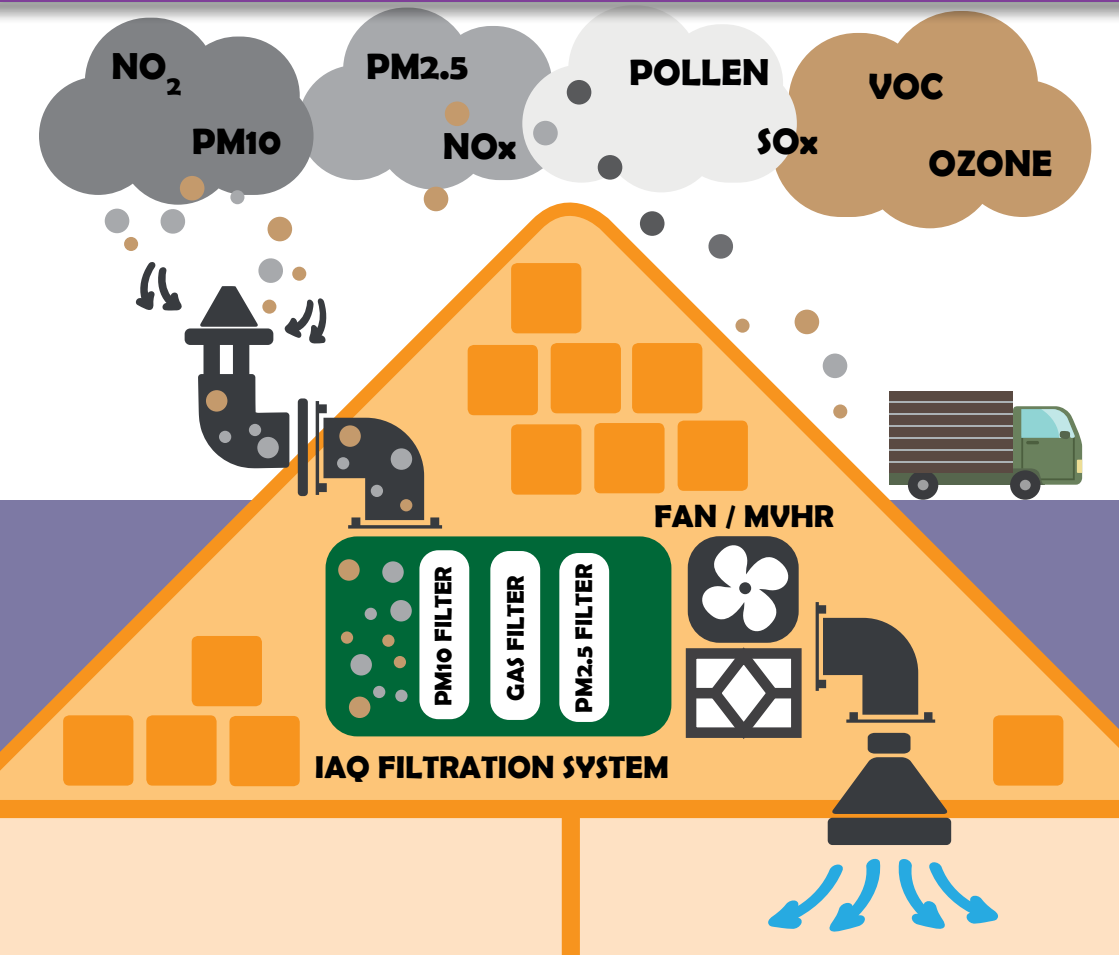


AIR POLLUTION FILTER FOR HOMES, SCHOOLS AND WORKSPACES  
USING FRESH AIR MECHANICAL VENTILATION

Your

# INDOOR AIR QUALITY FILTRATION SYSTEM

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**AIRCLEAN**  
YOUR AIR FILTER MANUFACTURER

## Indoor Air Quality Filtration System

### Applications

The Indoor Air Quality Filtration System combines particulate and gas filtration to remove pollutants prior to the air entering residences and commercial buildings through mechanical ventilation and heat recovery systems.



### Particulates, PM10, PM2.5

The Indoor Air Quality Filtration System can house up to two particulate filters. Panel filters of Grade G4 to EN779 having an arrestance above 90% make it suitable for the removal of PM10 Particulates. An additional particulate filter of Grade F7 to EN779 can be included to further reduce smaller particles (PM2.5) to an efficiency between 70 and 80% at 0.4µm.

### Pollutant Gases, NO<sub>2</sub>, SO<sub>2</sub>, O<sub>3</sub>, VOC

The Type 1 Gas Filters used in the Indoor Air Quality Filtration System are designed to remove pollutant gases at the rated air flow of the filtration system. A specially formulated activated carbon chemical mix, acts upon pollutant concentrations common in dirty city air, reducing them below guidelines set by current legislation.

### NO<sub>2</sub> Removal Efficiencies

Testing carried out under typical operational circumstances have shown that the Indoor Air Quality Filtration System using Type 1 Gas Filters will reduce Nitrogen Dioxide concentrations below EU Directive limits of 40µg/m<sup>3</sup> when challenged with concentration levels up to 200µg/m<sup>3</sup>. Peak reduction efficiencies of Nitrogen Dioxide were measured at 87%.

### Installation Requirements

The Indoor Air Quality Filtration System can be mounted horizontally or vertically using the fitted mounting bars, and comes as standard with maintenance access on both sides via lift off access doors. Duct transformations are included within the stated unit length, and are available in both circular and rectangular, suitable for both domestic and commercial duct work.

### INDOOR AIR QUALITY FILTRATION SYSTEM

Unit	Airflow Rating (m <sup>3</sup> /s)	Dimensions (mm)			Required Filters	Clean PD at Rated Air Flow	Part Numbers
		H	W	L*			
CB50	0.055	220	310	980	PM10 + Type 1 Gas Filter : (2x) 1130523, (4x)1650501	45Pa	1841501
					PM10 + Type 1 Gas Filter + PM2.5 : (1x) 1130523, (4x)1650501, (1x)1450502	100Pa	
CB100	0.11	220	620	980	PM10 + Type 1 Gas Filter : (4x) 1130523, (8x)1650502	45Pa	1841502
					PM10 + Type 1 Gas Filter + PM2.5 : (2x) 1130523, (8x)1650501, (2x)1450502	100Pa	
CB200	0.22	410	620	980	PM10 + Type 1 Gas Filter : (8x) 1130523, (16x)1650501	45Pa	1841503
					PM10 + Type 1 Gas Filter + PM2.5 : (4x) 1130523, (16x)1650501, (4x)1450502	100Pa	
CB300	0.33	600	620	980	PM10 + Type 1 Gas Filter: (12x) 1130523, (24x)1650501	45Pa	1841504
					PM10 + Type 1 Gas Filter + PM2.5 : (6x) 1130523, (24x)1650501, (6x)1450502	100Pa	
TYPE 1 GAS FILTER							1650501
CB PM10 FILTER (G4 to EN779)							1130523
CB PM2.5 FILTER (F7 to EN779)							1450502
INSULATED LAGGING JACKET							1841601

\*Length dimension includes transformations to required duct size



## Case Study: Nitrogen Dioxide and Particulate Matter Filtration using the Indoor Air Quality Filtration System

### Circumstance

Owners of a bungalow located adjacent to the busy A20 in Larkfield ME16 were concerned that their existing Mechanical Ventilation Heat Recovery system may be drawing pollutants into their home.

Following their own initial investigations their main concerns were with Nitrogen Dioxide Concentrations breaching target values set out by National Air Quality Objectives.

Published Nitrogen Dioxide concentration data from within the AQMA showed that a local monitoring point located only 500m from the property detected multiple breaches of the 40µg/m<sup>3</sup> target limit throughout 2015 with an annual average of 36µg/m<sup>3</sup>.

### Solution

Based on the air flow rate of the MVHR system operating in the owners bungalow a CB100 Indoor Air Quality Filtration System was selected and installed to filter the supply air fitted using PM10, PM2.5 and Type 1 Gas Filters.

### Evidence

Nitrogen Dioxide concentrations were measured before and after the Airclean Indoor Air Quality Filtration System showing a reduction efficiency of 97%. This efficiency proves that the Indoor Air Quality Filtration system will reduce Nitrogen Dioxide concentrations below target limits set out in National Objective and EU Directive 2008/50/EC, when they are breached.

Sample Location	Start Date	End Date	Time (hrs)	NO <sub>2</sub> Concentration µg/m <sup>3</sup>
Before Filtration System	10-03-2016	17-03-2016	165.5	<b>34.14</b>
After Filtration System	10-03-2016	17-03-2016	165.5	<b>0.69</b>

Particulate Matter concentrations measured in the airstream outside the property breached the target values for PM10 (50ug/m<sup>3</sup>) and PM2.5 (25ug/m<sup>3</sup>). Air measured in the airstream within the property were below target values.

Sample Location	Sampling Date	PM2.5 µg/m <sup>3</sup> (Averaged)	PM10 µg/m <sup>3</sup> (Averaged)
External Air Stream Before Filters	24-03-2016	26	57
Internal Air Stream After Filters	10-03-2016	20	45

## Is your MVHR system drawing polluted air into your home?

MVHR systems have been proven to benefit health, and can reduce the symptoms of respiratory illnesses, where clean fresh air is drawn into the home. However, in some areas where the outside air is polluted, it can actually be the cause of respiratory and health problems.

The Airclean Indoor Air Quality Filtration System can be used with Mechanical Ventilation Heat Recovery (MVHR) Systems in domestic houses for the reduction of Particulate Matter (PM10 and PM2.5), Nitrogen Dioxide and other common pollutants. This filtration system is designed to work with market MVHR units installed to comply with Part F Building Regulations, without the need for fan upgrades or modifications.

The Indoor Air Quality Filtration System reduces pollutant concentrations to below target limits set out in the EU Directive 2008/50/EC as required by many new builds in Air Quality Management Areas (AQMAs).

