



How are Odour Assessment Reports carried out?

Odour is the main commercial kitchen exhaust emission that results in complaints. In Australia, Odour testing is done using AS 4323.3-2001 *Determination of odour concentration by dynamic olfactometry* which prescribes a method for sample analysis that provides quality assurance/quality control and ensures a high degree of confidence in the accuracy. Dynamic olfactometry involves the repeated presentation of both a diluted gaseous odour sample and an odour-free air stream to a panel of qualified assessors through two adjacent ports on the olfactometer.

Australian Standards do not provide clear threshold values that need to be met to ensure compliance. Hence, only an independent expert opinion can provide the required conclusions to an odour test report. An example of an independent evaluation of AOM equipment is as follows: *the outlet sample under the non-peak and peak operating scenarios are below the desirable target of 2,000 ou - a value considered to be the required treated performance for odour control systems in the food retail sector - as it is generally characterised by an airstream of a fully treated quality*

Hence, a key statement related to the use of AS 4323.3-2001 and to odour testing in general is that there is no "zero-odour emission". The sensorial nature of the testing process guarantees that some form of odour emissions remain - even if that odour is characterised as "disinfected smell".

How to achieve decreases in separation distances as per AS1668.2 section 3.10.

Once independent odour testing has been carried out on filtration processes, it is possible to apply AS1668.2 section C3.10.3 *Concessions* to decrease the minimum separation distances from discharge points to intakes, boundary or natural ventilation devices (as per Table 3.4 of the standard).

This is done by calculating a theoretical *Deemed flow rate*, which is defined as the flow rate that may be deemed to be reduced by the actual flow multiplied by the lowest fractional efficiency of the filtration process:

$$\text{Deemed flow rate} = \text{Actual flow rate} - (\text{Fractional efficiency} \times \text{Actual Flow rate})$$

So in the case of a 2000 l/s discharge with filtration equipment that has an independently tested ODOUR fractional efficiency of 80%, the deemed airflow rate would be 400 l/s, meaning that the discharge could be located 3 m from intakes, boundary or natural ventilation device (as per table 3.4 of AS1668.2-2012).

A clear recommendation remains, that any Fractional Efficiency value be based on the relevant Australian Standards by independent testing on commercial kitchen exhaust discharges. Otherwise, the final engineered solution runs the risk of being non-compliant should a nuisance occur, which then brings up liability issues with the overall exhaust system.

AOM Performance Certification to Filtration Equipment

Only AOM Performance Certification applied to AOM filtration equipment presents independent testing carried out in Australia within specific food and beverage projects to Australian Standards AS 4323.3. Results achieved odour fractional efficiencies of up to 90%.

These results are backed with Research and Development carried out together with the University of Sydney on the use of both AOM OG Series Ozone Generators and AOM CARBONBOX Carbon modules on a heavy Type 4 cooking process.

Together with AOM after sales and servicing support, this ensures that only AOM Australia is able to provide a fully compliant solution to the filtration of commercial kitchen exhaust emissions.

OG Series Ozone Generators

High efficiency ozone generators for effective odour mitigation of commercial kitchen exhaust

- **Odour mitigation of commercial kitchen exhaust effluent** with little maintenance and no additional system resistance
- **Comply to AS1668.2-2012 for horizontal discharge** for all cooking process types guaranteeing compliance through AOM Performance Certification when equipped with AOM SCRUBBOX electrostatic precipitators for particle filtration
- **Minimising the risk of nuisance of exhaust discharges:** through high efficiency odour mitigation removing odour nuisances at the discharge point



High ozone production with low running costs

AOM Ozone Generators use high voltage corona discharge in order to produce unstable molecules of ozone from oxygen available in ambient air. Two units are available, the OG35 and OG50, capable of producing 35g/hr and 50g/hr of ozone respectively.

Easy to install, operate and maintain

The AOM Ozone Generators inject ozone into the kitchen exhaust ducting. In this regards, they are located outside of the contaminated airflow meaning that the required maintenance is minimal. The AOM Ozone Generators can be hung up against a wall and connected to the exhaust duct using PVC piping.

Features

The AOM Ozone Generators can be connected to the BMS system. Ozone injection can be regulated and controled using AOM INTAIR:

- tied to the cooking intensity using heat sensors or interlocking directly to the cooking equipment
- tied to ozone sensors located at the discharge point

Certification and Testing

University of Sydney tested to removed 90% of Volatile Organic Compounds (VOCs) found in AS1668.2-2012 cooking process Type 4 (heavy chargrill cooking). This is in line with equivalent on site independent odour mitigation testing to Australian Standards to Odour Assessments (AS 4323.3 - Determination of odour concentration by dynamic olfactometry) for Heavy type 4 cooking (Burger Cooking) and Type 5 cooking (wood fired cooking).

CE Quality certification to: EN 60335-1:2012+AC:2014+A11:2014+A13: 2017, EN 61000-6-3:2007+A1:2011+AC:2012, EN 61000-6-1:2007, EN 61000-3-2:2019 EN 61000-3-3:2013+A1:2019 Related to CE Directive(s): 2014/35/EU (Low Voltage); 2014/30/EU (Electromagnetic Compatibility)

Key Clients

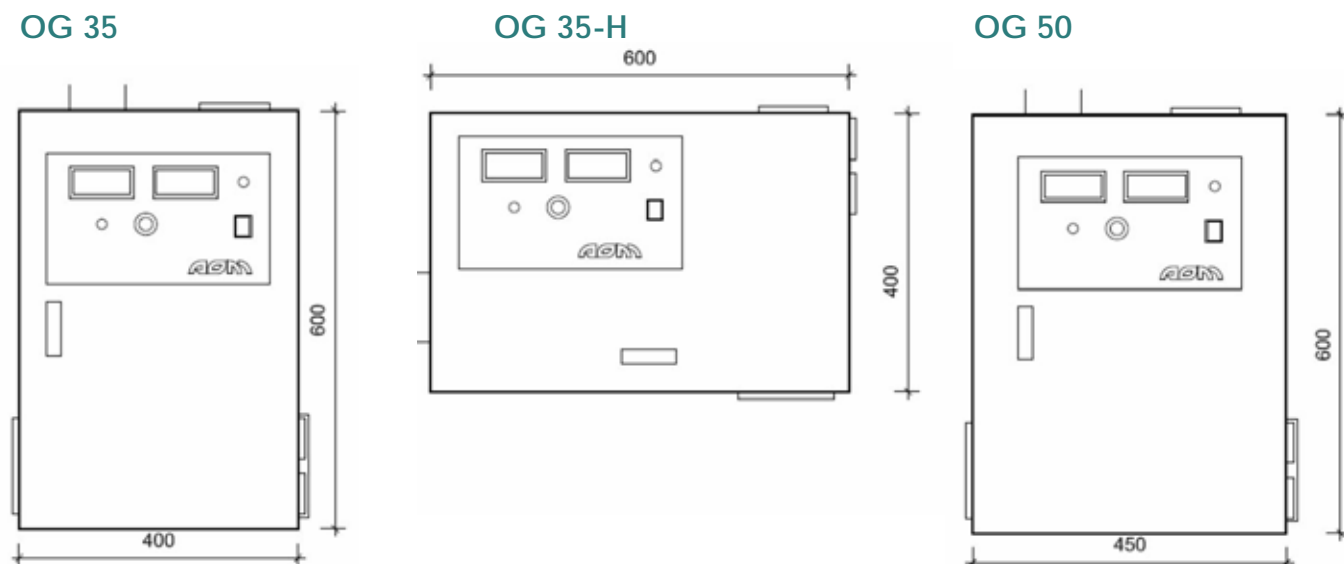


AOM Ozone Generators are used in Mirvac retails spaces to mitigate kitchen exhaust odour prior to discharge



In sensitive discharge cases, AOM has equipped McDonalds restaurants with Ozone Generators to mitigate odour discharge and limit impact on neighbouring properties

Technical Data



Model	OG 35	OG 50
Size (mm)	400 L x 335 w x 600 h*	450 L x 335 w x 600 h
Weight (kg)	26 kg	28 kg
Airflow (L/s)	up to 1750 L/s	up to 2500 L/s
Exhaust outlet/inlet (mm)	100 mm spigot	100 mm spigot
Average ozone production	75 ppm (35 g/hr)	100 ppm (50 g/hr)
Power consumption	350 W	450 W
Housing Material	Stainless Steel	Stainless Steel
Power Supply	240 V / 1 PH	240 V / 1 PH

*available in horizontal configuration OG 35-H: 600 L x 335 w x 400 h

Installation requirements

- A two (2) second contact time is required prior to discharge in order for the ozone to effectively mitigate odour emissions within the exhaust duct.
- Ozone Generators should always be interlocked with the exhaust fan.
- The sensitivity to odour strongly varies between different people. If exhaust discharge points are highly sensitive, it is recommended to prepare an Odour Impact Assessment study in order to define the treatment requirements which will depend on multiple factors such as local weather and dispersion factors, distances to intakes and/or odour receptors, and sensitivity of the discharge point.

CARBONBOX Carbon Modules

Activated carbon modules fitted with high quality activated carbon pellets designed for odour mitigation of commercial kitchen exhaust

- **Odour mitigation of commercial kitchen exhaust effluent** when ozone injection is not feasible or advisable
- **Comply to AS1668.2-2012 for horizontal discharge** of all cooking process types guaranteeing compliance through AOM Performance Certification when coupled with AOM SCRUBBOX electrostatic precipitators for particle filtration
- **Minimising the risk of nuisance of exhaust discharges:** through high efficiency odour mitigation removing odour nuisances at the discharge point



Designed to complement the AOM SCRUBBOX Series Electrostatic precipitators

AOM SCRUBBOX Electrostatic precipitators are certified to remove 98% of grease and smoke particles. The AOM CARBONBOX carbon modules then act on the remaining odour content.

Carbon filter modules with UV lights

The AOM CARBONBOX modules can be fitted with UV treatment as a final odour mitigation step.

Activated carbon to suit cooking exhaust and readily available on the local market

The units are equipped with microporous granular activated carbon which is adapted to the treatment of air streams containing Volatile Organic Compounds – i.e. kitchen exhaust.

Certification and Testing

University of Sydney tested to removed 90% of Volatile Organic Compounds (VOCs) found in AS1668.2-2012 cooking process Type 4 (heavy charrill cooking). This is in line with equivalent on site independent odour mitigation testing to Australian Standards to Odour Assessments (AS 4323.3) Determination of odour concentration by dynamic olfactometry).

T Series
CARBONBOX MODELS
NOW AVAILABLE
CUSTOM BUILT OR STANDARD SIZE MODELS MADE IN
AUSTRALIA (LICENSE 11096) IN DURABLE STAINLESS STEEL
AUSTRALIAN MADE

Key Clients



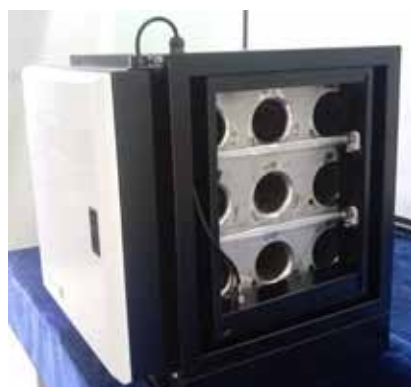


Technical Data

Model	200	300	400	600	800
Weight (kg) (includes carbon)	65 kg	80 kg	100 kg	150 kg	200 kg
Airflow (L/s)* Recommended maximum airflow	up to 945 L/s	up to 1415 L/s	up to 1890 L/s	up to 2800 L/s	up to 4000 L/s
Recommended airflow for high efficiency filtration	up to 470 L/s	up to 725 L/s	up to 1000 L/s	up to 1500 L/s	up to 2000 L/s
Size (mm) L x W x H	620 x 520 x 650	850 x 520 x 650	1100 x 520 x 650	1650 x 520 x 650	2030 x 520 x 650
Exhaust outlet/ inlet(mm) (internal dimensions) W x H	450 x 500	670 x 500	930 x 500	1400 x 500	1860 x 500
No. of SS304 carbon tubes	9 tubes	12 tubes	18 tubes	27 tubes	36 tubes
No. of UV lights	2	3	4	6	8
UV light specifications	10W, 44.5V, 0.23A				
Housing Material	Powder-Coated Galvanized Steel (1.0 mm)				
Maintenance space required (mm)	770 w x 1000 d x 650 h				
Pressure Drop (pa)	150 Pa (clean) 300 Pa (dirty)				
Power Supply	220~240 V / 3 Ampere				
Flange Connection (mm)	40 mm				

* Chosen airflow values filters will significantly affect final filtration efficiencies. When choosing airflows, factors such as the type of cooking and the requirements of the discharge point need to be considered. Contact your AOM distributor should you have any questions.

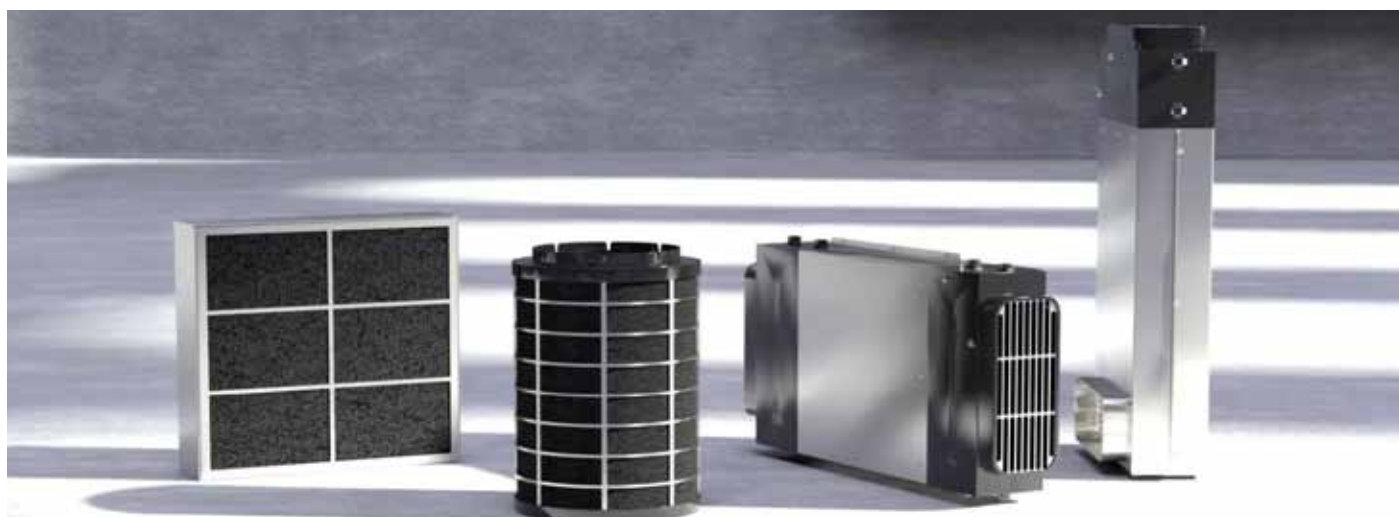
Additional Photos



Plasma Air Filtration System

High efficiency odour reduction filter combining cold plasma production with a high-tech activated carbon mosaic that can be retrofitted or integrated into any exhaust system

- **Residential exhaust hoods** - Retrofit or integrate into any model of exhaust hood used in a residential kitchen to significantly decrease odour emissions
- **Mitigate odour emissions from bathroom, garbage room and general exhaust systems** - AOM can customise the plasma air filtration system to fit into different forms of exhaust system ducting to ensure mitigation of odour and other contaminants
- **Decrease discharge/intake separation distances for general exhaust systems** - based on the internationally recognised independent odour testing results
- **Improve indoor air quality** - using the AOM range of AirSanitisers and PLASMABOX models based on the plasma air filtration technology



Introducing Plasma Air filtration technology

Cold plasma is a recognised means of treatment of airborne contaminants. Cold plasma is produced using high voltage with very little current and has therefore a low energy consumption.

Cold plasma breaks down odour gases (as well as smoke particles, viruses, bacteria) which get caught by the high-tech activated carbon filter. This in turn leaves the activated carbon pores free and clean, meaning that the filter works without maintenance.

A high quality Made in Germany filter product.

Key advantages of plasma filtration

- High efficiency odour mitigation and air filtration efficiencies with focus on odours, VOCs, viruses and bacteria
- No maintenance and long duration: no consumables to be changed during its entire lifetime
- Low energy consumption
- Low resistance filter which can be fitted and retrofitted into existing exhaust systems (hoods, ducting, etc) or supplied in custom manufactured units
- Filters are available in a large range of shapes and sizes to suit many different applications

Certification and Testing

- VDE Approved and manufactured to all relevant EU/German standards including testing as a certified non ozone producing device
- Tested to 95-98% odour mitigation efficiency for light type cooking processes based on EN13725:2003 standards (equivalent to AS 4323.3 - Determination of odour concentration by dynamic olfactometry)
- Tested without fail for 20,000 hours of working state generating plasma and treating air



Technical Data

Models Available

RONDO models for in-duct odour treatment



PLANO models for ductless odour treatment

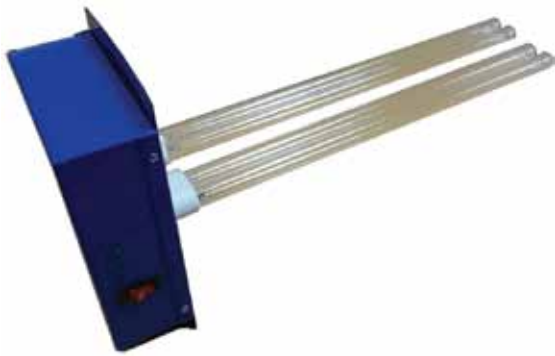


Model	RONDO	PLANO
Models (mm)	Multiple models available	1000 / 500
Weight (kg)	0.6 - 2 kg	5 / 2.5 kg
Airflow (L/s)	350 - 1000 m3/hour	1000 / 500 m3/hour
Exhaust inlet (mm)	120 - 150 mm spigot	300 / 250 mm spigot
Size range		
- Height	120 - 270 mm	60 mm
- Width	150 - 210 mm diameter	500 x 500 / 250 x 250 mm
Power Supply	220 VAC / 1 PH	220 VAC / 1 PH
	Automatic switch on at air speed of 1 m/s through the filter	

AOM Ducted UVC Emitter

In-duct ozone producing UV treatment system for filtration and odour mitigation of light kitchen exhaust exhaust

- **Retrofit UV treatment system for light commercial kitchen exhaust** - easy to install into existing ducting systems with electrical plug-in
- **UV treatment system with ozone producing lamps for light commercial kitchen treatment**



Features

Easy to install in new commercial kitchen exhaust systems or to retrofit in an existing system. Installed from the exterior surface of ductwork, it allows for quick and easy installation.

For the treatment of light type kitchen exhausts, ozone producing lamps are favoured to further the mitigation of odour emissions. For heavier type cooking, the in-duct UVC is best located downstream from the main filtration system (electrostatic precipitators), working as a final end of line filtration step.

Certification and Testing

- The unit is recognized internationally with CE and RoHS certifications to attest for its quality and safety

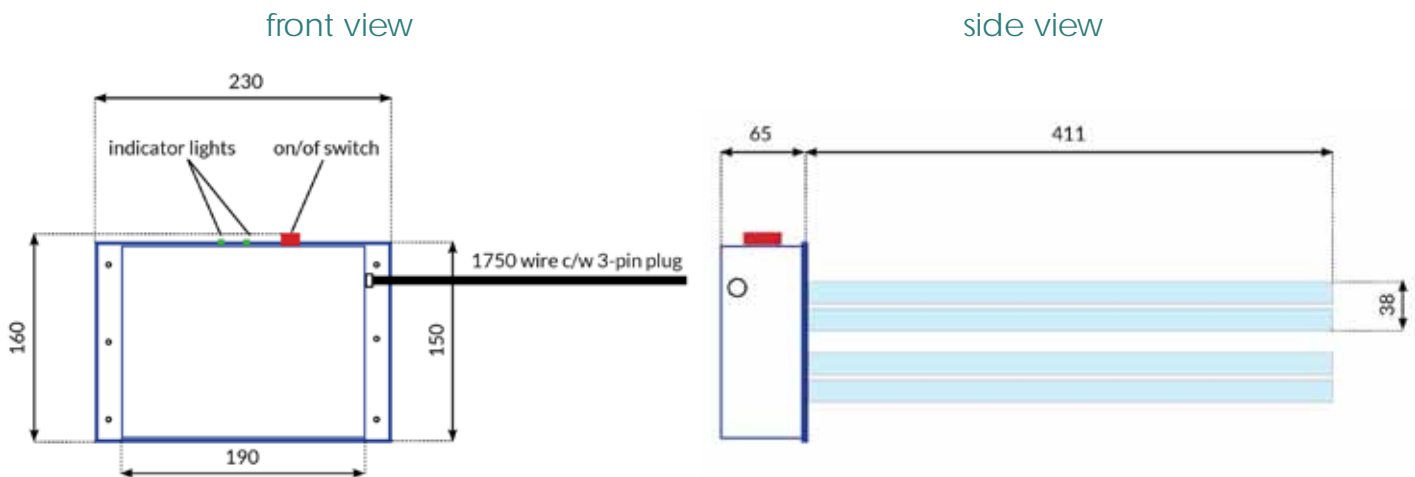
Key Clients



The iconic pub located in North Sydney's CBD installed an in-duct UVC emitter to treat the light cooking exhaust originating from the pizza oven



Technical Data



Weight (kg)	1.66 kg
Airflow (L/s)	Up to 960 l/s* * Manufacturers specifications – speak to AOM Australia for a recommended maximum airflow based upon the specific cooking equipment, kitchen exhaust discharge conditions and requirements to AS1668.2-2012.
Size (mm)	230 L x 160 w x 476 h
Power supply	220~240 V / 1P / 50-60Hz
Power consumption	72 Watt
Mean lamp life span	9000 hours





Smart Ventilation Solutions

Smart ventilation solutions to optimise the performance of exhaust systems

AOM INTAIR

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AOM TOUCH

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Exhaust and Supply Fans

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AOM INTAIR

Interconnecting all the elements of a commercial kitchen exhaust system to optimise performance.

- **Demand Control Ventilation** - Connect the fan speed and exhaust rates with cooking intensity with heat and smoke sensors located within the exhaust hood
- **Optimise the use of filtration equipment** by interconnecting filtration equipment with other variables of the exhaust system (cooking intensity, fan speed)
- **Monitor and influence key parameters of the exhaust system** including monitoring of ozone at the discharge and integrating the capacity to vary ozone production



Improved energy efficiency of the kitchen exhaust system using Demand Control Ventilation

AOM INTAIR evaluates the cooking intensity of appliances under a kitchen exhaust hood and consequently controls the filtration and ventilation equipment.

This can either be programmed as:

- Exhaust equipment ON as soon as cooking begins and OFF when cooking stops
- Sequential equipment use with varying fan speeds and varying filtration intensity.

Optimal use of ozone for odour mitigation

Removing the risk of residual ozone discharges at the discharge point since ozone injection is tied to cooking intensity.

Improved usability of the kitchen exhaust systems

Easy to install and maintain with in-hood sensors built into the AOM HC Series kitchen exhaust hoods and all components are discreet and simply connected using standard electrical cabling.

Key Clients



Hurricanes was fully fitted with AOM exhaust and filtration equipment. The INTAIR system ensures that the use of the filtration equipment is tied to the cooking intensity.



AOM was specified as the sole supplier of kitchen exhaust and filtration equipment including INTAIR automated systems for all tenancies in the On The Point – Point Fraser redevelopment in Perth.



AOM TOUCH

Command and control of different parameters of the exhaust and filtration equipment on either a touch screen display or remotely

- **Monitor and control system parameters** including electrostatic precipitators voltage settings, filtration equipment pressure differentials or ozone quantities to better understand system performance and maintenance requirements
- **Access system information remotely** or through a **touch screen** located anywhere in the tenancy



All exhaust system parameters easily accessed

Base design allows for command and control of a fan exhaust system generally comprising of a fan together with a vsd, filtration equipment (electrostatic precipitators/UV lamps) and odour mitigation (ozone injection).

Upgrades for further system monitoring

Further upgrades allow for additional inputs such as AOM INTAIR system parameters (varying cooking intensity), in-duct temperature probes and pressure differentiators as well as any further required system information.

Remote touch screen location

The AOM TOUCH interface can be located anywhere within a tenancy for ease of access or can be accessed through the internet using either data or a wireless connection. This also enables SMS or email fault alarms.

Key Clients



Hurricanes Surfers Paradise and Hurricanes Bondi Beach have installed AOM TOUCH together with AOM filtration equipment to remotely command and control a number of exhaust system parameters.





Exhaust and Supply Air Fans

High quality range of Australian designed and manufactured inline centrifugal, inline axial or vertical discharge roof mount fans

- **AOM Australian made exhaust and supply air fans for airflows up to 3000 l/s** - using high quality ROTOREX Soler and Palau fan motors
- **Full access to the Aerovent exhaust fan catalogue for larger airflows**



High quality Australian design and manufactured fan series

Using high quality, quiet in operation, Soler and Palau fan motors, and manufactured from sturdy galvanised sheet with mounting flanges attached, this range of fans makes installing onto ductwork simple. Models available are:

- Inline Centrifugal fans: CCB (240V) and CCT (415V) from 315 mm - 710 mm impellor
- Inline Axial fans: CFB (240V) and CFT (415V) from 300 mm - 600 mm impellor
- Roof Mount Centrifugal: CRRB (240V) and CRRT (415V) from 315 mm - 710 mm impellor

The Soler & Palau ROTOREX motors with self-resetting thermal overload protection are of induction type, synchronous, with an external rotor. The ball bearings are totally enclosed and greased for life, ensuring continuous operation and minimal noise. The impeller assembly is dynamically balanced and every fan is run tested prior to leaving the workshop.

Larger exhaust fan models supplied with ECOBOX units

AOM Australia uses AeroVent exhaust fans for large airflows and high resistance systems, notably when fans are fitted into AOM ECOBOX Series filtration units.

AOM also supplies a range of Schneider Electrical Variable Speed Drives for all exhaust and supply air exhaust systems. Contact AOM for Detailed Specifications of our fan selections.

Key Clients



The Watermark Hotel on the Gold Coast was fully equipped with the AOM range of fans, HC Series kitchen exhaust hoods and filtration equipment.



Welcome to the **AOM Integrated Commercial Kitchen Exhaust Solutions 2020 Catalogue** where we showcase our latest innovations and our new range of Australian-made products.

The catalogue includes all our standard products; from a large range of commercial kitchen exhaust hoods, to equipment for smoke and grease filtration and for odour mitigation, as well as our range of fans and other Smart Ventilation Solutions.

Following our work with AIRAH and other partners, it also includes **Engineering Bulletins** covering:

- Quick guide to designing a commercial kitchen exhaust system
- Composition of commercial kitchen exhaust
- Kitchen exhaust hood selections
- Cooking types and filtration needs
- Understanding key design/manufacturing parameters influencing electrostatic precipitator efficiency
- Use of mechanical filters in exhaust systems
- Engineering compliant air discharges



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