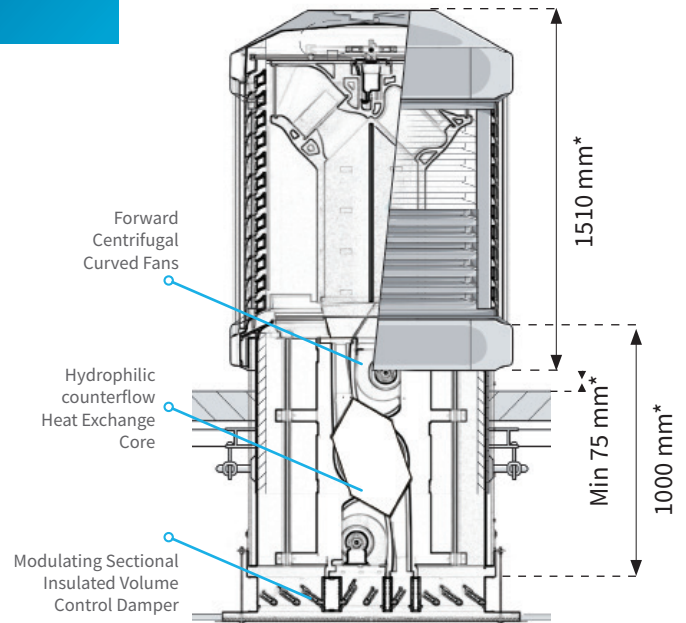
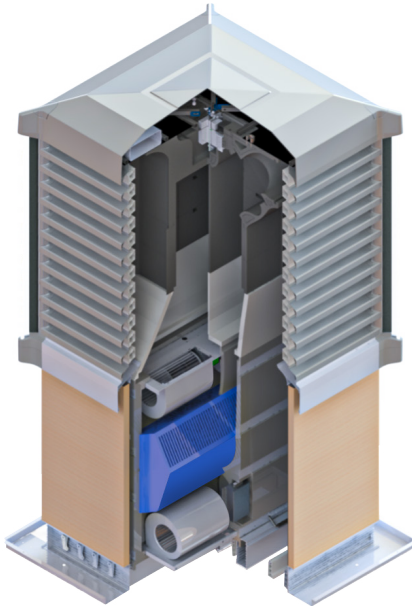


WINDCATCHER ZERO

Natural Ventilation Heat Recovery

Product Specification Sheet



Product Description

The Windcatcher Zero is the next generation of natural ventilation systems featuring Monodraught’s innovative Heat Exchange technology.

All Windcatcher systems use a combination of high quality, purpose engineered components and reactive control systems to capture and distribute fresh air into the built environment.

Monodraught’s latest natural ventilation product, the Windcatcher Zero will automatically switch to use an integrated ‘Air to Air’ heat exchange core mounted within the natural ventilation system. This ability to switch modes from natural ventilation to heat recovery during cold weather can lead to significant energy savings.

* Patent Pending - 1917112.3

Key Performance Parameters

0.181	180	320	Up to 65
Winter-time Heat Recovery SFP (W/l/s)	Heat Recovery Flow rate (l/s)	Night-time cooling Flow rate (l/s)	

* Windcatcher Zero 170 with a 1m upstand shown.

** When used in conjunction with Acuity Control System.



For more information on this product visit, contact:

Monodraught Ltd. Halifax House, Cressex Business Park, High Wycombe, HP12 3SE, United Kingdom

www.monodraught.com | info@monodraught.com | +44 (0)1494 897 700

Features and Benefits

Aluminium heat exchanger core

Innovative, robust modular construction

Reduces overall heating loads

Extremely quiet operation

Low running costs

Remote data monitoring**

Automatically switches to natural ventilation

Boosted levels of ventilation when required

Includes:

- Temperature and CO₂ sensors
- Aluminium plate heat exchangers
- Low energy fans

WINDCATCHER ZERO: ZERO CARBON

Windcatcher Zero is the first natural ventilation heat recovery system of its kind with zero embodied carbon, which is achieved by careful material selection and through a carbon offset programme. Materials have been selected to minimise embodied CO₂ values, and to ensure they are fully recyclable at end of life thereby supporting the circular economy and minimising waste.

Zero Embodied Carbon

Recognised Life Cycle Assessment methods have been used to calculate the embodied carbon and quantify the residual CO₂ for off-setting purposes. The total carbon footprint are calculated as:

- 425kg CO₂ for a Windcatcher Zero (170 model) system
- 500kg CO₂ for a Windcatcher Zero (200 model) system

Carbon emissions calculated (IPCC 2013 GWP 100a) utilising established Life Cycle Inventory databases (Ecoinvent3 & USLCI).

Zero Operational Carbon

Monodraught have partnered with a UK based tree planting scheme to off-set the residual operational carbon. One recognised tool to tackle the climate crisis and prevent temperatures from rising above 1.5°C is to plant trees, and our selected partner plants millions of trees around the world each month.

When placing an order with Monodraught, all clients will receive a certificate of the CO₂ offset value and the number of trees planted.



For example, for a typical leisure centre with 20 Windcatcher Zero systems installed, we will offset 10 Tonnes of CO₂ and 20 trees will be planted.

Visit Monodraught's forest at:
www.ecologi.com/monodraught



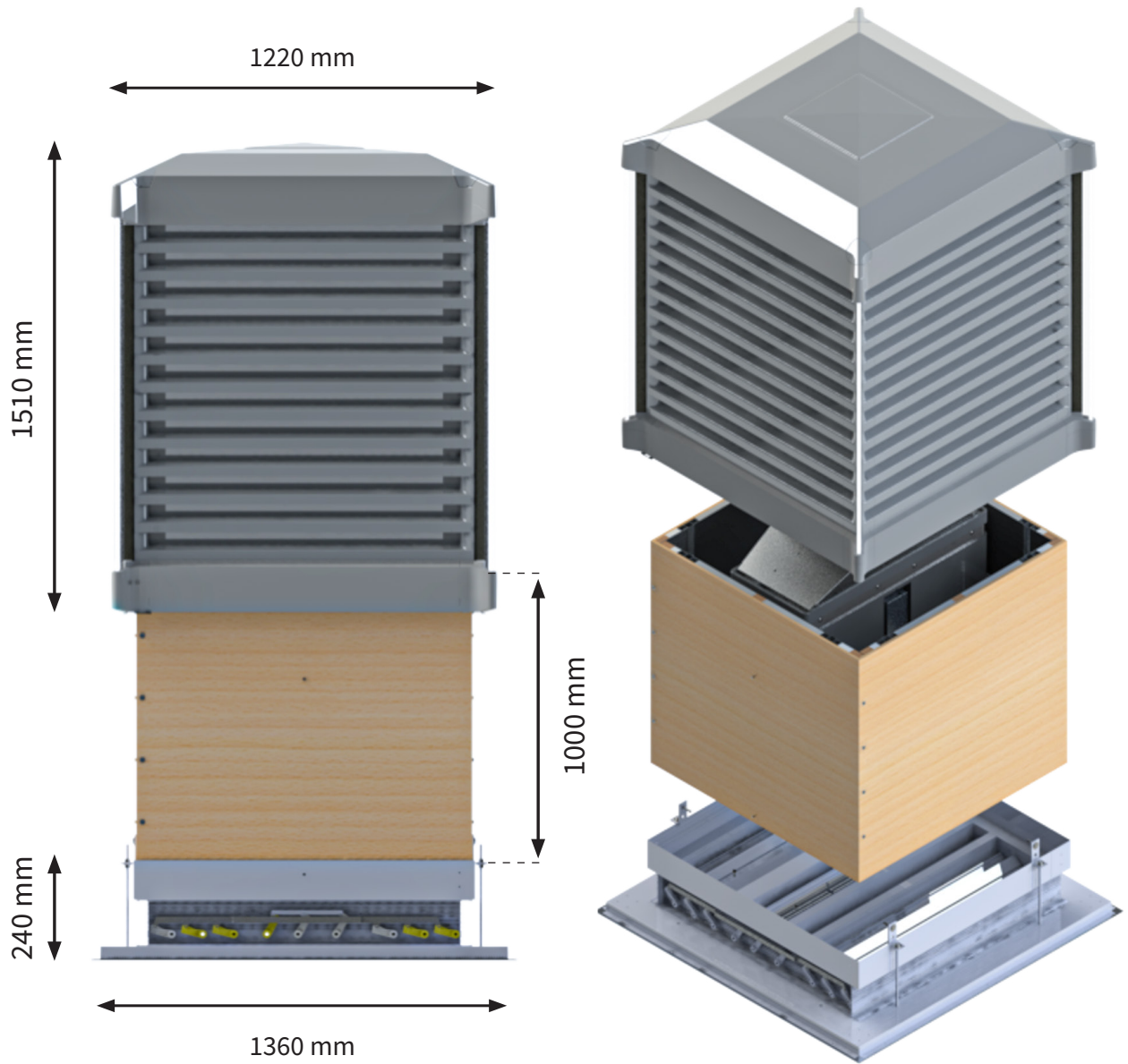
Variable	Value	
Model reference	Windcatcher Zero (WCZ)	
Models available	WCZ-170-MG-X-3 (Windcatcher Zero 170 supplied in medium grey finish)	
	WCZ-170-MG-CT-3 (Windcatcher Zero 170 supplied in medium grey finish and coastal treatment)	
	WCZ-200-MG-X-3 (Windcatcher Zero 200 supplied in medium grey finish)	
	WCZ-200-MG-CT-3 (Windcatcher Zero 200 supplied in medium grey finish and coastal treatment)	
System sizes	170	200
Terminal Dimensions (mm)	1220 (w) x 1220 (d) x 1510 (h)	1420 (w) x 1420 (d) x 1710 (h)
Colours	RAL 7037 Dusty Grey	
Materials	System	Core
	<ul style="list-style-type: none"> Injection moulded ASA/Capping Extruded Iuran ABS/Louvres 6063 aluminium extrusion/Frame uPVC Volume Control Damper 	<ul style="list-style-type: none"> Aluminium fins Steel frame work
Sensors	<ul style="list-style-type: none"> Supply air temperature sensor Exhaust air temperature sensor Intake air temperature sensor Extract air temperature sensor Natural Ventilation air temperature sensor 	<ul style="list-style-type: none"> Room temperature sensor (in wall controller) Room CO₂ sensor (in wall controller) External temperature sensor External rain sensor
Installation	Fixed to pre-installed composite upstand, minimum of 1000mm deep (supplied by Monodraught, installed by others. To protrude a minimum of 200mm above finished roof level)	
	Secured by a minimum of 4No. M10 threaded rods through upstand	
System requirements	Suitably Sized Volume Control Damper c/w diffuser grille	
	Monodraught Upstand (1000mm minimum)	
Electrical requirements	Connection to Monodraught Acuity control system	
	Power supply: 240V AC	
Coil Performance	Heat Exchange Efficiency: up to 65%	
Standards met	Fire: DIN EN 13501 - 1:2010 - 01 (Class E)	
	Sound: BS EN 20140 - 10:1992	
	Sound: ISO 140 - 10:1991	
Data Monitoring	Data logging functionality as standard: All system operations, sensor readings and damper positions logged every minute	
Guarantee	10 year limited warranty / Mechanical and electrical components have a 5 year warranty	
Maintenance	HX Core is removable should maintenance be required	
	HX Core inspection and servicing suggested every 36 months	

WINDCATCHER ZERO

Natural Ventilation Heat Recovery



Dimensions - 170 Model*



FRONT

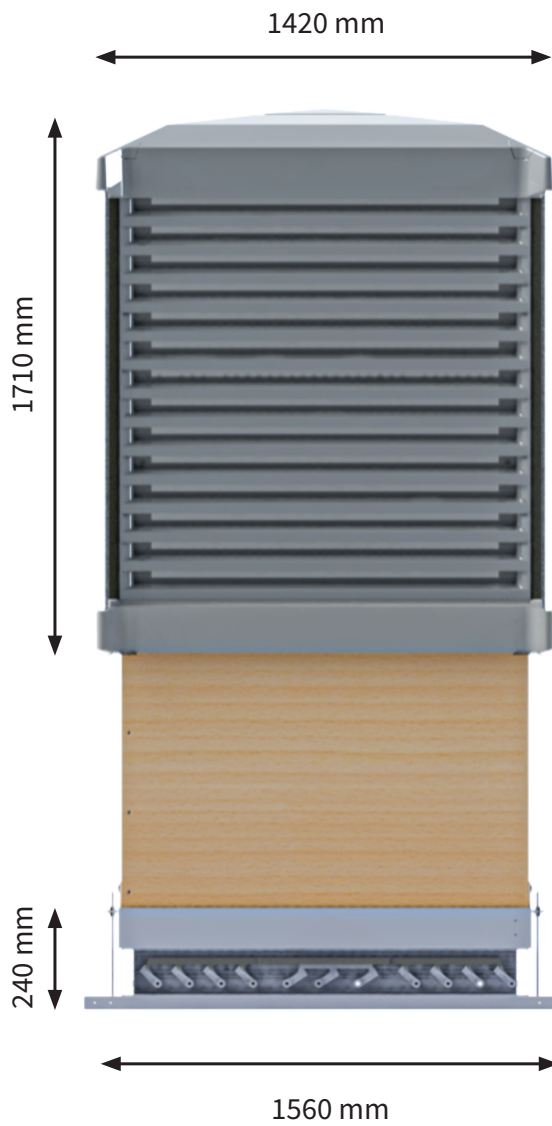
EXPLODED VIEW

* 1000mm upstand shown. Upstands available in lengths up to 2000mm.

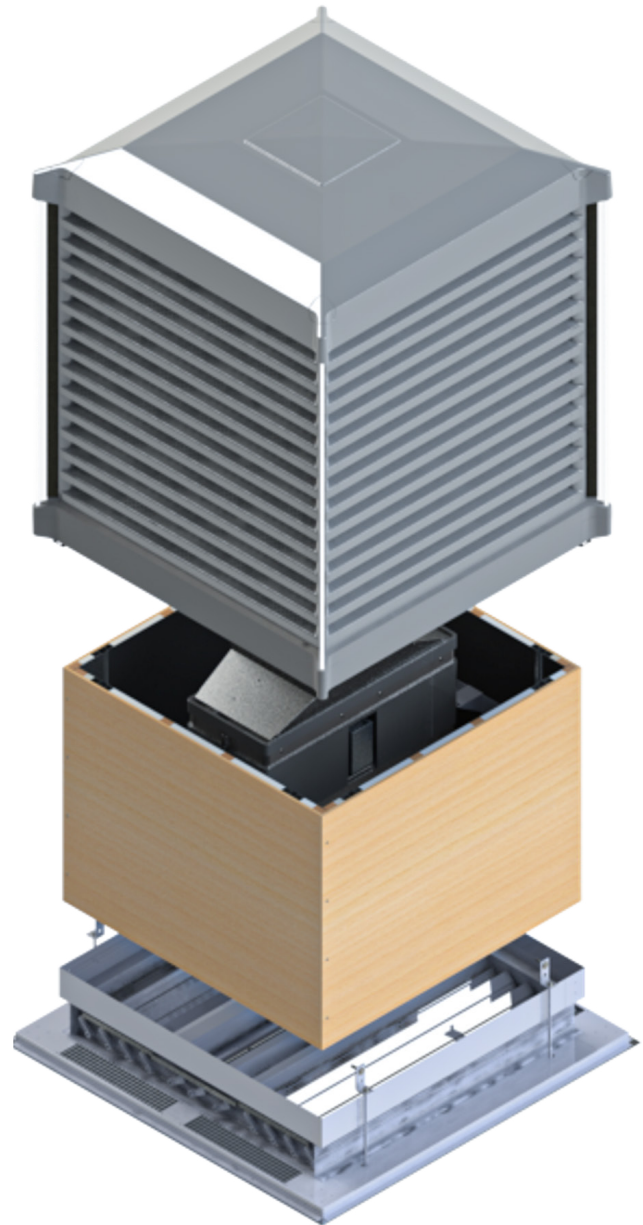
WINDCATCHER ZERO

Natural Ventilation Heat Recovery

Dimensions - 200 Model*



FRONT

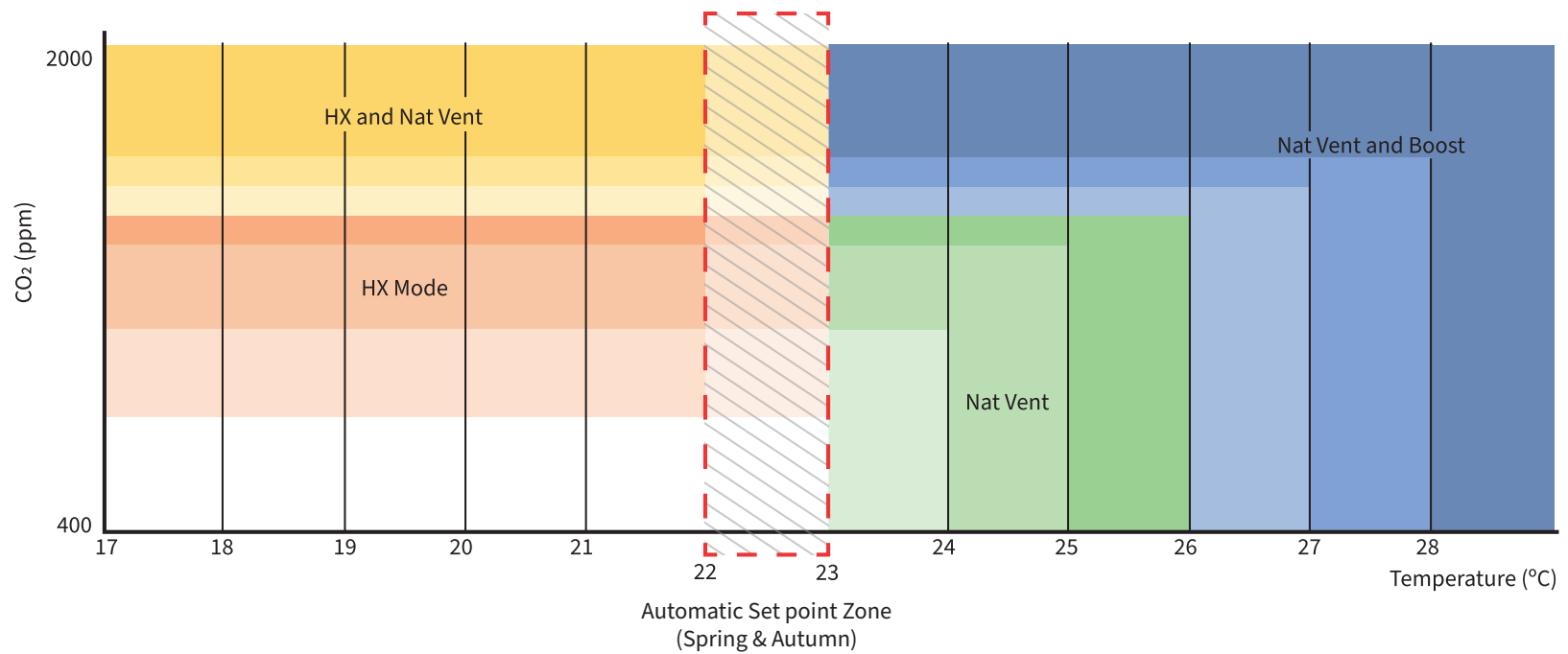


EXPLODED VIEW

* 1000mm upstand shown. Upstands available in lengths up to 2000mm.

Control Strategy

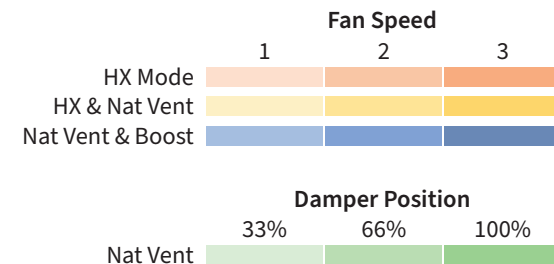
The example below is based on a room set point of 22°C (Spring & Autumn mode)



Night-time Cooling

In night-time cooling mode, the system utilises cooler night-time air to remove heat from the fabric of the building and cool the room ready for the next day. Volume control dampers at the base of the system precisely control the amount of airflow through the system. If the internal temperature falls below 15°C the dampers automatically close to prevent over cooling.

Note :- Automatic Set point
 Summer = 21°C
 Spring & Autumn = 22°C
 Winter = 23°C

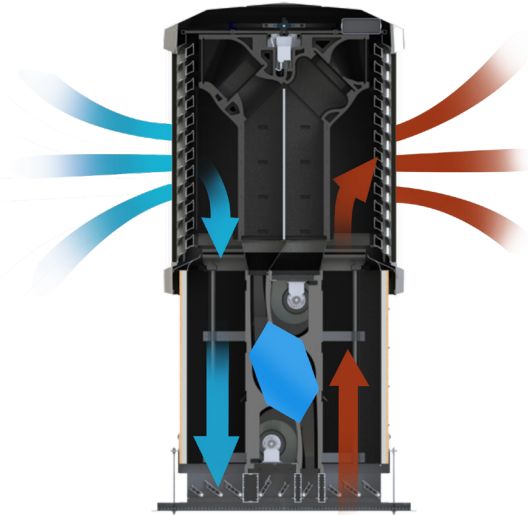


WINDCATCHER ZERO

Natural Ventilation Heat Recovery

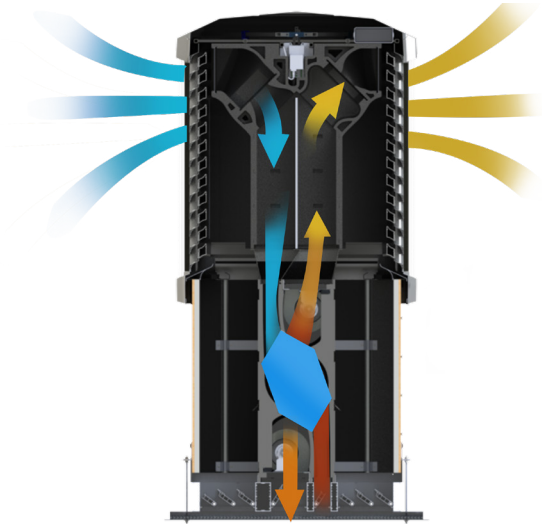


Operation Modes



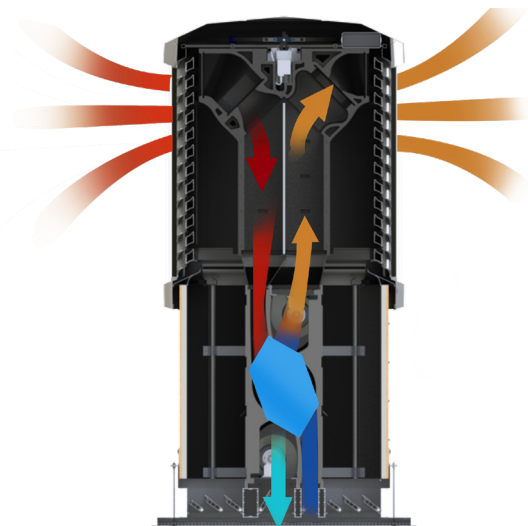
Natural Ventilation Mode

The Windcatcher system encapsulates the prevailing wind, and turns that wind movement through 90° in to the space. Fresh air is brought into the room and stale air is expelled using the negative pressure on the leeward side of the Windcatcher as well as the buoyancy and stack effect of warmer air rising within the space.



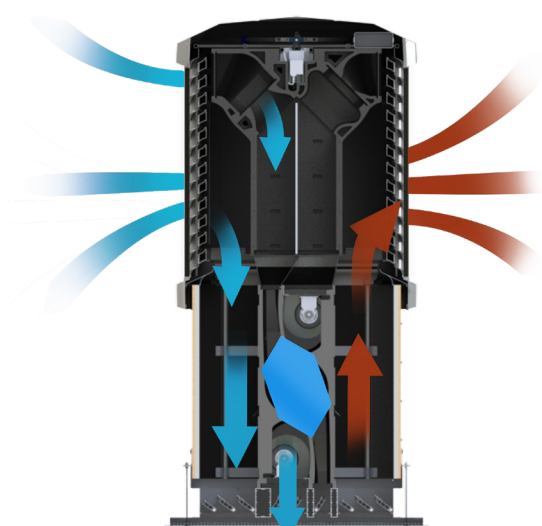
Heat Recovery Mode

To avoid cold draughts, when the temperature of the outside air is lower than the internal, the Windcatcher Zero can deliver tempered air via the 'Air to Air' heat recovery core. The counter flow core enables efficient exchange of heat from the stale exhaust air through an ultra-thin aluminium membrane. The high efficiency core and low power fans automatically minimise the heating requirements whilst optimising air quality.



Cold Recovery Mode

The system can maintain a greater level of comfort conditions compared to conventional natural ventilation systems. To keep an internal space cooler during hot periods the system can cool the incoming fresh air by utilising the 'Air to Air' heat recovery core. The exhausted air cools the hot intake air, reducing room temperatures in an efficient recovery when compared to natural ventilation and reduces demand on auxiliary cooling systems.



Boost Fan Mode

The Windcatcher Zero can provide boost ventilation ensuring that even when there are periods of very low wind speed the ventilation rates required are met.

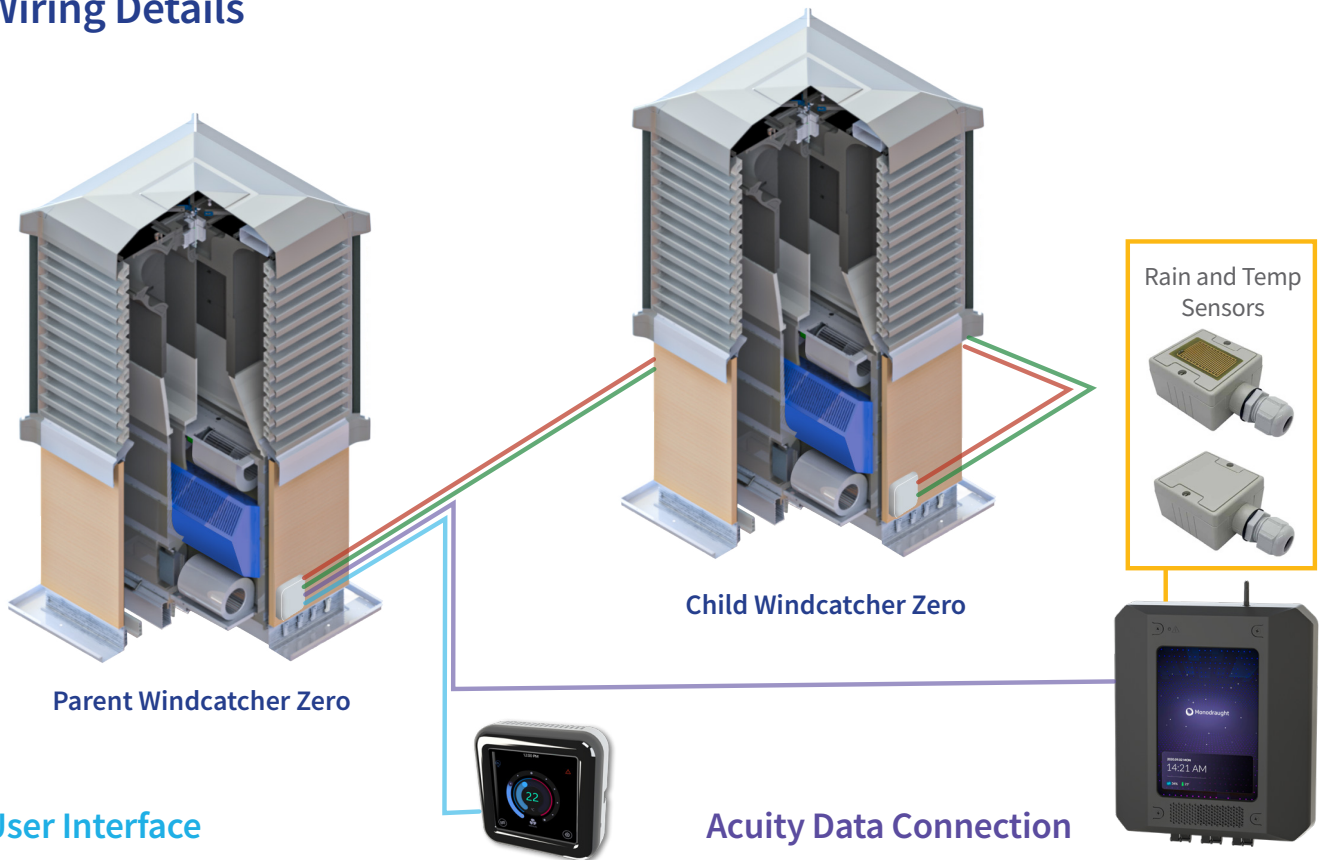
Performance

Ventilation Mode	Fan Speed	Flow Rate (l/s)	Energy Consumption (W)	Specific Fan Power	Energy Recovered (kW)*	Heat Exchange Efficiency (%)
Heat Recovery Mode (Double fan configuration)	1	90	8.10	0.090	1.63	64.9
	2	130	14.50	0.112	2.21	60.9
	3	160	23.90	0.149	2.61	58.5
	4	180	32.50	0.181	2.88	56.9
Boost Mode (Single fan configuration)	1	90	4.1	0.0458	n/a	n/a
	2	130	7.2	0.0556	n/a	n/a
	3	160	11.8	0.0737	n/a	n/a
	4	180	16.1	0.0893	n/a	n/a
	5	260	45.2	0.174	n/a	n/a

Natural Ventilation Mode				
Model	2m/s	3m/s	4m/s	5m/s
Windcatcher 170	530	720	935	1150
Windcatcher 200	760	1035	1345	1650

*Heat recovery supply temperatures are based on an internal and external temperature of 21.5°C and -1°C respectively

Wiring Details



User Interface

To connect the user interface wall controller a 2 pair shielded cable is required from the Windcatcher Zero parent unit to the wall controller. The cable specification is an RS485 shielded 2 pair cable
Cable specification – Farnell 3382509 – 9842 EQ Multipair Cable, 2 pair, 24 AWG, 0.203mm²

External Temperature Sensor

The external temperature sensor is a key component to the control system. The sensor should be mounted on a north-facing wall shaded by a soffit or similar or in a position where it will be free from direct solar radiation all year round.

The sensor should be connected to the Acuity panel with a 3-core (16-2-3A) cable.

Rain Sensor

The Rain Sensor provides detection of rain through a volt-free changeover relay output. It incorporates a heater to dry the sensor post sensing event and to prevent erroneous detection of mist etc. The sensor should be connected to the Acuity panel with a 4-core (16-2-3A) cable.

Acuity Data Connection

To achieve complete connectivity and to enable linking to third party BMS systems, a data cable is required to be daisy chained from the Acuity system to every Parent Windcatcher Zero unit. Up to 55 Windcatcher Zero parent units can be connected to an Acuity system. An RS485 shielded 2 pair cable is required for the data connection.

Cable specification – Farnell 3382509 – 9842 EQ Multipair Cable, 2 pair, 24 AWG, 0.203mm²

Data Interlink

When multiple Windcatcher Zero units are used within the same room a data interlink cable is needed. The cable specification is an RS485 shielded 2 pair cable.

Cable specification – Farnell 3382509 – 9842 EQ Multipair Cable, 2 pair, 24 AWG, 0.203mm²

Power Supply

To simplify wiring each Windcatcher Zero requires connection to a dedicated 3A switched fused spur.



Part of the  GENUIT
GROUP

We are pioneers in the design and manufacture of advanced sustainable ventilation, cooling, heating and lighting solutions for new and refurbished commercial and public buildings. We deliver outstanding temperature-control and indoor air quality whilst minimising the consumption of both electricity and refrigerants so as to reduce our carbon footprint. Monodraught have over 50 years' experience and our products have saved the equivalent of nearly 540,000 tonnes CO₂ over the last two decades.

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