



# Clean air everywhere

Air Handling by S&P



Air Handling



Heat Recovery



Inline Duct



Acoustic Fans

# Applications

S&P UK Ventilation Systems offers an extensive range of air handling units for many applications. With our specialist support, we're on hand to deliver the assistance you need, no matter the size or complexity of your project.

With ceiling void and floor mount options, our portfolio of air handling units are sure to meet with your needs, with airflows ranging all the way from 0.05 m<sup>3</sup>/s to 10 m<sup>3</sup>/s.

- Offices
- Retail
- Education
- Leisure Facilities
- Public Buildings
- New & Refurbish Builds
- Food Service
- Warehouses
- Hotels
- Factories



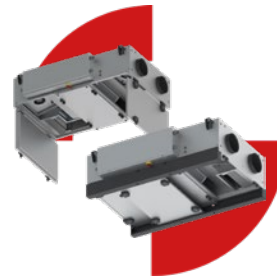
**UTBS**

From 0.3 m<sup>3</sup>/s up to 1.6 m<sup>3</sup>/s



**CADB/T-HE**

From 0.135 m<sup>3</sup>/s up to 2.7 m<sup>3</sup>/s



**CX3000**

From 0.14 m<sup>3</sup>/s up to 0.91 m<sup>3</sup>/s



**RHE**

From 0.22 m<sup>3</sup>/s up to 4.1 m<sup>3</sup>/s



**VEX4000**

From 0.30 m<sup>3</sup>/s up to 10.00 m<sup>3</sup>/s

0.05 m<sup>3</sup>/s  10 m<sup>3</sup>/s



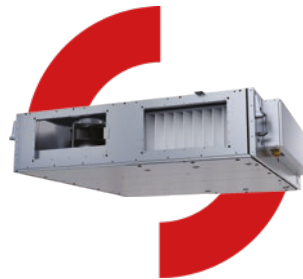
**CAIB/T**

From 0.055 m<sup>3</sup>/s up to 5.5 m<sup>3</sup>/s



**CAD COMPACT**

From 0.055 m<sup>3</sup>/s up to 1.25 m<sup>3</sup>/s



**SLIM**

From 0.22 m<sup>3</sup>/s up to 0.67 m<sup>3</sup>/s



**VEX1000**

From 0.03 m<sup>3</sup>/s up to 2.60 m<sup>3</sup>/s



**DUOVENT COMPACT/MODULAR**

From 0.14 m<sup>3</sup>/s up to 4 m<sup>3</sup>/s



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## CAIB/T

Packaged supply air handling unit with multiple heating and cooling options

From 0.055 m<sup>3</sup>/s up to 5.5 m<sup>3</sup>/s

- Multiple Heating & Cooling Options
- Plug & Play Controls
- Double Skinned 50mm Panel
- Controls link to Extract Fan



## UTBS

Supply air handling unit with multiple heating, cooling and filtration options

From 0.3 m<sup>3</sup>/s up to 1.6 m<sup>3</sup>/s

- Multiple Heating & Cooling Options
- Plug & Play Controls
- Low Profile



## CAD COMPACT

Commercial heat recovery unit complete with high efficiency. Eurovent certified counterflow heat exchanger.

From 0.055 m<sup>3</sup>/s up to 1.25 m<sup>3</sup>/s

- Small Footprint, Compact Design
- Plug & Play Controls
- Airflow Direction Handling by Installer



\*PHE counterflow



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## CADB/T-HE

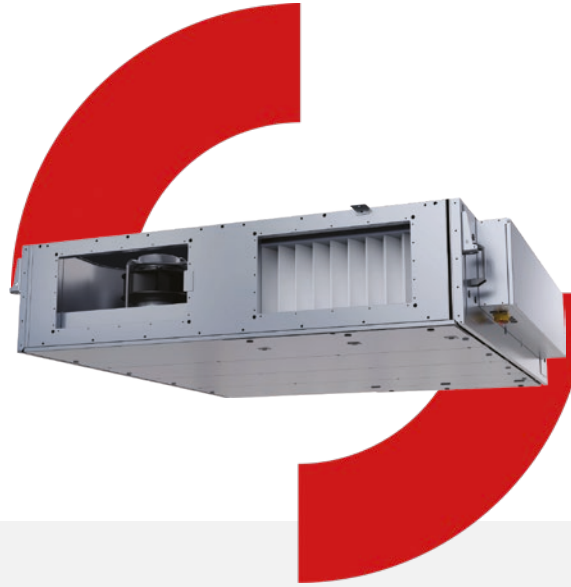
Commercial heat recovery unit complete with high efficiency. Eurovent certified counterflow heat exchanger.

From 0.135 m<sup>3</sup>/s up to 2.7 m<sup>3</sup>/s

- Configurable Spigot Panels, Adaptable Design
- Plug & Play Controls
- Horizontal or Stacked Configuration



\*PHE counterflow



## SLIM

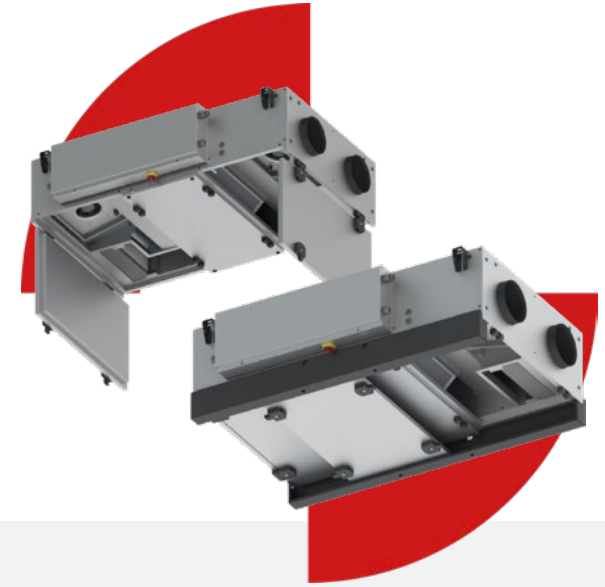
Commercial heat recovery unit complete with high efficiency Eurovent certified counterflow heat exchanger

From 0.22 m<sup>3</sup>/s up to 0.67 m<sup>3</sup>/s

- Low Profile, Slim Design
- Plug & Play Controls
- Integrated Condensate Pump
- Sliding Access Doors



\*PHE counterflow



## CX3000

Commercial heat recovery unit complete with high efficiency Eurovent certified counterflow heat exchanger

From 0.14 m<sup>3</sup>/s up to 0.91 m<sup>3</sup>/s

- Ceiling void mount
- Plug & Play Controls
- Bottom access (optional sliding rails)
- Bolt-on cooling options



\*PHE counterflow



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## VEX1000

Commercial Compact heat recovery unit fully Eurovent certified. Rotary thermal wheel exchanger units. EPDs ready.

From 0.03 m<sup>3</sup>/s up to 2.60 m<sup>3</sup>/s.

- Compact, Double skinned 50mm panels
- Patented automatic leakage control (ALC™)
- Plug & Play ExCon+ controls
- Side & top connections



## RHE

Commercial heat recovery unit complete with Eurovent certified high efficiency thermal wheel heat exchanger

From 0.22 m<sup>3</sup>/s up to 4.1 m<sup>3</sup>/s

- Low Sound, Double Skinned 50mm Panels
- Compact Design
- Plug & Play Controls
- Vertical or Horizontal Configuration



\*PHE counterflow



## DUOVENT COMPACT/ MODULAR

Commercial heat recovery with both Eurovent certified thermal wheel and counterflow exchanger options

From 0.14 m<sup>3</sup>/s up to 4 m<sup>3</sup>/s

- Low Sound, Double Skinned 45mm Panels
- Compact Design & Plug & Play Controls
- Vertical, Horizontal, or Stacked Configuration



\*PHE counterflow



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## VEX4000

Commercial semi-modular heat recovery units with integrated heat pump technology and fully Eurovent certified.

From 0.30 m<sup>3</sup>/s up to 10.00 m<sup>3</sup>/s

- Patented automatic leakage control (ALC™)
- Plug & Play ExCon controller
- Low GWP R454b
- Customisable options via dedicated software



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	CAIB/T	UTBS	CAD Compact	CADB/T-HE	SLIM	CX3000	VEX1000	RHE	Duovent Compact	VEX4000
<b>Main elements</b>										
General Isolator	●	●	●	●	●	●	●	●	●	●
Pre-wired control panel	●	●	●	●	●	●	●	●	●	●
Touchscreen User interface	●	●	●	●	●	●	●	●	●	●
<b>Functionality</b>										
Variable Air Volume (VAV)	●	●	●	●	●	–	●	●	●	●
Constant Air Volume (CAV)	●	●	●	●	●	●	●	●	●	●
Constant Operational Pressure (COP)	●	●	●	●	●	●	●	●	●	●
<b>Boost</b>	CAV (VFC)	CAV (VFC)	VAV (VFC)	CAV (VFC)	CAV (VFC)	CAV (VFC)	CAV (VFC)	CAV (VFC)	CAV (VFC)	CAV (VFC)
Remote Enable (VFC)	●	●	●	●	●	●	●	●	●	●
7-Day Time Clock	●	●	●	●	●	●	●	●	●	●
RH Duct Monitoring Speed Modulation (VFC & 0-10V)	●	●	●	●	●	●	●	●	●	●
C02 Duct Monitoring Speed Modulation (VFC & 0-10V)	●	●	●	●	●	●	●	●	●	●
VOC Duct Monitoring Speed Modulation (VFC & 0-10V)	●	●	●	●	●	–	●	●	●	●
Temperature Duct Monitoring Speed Modulation (VFC & 0-10V)	●	●	●	●	●	●	●	●	●	●
RH Room Monitoring Speed Modulation (VFC & 0-10V)	●	●	●	●	●	–	●	●	●	●
C02 Room Monitoring Speed Modulation (VFC & 0-10V)	●	●	●	●	●	●	●	●	●	●
VOC Room Monitoring Speed Modulation (VFC & 0-10V)	●	●	●	●	●	–	●	●	●	●
Temperature Room Monitoring Speed Modulation (VFC & 0-10V)	●	●	●	●	●	●	●	●	●	●

● Supplied as standard | – Not available | ● Accessory Required



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	CAIB/T	UTBS	CAD Compact	CADB/T-HE	SLIM	CX3000	VEX1000	RHE	Duovent Compact	VEX4000
<b>Temperature Regulation</b>										
Integrated Temperature Sensors	●	●	●	●	●	●	●	●	●	●
Anti-Frost Protection	●	●	●	●	●	●	●	●	●	●
Anti-Frost Water Probe	●	●	—	●	●	●	●	●	●	●
Hot Water Coil Regulation (0-10V)	●	●	●	●	●	●	●	●	●	●
Reversible Hot/Cold Coil Regulation (0-10V)	●	●	●	●	●	●	●	●	—	●
4-Pipe Hot & Cold Coil Regulation (0-10V)	●	●	●	●	●	●	●	●	●	●
DX Coil Regulation (0-10V)	●	●	●	●	●	●	●	●	●	●
Electrical Heater Battery Regulation	●	●	●	●	●	●	●	●	●	●
Electrical Pre-Heater Battery Regulation	●	●	●	●	●	●	●	●	●	●
<b>Security Functions</b>										
Internal Shutoff Damper Actuation	—	—	—	—	—	—	●	—	● (230V)	●
External Shutoff Damper Actuation	● (24V)	● (240V)	● (24V)	● (24V)	● (230V)	●	●	● (230V)	● (230V)	●
Filter Monitoring	●	●	●	●	●	●	●	●	●	●
Alarm Display on User Interface	●	●	●	●	●	●	●	●	●	●
Detailed Information About Alarms	●	●	●	●	●	●	●	●	●	●
Fan Fault Monitoring	●	●	●	●	●	●	●	●	●	●

● Supplied as standard | — Not available | ● Accessory Required



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	CAIB/T	UTBS	CAD Compact	CADB/T-HE	SLIM	CX3000	VEX1000	RHE	Duovent Compact	VEX4000
<b>Bypass Adjustment</b>										
Manual Bypass Configuration	–	–	●	●	●	–	–	●	●	–
Auto Bypass Configuration with free heating/cooling	–	–	●	●	●	●	●	●	●	●
Night Free Cooling	–	–	●	●	●	●	●	●	●	●
<b>Communication</b>										
External Control Wiring	●	●	●	●	●	●	●	●	●	–
External 0-10V Control	●	●	●	●	●	●	●	●	●	●
Run Relay	● (VFC)	● (24V)	● (VFC)	● (24V)	● (VFC)	● (VFC)	● (VFC)	● (VFC)	● (VFC)	● (VFC)
Alarm/Fault Relay	● (VFC)	● (24V)	● (VFC)	● (24V)	● (VFC)	● (VFC)	● (VFC)	● (VFC)	● (VFC)	● (VFC)
Emergency Fire Shutdown	● (VFC)	● (VFC)	● (VFC)	● (VFC)	● (VFC)	● (VFC)	● (VFC)	● (VFC)	● (VFC)	● (VFC)
Modbus RTU (RS-485)	●	●	●	●	●	●	●	●	●	●
BACnet TCP/IP	●	●	–	●	●	●	●	●	–	●
BACnet IP	–	–	–	–	–	●	●	–	–	●
<b>Mounting Location</b>										
Internal	●	●	●	●	●	●	●	●	●	●
External	●	●	●	●	–	–	●	●	●	●

● Supplied as standard | – Not available | ● Accessory Required



**NBS Source** is a tool that offers a single source for product information. Unlike any other product library, NBS Source provides an additional level of enhanced product data, in a consistent, structured format that will integrate seamlessly into your project workflow.



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# Good to Know: Building Regulations Part L

## Mechanical Ventilation L1(b), L2 - Residential

**6.55** The specific fan power for mechanical ventilation systems should not exceed the following:

**d.** For continuous mechanical supply and extract ventilation systems: 1.5W/(l-s).

**6.56** All ventilation systems which provide both supply and extract ventilation within the same unit should be fitted with all of the following:

**a.** A heat recovery system with a minimum efficiency of 73%.

**b.** A summer bypass facility (giving the ability to bypass the heat exchanger or to control its heat recovery performance).

**c.** A variable speed controller.

System Type	SFP (W/(l-s))	
	New Buildings	Existing Buildings
Central balanced mechanical ventilation system with heating & cooling	2.0	2.6
Central balanced mechanical ventilation system with heating only	1.9	2.2
All other central balanced mechanical ventilation systems	1.5	2.0
Zonal supply system where fan is remote from zone eg ceiling void/roof units	1.1	1.4
Zonal balanced supply and extract ventilation units, eg ceiling void/ roof units	2.3	2.3
Local balanced supply and extract ventilation system, eg wall/roof units	2.0	2.0

### Notes:

1. A central system is one which serves the whole or major areas of the building. A zonal system is one which serves a group of rooms or areas in part of the building and requires ducting. A local system or unit is one which serves a single room or area and does not require ducting.
2. For balanced supply and extract systems, the minimum SFP includes an allowance for heat recovery and return filter.



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# Good to Know: Eurovent 4/23 - 2022

Selection of EN ISO 16890 rated air filter classes for general ventilation applications:

## Outdoor air categories

Category	Description
ODA 1	<b>Outdoor air, which may only be temporarily dusty</b> Applies where the World Health Organisation WHO (2021) guidelines are fulfilled. (Annual mean for PM <sub>2,5</sub> ≤ 5 µg/m <sup>3</sup> and PM <sub>10</sub> ≤ 15 µg/m <sup>3</sup> ).
ODA 2	<b>Outdoor air with high concentrations of particulate matter</b> Applies where PM concentrations exceed the WHO guidelines by a factor of up to 1,5. (Annual mean for PM <sub>2,5</sub> ≤ 7,5 µg/m <sup>3</sup> and PM <sub>10</sub> ≤ 22,5 µg/m <sup>3</sup> ).
ODA 3	<b>Outdoor air with very high concentrations of particulate matter</b> Applies where PM concentrations exceed the WHO guidelines by a factor of greater than 1,5. (Annual mean for PM <sub>2,5</sub> >7,5 µg/m <sup>3</sup> and PM <sub>10</sub> >22,5 µg/m <sup>3</sup> ).

## Supply air categories

Category	Description
SUP 1	Refers to supply air with concentrations of particulate matter which fulfilled the WHO (2021) guidelines limit values multiplied by a factor x 0,25. (Annual mean for PM <sub>2,5</sub> ≤ 1,25 µg/m <sup>3</sup> and PM <sub>10</sub> ≤ 3,75 µg/m <sup>3</sup> ).
SUP 2	Refers to supply air with concentrations of particulate matter which fulfilled the WHO (2021) guidelines limit values multiplied by a factor x 0,5. (Annual mean for PM <sub>2,5</sub> ≤ 2,5 µg/m <sup>3</sup> and PM <sub>10</sub> ≤ 7,5 µg/m <sup>3</sup> ).
SUP 3	Refers to supply air with concentrations of particulate matter which fulfilled the WHO (2021) guidelines limit values multiplied by a factor x 0,75. (Annual mean for PM <sub>2,5</sub> ≤ 3,75 µg/m <sup>3</sup> and PM <sub>10</sub> ≤ 11,25 µg/m <sup>3</sup> ).
SUP 4	Refers to supply air with concentrations of particulate matter which fulfilled the WHO (2021) guidelines limit values. (Annual mean for PM <sub>2,5</sub> ≤ 5 µg/m <sup>3</sup> and PM <sub>10</sub> ≤ 15 µg/m <sup>3</sup> ).
SUP 5	Refers to supply air with concentrations of particulate matter which fulfilled the WHO (2021) guidelines limit values multiplied by factor x 1,5. (Annual mean for PM <sub>2,5</sub> ≤ 7,5 µg/m <sup>3</sup> and PM <sub>10</sub> ≤ 22,5 µg/m <sup>3</sup> ).



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# Summary of recommended minimum efficiencies depending on ODA & SUP:

Category	Outdoor Air		Supply Air				
	PM2,5	PM10	SUP1*	SUP2*	SUP3**	SUP4	SUP5
			PM2,5 ≤ 1,25 PM10 ≤ 3,75	PM2,5 ≤ 2,5 PM10 ≤ 7,5	PM2,5 ≤ 3,25 PM10 ≤ 11,25	PM2,5 ≤ 5 PM10 ≤ 15	PM2,5 ≤ 7,5 PM10 ≤ 22,5
		ePM1	ePM1	ePM2,5	EPM10	ePM10	
ODA 1	≤ 5	≤ 15	70%	50%	50%	50%	50%
ODA 2	≤ 7,5	≤ 22,5	80%	70%	70%	80%	50%
ODA 3	> 7,5	> 22,5	90%	80%	80%	90%	80%

\* Minimum filtration requirements ISO ePM1 50% refer to a final filter stage

\*\* Minimum filtration requirements ISO ePM2,5 50% refer to a final filter stage

## Additional Recommendations

As the task of air filters in HVAC systems is not only to protect ventilated rooms from too severe level of contamination, but also the HVAC system itself, the minimum efficiency of a first stage filter (on fresh air inlet) should be at least ePM10 50%. Yet, if air humidification is applied in the system, the minimum efficiency of a filter located downstream the humidifier should be at least ePM2,5 65%.



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# Supply air categories

## General ventilation

Category	Description
SUP 1	N/A
SUP 2	<b>Rooms for permanent occupation.</b> <i>Examples:</i> Kindergartens, offices, hotels, residential buildings, meeting rooms, exhibition halls, conference halls, theatres, cinemas, concert halls.
SUP 3	<b>Rooms with temporary occupation.</b> <i>Examples:</i> Storage, shopping centres, washing rooms, server rooms, copier rooms.
SUP 4	<b>Rooms with short-term occupation.</b> <i>Examples:</i> Restrooms, storage rooms stairways.
SUP 5	<b>Rooms without occupation.</b> <i>Examples:</i> Garbage room, data centres, underground car parks.

## Industrial ventilation

Category	Description
SUP 1	<b>Applications with high hygienic demands.</b> <i>Examples:</i> Hospitals, pharmaceuticals, electronic and optical industry, supply air to clean rooms.
SUP 2	<b>Applications with medium hygienic demands.</b> <i>Examples:</i> Food and beverage production.
SUP 3	<b>Applications with basic hygienic demands.</b> <i>Examples:</i> Food and beverages production with a basic hygienic demand.
SUP 4	<b>Applications without hygienic demands.</b> <i>Examples:</i> General production areas in the automotive industry.
SUP 5	<b>Production areas of the heavy industry.</b> <i>Examples:</i> Steel mill, smelters, welding plants.



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# Comparison of EN 779 and EN ISO 16890 rated filter classes

EN 779: 2012	EN ISO 16890: Range of actual measured average efficiencies		
Filter Class	ePM1	ePM2,5	ePM10
G4 (Coarse)	Non-Compliant	Non-Compliant	Non-Compliant
M5	5% – 35%	10% – 45%	40% – 70%
M6	10% – 40%	20% – 50%	60% – 80%
F7	40% – 65%	65% – 75%	80% – 90%
F8	65% – 90%	75% – 95%	90% – 100%
F9	80% – 90%	85% – 95%	90% – 100%

## Additional Recommendation on Application of Optional Gas Filtration

Following the provisions of EN 16798-3:2017, it is recommended to apply additional gas filters to complement particle filtration for the following combinations of outdoor air quality (gaseous) and supply air quality classes:

Outdoor Air	Supply Air				
	SUP1	SUP2	SUP3	SUP4	SUP5
ODA 1	Recommended	–	–	–	–
ODA 2	Required	Recommended	–	–	–
ODA 3	Required	Required	Recommended	–	–



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