

infinity[®] *ClassFlo*[®]

CF350

Decentralised Heat Recovery Unit

Perfect for Classroom Environments

Up to 230 l/s

ClassFlo® - Decentralised Heat Recovery Unit for Classrooms

TRANSFORMING SCHOOL ENVIRONMENTS FOR PUPIL WELL-BEING



ClassFlo® CF350, an advanced (MVHR) system, meets BB101, BB93 Approved Document F, and Approved Document L standards, ensuring top air quality, comfort, and sustainability in schools. Designed for mainstream and (SEN) settings, it creates healthier, quieter, and more efficient learning spaces, enhancing pupil focus and well-being.

In line with BB101, *ClassFlo® CF350* keeps CO₂ levels below a daily average of 1,000 ppm, with peaks above 1,500 ppm limited to under 20 minutes, providing 5-8 litres per second per person of fresh air.

Its heat exchanger achieves 88% efficiency maintaining warm classrooms with minimal energy loss, supporting Approved Document L's low-carbon goals for reduced carbon emissions. Unlike hybrid systems that alternate between air quality and warmth, *ClassFlo® CF350's* full heat recovery design delivers consistent fresh air without mixing stale air, ensuring stable temperatures for an ideal learning environment.

Acoustically, it performs well below BB93's 35 dB(A) classroom standard and 30 dB(A) for SEN sensory spaces, ensuring clear communication, especially for pupils with sensory or hearing challenges.



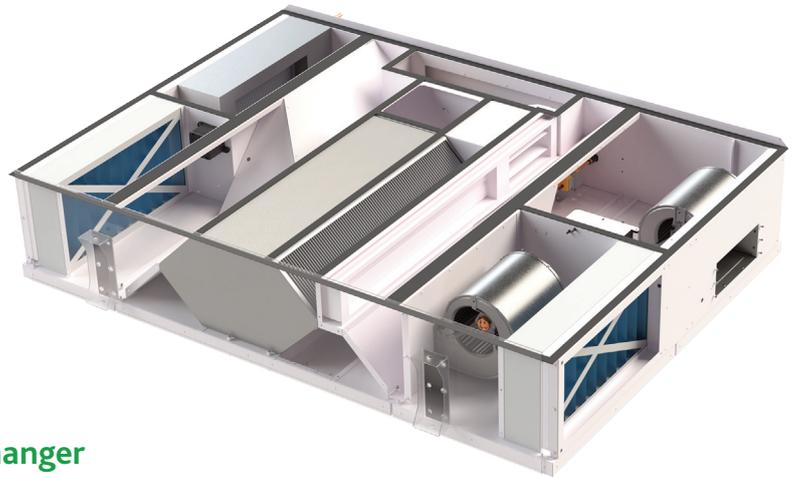
With F7 filtration, it captures fine particles and allergens, improving respiratory health, while dynamic and CO₂ sensor-driven demand-controlled ventilation, per Approved Document F, optimises airflow for freshness and efficiency.

ClassFlo® CF350 enhances classrooms with fresh, filtered air to boost focus and reduce fatigue, stable temperatures for comfort, and quiet operation for inclusive learning, especially for SEN pupils. Its advanced filtration supports health and attendance, setting a high standard for school ventilation.

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Features and benefits

- ErP 2018 compliant
- BB101 compliant
- Low noise to meet BB93 standard and SEN school requirements



High Efficiency Counterflow Heat Exchanger

- Promotes a healthier indoor environment by recovering heat while ensuring a constant supply of 100% fresh, filtered air.
- Recovers 88% of heat back into the occupied space.
- Lower energy additional heating when used.
- Free cooling during warmer months.
- Automatic 100% bypass.

Double-Skinned Case Construction

- Reduced noise levels to support high levels of productivity and concentration.
- 25mm panels with rockwool infill for noise reduction.
- 40mm underside panels to reduce breakout noise above pupils.
- Class 0 non-combustible insulation.

Versatile Design with Comprehensive Options

- "Above ceiling" or "Below ceiling" version.
- Left-hand or right-hand version.
- Secondary unit without controls to work in tandem with a Primary unit to ventilate larger spaces.
- External powder coating to suit any project. (Standard – Natural galvanised steel finish for above ceiling and RAL 9003 Signal White for below ceiling version).
- Internal anti-corrosion treatment for coastal environments.

Efficient and Low Noise Fans

- Highly efficient low-energy brushless EC motors.
- Positioned to minimise room side duct sound levels.
- Reduced requirements for duct attenuation.

F7 and M5 Filters as Standard

- Cleaner and healthier environment for occupants to improve overall comfort.
- Reduction of exposure to pollutants from outdoor sources.
- Support for sensitive groups by removing broader spectrum of irritants and allergens.

Easy Installation and Maintenance

- Top and bottom access to internal components.
- Most sensors located within the unit casework to minimise installation costs.

Intelligent Controls

- Factory-set with dynamic operating modes.
- Internally mounted with remote commissioning with capabilities via Bluetooth or NFC.
- Free phone app available. No commissioning tools required.
- BMS communication via Modbus over RS485. (BACnet MSTP gateway available upon request).

Products manufactured in the UK to ISO 9001:2015 and ISO 14001:2015

ClassFlo® - Decentralised Heat Recovery Unit for Classrooms

REDUCING SCHOOL CARBON FOOTPRINT AND RUNNING COSTS

ClassFlo® CF350 significantly outperforms low-efficiency (less than 46%) heat recovery units and hybrid units in its energy efficiency, running costs and carbon footprint.

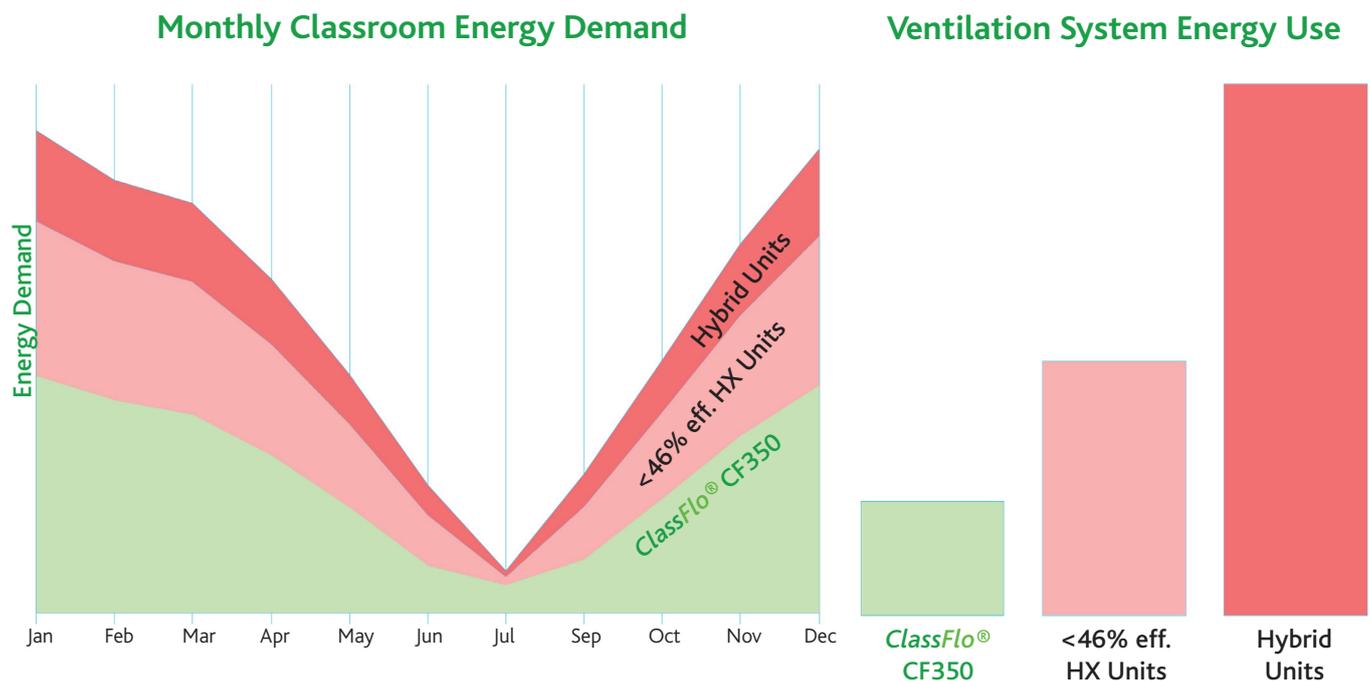
up to 52%
less classroom energy required

up to 78%
more energy efficient

Low-efficiency HRUs and hybrid units often highlight low specific fan power (SFP) as a major feature, but this overlooks their higher overall energy requirements to maintain comfortable classroom temperatures.

These systems struggle to recover sufficient heat, leading to increased heating and cooling costs.

Hybrid units, lacking heat exchangers, rely on uncontrolled ventilation or recirculation, either failing to meet BB101's fresh air requirements consistently and/or requiring high-energy top-up heating or cooling ancillaries.



Charts represent estimated energy demand to maintain an average UK classroom at 20°C with 5 litres per second per person of fresh air ventilation. Monthly chart includes heat losses through walls, floor, ceiling, and infiltration for a typical UK school, and 70W heat gain per person. August data excluded; Summer data adjusted for periods when outdoor temperatures exceed 20°C.

ClassFlo® CF350 uses less energy than low-efficiency HRUs and hybrid units, particularly during colder months when heating demand is at the highest.

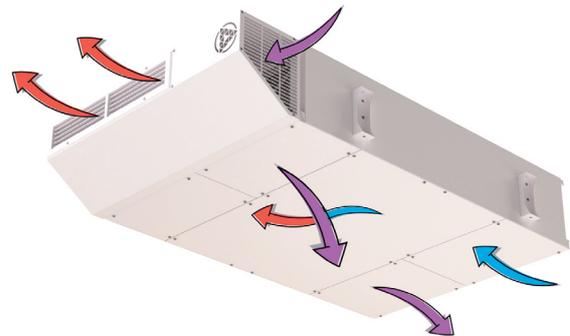
Moreover, both low-efficiency HRUs and hybrid units typically lack adequate filtration, often resorting to air recirculation or mixing modes to reduce heating demand. This compromises indoor air quality, reducing fresh air supply and potentially increasing indoor pollutants, which can negatively impact pupils' health and concentration.

ClassFlo® - Decentralised Heat Recovery Unit for Classrooms

MODES OF OPERATION

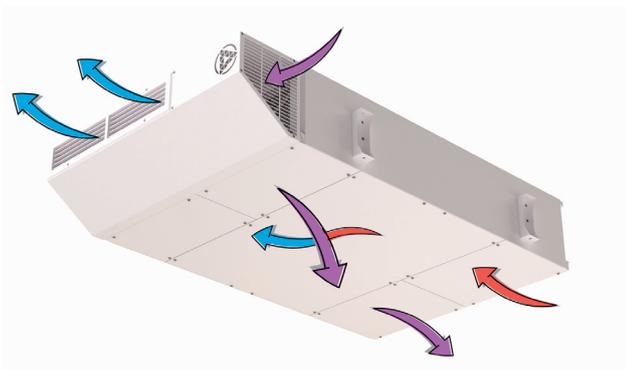
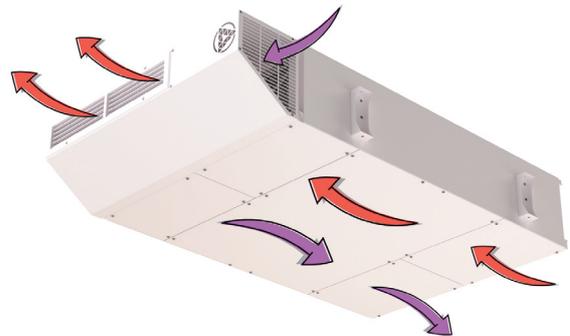
1. Winter - Heat Exchange - Heating

- Full heat exchange mode when temperature outside is lower than inside.
- Recovers most of the existing heat indoors and transfers it back into the freshly supplied air.
- 100% fresh supply air, no air mixing.



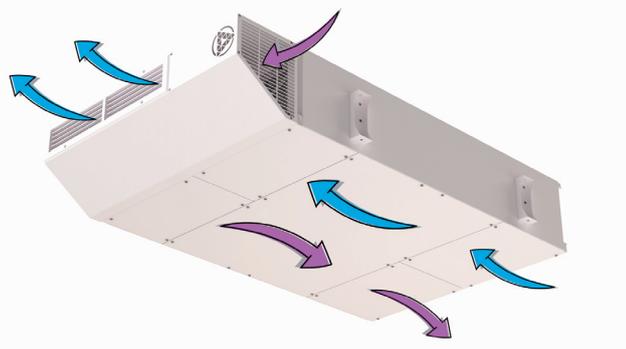
2. Winter - Bypass - Heating

- Full bypass mode when temperature outside is higher than inside.
- Prevents unwanted heat exchange.
- Helps reach temperature set point more quickly.



3. Summer - Heat Exchange - Cooling

- Full heat exchange mode when temperature outside is higher than inside.
- Recovers most of the existing coolth indoors and transfers it back into the freshly supplied air.
- 100% fresh supply air, no air mixing.



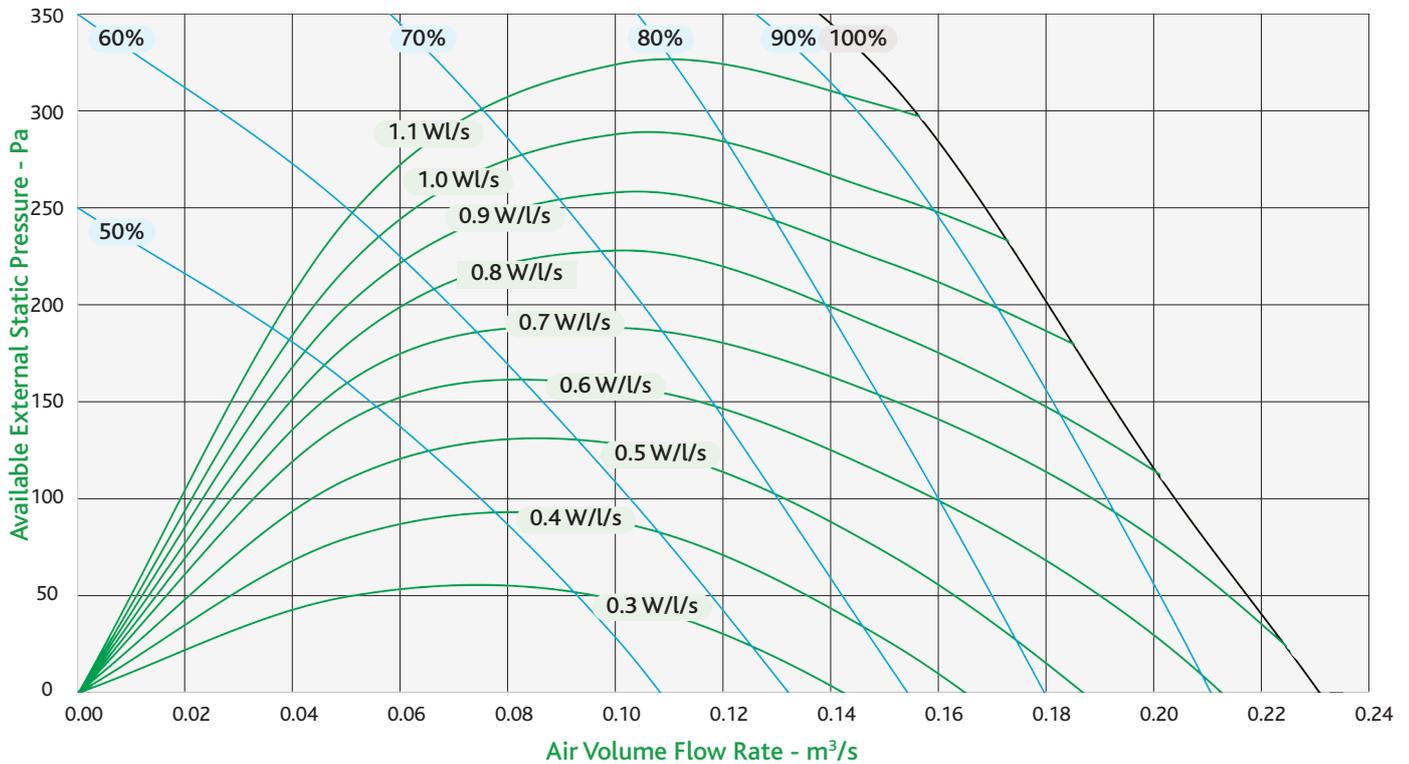
4. Summer - Breeze

- Full bypass mode when temperature outside is lower than inside
- Prevents unwanted heat exchange.
- Helps reach temperature set point more quickly

ClassFlo® - Decentralised Heat Recovery Unit for Classrooms

PERFORMANCE

Without Integral Coil



Curves represent performance of a unit with integral LPHW coil and F7 filter in mean condition. Tolerance: +/-5%. SFP values shown are for one fan.

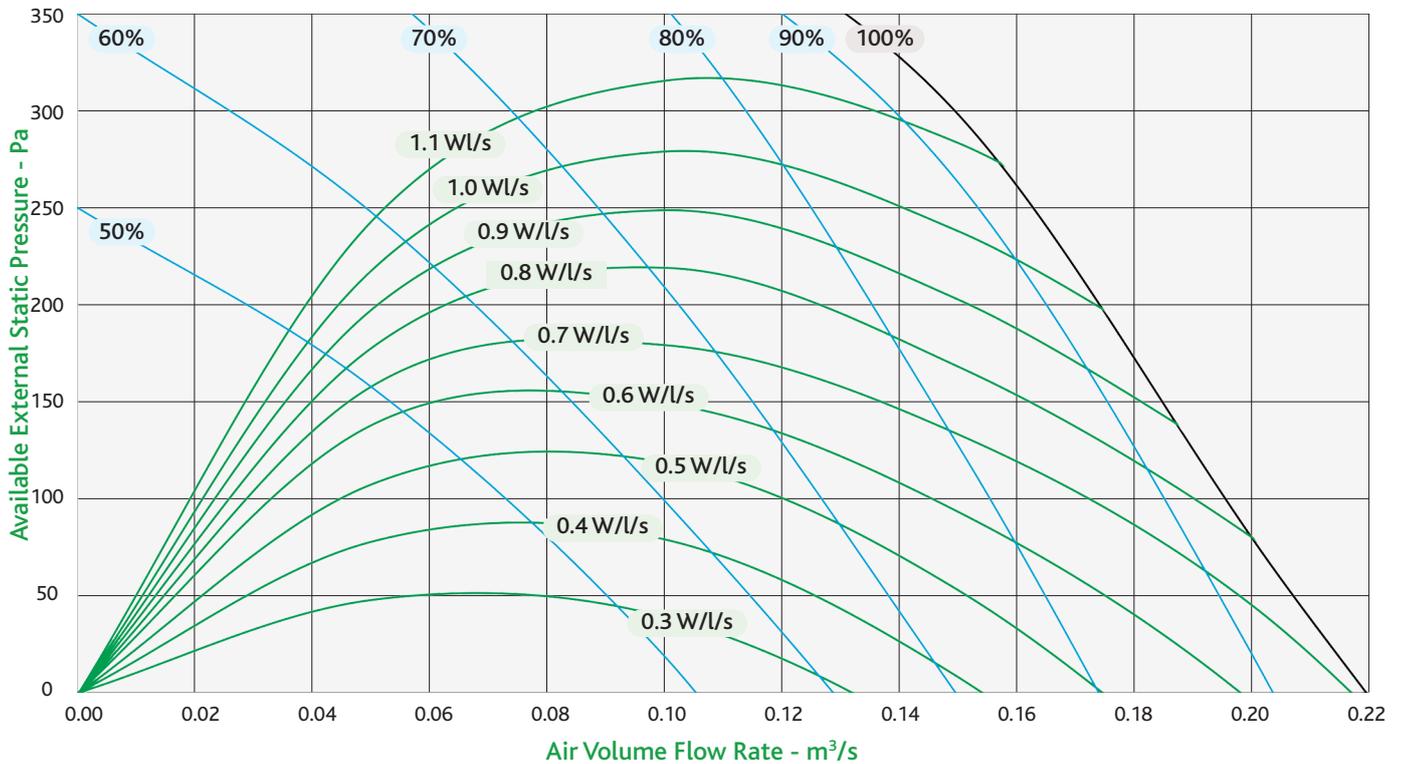
CF350		Sound Power Levels L_w (dB)-Octave Bands Frequency (Hz)								Sound Pressure L_p (dB(A))	
Curve Ref		63	125	250	500	1 k	2 k	4 k	8 k	@1.5m	@3m
90% 0.17m³/s @ 160Pa	Extract	78	71	65	62	59	58	55	49	39	33
	Supply	76	70	63	62	63	63	58	54		
	Breakout	69	63	54	38	32	33	29	26		
80% 0.15m³/s @ 130Pa	Extract	75	68	62	60	57	55	52	45	35	29
	Supply	71	66	60	59	61	60	55	49		
	Breakout	65	59	51	36	30	30	26	21		
70% 0.13m³/s @ 75Pa	Extract	71	64	57	55	53	50	46	38	31	25
	Supply	69	62	55	55	58	54	49	42		
	Breakout	62	55	46	31	27	24	20	14		
60% 0.12m³/s @ 30Pa	Extract	66	60	52	51	49	45	40	31	27	21
	Supply	64	59	51	51	54	49	43	35		
	Breakout	57	52	42	27	23	19	14	7		
50% 0.11m³/s @ 20Pa	Extract	63	58	50	48	47	42	36	27	25	19
	Supply	62	57	48	48	51	45	39	30		
	Breakout	55	50	39	24	20	16	10	4		

Table represents acoustics of a unit with integral LPHW coil and F7 filter in mean condition. Tolerance: +/-5%. The breakout dB(A) sound pressure values are given for hemispherical free field propagation.

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PERFORMANCE

With Integral Coil



Curves represent performance of a unit with integral LPHW coil and F7 filter in mean condition. Tolerance: +/-5%. SFP values shown are for one fan.

CF350		Sound Power Levels L_w (dB)-Octave Bands Frequency (Hz)								Sound Pressure L_p (dB(A))	
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	Supply	76	69	61	59	58	55	48	42		
	Breakout	69	63	54	38	32	33	29	26		
80% 0.15m³/s @ 130Pa	Extract	75	68	62	60	57	55	52	45	35	29
	Supply	71	65	58	56	56	52	45	37		
	Breakout	65	59	51	36	30	30	26	21		
70% 0.13m³/s @ 75Pa	Extract	71	64	57	55	53	50	46	38	31	25
	Supply	69	61	53	52	53	46	39	30		
	Breakout	62	55	46	31	27	24	20	14		
60% 0.12m³/s @ 30Pa	Extract	66	60	52	51	49	45	40	31	27	21
	Supply	64	58	49	48	49	41	33	23		
	Breakout	57	52	42	27	23	19	14	7		
50% 0.11m³/s @ 20Pa	Extract	63	58	50	48	47	42	36	27	25	19
	Supply	62	56	46	45	46	37	29	18		
	Breakout	55	50	39	24	20	16	10	4		

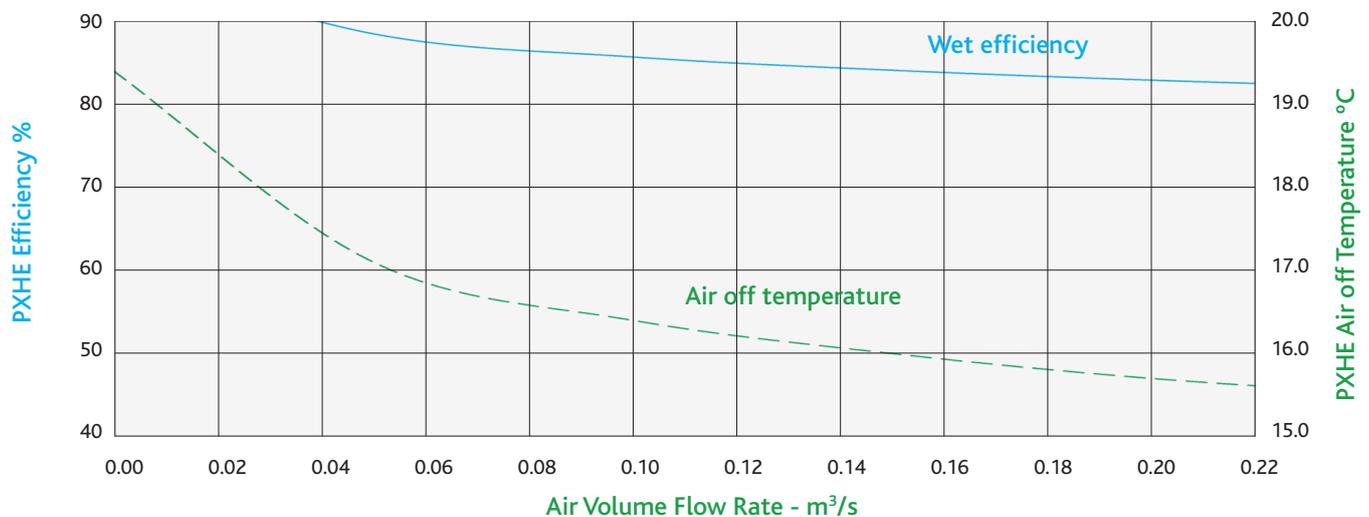
Table represents acoustics of a unit with integral LPHW coil and F7 filter in mean condition. Tolerance: +/-5%. The breakout dB(A) sound pressure values are given for hemispherical free field propagation.

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HEAT EXCHANGER PERFORMANCE

Winter - Heating

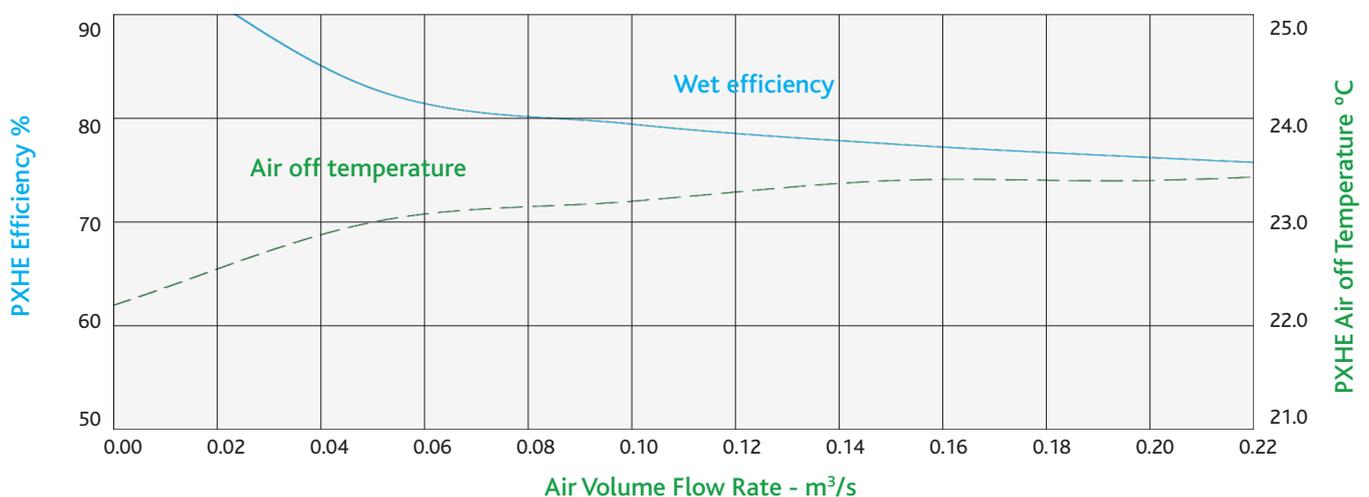
- Heat exchanger wet efficiency above 82% at all operating points.
- Pre-heats the incoming fresh air to temperatures above 16°C in winter conditions (-5°C) without assistance from other heating sources.
- Greatly reduces heating demand and running costs during winter months.
- No airflow recirculation and mixing required. Guarantees uninterrupted 100% fresh air supply.



CF350 Heat exchanger performance at 20°C (50% RH) return air and -5°C (100% RH) fresh air. Approx. 16.2°C air off at 0.128m³/s.

Summer Cooling

- Heat exchanger wet efficiency above 74% at all operating points.
- Pre-cools the incoming fresh air to temperatures below 24°C in summer conditions (28°C) without assistance from other cooling sources.
- Greatly reduces cooling demand and running costs during summer months.
- No airflow recirculation and mixing required. Guarantees uninterrupted 100% fresh air supply



CF350 Heat exchanger performance at 22°C (50% RH) return air and 28°C (50% RH) fresh air. Approx. 23.3°C air off at 0.128m³/s.

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COIL PERFORMANCE

Standard Integral LPHW Heating Coils

Coil Code	Water in/out temps	Air Volume m ³ /s	Max Air Off Temp - °C	Max Output kW	Water Flow Rate l/s	Water p.d - kPa	Coil Connections
COIL/CF350/1H	26°C/21°C	0.128	22.9	1.0	0.049	7.6	1/2"
		0.180	22.5	1.5	0.070	14.7	
COIL/CF350/2H	35°C/30°C	0.128	26.5	1.6	0.077	8.5	
		0.180	25.7	2.2	0.104	14.9	
COIL/CF350/2H	45°C/40°C	0.128	33.5	2.7	0.129	21.7	
		0.180	32.2	3.6	0.173	37.4	
COIL/CF350/3H	80°C/60°C	0.128	28.4	1.9	0.023	3.0	
		0.180	27.0	2.4	0.030	3.0	

CF350 heating coil performance values are based on heat exchanger air off temperatures (page 8).
16.2°C coil air on @ 0.128m³/s and 15.8°C coil air on at 0.180m³/s.

Standard Integral CW Cooling Coils

Coil Code	Water in/out temps	Air Volume m ³ /s	Max Air Off Temp - °C	Max Output kW	Water Flow Rate l/s	Water p.d - kPa	Coil Connections
COIL/CF350/2C	6°C/12°C	0.128	5.4	1.3	0.053	4.7	1/2" (+ 15mm O/D drain connector)
		0.180	15.8	1.8	0.071	7.9	
	14°C/17°C	0.128	18.8	0.8	0.064	6.4	
		0.180	19.1	1.1	0.085	10.8	

CF350 cooling coil performance values are based on heat exchanger air off temperatures (page 9).
23.3°C coil air on @ 0.128m³/s and 23.4°C coil air on at 0.180m³/s.

Bespoke Heating and Cooling Coils

- Bespoke heating and cooling integral water coils to suit any project.
- Bespoke duct-mounted water coils for "Above Ceiling CF350 version.
- All coils are offered with suitable PICV valves and valve actuators

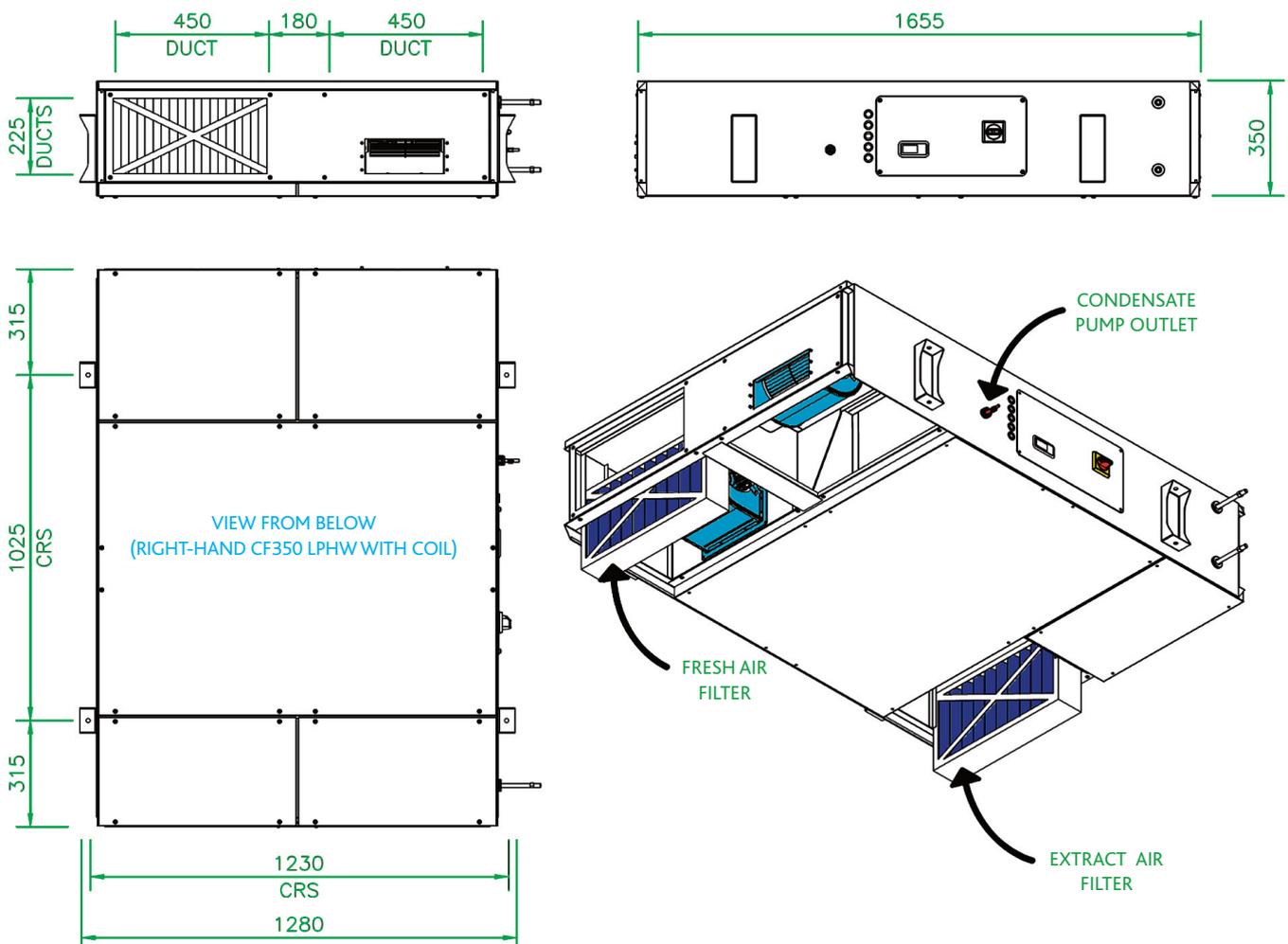
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ELECTRICAL DATA

Unit	Phase	Voltage	Motor Size	Motor FLC	Fan Speed	Max Unit Consumption
CF350	1 - phase	230 VAC	2 x 150 W	2 x 1.65 A	2500 rpm	4 A

Electrical data shown for a "Primary" CF350 with controls. "Secondary" CF350 max consumption = 3.5A.

DIMENSIONS



Unit Mass - 140 kgs

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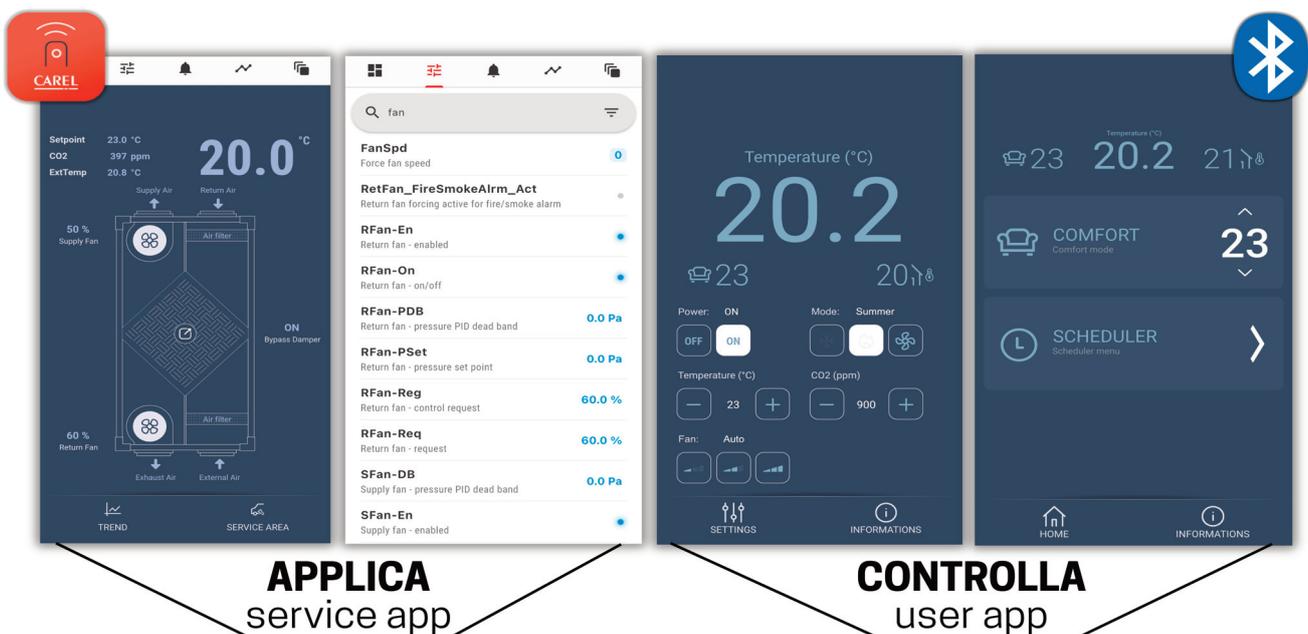
INTELLIGENT CONTROLS

Smart Automation

- **Dynamic Control:** Auto-adjusts fan, heating, and cooling based on air quality and temperature for comfort and efficiency.
- **Seasonal Optimisation:** Enhances summer cooling and winter heat recovery with minimal user input.
- **Energy Savings:** Optimises settings to reduce energy use whilst maintaining air quality.
- **Safety Integration:** Controls shut-off dampers for fire/emergency safety compliance.

Mobile App Control

- **Remote Access:** Monitor and adjust CF350 settings via an intuitive and free smartphone app.
- **Custom Schedules:** Set ventilation zones and schedules for personalised control.



Compact and Flexible Design

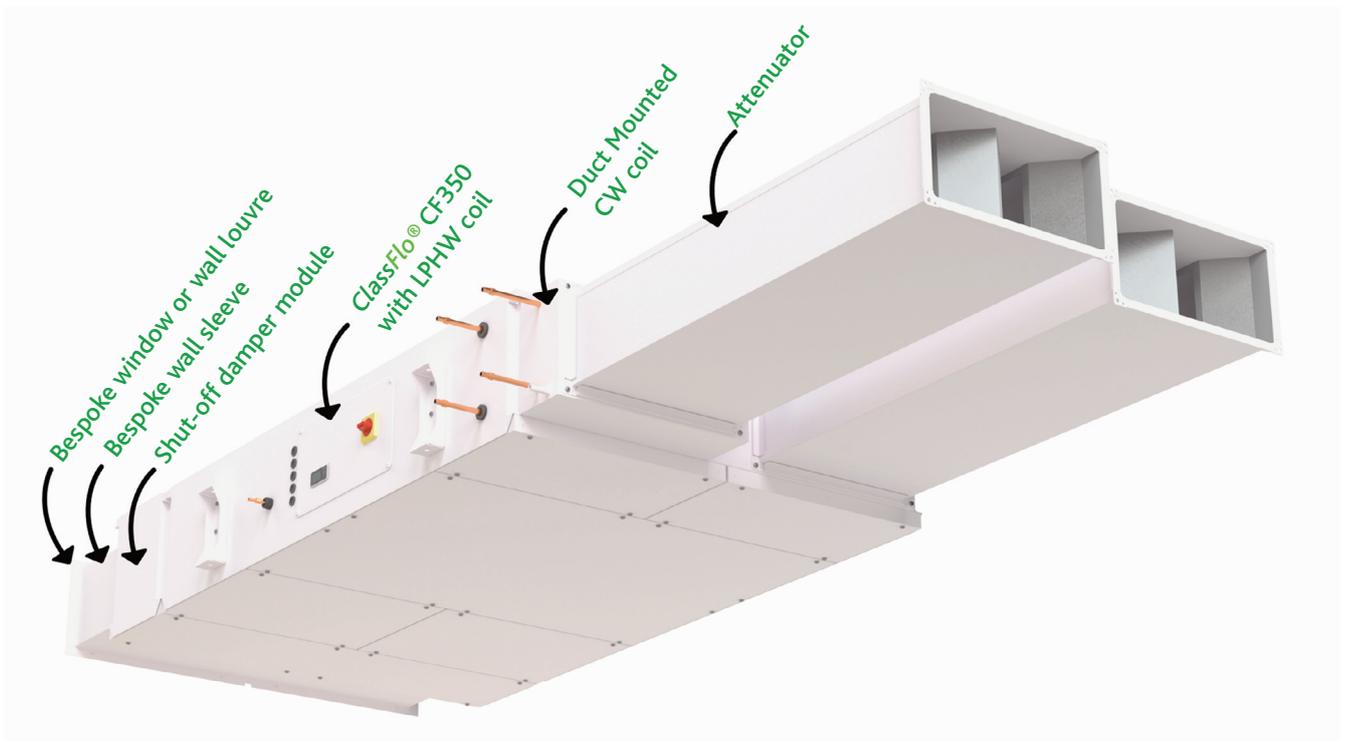
- **Integrated Board:** Concealed within the CF350 for a sleek, easy-to-install setup.
- **Flexible Control Options:** Supports optional room controllers, sensors, and coil valve actuators.

BMS Connectivity

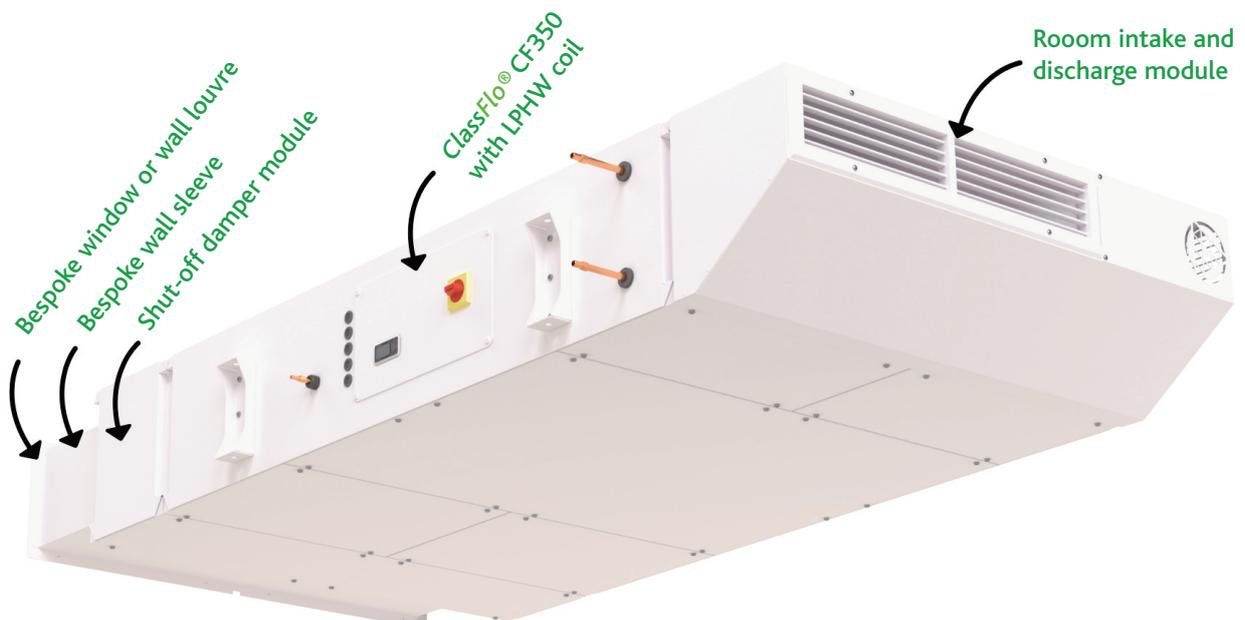
- **Protocol Support:** Integrates with Modbus (RS485) for centralised building management. BACnet (MSTP) gateway available on request.

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"ABOVE CEILING" UNIT CONFIGURATION



"BELOW CEILING" UNIT CONFIGURATION

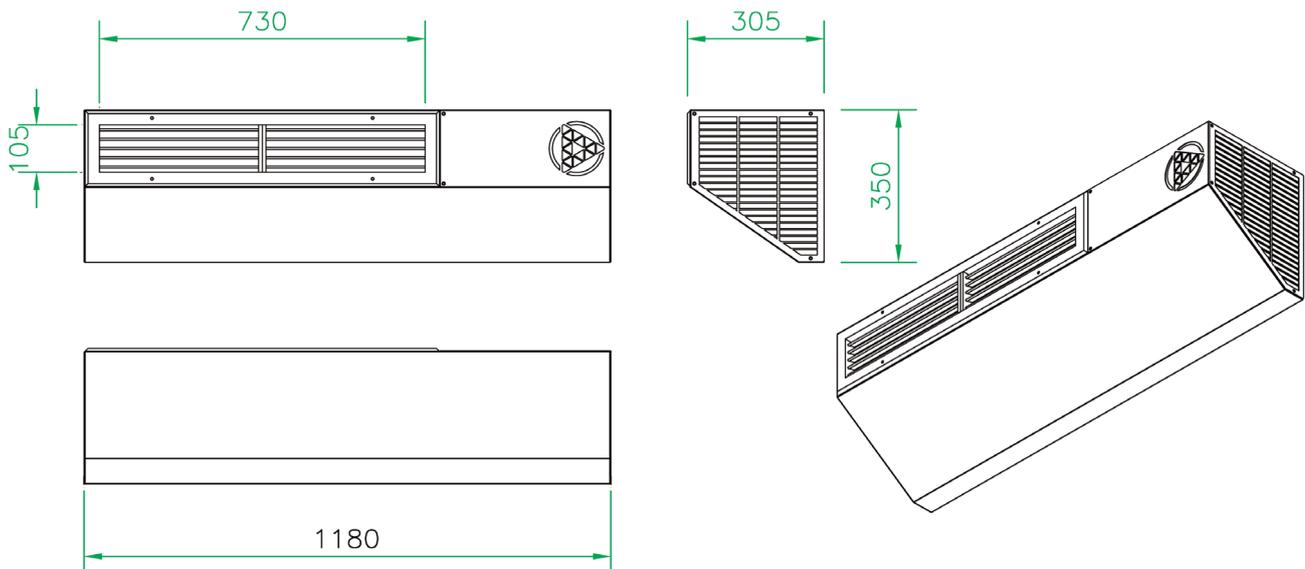


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ANCILLARIES

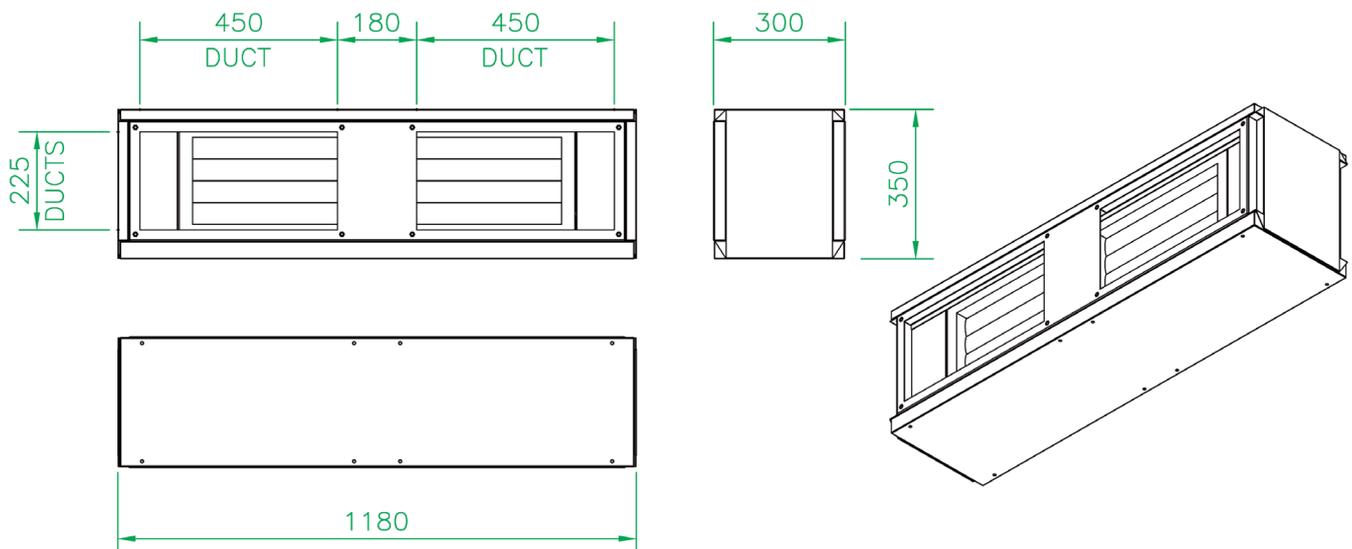
Intake and Discharge Module - IDM/CF350

Ensures efficient air intake and discharge in 'Below Ceiling' configuration with minimal pressure loss.



Shut-Off Damper Module - DPM/CF350

Open/close damper design enhances safety by isolating airflow during fire or emergency scenarios.



Bespoke Ancillaries

An extensive selection of bespoke options designed to deliver a perfect fit and optimum performance

[Duct Attenuators](#)

[Bespoke Duct-Mounted Coils](#)

[Bespoke Wall Sleeves](#)

[Bespoke Window or Wall Weather Louvres](#)

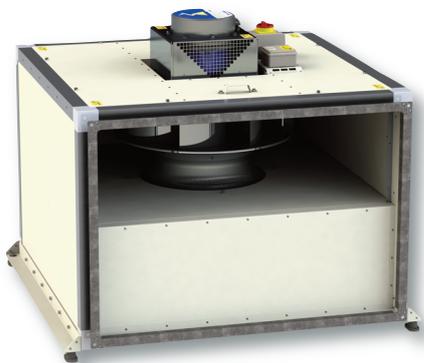
ClassFlo® - Decentralised Heat Recovery Unit for Classrooms

OTHER AVT PRODUCTS

Kitchens

High Temperature Extract Range - QBK

- Up to 3.0 m³/s. 5 sizes.
- Motor out of airstream.
- Operating temperature up to 120°C.
- Internal and external variants.



Toilets and Shower Areas

Twin and Single Extract Range -

QSS-EC and QST-EC

- Up to 3.9 m³/s. 8 sizes.
- Fitted and pre-wired controls.
- Internal and external variants.



Communal and Sports Facilities

Heat Recovery Ranges - HRP SL and HRPVX

- Up to 4.3 m³/s. Extensive range of sizes.
- Side access, bottom access and stacked configurations.
- Vertical or horizontal intake and discharge.
- Fitted and pre-wired controls.
- Internal and external variants.



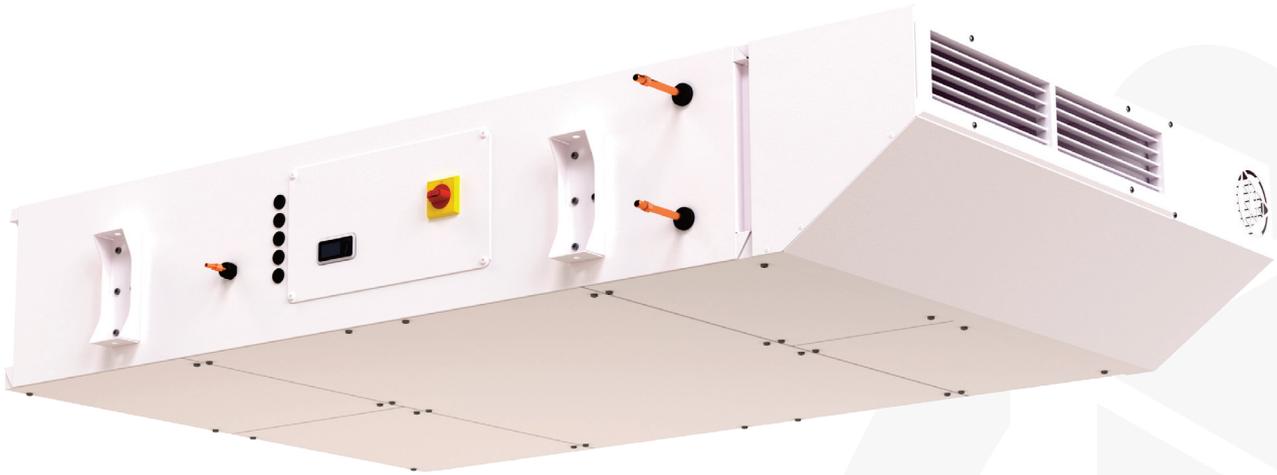
Fully Custom AHUs

Bespoke Units - STP and STR

- From compact supply AHUs to 20m³/s heat recovery units.
- Fitted with pre-wired controls.
- Internal and external variants.
- Built to EN1886 - D1, L2, F9 standards
- Available in flat-pack or sectional delivery.



And more! Reach out to AVT to see how we can assist.



infinity[®] *ClassFlo*[®]

CF350

Decentralised Heat Recovery Unit

Perfected for Classroom Environments

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ISO
9001 : 2015
14001 : 2015

INTEGRATED
MANAGEMENT
SYSTEM

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Certificate
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