

*Heat Recovery
Ventilator unit with local
passive recovery for
indoor installation*

HRV: Heat Recovery Ventilation Unit

HRV-3 D200 ÷ D2000



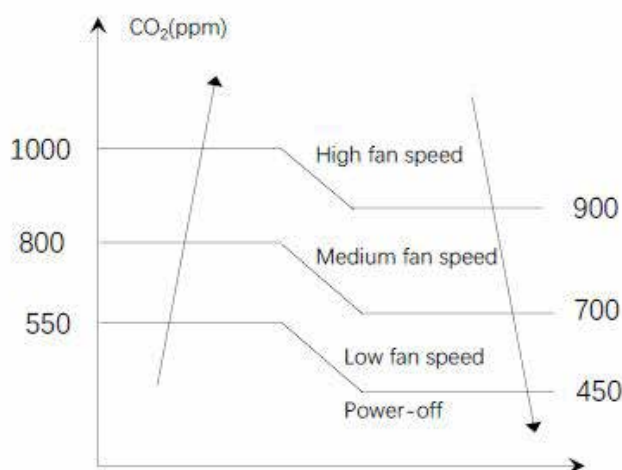
TECHNICAL BULLETIN



SIZE	D200	D300	D400	D500	D800	D1000	D1500	D2000
Airflow (m ³ /h)	200	300	400	500	800	1000	1500	2000

HRV (Heat Recovery Ventilator) employs advanced technology; the heat exchange core is formed by special paper that is processed with chemical treatment and thus creates optimum results in temperature, humidity and cooling recovery.

- Wide capacity range up to 2000 m³/h
- Wide indoor and outdoor ambient operation range from -7°C to +43°C
- High performance built-in DC fan motors ensure reliable performance complying with EU and ErP regulations
- Several operation modes; Auto, Bypass, Heat recovery, positive and negative pressure mode
- Slim and compact design of units, making the installation more convenient
- Free cooling mode (Works when outdoor ambient temperature is below indoor ambient temperature)
- New heat exchange element with high efficiency paper
- Standard Built-in dust filter (G4); F7 filter for air supply available as accessory
- CO₂ sensor included, which automatically control fan speed according to different CO₂ concentration as reported in the below chart



- Drain piping needed only for sizes D1500 and D2000, thanks to sensible & latent heat transfer at heat exchanger

General technical data

Model		HRV-3 D200	HRV-3 D300	HRV-3 D400	HRV-3 D500	
Power supply	Ph-V-Hz	1-phase, 220-240V~50Hz				
Input power (H/M/L)(standard G4)	W	70/45/25	100/55/35	110/70/40	150/95/50	
Input power (H/M/L)(F7)	W	80/40/25	100/55/35	110/70/40	150/95/50	
Nominal Temperature Efficiency (standard G4) (H/M/L)	%	79.5/81.1/83.5	75.5/78.8/82.5	77.7/79.0/81.3	80.6/82.2/85.5	
Nominal Enthalpy Efficiency (standard G4) (H/M/L)	%	75.0/77.5/79.6	72.1/75.0/79.3	73.5/75.3/78.0	74.0/76.6/80.5	
Nominal Temperature Efficiency (F7) (H/M/L)	%	81.8/85.4/87.5	80.4/81.8/83.5	79.2/81.1/83.3	77.2/79.4/82.5	
Nominal Enthalpy Efficiency (F7) (H/M/L)	%	81.2/83.1/85.0	79.4/81.2/84.0	79.6/81.8/84.2	72.3/75.6/78.6	
Current	A	0.64	0.84	0.97	1.2	
Fresh air external static pressure(H speed+ standard G4)	Pa	100	90	100	90	
Fresh air external static pressure (H speed +F7)	Pa	75	70	70	65	
Discharge air external static pressure (H speed)	Pa	100	110	110	110	
Nominal air flow	m ³ /h	200	300	400	500	
Sound Pressure (H/M/L)	dB(A)	33/29.5/25.5	36.5/33.5/30	36.5/32/28	36/30.5/24.5	
Sound Power	dB(A)	45	48	48	50	
Net dimension1 (L×W×H)	mm	1195×784×272	1195×898×272	1276×1189×272	1311×1090×390	
Packing size (L×W×H)	mm	1275×880×420	1275×994×420	1360×1284×420	1390×1244×540	
Net/Gross weight	kg	51/68	57/74	72/92	62/85	
Power supply wire	Wire qty.	3	3	3	3	
	Code wire cross- section	mm ²	2.5	2.5	2.5	
Controller		Wired controller, Centralized controller, BMS gateway				
Fresh air	Fresh Air Diameter	mm	Φ144	Φ144	Φ198	Φ244
	Air drop	Pa	52	179	218	357

Notes:

1. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual.
2. there are 3-speed adjustable air-volume (Hi, Med, Low).
3. The parameters in the above table are measured at high speed.
4. Sound level is measured at 1.5m below the unit.

General technical data

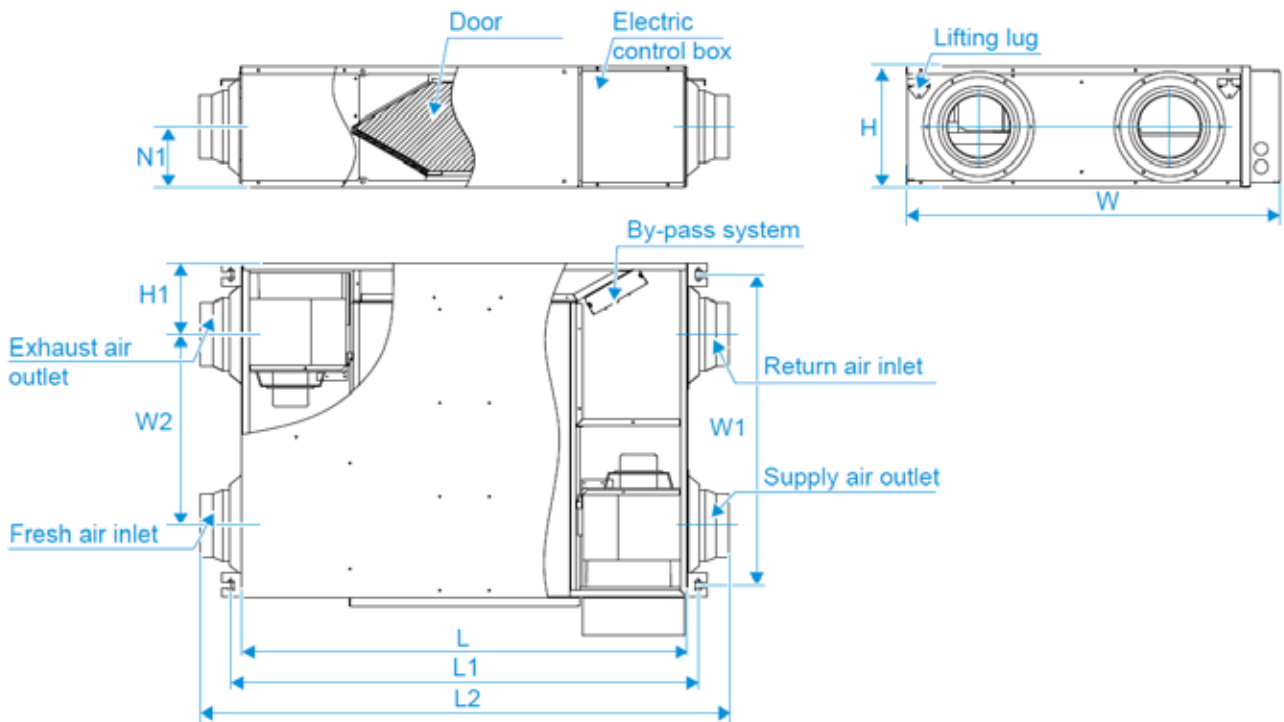
Model		HRV-3 D800	HRV-3 D1000	HRV-3 D1500	HRV-3 D2000	
Power supply	Ph-V-Hz	1-phase, 220-240V~50Hz				
Input power (H/M/L)(standard G4)	W	320/170/80	380/210/100	680/320/200	950/500/230	
Input power (H/M/L)(F7)	W	320/170/80	420/230/100	680/320/200	950/500/230	
Nominal Temperature Efficiency (standard G4) (H/M/L)	%	78.7/82.1/86.8	82.8/84.0/87.4	75.5/78.6/80.2	77.2/79.5/83.4	
Nominal Enthalpy Efficiency (standard G4) (H/M/L)	%	72.3/75.4/79.0	76.0/76.0/80.1	69.4/71.2/74.8	74.7/77.0/80.6	
Nominal Temperature Efficiency (F7) (H/M/L)	%	74.9/77.1/80.8	75.4/78.0/81.4	83.8/84.6/86.2	78.8/80.5/83.4	
Nominal Enthalpy Efficiency (F7) (H/M/L)	%	71.1/74.4/78.0	67.3/71.1/75.0	74.6/76.2/78.8	71.1/75.0/79.6	
Current	A	2.4	2.9	3.8	5.7	
Fresh air external static pressure(H speed+ standard G4)	Pa	140	160	180	200	
Fresh air external static pressure (H speed +F7)	Pa	100	110	150	160	
Discharge air external static pressure (H speed)	Pa	155	145	180	180	
Nominal air flow	m ³ /h	800	1000	1500	2000	
Sound Pressure (H/M/L)	dB(A)	42/39/34	44/39/33.5	51.5/46.5/41.5	53/48.5/42.5	
Sound Power	dB(A)	55	54	69	70	
Net dimension1 (L×W×H)	mm	1311×1270×390	1311×1510×390	1740×1344×615	1811×1545×685	
Packing size (L×W×H)	mm	1390×1424×540	1390×1670×540	1830×1520×770	1900×1720×845	
Net/Gross weight	kg	77/101	85/112	168/200	195/235	
Power supply wire	Wire qty.	3	3	3	3	
	Code wire cross- section	mm ²	2.5	2.5	2.5	
Controller		Wired controller, Centralized controller, BMS gateway				
Fresh air	Fresh Air Diameter	mm	Φ244	Φ244	346×326	346×326
	Air drop	Pa	357	384	253	322

Notes:

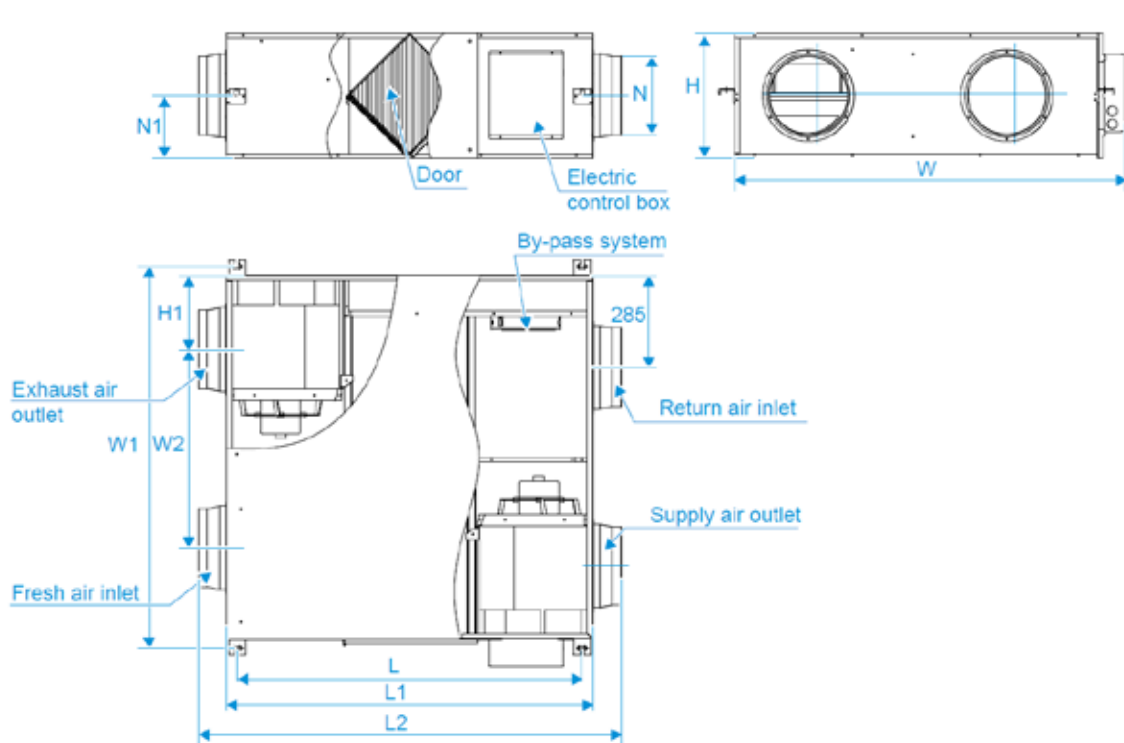
1. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual.
2. There are 3-speed adjustable air-volume (Hi, Med, Low).
3. The parameters in the above table are measured at high speed.
4. Sound level is measured at 1.5m below the unit.

Dimensions

Size D200 ÷ 400

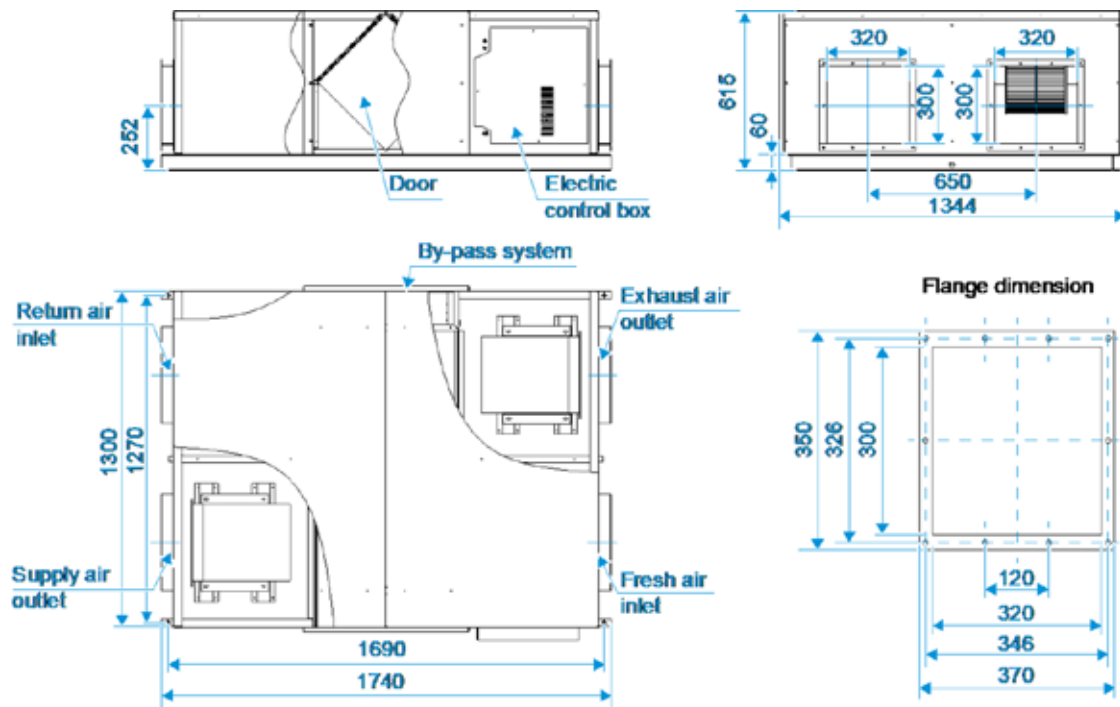


Size D500 ÷ 1000

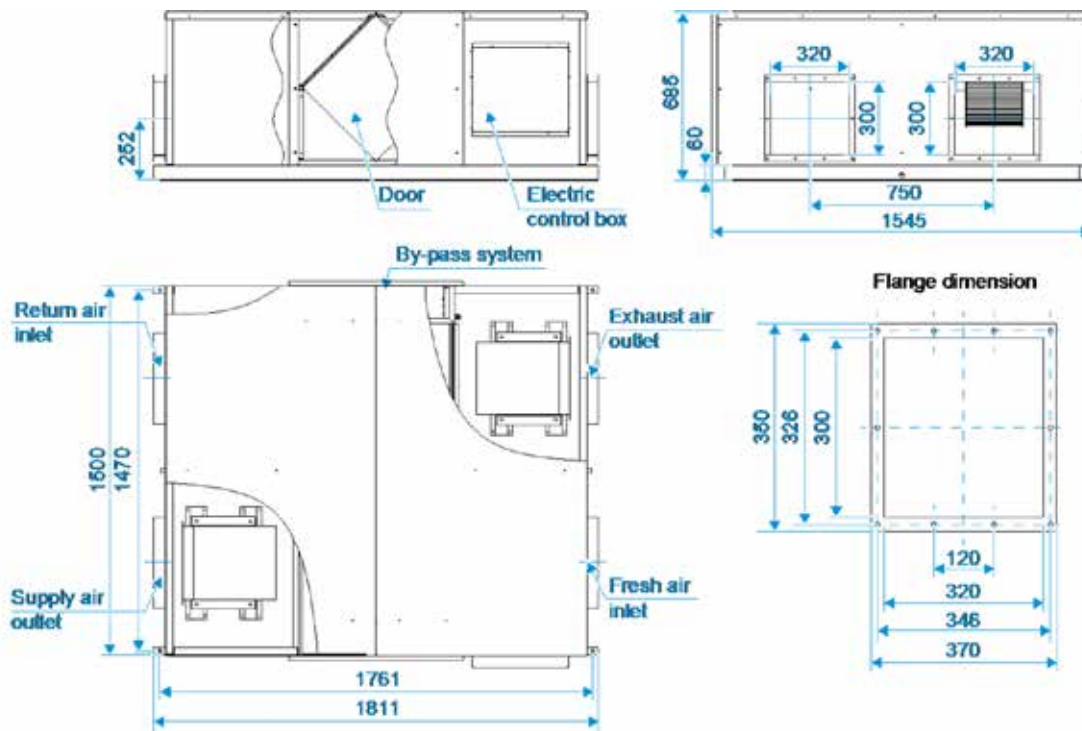


Model	L	L1	L2	W	W1	W2	H	H1	N	N1
HRV-3 D200	1007	1054	1195	784	588	356	272	142	Φ144	136
HRV-3 D300	1007	1054	1195	898	701	431	272	163	Φ144	136
HRV-3 D400	1081	1129	1276	1189	991	595	272	202	Φ198	136
HRV-3 D500	1071	1138	1311	1090	1005	465	390	227	Φ244	195
HRV-3 D800	1071	1138	1311	1270	1185	616	390	229	Φ244	195
HRV-3 D1000	1071	1138	1311	1510	1431	764	390	230	Φ244	195

Size D1500



Size D2000



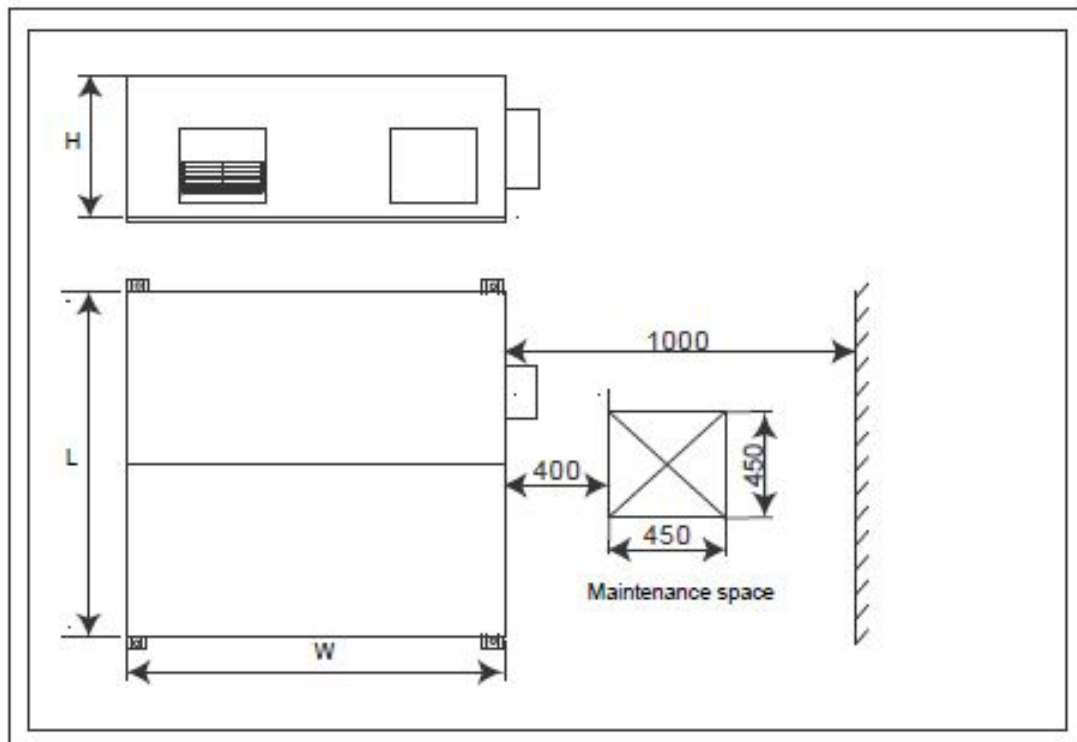
Unit Placement

Placement Considerations

Unit placement should take account of the following considerations:

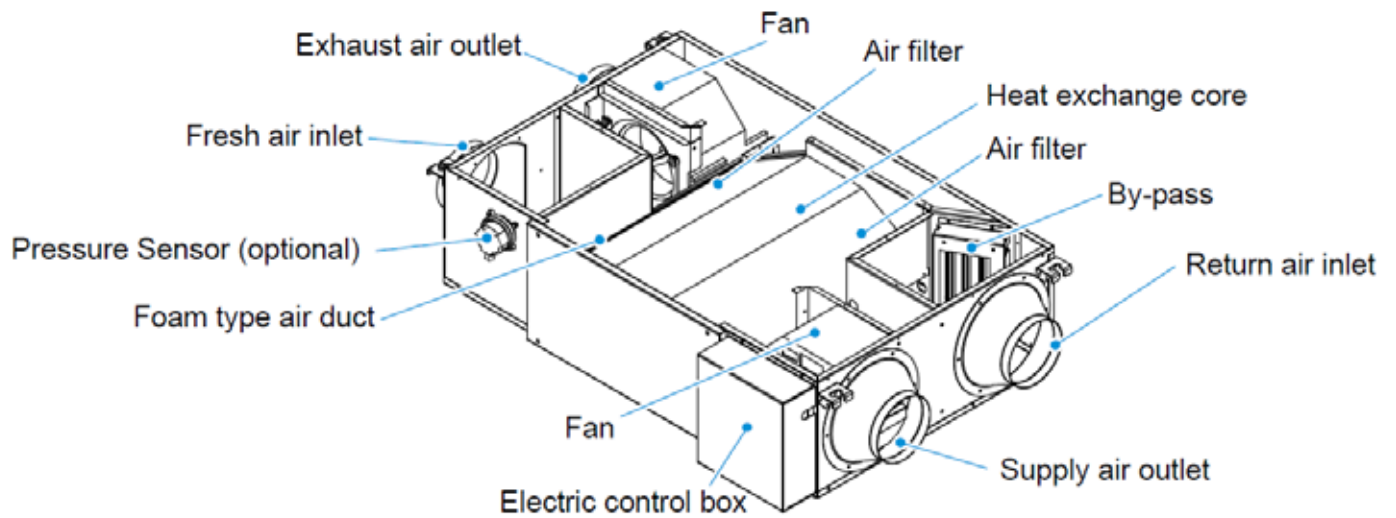
- Units should not be installed in the following locations:
 - A place filled with mineral oil, fumes or mist, like a kitchen.
 - A place where there are corrosive gases, such as acid or alkaline gases.
 - A place exposed to combustible gases and using volatile combustible gases such as diluent or gasoline.
 - A place where there is equipment emitting electromagnetic radiation.
 - A place where there is a high salt content in the air like a coast.
 - Do not use the air conditioner in an environment where an explosion may occur.
 - Places like in vehicles or cabin rooms.
 - Factories with major voltage fluctuations in the power supplies.
 - Other special environmental conditions.
- Units should be installed in positions where:
 - Ensure that the airflow in and out of the IDU is reasonably organized to form an air circulation in the room.
 - Ensure IDU maintenance space.
 - The nearer the drainage pipe and copper pipe are to the ODU, the lower the pipe cost is.
 - Prevent the air conditioner from blowing directly to the human body.
 - The closer the wiring to the power cabinet, the lower the wiring cost is.
 - Keep the air-conditioning return air away from the setting sun of the room.
 - Be careful not to interfere with the light tank, fire pipe, gas pipe and other facilities.
 - The IDU should not be lifted in the places like load-bearing beam and columns that affect the structural safety of the house.
 - The wired controller and the IDU should be in the same installation space; otherwise, the sampling point setting of the wired controller need to be changed.

Space Requirements (unit: mm)

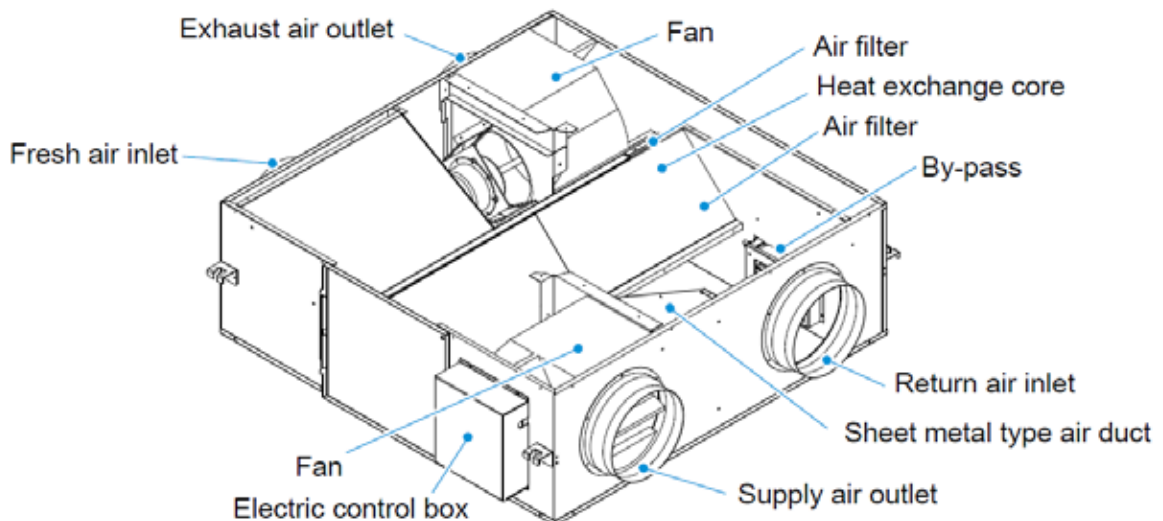


Main parts of the unit

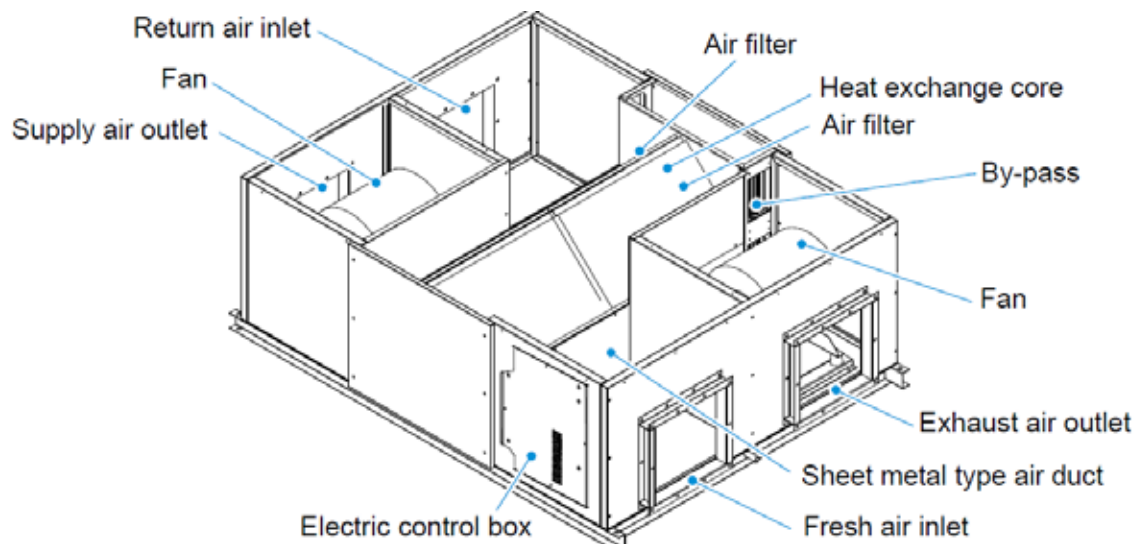
Size D200 ÷ 400



Size D500 ÷ 1000



Size D1500 ÷ 2000



Wiring diagram

Code and description	
XT1-2	Emergency shut down
T1	Inlet Air Temp. Sensor
T4	Outlet Air Temp. Sensor
ALARM	Alarm Output
FM	DC Fan motor.
ON/OFF	Remote ON/OFF
Y/G	Yellow/Green
XP/XS	Connector

Error codes and definitions	
A01	Emergency shut down
A51	ODU error
C11	IDU address repetition
C21	Communication error between IDU and ODU
C41	Communication error between main control board and fan module
C51	Communication error between IDU and wired controller
C79	Communication error between main control board and switch module
E21	T4 sensor error
E24	T1 sensor error
P52	PFC module voltage low protection
J**	Fan module/Fan error
U11	IDU model code unset
U12	IDU capacity code unset
U38	No address code detected

Contacts	
Dry contact (input)	Force to exhaust air mode (on switch module)
Dry contact (output)	Remote ON/OFF
	Signal for ventilation fan (on expansion board 1)
	Alarm (on Switch module)
	Signal for inlet air Pre-heat

Caution:

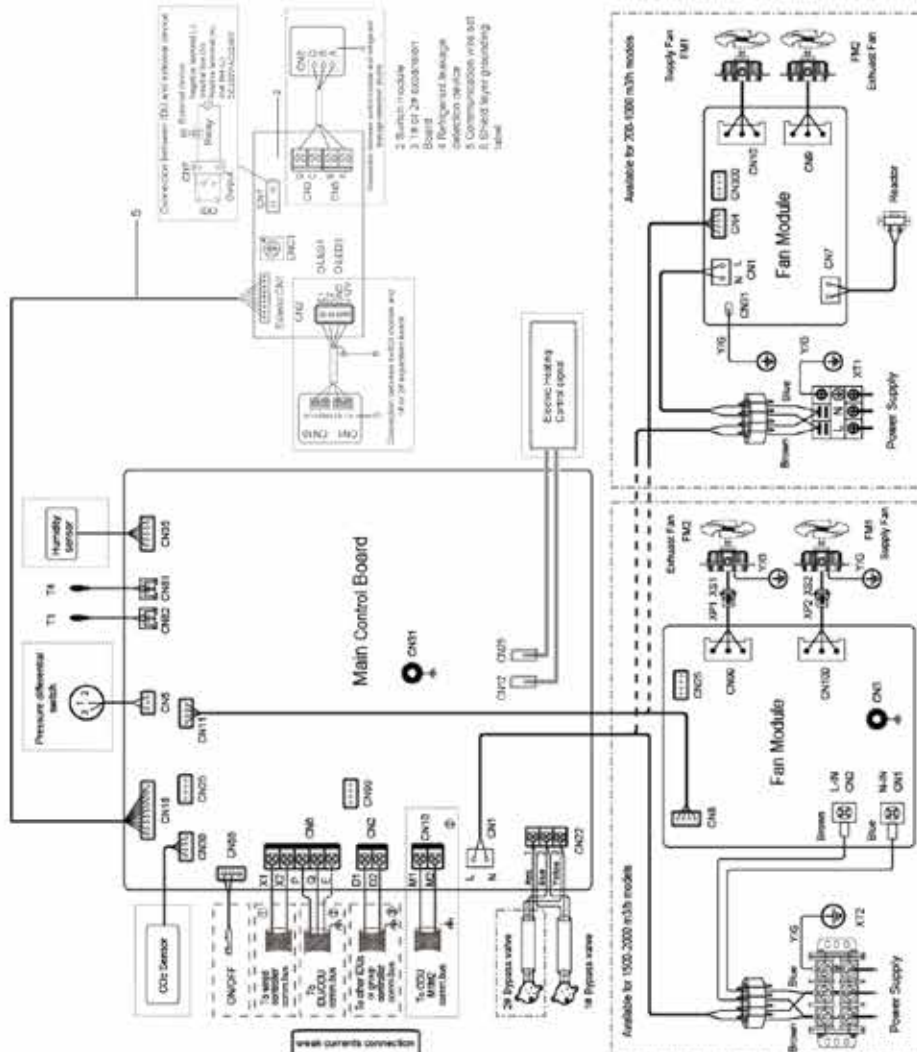
- Power cords should be effectively fixed
- Confirm the reliability of wiring connection before power on!
- The wiring diagram shown is for reference only!

Warning:

All power supply circuits must be cut off before approaching the terminal blocks.

Notes:

- ① X1, X2 communication ports can be connected to the wired controller or WiFi module.
- ② P, Q and M1, M2 communication ports both are used for indoor and outdoor communication, and only one of them can be used at the same time. Meanwhile, be sure to connect the same communication ports (P, Q or M1, M2) or the main board will be damaged.
- ③ D1, D2 communication ports are used for group control communication or can be connected to the central controller.



Caution

- All installation , servicing and maintenance must be carried out by competent and suitably qualified, certified and accredited professionals and in accordance with all applicable legislation.
- Units should be grounded in accordance with all applicable legislation. Metal and other conductive components should be insulated in accordance with all applicable legislation.
- Power supply wiring should be securely fastened at the power supply terminals loose power supply wiring would represent a fire risk.
- After installation, servicing or maintenance, the electric control box cover should be closed. Failing to close the servicing or maintenance, the electric control box cover should be closed. Failing to close the electric control box cover risks fire or electric shock.
- D1D2 communication ports are used for group control communication. When connecting the group controller, the D1D2 port of the indoor units that are to be group controlled must be connected in daisy chain, and the group controller must be connected to the X1X2 port of one of the indoor units in the group control, and set to group control mode. In addition, D1D2 communication ports can also be connected to the central controller.

Electrical Characteristics

MODEL	Power supply					Indoor fan motors		
	Hz	Volts	Min. volts	Max. volts	MCA	MFA	Rated motor output (kW)	FLA
HRV-3 D200	50	220-240	198	264	1.3	10	100	0.64
HRV-3 D300	50	220-240	198	264	1.7	10	100	0.84
HRV-3 D400	50	220-240	198	264	2.0	10	100	0.97
HRV-3 D500	50	220-240	198	264	2.5	16	170	1.2
HRV-3 D800	50	220-240	198	264	5.0	16	170	2.4
HRV-3 D1000	50	220-240	198	264	6.0	16	170	2.9
HRV-3 D1500	50	220-240	198	264	8.0	30	750	3.8
HRV-3 D2000	50	220-240	198	264	10.0	30	750	5.7

Notes:

MCA: Minimum Circuit Amps (A)

MFA: Maximum Fuse Amps (A)

FLA: Full Load Amps. (A), which is the full load current of the indoor fan motor (reliable operation at the fastest speed setting).

Voltage range: Units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.

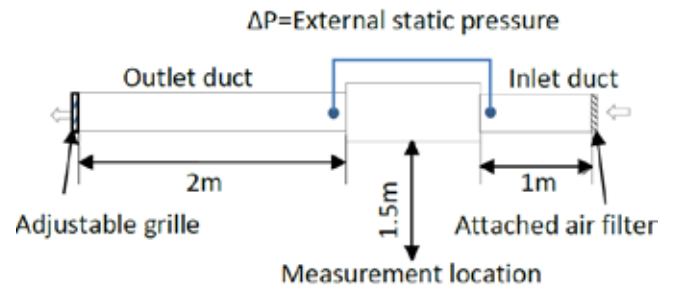
Maximum allowable voltage variation between phases is 2%.

Selection wire size based on the value of MCA.

MFA is used to select the circuit breaker and the ground fault circuit interrupter (earth circuit breaker).

Overall

MODEL	Sound pressure levels dB		
	H	M	L
HRV-3 D200	33	29.5	25.5
HRV-3 D300	36.5	33.5	30
HRV-3 D400	36.5	32	28
HRV-3 D500	36	30.5	24.5
HRV-3 D800	42	39	34
HRV-3 D1000	44	39	33.5
HRV-3 D1500	51.5	46.5	41.5
HRV-3 D2000	53	48.5	42.5



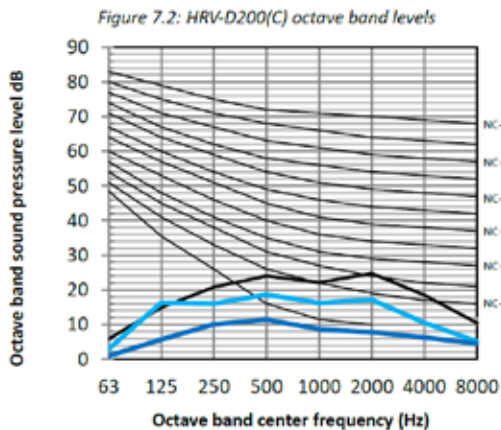
Connected to a top-discharge outdoor unit and measured in anechoic room. Adjusting the outlet grille to make the ΔP is equal to the rated static pressure, the data was recorder at 1.5 m below thw unit.

Notes:

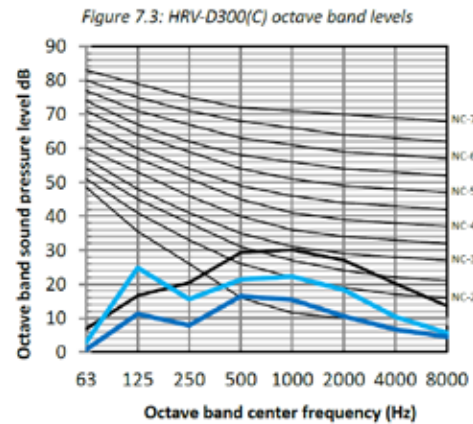
1. Sound pressure levels are measured 1.4 m below the unit in a semi-anechoic chamber at 0 Pa. During in-situ operation, sound pressure levels may be higher as a result of ambient noise.

Octave Band Levels

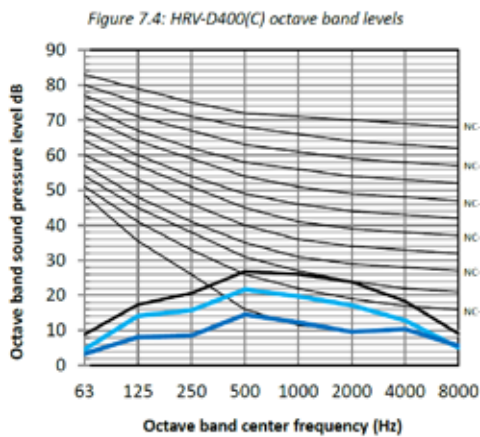
HRV-3 D200



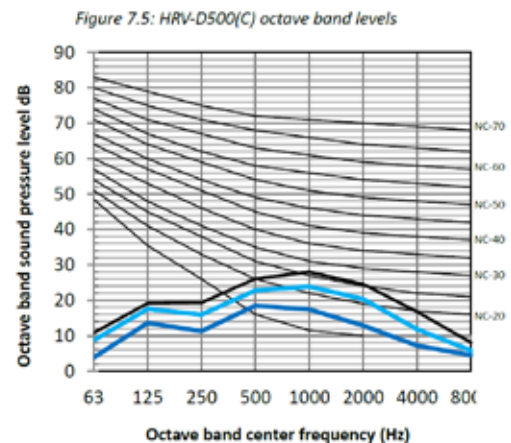
HRV-3 D300



HRV-3 D400

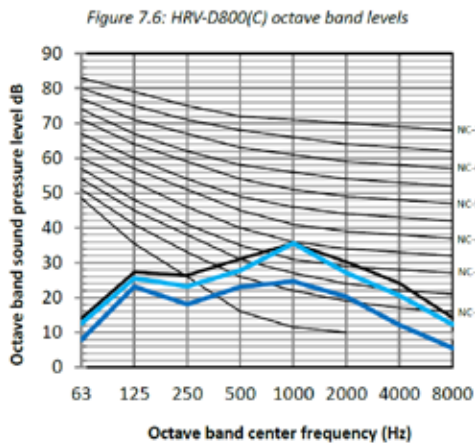


HRV-3 D500

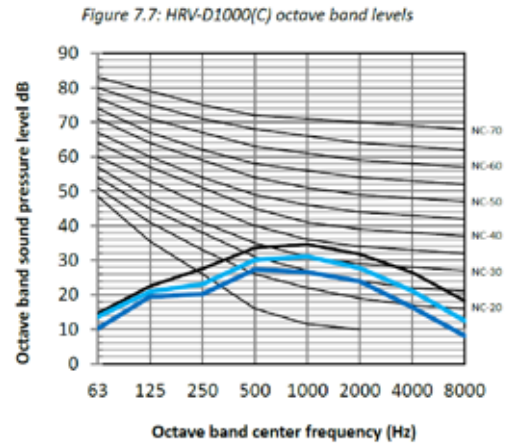


Sound levels

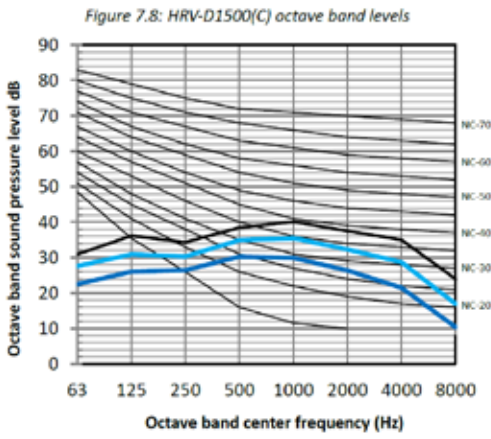
HRV-3 D800



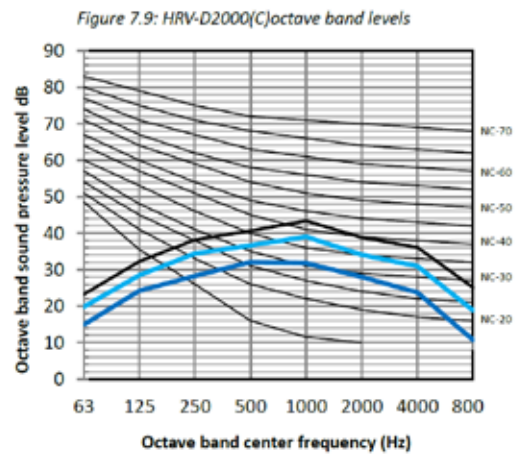
HRV-3 D1000



HRV-3 D1500



HRV-3 D2000

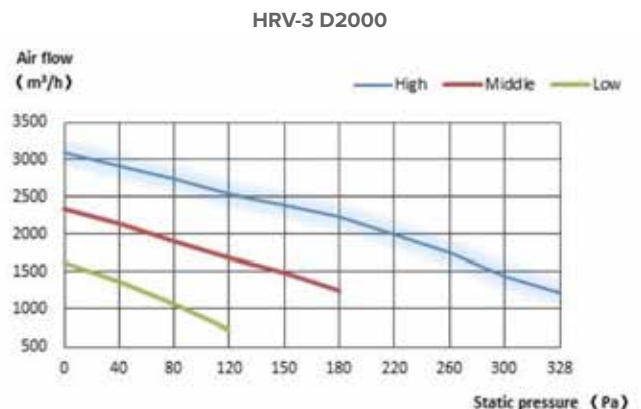
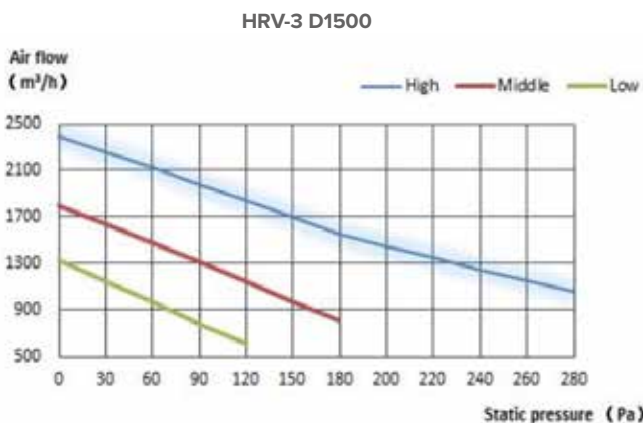
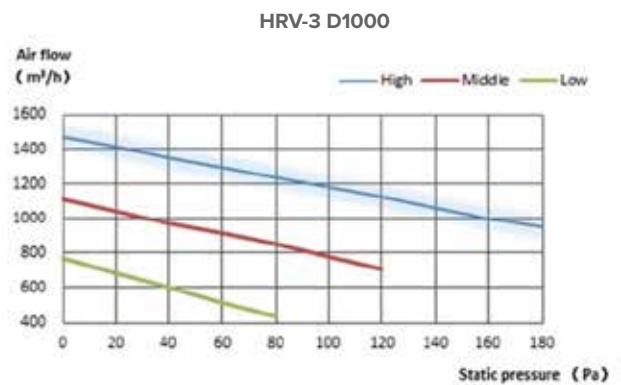
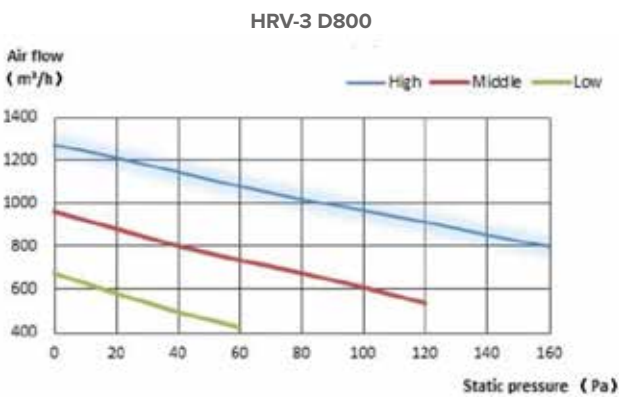
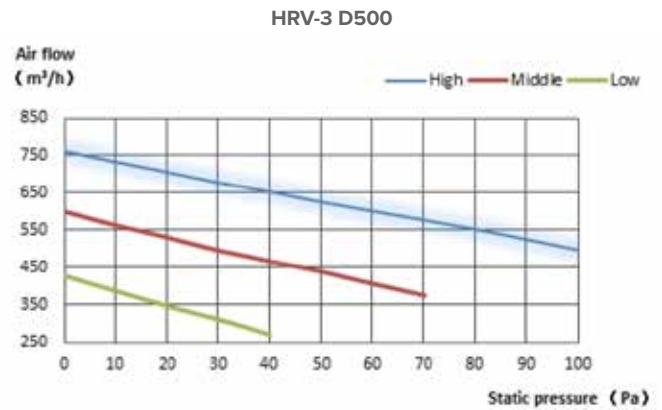
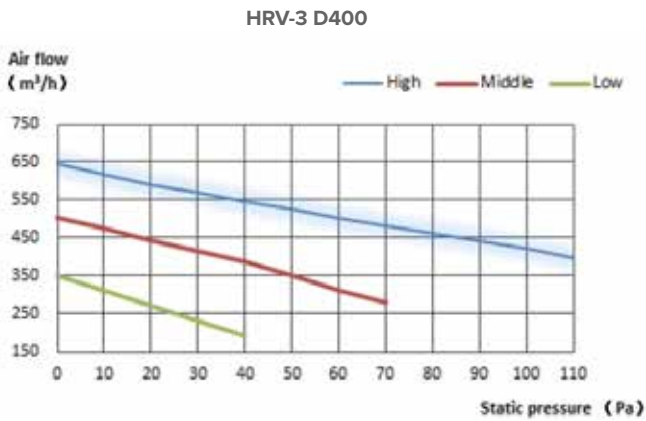
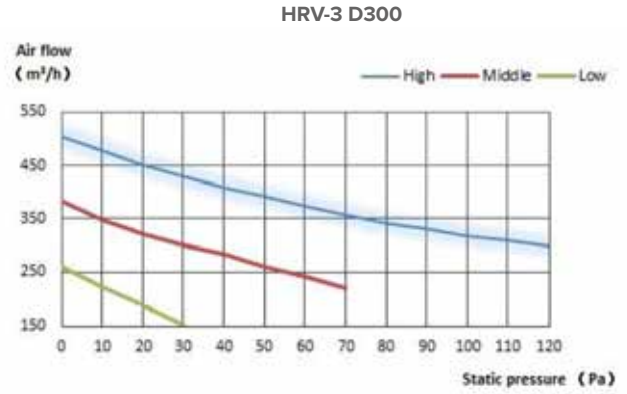


How to Read the Diagram

The horizontal axis is the Static Pressure (Pa) while the vertical axis represents the Air Flow (m³/h). The characteristic curve for the "H" "M" and "L" fan speed control.

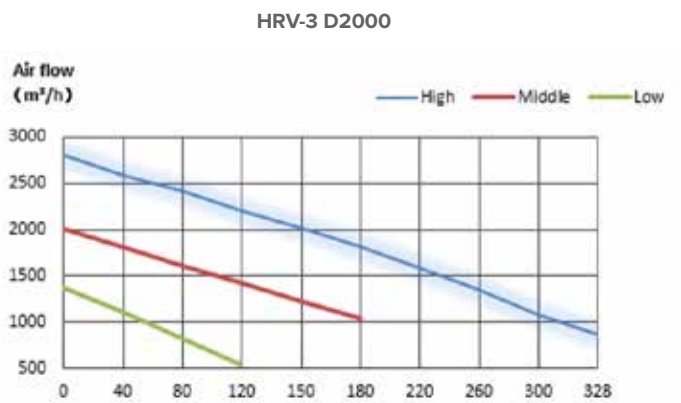
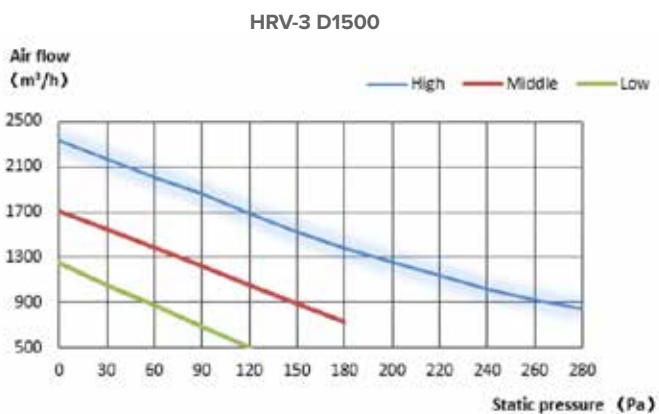
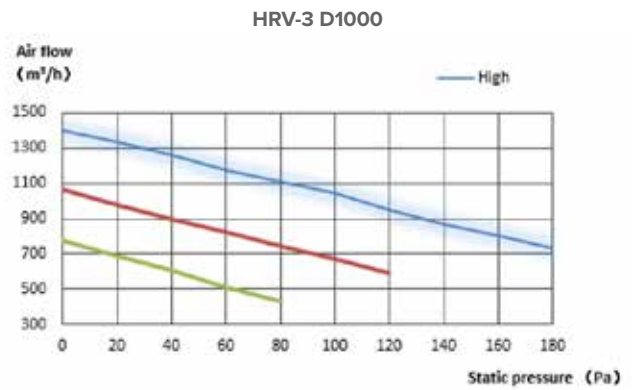
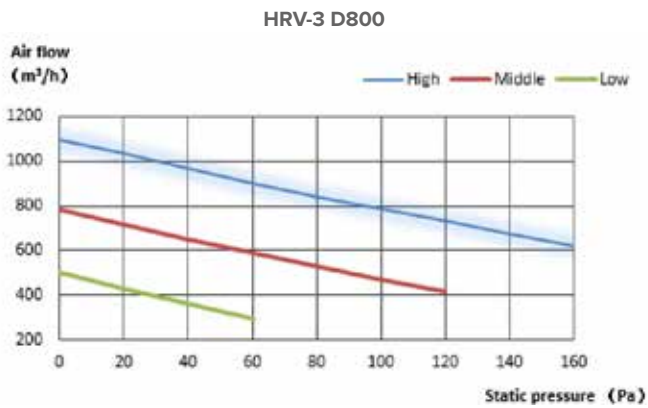
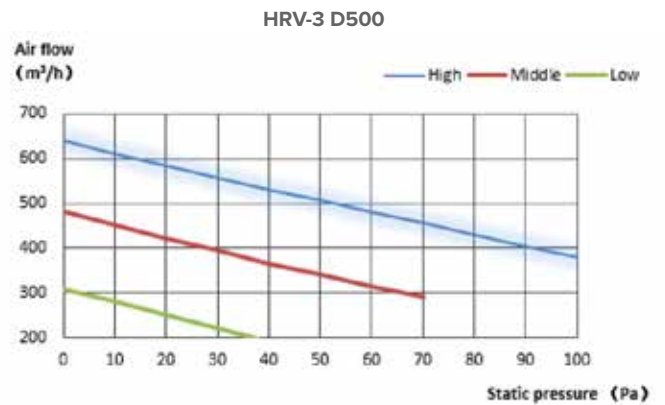
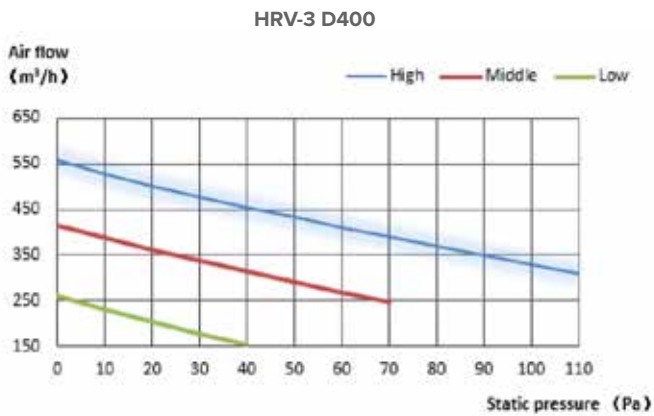
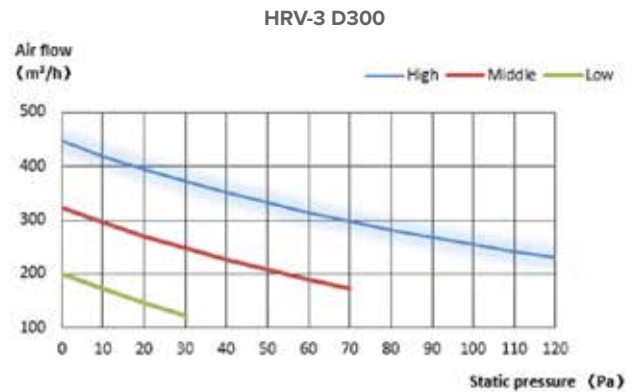
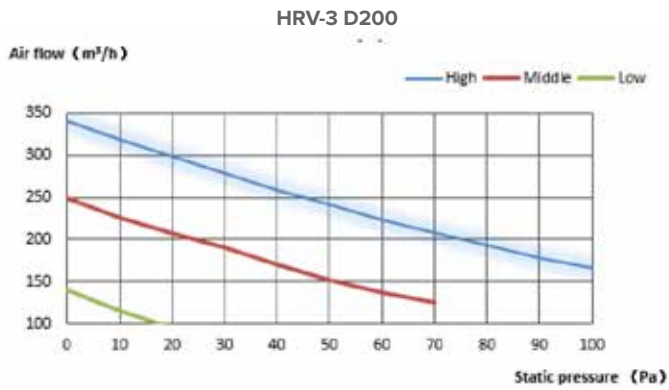
Fan Performance Diagram

All the follow fan performance diagrams are obtained under the condition of G4 filter.



Fan Performance

All the follow fan performance diagrams are obtained under the condition of F7 filter.



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