SCHOOL ERV SERIES

Bring fresh air to every classroom

AIRWOODS



Energy Recovery Ventilation Solutions for Schools

CE

ErP 2018 COMPLIANT

EXPERIENCE YOU CAN TRUST

Since 2007, Airwoods has focused on Fresh Air & Energy Efficiency.

We deliver high-quality fresh air solutions to customers around the world.

Over 100 Exported Countries



10000+ Square Meters of Factory

200+ Employees

200000+ Units Production Capacity

50+ Patents

100+ Countries with Sales Network

Quality Certifications

CSA GROUP · FSC · RoHS compliant · SGS (HACCP) · SGS (ISO 9001) · TÜVRheinland · ETL Intertek · CCC · CE · CB · FC · UKCA · UL

Since 2007

Heat Recovery Ventilation and Healthy Living Product Manufacturer

- Factory Price
- Branding Services
- Certified Quality
- High Efficiency



- 20+ years of experience in the ventilation industry
- Clients in over 100 countries
- Own factory | ISO9001+ISO45001/ISO14001 / CE / CB / RoHS /CSA /SGS / UKCA certified
- OEM part + Projects in schools, hospitals, offices, factories, homes, airports.

From Harvard classrooms to schools in Taiwan and Poland, we help students breathe better.



VERTICAL

ENERGY RECOVERY VENTILATOR

Efficient Counterflow Heat Exchanger
Heat recovery efficiency up to 93% (washable, mold-resistant, and durable).

EC Dual Inlet Fan
Wide airflow range (350-1000m³/h), energy-saving, and ultra-quiet (30-35dB(A)).

Smart Control
Wi-Fi connectivity, touch screen, and real-time air quality monitoring via smartphone.

PTC Auxiliary Heating
2200W PTC heating for quick and comfortable supply air temperature.

Advanced Filtration
G4 + F7 filters (PM2.5 filtration >95%) , optional disinfection HEPA filter.



AIRWOODS

1. CLASSROOM AIR ≠ CLEAN AIR

" Indoor air in classrooms can be 5–8 times more polluted than outdoor air. "
— U.S. Air Quality Report

Modern classrooms are sealed tight for energy saving, but ventilation hasn't caught up. PM2.5, formaldehyde, VOCs: trapped indoors. Opening windows = noise, temperature swings, safety risks. Controlled ventilation is no longer optional.

2. CO_2 KILLS FOCUS

" If your child can't concentrate in class, it might not be the teacher—it could be CO_2. "
— Study from a French Primary School

CO_2 levels can rise from 500ppm to over 2500ppm in 40 minutes. Over 1000ppm = poor focus, low energy, brain fatigue. Long-term: weaker memory, lower grades, less attention. **Smart ventilation keeps CO_2 under control automatically.**

"Harvard Healthy Buildings Project findings: Rising CO_2 levels from poor ventilation impair cognitive function. High-emission scenarios could reduce reasoning abilities to oxygen-deprivation levels. Solution: Smart ventilation and carbon reduction."

"Fossil fuel combustion drives indoor CO_2 to cognitively impairing levels."

— Harvard Healthy Buildings Project & Karnauskas et al. (2020)

3. MORE KIDS, MORE ILLNESS

" Coughing, sneezing, allergies at school—but fine at home? "
— You're not imagining it.

Poor air quality increases colds, asthma, respiratory problems. Dust, bacteria, mold and VOCs build up quickly indoors. **Clean air = healthier students, fewer sick days.**

Exposure to PM2.5 significantly increases the risk of asthma, allergies, and impaired lung development in children.

Studies show that fine particles damage airway tissues, trigger inflammation, and weaken immune defenses. (Le Souëf et al., WAO Pediatric Asthma Committee Report)

The American Lung Association (2023) reports that over 122 million people in the U.S. are still breathing unhealthy air, putting vulnerable groups like children at serious risk.

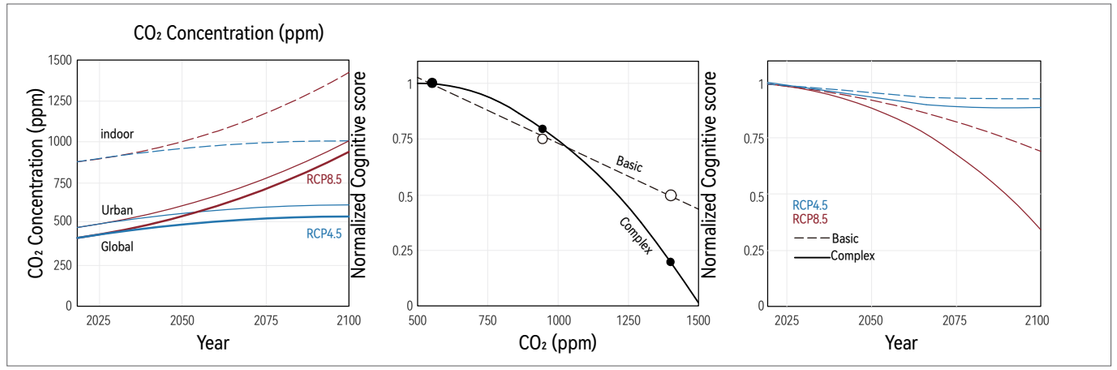
"Air pollution, especially PM2.5, is a key factor in childhood asthma and allergic diseases."

— WAO Pediatric Asthma Committee Report

4. AFTER COVID, VENTILATION = STANDARD

" Ventilation isn't a luxury anymore. "
— It's a must.

Schools around the world are updating building codes. WHO and education boards now require proper ventilation. It's the new basic infrastructure for healthy learning.



One Simple Question:

Are your students learning in a safe, healthy classroom or just a room with the window cracked open?

Our Suggestion::

Let a professional fresh air system handle the problem. Safe, Smart, Efficient. Give your students clean air today. You're investing in their future.

What does Airwoods Offer for Schools:

Not just a machine—a full solution.

- Whisper-quiet: <30 dB at 1 meter
- Smart CO_2 control: adjusts airflow as needed
- Multi-stage filtration: removes PM2.5, bacteria, viruses
- Humidity & temperature balance
- Fully compliant with global school ventilation standards

COUNTRY	POLICY FOR SCHOOL VENTILATION
USA	• "Increase outdoor air ventilation to the maximum extent possible, for example by opening windows and doors (if safe to do so), and using fans to increase the effectiveness of open windows. Ensure ventilation systems operate properly and provide acceptable indoor air quality for the current occupancy level for each space." **Source: CDC – Ventilation in Schools and Childcare Programs** • "The American Rescue Plan Elementary and Secondary School Emergency Relief (ARP ESSER) fund provides $122 billion for K-12 schools, a significant portion of which can be used to improve ventilation and air filtration in school buildings." **Source: U.S. Department of Education – COVID-19 Relief**
Canada	• "Increase ventilation by opening windows and doors when possible and safe. Maintain heating, ventilation and air conditioning (HVAC) systems according to the manufacturer's instructions. Consider upgrading HVAC systems or filters (for example, to MERV 13 or higher) to improve air filtration." **Source: Public Health Agency of Canada – COVID-19: Reducing Risk in Indoor Environments**
UK	• "Provide adequate ventilation with fresh air. Identify poorly ventilated spaces and take steps to improve fresh air flow in these areas. Opening windows and doors is the easiest way of improving natural ventilation." **Source: UK Government – Ventilation of indoor spaces to stop the spread of coronavirus** • "Over 350,000 CO_2 monitors have been provided to state-funded education settings, helping staff take action to improve ventilation where it is needed." **Source: UK Department for Education – Press release**
Germany	• "Classrooms should be regularly and adequately ventilated. Cross-ventilation, i.e. opening opposite windows at the same time, is particularly effective." **Source: BMBF – FAQs zum Lüften in Schulen**
France	• France – Ministère de l'Éducation nationale "Il est nécessaire d'aérer régulièrement les salles de classe. Il est recommandé de mesurer le CO_2 pour vérifier la qualité de l'air." "It is necessary to ventilate classrooms regularly. It is recommended to measure CO_2 to verify air quality." **Source: French Ministry of Education – Q&A on School Opening**
Netherlands	• Netherlands – RIVM (Fresh Schools guidelines) "Classroom ventilation should achieve at least 6 litres/second/person (Class C), 8.5 l/s/person (Class B), or ideally 12 l/s/person (Class A)." **Source: RIVM – Ventilation in schools**
Belgium	• Belgium – Government Regulation "CO_2 meters are mandatory in publicly accessible indoor spaces including schools. The limit value is set at 900 ppm, with a target value of 800 ppm." **Source: Belgian Government – Indoor Air Quality and COVID-19**
Sweden	• Sweden – Public Health Agency "Increase the supply of outdoor air as much as possible. Keep ventilation systems running for longer periods, including before and after rooms are occupied." **Source: Folkhälsomyndigheten – Recommendations**

AIRWOODS

From Harvard to Poland, we've been asking:

" What makes the best fresh air system for schools? "

Over the past decade, we've served many top education institutions: **Harvard University, National Chung Cheng University (Taiwan)**, public schools in Poland...

For these projects, we used traditional ceiling-mounted ERVs — and they worked well.

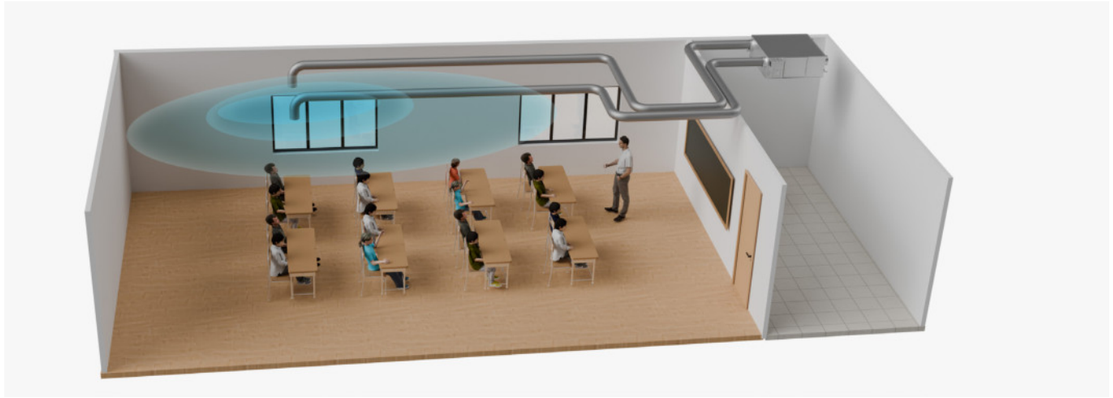
But at Airwoods, **"good" is never enough.** Our philosophy: **"See the product through the user's eyes."**

Schools are NOT office buildings or homes. Students spend 7+ hours a day in classrooms, teachers even longer. Parents care deeply about the following:

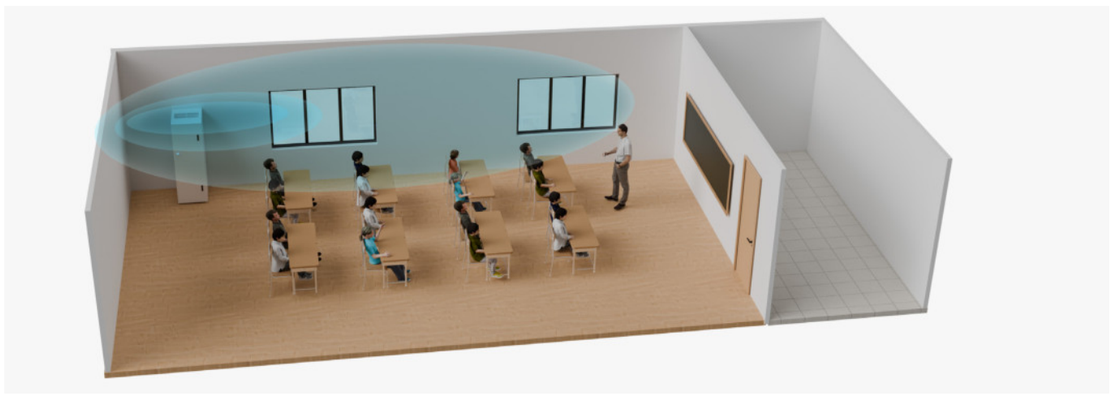
- **Is the air quality truly safe?**
- **Is the equipment safe and sturdy?**
- **Will noise disturb the learning environment?**
- **Is maintenance easy and fast?**

We talked to teachers, students, and maintenance workers. Here's what we found about traditional ceiling-mounted ERVs in schools:

- **Difficult to install** — complex ceiling work, takes up space.
- **Hard to maintain** — requires ladders and tools, and often disrupts classes.
- **Parents worry** — equipment hidden away, hard to check safety.



So, we made a bold choice: Introducing our Vertical ERV — the new standard for school fresh air. This is the result of 10+ years' experience focused on school needs: Freestanding vertical design — no ceiling installation needed.



CALCULATION EXAMPLE

Let us calculate a classroom ventilation system. The classroom is to accommodate 20 children aged 10-14 and one adult teacher. The CO_2 concentration must be maintained at 1000 ppm.

20 pupils × 30 m^3/h = 600 m^3/h

1 teacher × 37 m^3/h = 37 m^3/h



Required fresh airflow rate:

637 m^3/h

FROM ELEMENTARY TO UNIVERSITY,

WE BUILD THE FRESH AIR FOUNDATION FOR EVERY CLASSROOM

From small classrooms to university libraries, from dorms to large auditoriums, every space has unique ventilation needs.

Zoned Ventilation Solutions: Different schools, different needs.

The following table contains recommended ventilation system air flow per person as per DIN EN 13779. The aforementioned airflow is given in consideration of the contaminants released by furniture and construction materials.

Category	Measurement unit		Outdoor airflow							
			Non-smoking space				Smoking space			
			Range		Standard value		Range		Standard value	
1	l/s	m^3/h	> 15	> 54	20	72	> 30	> 108	40	144
2	l/s	m^3/h	10-15	36-54	12.5	45	20-30	72-108	25	90
3	l/s	m^3/h	6-10	21.6-36	8	28.8	12-30	43.2-108	16	57.6
4	l/s	m^3/h	< 6	< 21.6	5	18	< 12	< 43.2	10	36

The minimum ventilation air flow per pupil based on maximum allowable concentration of CO_2 is as follows.

Age group guidelines			
Approximate age	Reference value 1200 ppm	Reference value 1000 ppm	Target audience
0–6	19 m^3/h	25 m^3/h	Kindergarten
6–10	19 m^3/h	25 m^3/h	Primary school
10–14	23 m^3/h	30 m^3/h	Secondary school
14–19	24 m^3/h	33 m^3/h	Vocational school
Over 19	25 m^3/h	34 m^3/h	University
Teacher	28 m^3/h	37 m^3/h	-

Noise level requirements as per DIN EN 15251 and DIN EN 13779:

Building/room type	Sound pressure recommended range, dBA
Open-space office	35–40
Conference hall	30–40
Classroom, kindergarten	35–45
Cafeterias/restaurants	35–50
Retail store	35–50

AIRWOODS

Elementary & Middle Schools:

- Small, dense classrooms ventilated individually
- Recommended: Vertical ERV (Freestanding unit)
- Key focus: Low noise, safety features, CO_2 control



High Schools & University Teaching Buildings:

- Mixed spaces — classrooms, labs, study rooms
- Recommended: Vertical ERV + Smart temperature, humidity & CO_2 linked control
- Key focus: Scheduled operation, energy-saving smart management



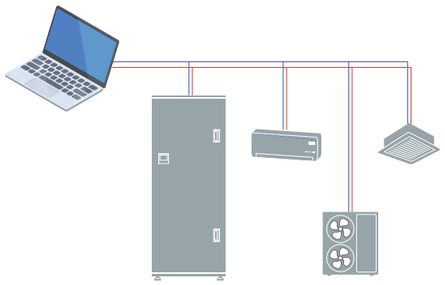
Dormitories:

- High occupancy and enclosed spaces, with risks of odors, humidity, and virus spread
- Recommended: Small Vertical ERV or Wall-mounted ERV
- Key focus: Dehumidification, quiet operation, individual room installation



Libraries / Multipurpose Halls / Auditoriums:

- Large spaces, heavy foot traffic, frequent events
- Recommended: High-airflow freestanding ERV
- Optional: CO_2/VOC sensors + centralized fresh air control system
- Key focus: Efficient heat recovery, real-time air quality management



Managing Multiple Campuses or Entire Buildings

- Each unit can be individually set for mode and airflow
- Compatible with BMS for seamless smart campus integration

DESIGNED FOR KIDS

SAFETY ALWAYS COMES FIRST

At school, every detail matters.
Not every ventilation unit belongs in a classroom.
We design truly school-grade air systems from a child's point of view.

SAFETY SHOULD BE QUIETLY RELIABLE



YOUR SAFETY CONCERNS

WE'VE ALREADY TAKEN CARE OF THEM

Anti-Tilt Structure

- L-shaped wall-mounting bracket for fixed installation
- Certified anti-tilt protection — stable and secure
- No weighted base required — safety tested and certified
- Peace of mind even in energetic classroom environments

Embedded LCD Smart Control Panel

- Built-in LCD display on the front panel
- Clear layout — easy to monitor and control temperature, airflow, and air quality
- Designed for intuitive use by teachers and staff



Triple Safety Protection

- Front panel requires a key to open
- Filter & maintenance access secured with screws, tools required
- Certified safe: no risk of unauthorized access or electric shock
- Meets safety standards without requiring auto shut-off

Child Safety Lock

- Standard 86-type control box with child lock function
- Control panel can be locked via long-press + password
- Prevents accidental operation or tampering by children

Clean, Sturdy Design — Like a Classroom Fridge

- White metal casing — neat and well suited to classroom environments
- Air intake on top — keeps kids from touching it by accident
- Air outlet on top, return air on the side — safer and more efficient airflow

In short:

This is a machine you trust to install in schools, and a device parents feel safe with, knowing their kids learn right beside it.

> *A classroom device should show safety and not cause distractions.*
>
> **— Our design philosophy**

AIRWOODS

SOLID BUILD, FULLY EQUIPPED

— Every Detail Tailored for Schools



01 Soundproof & Thermal Insulation Layers

02 Smart Control System

03 G4 Coarse Filter

04 PTC Intelligent Heating Module

05 High-Efficiency Total Heat Exchanger

06 Bypass

07 G4 + F7 Filter

08 EC Dual-Inlet Silent Fans

AIRWOODS



Soundproof & Thermal Insulation Layers

— Keep Noise Inside

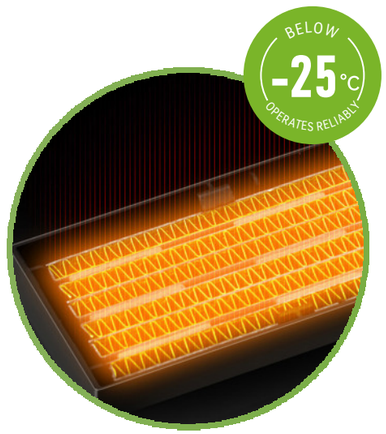
- Lined with 30mm thick, high-density (40 kg/m³) egg-crate style rubber-foam acoustic insulation.
- Multi-layer internal structure ensures quiet operation, thermal insulation, and added safety.
- High-temperature resistant and flame-retardant — safe for any school or educational setting.



Smart Control System

— One Screen to Manage Indoor Air

- LCD touchscreen + WiFi remote management.
- Real-time air quality display (temperature, humidity, CO_2).
- Supports scheduled on/off, remote monitoring, one-touch airflow and temperature control.
- Compatible with campus building management systems (BMS).



PTC Intelligent Heating Module

— Built for Extreme Cold

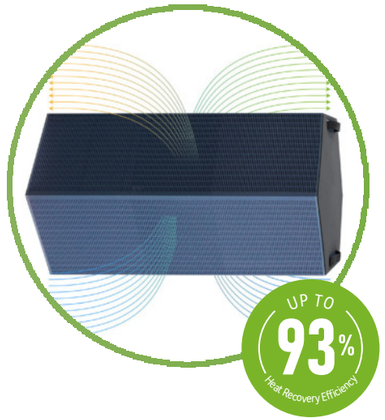
Many schools turn off ventilation in winter because it's too cold. We refuse to compromise.

Automatic defrost & smart heating: when outdoor temperature drops below -1°C, the PTC heater activates automatically to prevent frost buildup and system shutdown.

Operates reliably even in temperatures below -25°C.

Higher heating efficiency and greater safety, more energy-saving and durable than traditional heaters.

Adjustable supply air temperature — our LCD controller allows precise adjustment of both outdoor air (OA) and supply air (SA) temperatures, not just one.



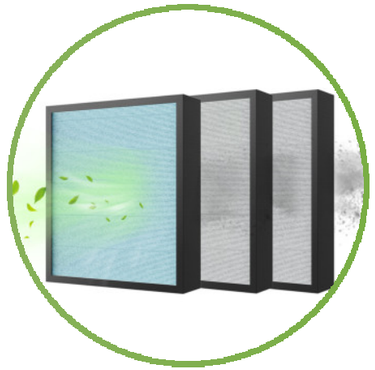
High-Efficiency Total Heat Exchanger

— (Counterflow Design)

- Our ultimate energy-saving solution.
- Heat recovery efficiency up to 93% — warm in winter, cool in summer, without high energy cost.
- Counterflow air paths maximize heat exchange and airflow smoothness.
- Ultra-low air resistance reduces power consumption.
- Antibacterial high-polymer membrane inhibits mold and bacteria, ensuring hygiene.
- Washable design extends lifespan beyond 10 years.

Bypass

The units are equipped with a bypass for summer ventilation.



Dual-Stage Filtration

— Real Protection Against PM2.5

- We don't just promise clean air — we block PM2.5 effectively at the door.
- Standard G4 coarse filter + F7 medium filter.
- G4 traps large dust particles, hair, pollen, and protects the heat exchanger.
- F7 removes over 95% of PM2.5 particles.
- Optional sterilizing filter for even purer air.
- Replaceable filters adapt to seasonal changes.



EC Dual-Inlet Silent Fans

— Quiet Meets Performance

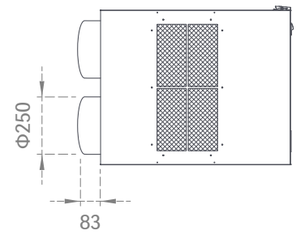
- Achieving high efficiency quietly is the real challenge.
- Dual-inlet design delivers greater airflow with lower noise.
- High-performance motor + optimized blades for energy-saving and efficiency.
- Ultra-quiet operation at 30–43 dB(A), nearly imperceptible in classrooms.
- Three-speed fan control adapts to different times and occupancy.
- Low vibration design ideal for libraries, offices, classrooms, and lounges.

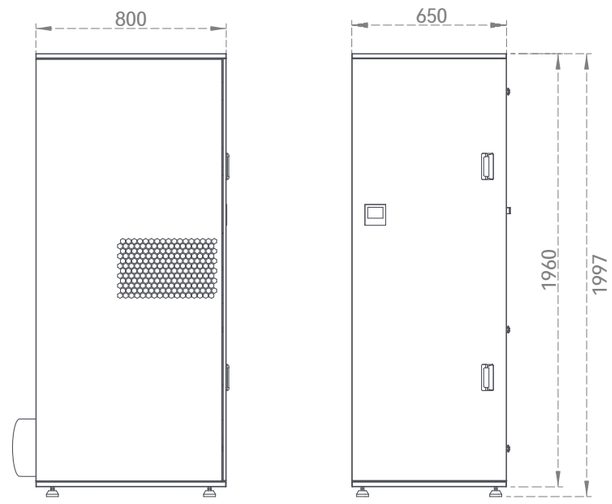
TECHNICAL SPECIFICATIONS

Model		AV-TPF75-EFW	AV-TPF85-EFW
Airflow (m^3/h)		350/450/750	350/450/850
Enthalpy Efficiency (%)	Cooling	77-90	75-90
	Heating	69-83	66-81
Temp. Efficiency (%)		79-93	77-92
Noise dB(A) at 1 meter		30/32/44	30/32/47
Power Supply		220~240V/1Ph/50Hz	
Input Power (W)		340	350
Electric Current (A)		1.55	1.6
Power Cable (mm^2)		3x4	
Control Cable (mm^2)		4x0.5	
Control	Standard	Yes (7-Day Time-clock)	
	(BMS) Modbus	Yes	
Fan Type		EC Fan Motors	
Fan Speeds (Supply)		3 Speed Fan Control	
Fan Speeds (Exhaust)		3 Speed Fan Control	
Summer Bypass		Yes (Automatic with adjustable range)	
Defrost		Yes (Automatic with adjustable range)	
CO_2 Control		Yes (On / Off control with adjustable range)	
Electric Heating		Yes (2200W, On / Off control)	
Fan Boost Contacts		Yes (1x available connections to Volt-Free contacts: Closed = boost to high speed)	
Fire Shutdown		Yes (1x available connection to Volt-Free contacts: Closed = shutdown)	
Weight (Kg)		135	140
Size (W×H×D) (mm)		800×650×1997	800×650×1997
Duct Size (mm)		ø250	ø250

DIMENSIONS (Unit: mm)

The dimensions of AV-TPF 75-EFW and AV-TPF85-EFW are the same.





NOISE LEVEL

Model	Airflow (m^3/h)	Sound pressure level at 1m [dBA]	Sound pressure level at 3m [dBA]
AV-TPF75-EFW	350	30	29
	450	32	31
	750	44	42
AV-TPF85-EFW	350	30	29
	450	32	31
	850	47	44

AIRWOODS

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