purified air®

Specification & EMAQ Report

Project Name:

Head of Steam, Manchester

Quotation Reference: EH31614

Prepared for: David Raynor (Trivent)

Prepared by: Emrys Hughes

Date: 15/05/25

Contact details:

Emrys Hughes

[redacted]

AIR FILTRATION EXPERTS

UK MANUFACTURER

MARKET LEADERS SINCE 1984

CONTENTS

CONTENTS 2

INTRODUCTION 3

TECHNICAL SPECIFICATIONS (per unit) 7

TECHNICAL DRAWINGS 7

INTRODUCTION

Interpretation of Requirements

Following our conversation today I am pleased to provide an equipment selection for an odour control solution.

As with any project we get involved in we always recommend to our clients that they should closely follow the EMAQ guide for guidance on odour control equipment selection.
This ensures that what they propose will be in line with local authority's requirements and if the system is maintained correctly, they will not exhaust nuisance odours leading to complaints from nearby residents.

With this in mind I carried out a risk assessment as detailed in Appendix 3 of the EMAQ Guide.
Taking into consideration the level of discharge, proximity of receptors, size of kitchen and cooking type your project requires a high level of odour control to comply.

We have scored as below and as taken from Appendix 3: Risk Assessment for Odour;

Risk	Score
Dispersions	**20**
Proximity Of Receptors	**5**
Size Of Kitchen	**3**
Cooking Type	**7**
Total Score	**35**

The type of odour abatement system that complies is as below, taken directly from the EMAQ Guide and must be to a **high level of control**.

Odour arrestment plant performance

Low level of odour control may include:

1. Fine Filtration or ESP followed by carbon filtration (carbon filters rated with a 0.1 second residence time).
2. Fine filtration followed by counteractant/neutralising system to achieve the same level of control as point 1.

PRODUCT OVERVIEWS

High level odour control may include:

1. **Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.2 – 0.4 second residence time).**
2. Fine filtration or ESP followed by UV ozone system to achieve the same level of control as point 1.

Very high level of odour control may include:

1. Fine filtration or ESP followed by Carbon filtration (carbon filters rated with a 0.4 – 0.8 second residence time).
2. Fine filtration or ESP followed by carbon filtration and counteractant/neutralising system to achieve the same level of control as point 1.
3. Fine filtration or ESP followed by UV ozone system to achieve the same level of control as point 1.
4. Fine filtration or ESP followed by wet scrubbing to achieve the same level of control as point 1.

Criteria	Score	Score	Details
Dispersion	Very Poor	20	Low level discharge, discharge into courtyard or restriction on stack.
	Poor	15	Not low level but below eaves, or discharge below 10 m/s
	Moderate	10	Discharging 1m above eaves at 10-15 m/s
	Good	5	Discharging 1m above ridge at 15 m/s
Proximity of Receptor	Close	10	Closest sensitive receptor between 20m from kitchen discharge.
	Medium	5	Closest sensitive receptor between 20 and 100m from kitchen discharge.
	Far	1	Closest sensitive receptor more than 100m from kitchen discharge.
Size of Kitchen	Large	5	More than 100 covers or large sized take away.
	Medium	3	Between 30 and 100 covers or medium sized take away.
	Small	1	Less than 30 covers or small take away.
Cooking type (odour and grease loading)	Very High	10	Pub (high level of fried food), fried chicken, burgers or fish & chips. *Turkish, Middle Eastern or any other premises cooking with solid fuel*
	High	7	Vietnamese, Thai, Indian, *Japanese, Chinese, steakhouse.*
	Medium	4	Cantonese, *Italian, French, Pizza (gas fired)*
	Low	1	Most pubs *(no fried food, mainly reheating and sandwiches etc.), Tea rooms.*

PRODUCT OVERVIEWS

The System

The kitchen extraction flow rate is 0.95m3/s, based on this we would recommend on installing 1No ESP 3000 unit followed by 1No MFU 1200 unit to achieve a 0.2s dwell time.

ESP

Key Features
Eliminates up to 98% of oil, grease and smoke particles
Filters particles down to sub-micron levels
Produces Ozone to help reduce malodours
Designed with an integral sump

As our ESP's have been specifically designed for kitchen extract and not modified from industrial use, they have integral sumps to collect the oil, grease and smoke particles filtered out of the exhaust; this not only simplifies servicing but eradicates potentially dangerous spillage from the bottom of the units and greatly cuts down on flammable build-ups within the duct run.
The ionisation voltage has been designed to run at a negative potential which enhances the ionisation of particles and also produces more Ozone which is helpful in reducing odours in kitchen applications.
Our ESP units fit in-line with the kitchen ducting and can be configured modularly to cope with all extract volume requirements.

The Electrostatic Precipitator is a very efficient means for separating the particulate phase; operating efficiency when clean can be as high as 98% at particle sizes down to 0.01 micron.

The Electrostatic Precipitator does not present a high-pressure loss (90PA approx. dependant on air flow). This gives a specific advantage in that most standard Kitchen extractor fans will have the capability of overcoming this small differential.
This is advantageous when it is considered that if the pressure loss were high larger noisier fans would be necessary resulting in potential noise pollutio

PRODUCT OVERVIEWS

MFU

Key Features
Modular in design
Endless combinations of passive filtration
Multiple configurations
Built for stock / No lead times

Our MFUs are designed explicitly for kitchen extract systems; they collect the oil, grease and smoke particles filtered out of the exhaust through a combination of passive air filters, including panel, bag, HEPA and carbon. The high-quality unit can house multiple filter combinations and is effortlessly serviced, replaced or even re-configured to provide continually effective and affordable kitchen extract particulate control. Additionally, the units help reduce grease build-up within the ducting and reduce odours.

Its modular design means units can be configured in various ways to handle any required flow rate, providing effective and efficient kitchen extract filtration.

Carbon Filters

We manufacture Site Safe carbon filters, these innovative carbon units measure 594x196x597mm, three combining to 594x594x597mm, directly replacing our original carbon blocks whilst providing exactly the same filter performance as an existing full size cell.

Their advantage is that they only weigh 18kg each against the 68kg of our original blocks. This takes the strain out of fitting and servicing, allowing only one engineer to complete the task where two had been previously required.

Our Site Safe carbon filters use panels of activated carbon to remove the malodourous gases within the commercial kitchen extract duct through the process of chemical adsorption. By installing our ESP units before our Site Safe filters, the carbon life span is greatly increased, allowing it to nullify malodours at optimum efficiency for much longer.

As you can see the system that has been specified is in line with EMAQ guidance.

TECHNICAL SPECIFICATIONS (per unit)

1No. ESP 3000E Unit.	
Air Volume Max	1.4m3/s
Electrical Supply	220/240V 50Hz 1ph
Power Consumption	50 W
Weight each	85kg
Min/Max Working Temperature	4/56°C
Max Relative Humidity	75%

1No. MFU 1200 (Casing Only)	
Width	1245mm
Height	630mm
Depth	925mm
Weight	78kg

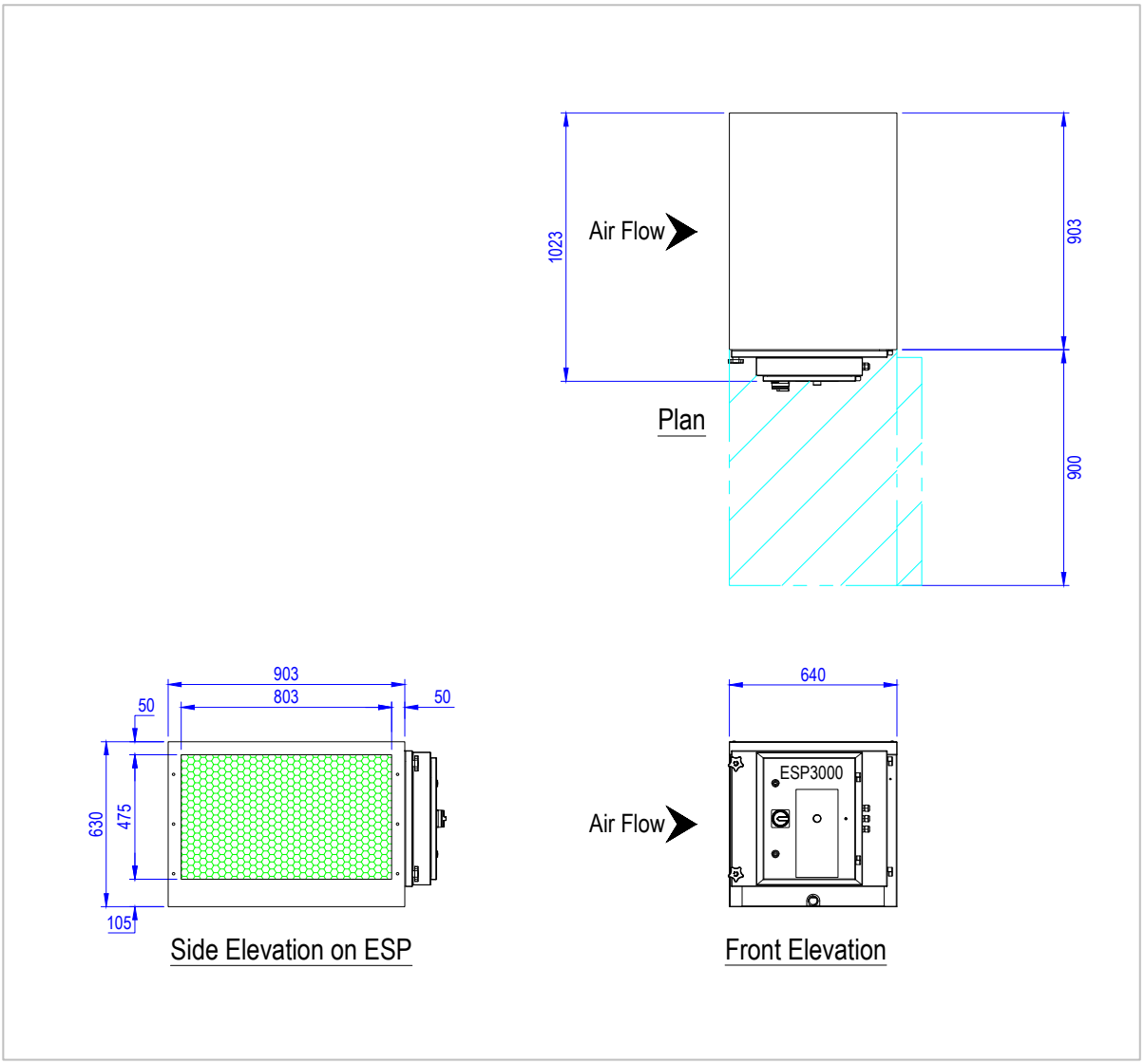
Carbon Filter
Providing a 0.21s dwell time
6No. 594 x 196 x 597 Site Safe Carbon Filters

6No Carbons in the MFU 1200 unit

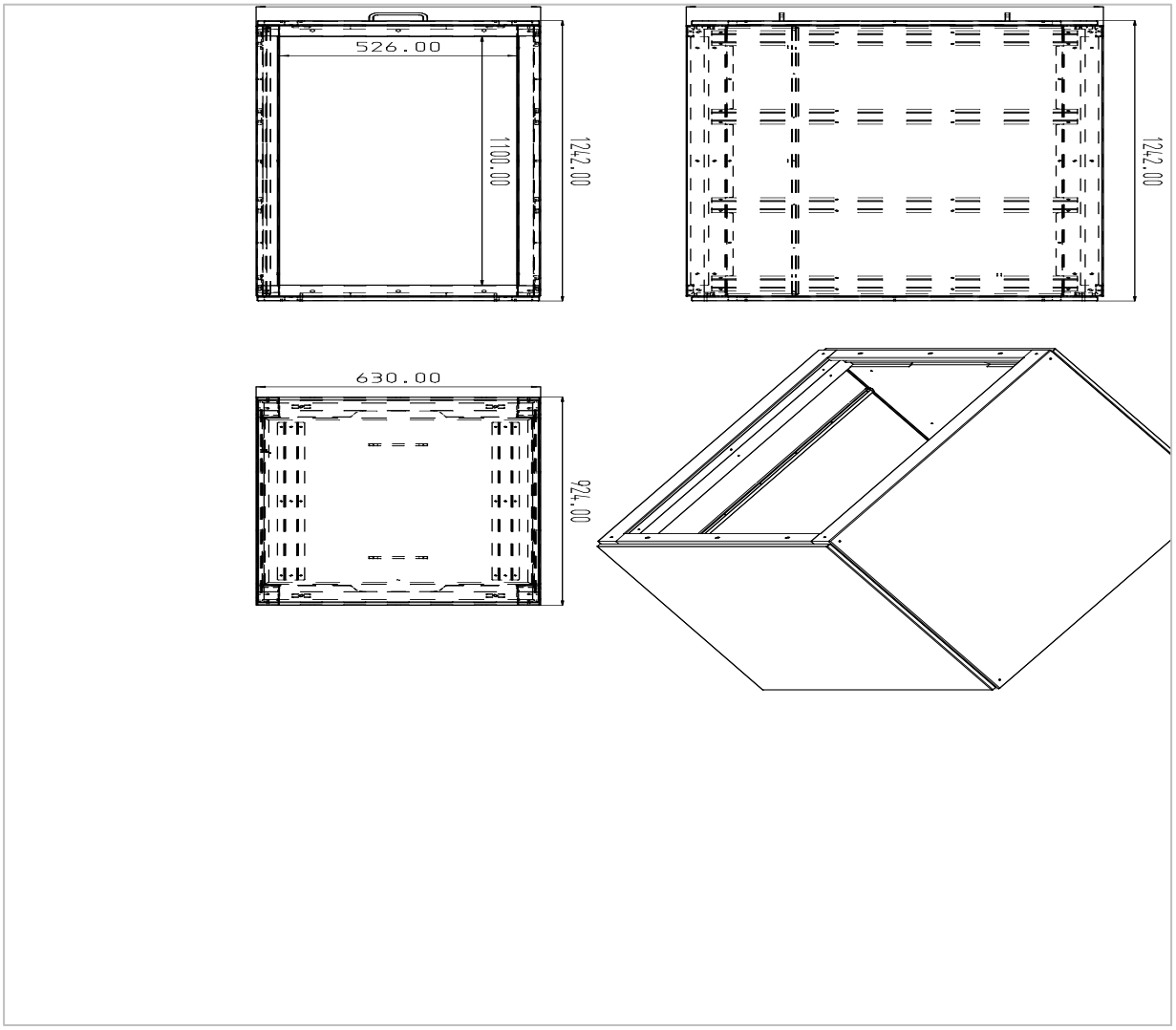
Pressure resistance for this equipment will be 155Pa.

TECHNICAL DRAWINGS

ESP 3000



MFU 1200



ACCREDITED AND CERTIFIED BY

Thank you for the opportunity to provide the specification and EMAQ report. Should you have any questions or queries please get in touch.

Emrys Hughes
Business Development Manager
[redacted]

purifiedair.com

Lyon House, Lyon Rd, Romford, Essex RM1 2BG