

■ Decorative Radiators ■ **Comfortable indoor ventilation** ■ Heating and cooling ceiling systems ■ Clean air solutions

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HEALTHY HOMES

How to meet indoor Air Quality planning requirements for new residential developments

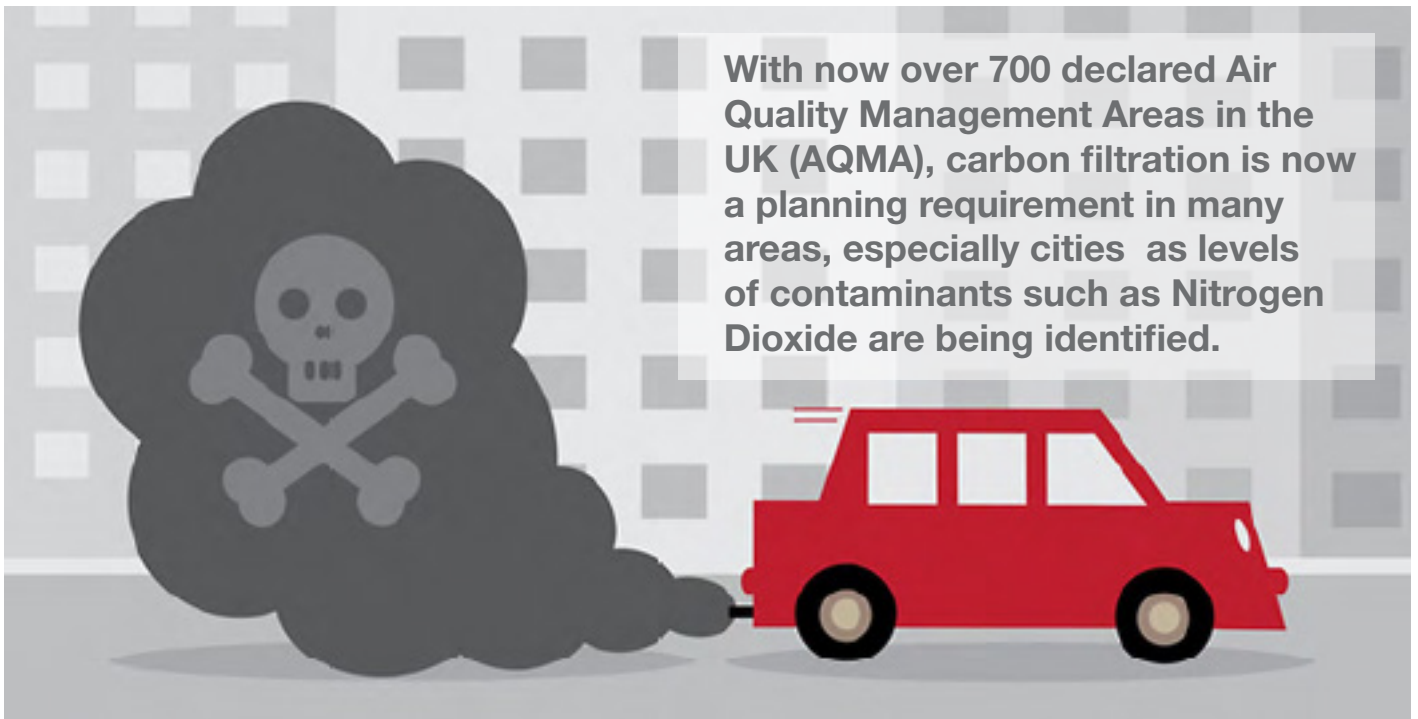
The Air Quality Situation

The state of the nation's Air Quality and its impact on our health is at the top of the agenda.

In a recent report, DEFRA estimates that NO₂ pollution causes up to 23,500 premature deaths and that traffic pollution is contributing to a rising number of children with asthma.

External air impacts indoor air through opening windows, doors and through purposely installed ventilation systems.

Given that we spend up to 70% of our time indoors, the quality of indoor air is crucial.



With now over 700 declared Air Quality Management Areas in the UK (AQMA), carbon filtration is now a planning requirement in many areas, especially cities as levels of contaminants such as Nitrogen Dioxide are being identified.

What are the Regulatory requirements for Air Quality?

The EU Directive 2008/50/EC (The Café Directive) European Union for Air Quality and Clean Air for Europe 2008 sets stringent NO₂ levels for designated AQMA's where indoor air NO₂ levels will exceed 40ug/m³.

In order for air quality not to exceed these levels, high grade NO₂ filtration is acceptable as a mitigation solution in order to comply with the directive.

Ventilation and Indoor Air Quality

Both are inextricably linked. Part F of the Building Regulations sets out ventilation rates for new dwellings via 4 methodologies

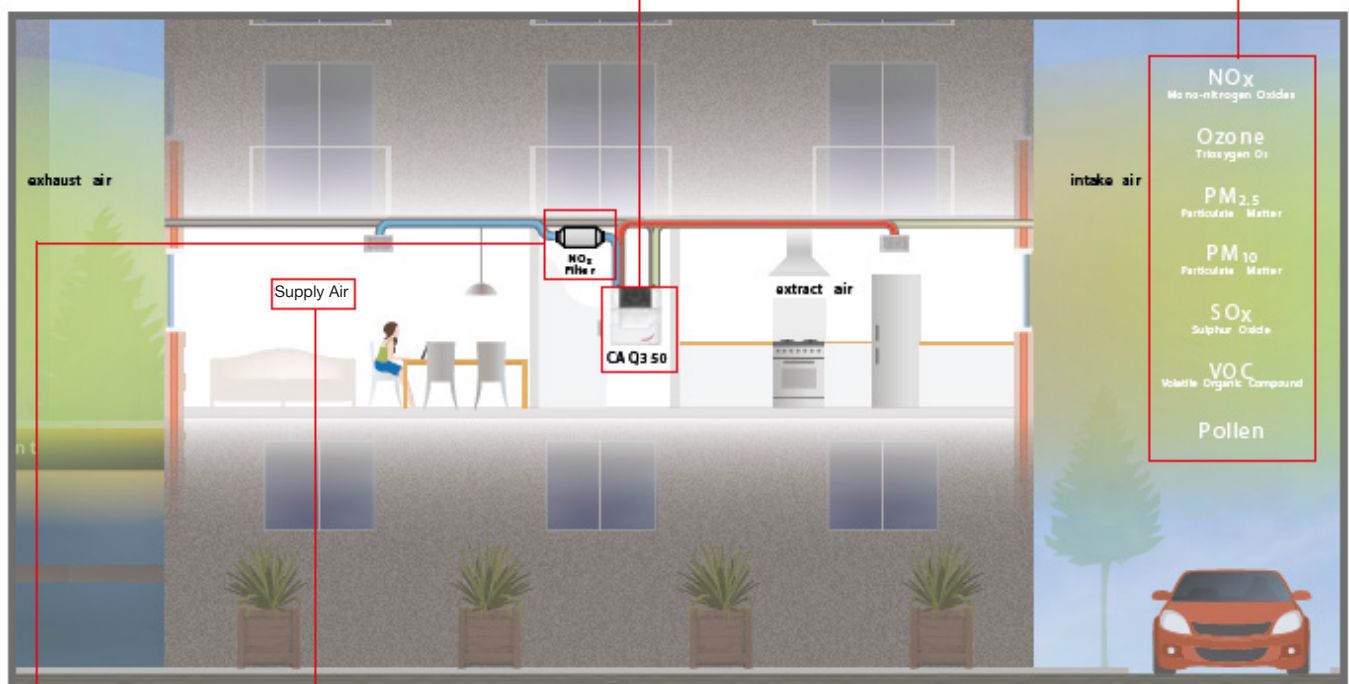
1. Intermittent Extract Fans
2. Passive Stack
3. Continuous Mechanical Extract
4. Continuous Supply and Extract with Heat Recovery

Where planning requirements also need to be met, Heat Recovery Ventilation is the most suitable option as it can be integrated with high grade filtration.

How are NOX filters integrated into Ventilation

Where high levels of NO_x have been identified (in AQMA's) and a planning restriction is in place, additional high grade carbon filtration will be required. This will usually be required for new dwellings from ground up to and including the third floor.

Whole House Heat Recovery Ventilation is the most appropriate ventilation strategy for air quality issues as it is a balanced whole house system which can be controlled and air can be filtered. It is widely considered to improve indoor air quality and reduce the symptoms of respiratory illnesses as well as provide energy savings to homeowners throughout the year.



The NO_x high grade filters are placed within the supply air network. Air enters the dwelling and is filtered via the Heat Recovery System (G4) and then through the high grade carbon filter to remove the hazardous particles.

Supply air is provided to the habitable rooms in the dwelling via a ceiling grille. The Heat Recovery provides continuous fresh air to the dwelling throughout the year and utilises the heat transfer (up to 96%) in colder months.

A post G3 filter also ensures an additional level of filtration before entering the room.

NOx Filters

The Zehnder range of NOx filters combine with our MVHR units to remove particulate and gas pollutants from incoming air. The third party tested filters help to bring outdoor air pollutant levels, within [AQMA \(Air Quality Management Areas\)](#), down to within World Health Organisation Air Quality Guidelines and to meet the CAFE Directive.

The long life span of between 2-5 years, in addition to the innovative filter view panel, ensure the filters continue to remove pollutants for long time periods and are replaced at the right time.

The horizontal ceiling mounted range of units also have extremely low pressure drops, meaning the MVHR is unlikely to be negatively impacted upon regards noise and running costs.



Key Features

- Removes NO₂, SO₂, O₃ and hydrocarbon gases from entering the property
- Extremely low pressure drop
- Wide range of spigot sizes
- Independently tested by 3rd party
- Unique filter view panel and sacrificial cell to indicate when the filter needs to be replaced
- Provides additional attenuation

NOx Filtration Details

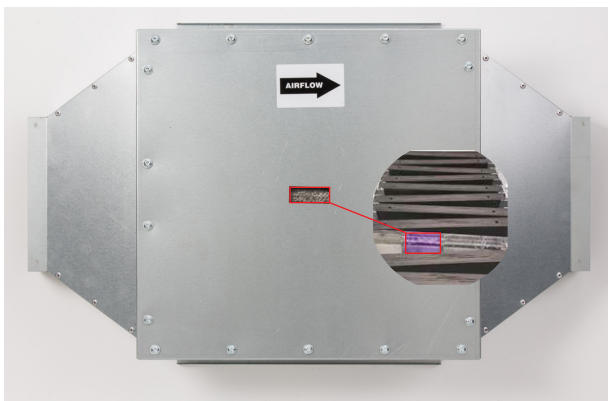
- High grade NOx filtration to help meet the requirements of Air Quality Planning Regulations
- Five options to suit all MVHR models – including Zehnder ComfoAir Q and Greenwood Vireo units
- Sized to minimise additional energy consumption from the system
- Long life span between 2-5 years
- Unique feature to Zehnder NOx Filters – Integrated Sight Glass for easy and quick maintenance review on site

Unique Filter View Panel

The filter cartridge is made up of a series of G3 and Carbon Filters. The Carbon Filter changes colour to show when it needs replacing.

The Zehnder NOx filter has a unique glass panel located as shown on the base. This eliminates the need to open the entire front panel to check the filter status.

On-site just simply and quickly open an access hatch to view the colour status or exchange the filters.



Filter in new/
good condition



Filter in used
condition with some
life remaining



Filter needs
replacing

Article Numbers

Description

Product Code

Circular Spigots

NOx filter housing with G3/Carbon filters up to 21l/s, ø 125mm connections	NOX21125
NOx filter housing with G3/Carbon filters up to 40l/s, ø 125mm connections	NOX40125
NOx filter housing with G3/Carbon filters up to 60l/s, ø 150mm connections	NOX60150
NOx filter housing with G3/Carbon filters up to 80l/s, ø 150mm connections	NOX80150
NOx filter housing with G3/Carbon filters up to 60l/s, ø 160mm connections	NOX60160
NOx filter housing with G3/Carbon filters up to 80l/s, ø 160mm connections	NOX80160
NOx filter housing with G3/Carbon filters up to 150l/s, ø 180mm connections	NOX150180

Rectangular Spigots

NOx filter housing with G3/Carbon filters up to 21l/s, 204mm x 60mm connections	NOX21204
NOx filter housing with G3/Carbon filters up to 40l/s, 204mm x 60mm connections	NOX40204
NOx filter housing with G3/Carbon filters up to 60l/s, 220mm x 90mm connections	NOX60220
NOx filter housing with G3/Carbon filters up to 80l/s, 220mm x 90mm connections	NOX80220

Replacement Filters

Filter replacement set for NOx 21, 1 x G3 + 9 x Carbon	NOX21FIL
Filter replacement set for NOx 40, 1 x G3 + 9 x Carbon	NOX40FIL
Filter replacement set for NOx 60, 1 x G3 + 9 x Carbon	NOX60FIL
Filter replacement set for NOx 80, 1 x G3 + 13 x Carbon	NOX80FIL
Filter replacement set for NOx 150, 1 x G3 + 16 x Carbon	NOX150FIL

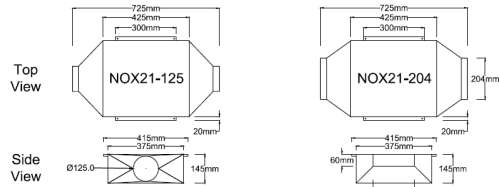
Technical Specification

Housing material	Galvanised Steel
Operating temperature range	-5 to +55 °C
Operating relative air humidity range	20 to 80%
Pre-filter grade	G3
Bulk density	520 Kg/m ³
Nominal diameter of cylindrical pellets	4.0mm
Nominal length of cylindrical pellets	8.0mm
Removal capacity of Cl ₂ of own weight	20%

Dimensions

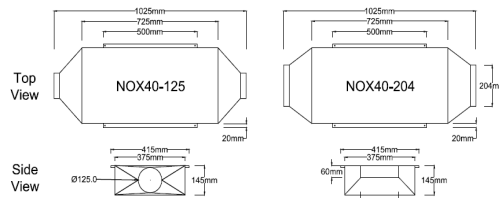
NOx 21

Height	145 mm
Width	725 mm
Depth	415 mm
Weight	13.4 kg



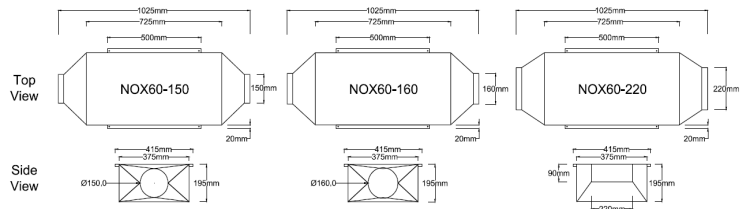
NOx 40

Height	145 mm
Width	1025 mm
Depth	415 mm
Weight	20.5 kg



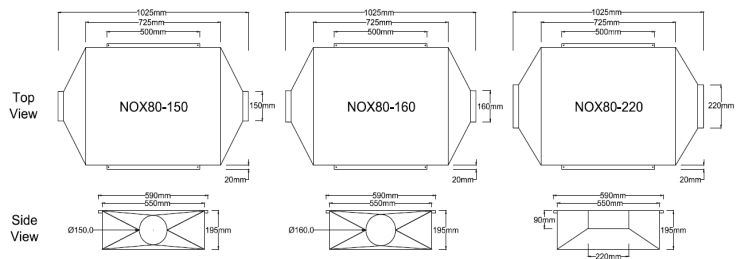
NOx 60

Height	195 mm
Width	1025 mm
Depth	415 mm
Weight	25.1 kg



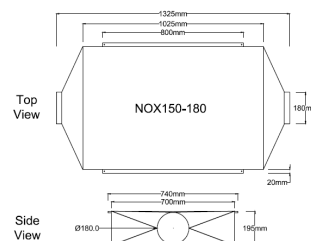
NOx 80

Height	195 mm
Width	1025 mm
Depth	590 mm
Weight	34.2 kg



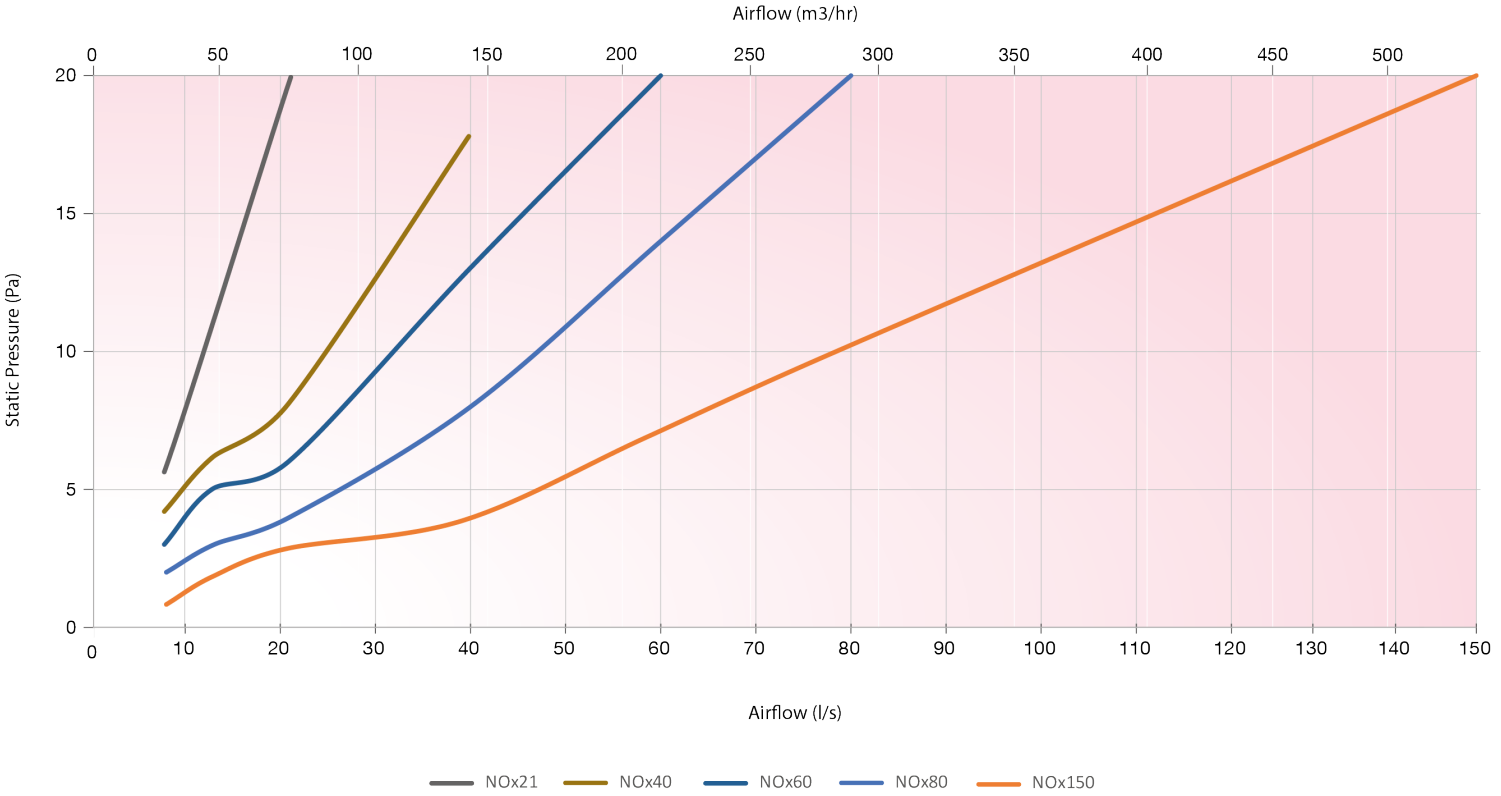
NOx 150

Height	195 mm
Width	1325 mm
Depth	740 mm
Weight	56.6 kg



Pressure Curve

NOx filter housing with G3 and Carbon filters



Sound Data

Zehnder NOx21 - NOx150 with G3

	Octave Band (Hz) Insertion Loss, dB									
		63	125	250	500	1000	2000	4000	8000	
Zehnder NOx21 - NOx150 with G3 filter		6	4	2	2	2	3	8	5	

For use with

Our range of NOx filters can be used with our extensive range of MVHR units from our small HR155WM through to our ComfoAir Q 600.



TO VIEW OUR RANGE OF UNITS
CLICK HERE

BIM/CAD Components

If you would like to download the BIM / CAD files for this or any other of our products then please visit our library by following the link below.

TO VISIT OUR BIM/CAD LIBRARY
CLICK HERE

Our Informational Video



Watch Carl discuss Ventilation Strategy for AQMA's (Air Quality Management Areas) where additional high grade NOx filtration is required in conjunction with Heat Recovery Ventilation.

Learn about how the filter works and key considerations for specification.

TO WATCH OUR VIDEO

CLICK HERE

Consultant specification

Specification

The NOx filter housing shall be constructed of galvanised steel. The operating temperature range shall be between -5 °C and 55 °C and operating humidity range between 20% and 80%. The filter shall be designed to add no more than 20Pa to the system pressure and have screw access from the front and will include a colour cell and glass panel to indicate when the filter needs replacing.

The filter shall comply with the EU Directive 2008/50/EC (the CAFÉ Directive) European Union Air Quality and Clean Air for Europe 2008.