AIRWOODS
Building Living Quality

HPERV

DC INVERTER

Purification

Ventilation and Heat Recovery

Cooling/Heating

Dehumidification

EFFICIENCY (COP) >6

ErP 2018 COMPLIANT

WiFi

Powered By zigbee

CE

AIRWOODS

— EVERYTHING YOU NEED TO CREATE A COMFORTABLE, HEALTHY AND ENERGY-EFFICIENT INDOOR CLIMATE

PURIFICATION

Outdoor fresh air passes through the primary filter and F8 filter at OA side, to arrest the dust/ PM2.5/ other pollutants.

VENTILATION AND HEAT RECOVERY

Introduce outdoor fresh air into the room & extract the stale air out; It recovers the heating in winter and recover cooling in summer.

PRE-HEATING/ PRE-COOLING

After the first stage heat recovery, the air passes through the condensor for further heating/cooling.

DEHUMIDIFICATION

The two airstreams run through the heat exchanger and condensor, it can decrease the moisture of fresh air.

A constant supply of fresh air in the indoor spaces in which we spend more than 70% of our time is vital to our health. Airwoods heat pump energy recovery ventilator (HPERV) is an innovative product that combines fresh air purification, heating/cooling, heat recovery, and dehumidification in one machine. It can provide you with comfortable and healthy indoor air while saving energy and money. It provides the ideal solution for air tight buildings in which the windows often remain closed due to noise, dust particles and energy loss.

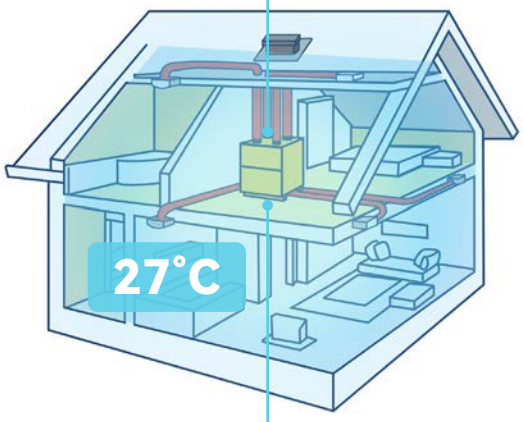
With a heat exchanger and heat pump system inside, Airwoods HPERV delivers clean and fresh air in a double energy recovery system. For example, 35˚C fresh air in summer time can be cooled to 23.5˚C, while 2˚C fresh air in the winter time can be heated to 35.5˚C. It can work as air conditioner in Autumn/ Spring or at night, when outdoor is 10-28˚C. Besides, it can remove the excess humidity, prevent furniture mold build-up and keep the indoor air at comfortable temperature and humidity.

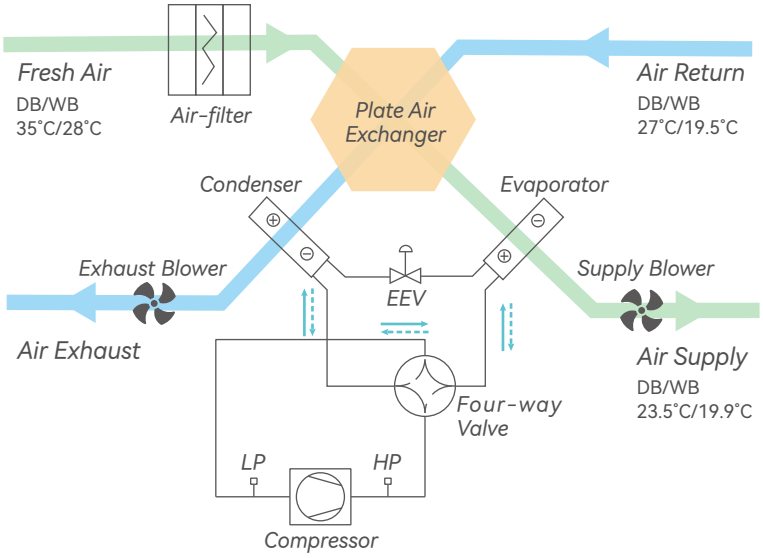
WORKING PRINCIPLE

SUMMER
35°C

Airflow: 350 m³/h
Power: 847 W

EER 4.48

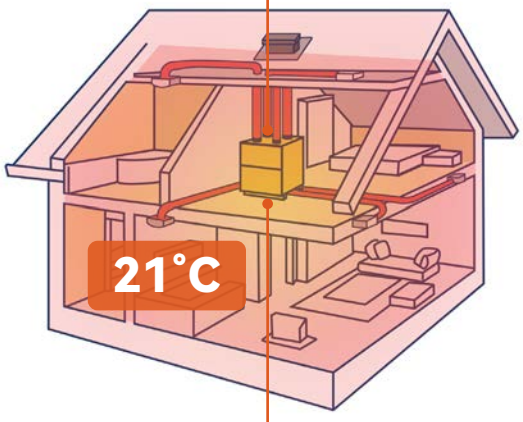


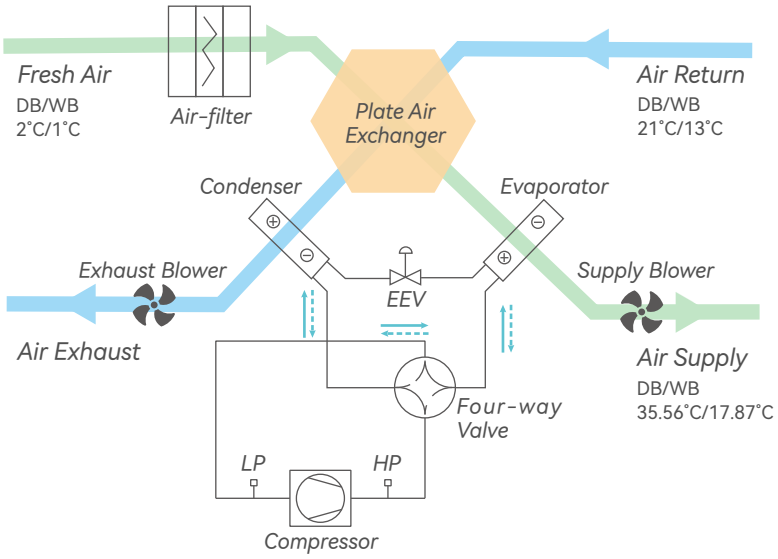


WINTER
2°C

Airflow: 350 m³/h
Power: 790 W

COP 5.83





FEATURES

- Double energy recovery, **COP over 6***.
- Fresh air preconditioning, save your electricity bill on heating system and AC system greatly.
- Work as an independent air conditioner in suitable seasons and places.
- Low noise level of 37/42 dB(A).
- Equipped with EC fans & DC inverter compressor to minimize energy consumption.
- Wide working ambient conditions from -15˚C ~ 50˚C.
- Indoor air quality monitoring like CO_2, humidity, TVOC and PM2.5.

** The lab condition is: indoor: 21℃/13℃, outdoor: -7℃/-9℃.*

Advantages Compared with Standard ERV

SUMMER CONDITIONS			
No	Description	Temperature	Relative Humidity
1	Outside Temperature OA	35˚C	59.10%
2	Inside Temperature RA	27˚C	49.80%
3	Fresh Air (Standard Heat Recovery Units) SA	29.24˚C	55.48%
4	**Fresh Air (Heat Pump Heat Recovery Units) SA**	**23.5˚C**	**72.11%**

WINTER CONDITIONS			
No	Description	Temperature	Relative Humidity
1	Outside Temperature OA	2˚C	83.84%
2	Inside Temperature RA	21˚C	39.16%
3	Fresh Air (Standard Heat Recovery Units) SA	15.68˚C	73.57%
4	**Fresh Air (Heat Pump Heat Recovery Units) SA**	**35.56˚C**	**17.87%**

DESIGN

01 EC Fans

To save energy and meet the ERP2018 standard, it's built with the forward EC motors with 0-10 Voltage control. It has 10 speeds and is featured by small vibration, low noise, energy-saving, and longer service life.

02 Bypass

In summer, the 100% bypass contributes to improved comfort and it is controlled automatically on the basis of the measured outdoor temperatures.

03 Multiple Filters

The standard filters are G4 and F8 grade filters. The primary filter can remove dust, pollen and other pollutants from the incoming fresh air. They also protect the heat exchanger from clogging or corrosion. And the F8 filter can further purify the air. The PM2.5 particle filtration efficiency is over 95%. An optional air disinfection filter is available for higher filtration efficiency.

04 DC Inverter Compressor

It comes from the well-known brand GMCC. It compresses and expands refrigerant to transfer heat between the outdoor and indoor air streams. It is DC inverter type which can adjust its speed and output according to the load demand, ensuring energy saving performance and low noise level. It can also operate in a wide temperature range of -15˚C to 50˚C. Both R32 and R410a refrigerant available.

Advantages of DC Inverter Compressor

Advantages	DC Inverter Compressor	Fix-frequency Compressor
High efficiency	√	X
Quiet operation	√	X
Longer lifespan	√	X
Smooth start-stop	√	X
Accurate and fast temperature control	√	X
Energy saving	√	X
Operation temperature	-15˚C to 50˚C	-7˚C to 40˚C

CROSS-COUNTERFLOW ENTHALPY HEAT EXCHANGER

The cross-counterflow enthalpy heat exchanger can transfer heat and moisture between the outdoor and indoor air streams without mixing them.

It can recover up to 80% of the energy from the exhaust air, reducing the heating or cooling load on the compressor. It is washable and easy to maintain. It has a lifetime of up to 15 years.

Anti-mold & Anti-bacteria

High Strength & Stability

Special Polymer Membrane

Washable

Long Service Life

ADVANTAGES

01 ENHANCED COMFORT THROUGH OPTIMUM INDOOR AIR QUALITY

- High efficiency with up to 90% heat recovery and up to 80% humidity recovery.
- No more dry air in winter.
- Pleasant reduction in humidity in summer.

02 INCREASED DURABILITY OF THE BUILDING FABRIC

A constant humidity level prevents cracks in sensitive materials such as wood flooring and extends their lifetime.

03 NO FROSTING UNDER - 30˚C

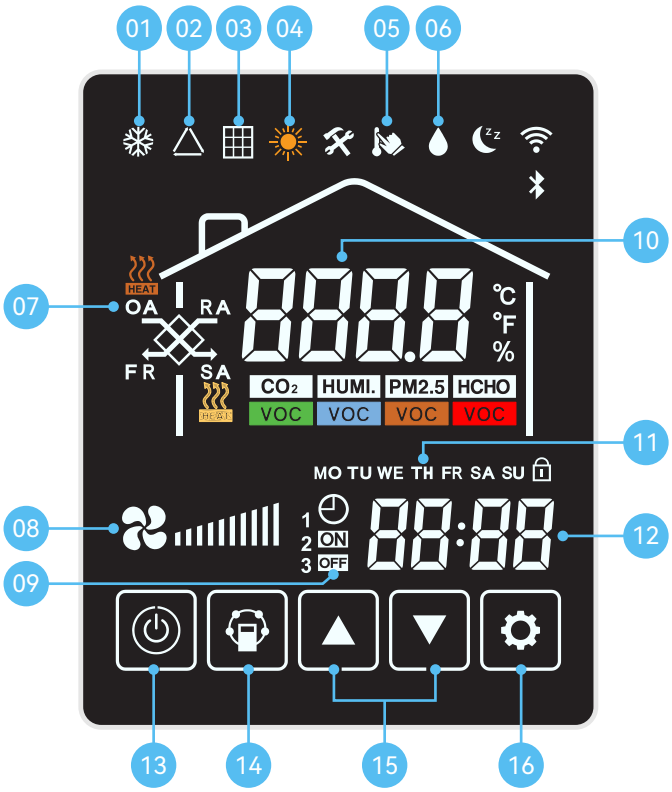
Because of its high permeability to water molecules, no condensation water will form on the surface of the membrane, and condensation and ice blockage will not occur under extreme conditions of - 30˚C.

04 MORE COST EFFICIENCY

Condensate-free operation under normal conditions means there is no need for a condensate drain. This saves your customers money.

ADVANCED LCD REMOTE CONTROL PANEL

CONTROL & FUNCTIONS



01. Cooling mode
02. Ventilation mode
03. Filter alarm
04. Heating mode
05. SA setting
06. Dehumidification mode
07. Temperature type
08. Fan speed
09. Weekly timer on/off
10. Temperature display
11. Week day
12. Clock
13. ON/OFF button
14. Mode button
15. Up/Down button
16. Set button

WIFI FUNCTIONS

Wifi function is available to control and monitor the ventilation system from anywhere in the world using a smart phone. User can monitor the indoor air quality at your hand for healthy living.

Monitoring Indoor Air Quality

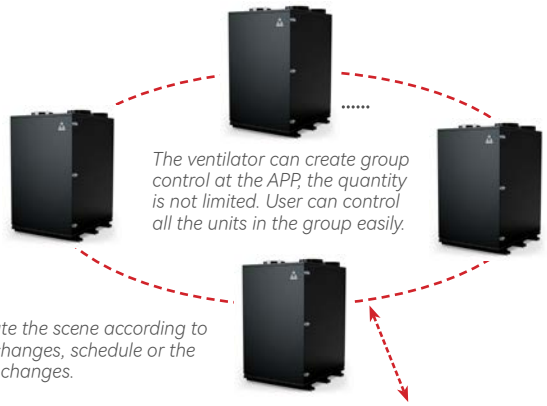
Monitor local weather, temperature, humidity, CO_2 concentration at your hand for healthy living.

Variable Setting

Timely switch, speed settings, bypass/ time/filter alarm/ temperature setting.

Group Control

- Smart control according to local weather.
- One APP can control multiple units.
- Linkage control with other appliances with Tuya IoT.



The ventilator can create group control at the APP, the quantity is not limited. User can control all the units in the group easily.

User can create the scene according to the weather changes, schedule or the device status changes.

For example, when the weather shows the outdoor relative humidity is higher than 85%, user can set the ventilator to stop running, toprevent the outdoor humidity coming inside. The unit will run according to the setting automatically.

Users can add the devices with Tuya APP to their home screen. For example, they can add all the single room ventilators, exhaust fans or light switches in the APP and control them at their will.

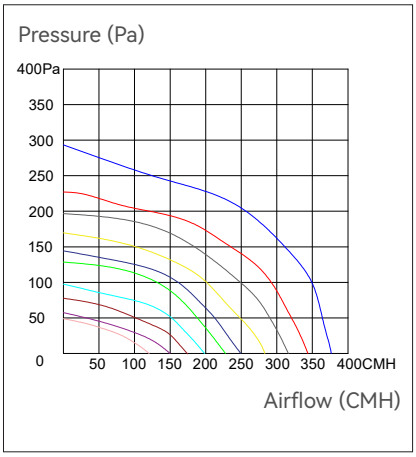
TECHNICAL PARAMETERS

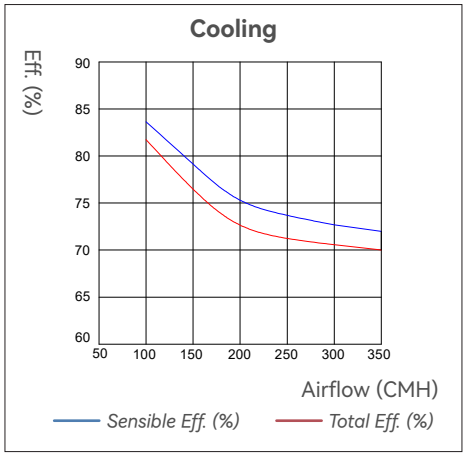
* The parameters are tested accordion to EN308 standards.

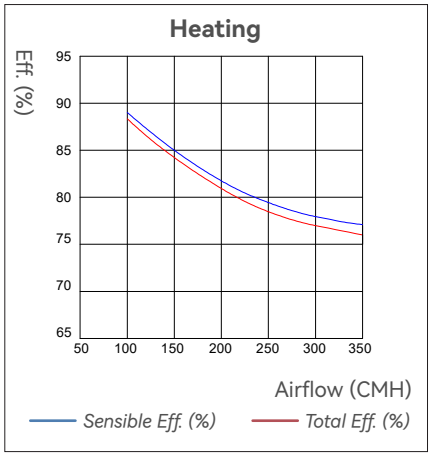
Model		Unit	AC-HTPF35	AV-HTPF60	AV-HTPF90
Rated airflow		CMH	350	620	950
Exhaust airflow (ventilation mode)		CMH	350	620	950
Exhaust airflow (heating/cooling mode)		CMH	350	620	950
External static pressure		Pa	100	100	100
Ventilation mode	Temperature Effi. (heating)	%	77	78	77
	Temperature Effi. (cooling)	%	72	72	73
	Enthalpy Effi. (heating)	%	76	77	70
	Enthalpy Effi. (cooling)	%	70	65	66
	Input power	W	185	451	788
	Input current	A	1.67	3.77	3.93
Cooling/Heating	Norminal cooling capacity	W	3798	6394	8293
	Max cooling capacity	W	4173	6946	8801
	Input power (cooling)	W	847	1243	1487
	Operation current (cooling)	A	4.43	6.55	6.95
	Norminal heating capacity	W	4631	6287	8870
	Max heating capacity	W	4981	6921	9110
	Input power (heating)	W	790	1033	1427
	Operation current (heating)	A	3.91	5.74	6.76
Noise		dB(A)	37 / 42	40/44.6	41/46
Power		/	220V 1Ph 50/60Hz		
Dimension (W*L*H)		mm	600*760*1040	740*1050*1030	740*1090*1170
Weight		Kg	135	165	190
Air Inlet/Outlet Diameter		mm	195	245	245
Air Inlet/Outlet Height		mm	40		
Machine Base Height		mm	40		
Drainage pipe		/	G1/2 21mm		
Refrigerant		/	R32		
Refrigerant charge		g	370	500	660

PERFORMANCE CHART

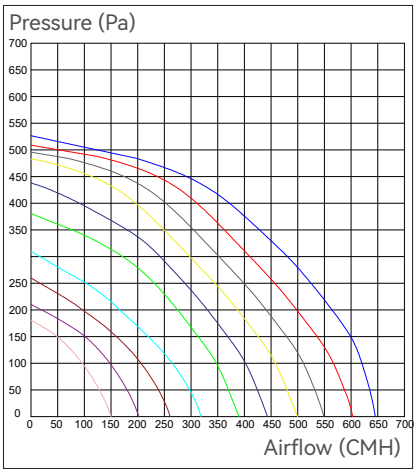
AC-HTPF35

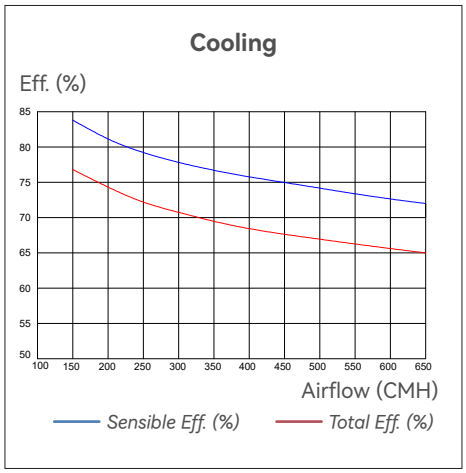


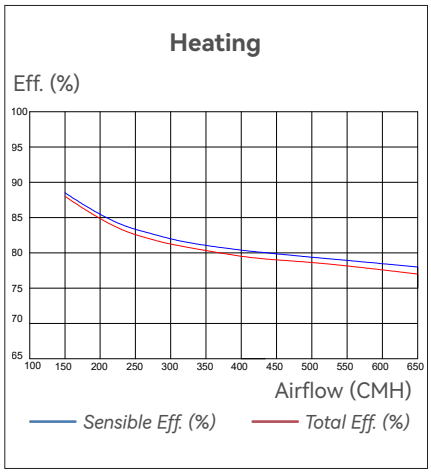




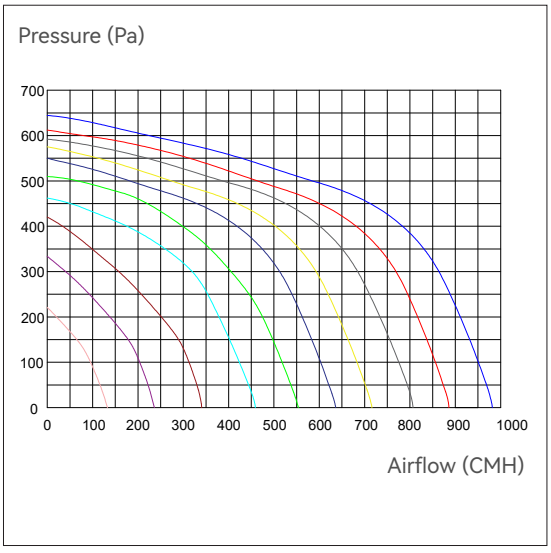
AC-HTPF60

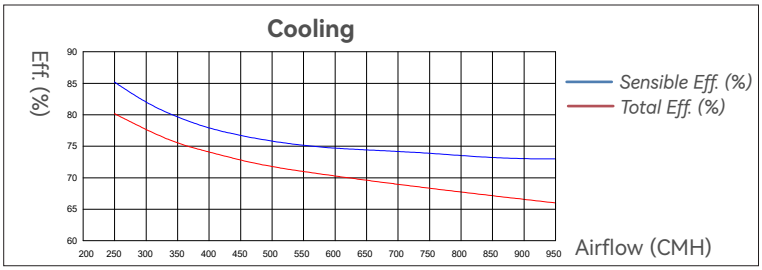


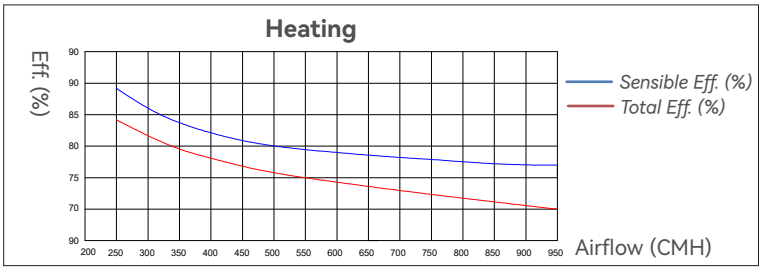




AC-HTPF90





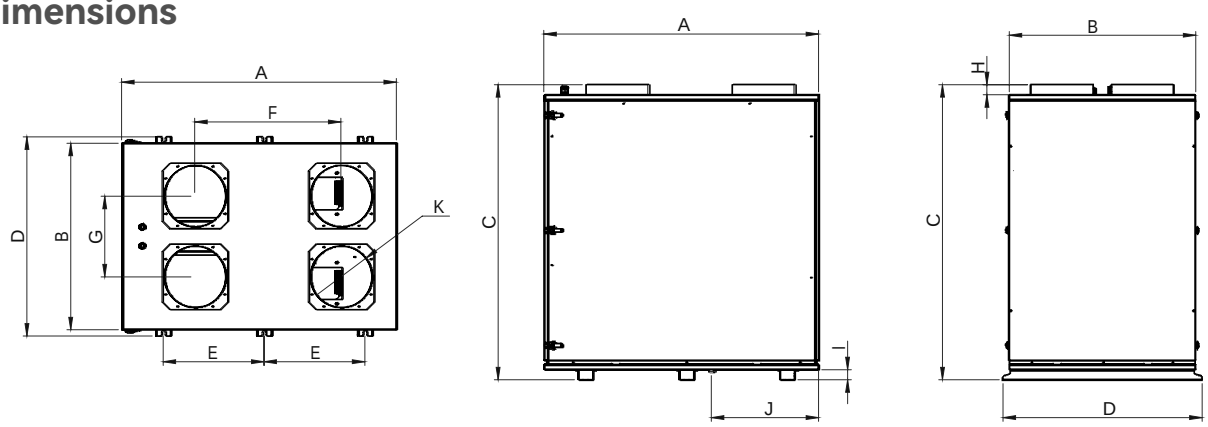


ECO-DESIGN INFORMATION

According to Commission Regulation (EU) 1254/2014.

Model	AV-HTPF35	AV-HTPF60	AV-HTPF90
Energy class-Averag	A	A	A
Specific energy consumption-Average (KWh/m².a)	-40.10	-36.80	-37.47
Specific energy consumption-Cold (KWh/m².a)	-84.13	-80.96	-81.63
Specific energy consumption-Warm (KWh/m².a)	-14.88	-11.50	-12.17
Type of airflow	DF	DF	DF
Declared type	RVU	RVU	RVU
Type of motor	Variable speed drive	Variable speed drive	Variable speed drive
Type of heat recovery system	Recuperative	Recuperative	Recuperative
Thermal efficiency of heat recovery(%)	78%	79%	79%
Maximum flow rate(m3/h)	350	620	950
Electric power input of the fan drive at maximum flow rate(W)	185	451	788
Sound power level dB(A)	37	40	41
Reference flow rate(m3/s)	0.07	0.12	0.18
Reference pressure difference(Pa)	50	50	50
Specific power input(SPI)(W/(m3/h))	0.49	0.71	0.66
Control factor	0.65	0.65	0.65
Type control system	Local demand control	Local demand control	Local demand control
Maximum internal and external leakage rates(%)	< 5% Internal, <5% External		
Visual filter warming	Timer	Timer	Timer
The annual electricity consumption (AEC) (kWh electricity/a)	2.38	3.75	3.48
The annual heating saved-Average(KWh primary energy/a)	46.04	46.18	46.18
The annual heating saved-Cold (KWh primary energy/a)	90.07	90.34	90.34
The annual heating saved-Warm (KWh primary energy/a)	20.82	20.88	20.88

Dimensions



Model	A	B	C	D	E	F	G	H	I	J	K
AV-HTPF35	760	600	1010	650	280	335	370	40	40	305	ø195
AV-HTPF60	1050	740	990	790	400	540	320	40	40	415	ø245
AV-HTPF90	1090	740	1130	790	400	580	320	40	40	425	ø245

OTHER ACCESSORIES

Optional Preheater for Intelligent Defrosting

When the outdoor air is low than -15°C in winter, it's recommended to use the preheater. The intelligent frost protection with preheater guarantees the high efficiency at extremely low outdoor temperatures. Compared to other solutions for frost protection, it means extra savings on the energy bill.

Model	Suitable Model	Rated Airflow (m^3/h)	Heating Power (kw)	Temp. Rise (℃)	Current (A)	Volt (V)	Frequency (Hz)	Size L×W×H (mm)	Connected Air Duct Diameter (mm)
AS-EC65	AC-HTPF35	350	800W/1600W	6.5℃/13℃	3.6A/7.2A	220	50	350*270*280	200
AS-EC100	AV-HTPF60	620	1200W/2400W	5.5℃/11℃	5.45A/10.9A	220	50	400*324*324	250
AS-EC100	AV-HTPF90	900	1200W/2400W	5℃/10℃	5.45A/10.9A	220	50	400*324*324	250

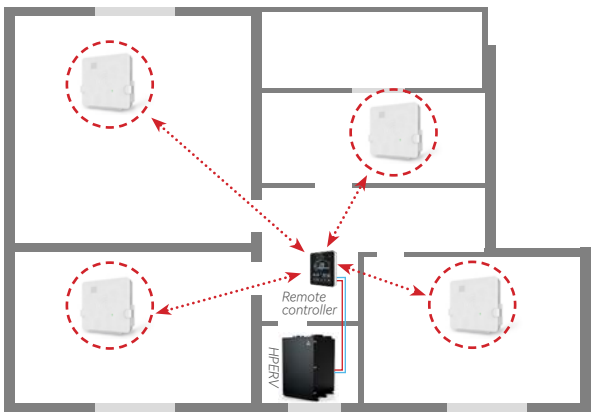
Optional IAQ Module

The wireless IAQ module can communicate with the touch screen control panel of HPERV with zigbee signal sensing indoor air quality and transmitting data to the control system, which will subsequently control the ERV to maintain good indoor air quality.

Powered By zigbee

Features:

1. Free installation, no wiring, no code matching.
2. Sensing the air quality of the user's living space in real-time.
3. An ERV maximum connected with 15 IAQ sensors.
4. Zigbee networking, long transmission distance, more stable data.
5. Micro USB 5V DC power supply, mobile phone charger can supply power.
6. Linked with APP to achieve more intelligent control.



Optional DP Technology Disinfection Filter

DP Technology *Disinfection & Sterilization*

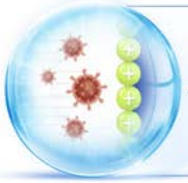
World Health Organization | Food and Agriculture Organization of the United Nations

Protecting Health

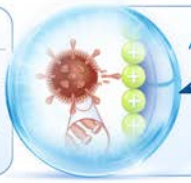
DP TECHNOLOGY USES POSITIVE POLARITY TO CAPTURE, INACTIVATE, AND ERADICATE VIRUSES, BACTERIA, MOLDS, FUNGI, AND POLLENS.

DP Technology is a plant-based material that has been approved safe by the World Health Organization and the Food and Agriculture Organization of the United Nations.

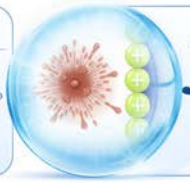
Patented sterilization technology
In the United States



1. Capture
The negatively-charged virus, microorganism, and pollen is attracted via DP Technology 's positive polarity and captured upon contact.

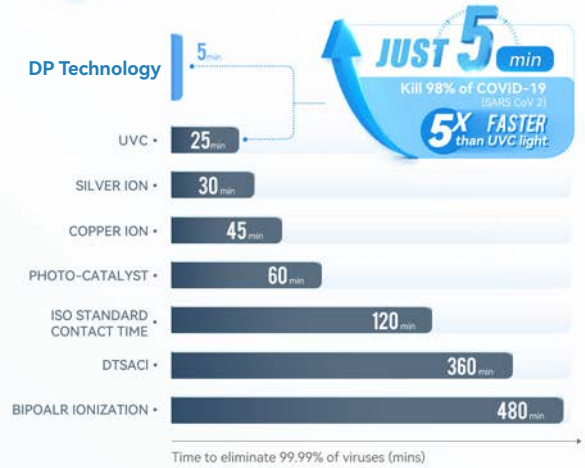


2. Inactivate
The negatively-charged virus,microorganism, and pollen is inactivated as DP Technology tears away the envelope and breaks the protein membrane.



3. Eliminate
Consequently,the protein envelope and protein membranes are then disintegrated, eradicating the virus,microorganism, and pollen.

Research has shown that
DP Technology material eliminates viruses in as little as 5 minutes



Air purification system with DP Technology filter protection
- Superior to other similar products -

Filtration system / Item	DP Technology	HEPA	UVC	ISO IONIZATION
Captures Viruses Microorganisms And Pollens*	√	√	X	X
Eradicates Viruses Microorganisms And Pollens*	√	X	√ Takes longer time, less effective in fast airflow environments	X A study showed limited reductions.
Investment costs	LOW	LOW	LOW	HIGH
Maintenance costs	LOW	LOW	MIDDLE UVC lights have a short service life and cause system components to age more quickly.	HIGH High voltage system need to maintain every two years with high costs
Safety	HIGH WHO and UN FAO-approved food additive.	MIDDLE Residual biofouling of filters may lead to second ary contamination	HIGH Direct exposure easily causes cancer and eye damage, as well as accelerated filter degradation.	LOW May emit ozone, which is harmful to the lungs and increas es harmful VOCs.

* Based on third-party studies, commercial installations, and internal testing.

Virus Aerosol Removal
Rapid Sterilization & Disinfection

Sterilization & Disinfection
Coronavirus
Bacterial virus
H1N1 virus

UP TO 99.99% kill rate for multiple viruses

Eliminating Bacterial Rate

99.99% H1N1 virus	99.99% E. coli	99.8% Human Coronavirus 229E	99.99% Pseudomonas aeruginosa
99.99% Coxsackievirus B6	99.99% H3N2 virus	99.6% COVID-19	99.99% Candida albicans
99.99% Pseudomonas aeruginosa	99.99% Aspergillus Eliminating	99.99% Staphylococcus albicans	99.99% Staphylococcus aureus

* The above data were provided by research institutes or laboratories around the world, including Harvard Medical School, Tampere University, Academy of Sciences of the Czech Republic, Beijing Gyeonggi Analytical and Testing Center, Fourth Affiliated Hospital Laboratory of Nanchang University, City University of Hong Kong, etc.

Official Certification Authoritative Testing

intertek | ÚOCHB IOCB PRAGUE

APPLICATIONS

It offers air volume of 300 cubic meters per hour, which can meet the ventilation needs of 80-150 m^2 residential houses, villa, hotel, office etc.

If you are fed up with limited space in the house by adding traditional ventilation unit, dehumidifier, air purifier, split type heat pump etc, let's try one DC inverter fresh air heat pump system. It is available to install in the attic, basement, cabinet in the kitchen etc which take up limited space.

How to select the right model for your house?

1. Calculation of airflow according to air exchange rate.

$$L = V\ prem. \times Ach\ (m^3/h),$$

where **V prem**. – premise volume (m^3]),

Ach – minimum air exchange per hour, refer air exchange table.

Premise		Air exchange rate
Domestic premises	Living room of apartments or hostel residential premises	3 m^3/h for 1 m^2 in residential premises
	Kitchen in flat or hostel	6-8
	Bathroom	7-9
	Shower cabin	7-9
	WC	8-10
	Home laundry room	7
	Cloakroom	1.5
	Storeroom	1
	Garage	4-8
	Cellar	4-6

2. Calculation of airflow according to number of inhabitants.

$$L = L1 \times NL\ (m^3/hour),$$

where **L1** – rated value for air volume per one person, m^3/h*person,

NL – number of inhabitants in the premises.

20-25 m^3/h per one person at low physical activity
45 m^3 /h per one person at light physical activity
60 m^3 /h per one person at heavy physical activity

3. Choose the bigger result as the required airflow. Then choose the model with the required airflow accordingly.

The heat pump energy recovery ventilator should be used priority to supply fresh air then to do the air conditioning.