TABLE OF CONTENTS

VAM-FA/FB

1 Features

- Energy saving ventilation by recovery of indoor unit heat/cold
- Ideal solution for shops, restaurants or offices requiring maximum floor space for furniture, decorations and fittings
- Free cooling when outdoor temperature is below indoor temperature (eg. during night time)
- Low energy consumption thanks to DC inverter fans
- Prevent energy losses from over-ventilation while maintaining indoor air quality with CO2 sensor (optional)
- Can be used as stand alone unit or integrated in the VRV system
- Wide range of units: air flow rate from 150 up to 2,000 m³/h
- High efficiency filters available in F6 ,F7, F8 grades
- Specially developed heat exchange element with High Efficiency Paper (HEP)
- No drain piping needed
- Can operate in over- and under pressure

2 Specifications

2-1 Technical Specifications					VAM150FA	VAM250FA	VAM350FB	VAM500FB	VAM650FB	VAM800FB	VAM1000FB	VAM1500FB	VAM2000FB
Power input - 50Hz	Heat exchange mode	Nom.	Ultra high	kW	0.116	0.141	0.132	0.178	0.196	0.373	0.375	0.828	0.852
			High	kW	0.100	0.112	0.107	0.135	0.129	0.270	0.275	0.668	0.695
			Low	kW	0.056	0.062	0.042	0.076	0.073	0.102	0.168	0.313	0.291
	Bypass mode	Nom.	Ultra high	kW	0.116	0.141	0.132	0.178	0.196	0.373	0.375	0.828	0.852
			High	kW	0.100	0.112	0.107	0.135	0.129	0.270	0.275	0.668	0.695
			Low	kW	0.056	0.062	0.042	0.076	0.073	0.102	0.168	0.313	0.291
Power input - 60Hz	Heat exchange mode	Nom.	Ultra high	kW	0.117	0.138	0.132	0.178	0.196	0.373	0.375	0.828	0.852
			High	kW	0.099	0.119	0.107	0.135	0.129	0.270	0.275	0.668	0.695
			Low	kW	0.056	0.062	0.042	0.076	0.073	0.102	0.168	0.313	0.291
	Bypass mode	Nom.	Ultra high	kW	0.117	0.138	0.132	0.178	0.196	0.373	0.375	0.828	0.852
			High	kW	0.099	0.119	0.107	0.135	0.129	0.270	0.275	0.668	0.695
			Low	kW	0.056	0.062	0.042	0.076	0.073	0.102	0.168	0.313	0.291
Temperature exchange efficiency - 50Hz	Ultra high			%	74	72	75	74			75		
	High			%	74	72	75	74			75		
	Low			%	79	77	80	77		76	76.5	78	
Temperature exchange efficiency - 60Hz	Ultra high			%	74	72	75	74			75		
	High			%	74	72	75	74			75		
	Low			%	80	77	80	77		76	76.5	78	
Enthalpy exchange efficiency - 50Hz	Cooling	Ultra high		%	58		61	58		60	61		
		High		%	58		61	58		60	61		
		Low		%	64	62	67	63		62	63	64	66
	Heating	Ultra high		%	64		65	62	63	65	66		
		High		%	64		65	62	63	65	66		
		Low		%	69	68	70	67	66	67	68		70
Enthalpy exchange efficiency - 60Hz	Cooling	Ultra high		%	58		61	58		60	61		
		High		%	58		61	58		60	61		
		Low		%	66	63	67	63		62	63	64	66
	Heating	Ultra high		%	64		65	62	63	65	66		
		High		%	64		65	62	63	65	66		
		Low		%	71	69	70	67	66	67	68		70
Operation mode					Heat exchange mode / Bypass mode / Fresh-up mode								
Heat exchange system					Air to air cross flow total heat (sensible + latent heat) exchange								
Heat exchange element					Specially processed non-flammable paper								
Connection ratio	Outdoor units	with only ventilation units connected	Minimum	%	-								
			Maximum	%	-								
	Ventilation units	when combined with VRV® indoor units	Maximum	%	-								
Casing	Material				Galvanised steel plate								
Dimensions	Unit	Height		mm	285		301	364			726		
		Width		mm	776		828	1,004			1,512		
		Depth		mm	525		816	868		1,156	868		1,156
Weight	Unit			kg	24		33	52	55	64	131		152

2 Specifications

2-1 Technical Specifications					VAM150FA	VAM250FA	VAM350FB	VAM500FB	VAM650FB	VAM800FB	VAM1000FB	VAM1500FB	VAM2000FB
Fan	Type				Sirocco fan								
	Air flow rate - 50Hz	Heat exchange mode	Ultra high	m³/h	150	250	350	500	650	800	1,000	1,500	2,000
			High	m³/h	150	250	-						
			Low	m³/h	110	155	-						
		Bypass mode	Ultra high	m³/h	150	250	350	500	650	800	1,000	1,500	2,000
			High	m³/h	150	250	-						
			Low	m³/h	110	155	-						
	Air flow rate - 60Hz	Heat exchange mode	Ultra high	m³/h	150	250	-						
			High	m³/h	150	250	-						
			Low	m³/h	110	145	-						
		Bypass mode	Ultra high	m³/h	150	250	-						
			High	m³/h	150	250	-						
			Low	m³/h	110	145	-						
	External static pressure - 50Hz	Ultra high		Pa	69	64	98		93	137	157	137	
		High		Pa	39		-						
		Low		Pa	20		-						
	External static pressure - 60Hz	Ultra high		Pa	98		-						
		High		Pa	54		-						
		Low		Pa	24	20	-						
Fan motor	Quantity				2							4	
	Output	50 Hz		W	30		80		106	210			
		60 Hz		W	30		80		106	210			
Sound pressure level - 50Hz	Heat exchange mode	Ultra high		dBA	27 / 28.5	28 / 29	32	33	34.5	36		39.5	40
		High		dBA	26 / 27.5	26 / 27	31.5		33	34.5	35	38	
		Low		dBA	20.5 / 21.5	21 / 22	23.5	24.5	27	31		34	35
	Bypass mode	Ultra high		dBA	27 / 28.5	28 / 29	32	33.5	34.5	36		40.5	40
		High		dBA	26.5 / 27.5	27 / 28	31	32.5	34	34.5	35.5	38	
		Low		dBA	20.5 / 21.5	21 / 22	24.5	25.5	27	31		33.5	35
Sound pressure level - 60Hz	Heat exchange mode	Ultra high		dBA	28.5	29.5	34	34.5	35.5	37		41.5	42.5
		High		dBA	26.5	26	33		34	36		39	41
		Low		dBA	19	19.5	26	26.5	28	32		36	37
	Bypass mode	Ultra high		dBA	28	29	34	34.5	35.5	37		41.5	42.5
		High		dBA	27		32.5	33.5	35	36		39	41
		Low		dBA	20	20.5	26.5	27.5	28.5	33	32	36	37
Operation range	Min.			ºCDB	-15								
	Max.			ºCDB	50								
	Relative humidity			%	80% or less								
	On coil temperature	Cooling	Max.	ºCDB	-								
		Heating	Min.	ºCDB	-								
Connection duct diameter				mm	100	150		200		250		350	
Insulation material					Self-extinguishable urethane foam								

Standard Accessories : Installation and operation manual;

2-2 Electrical Specifications			VAM150FA	VAM250FA	VAM350FB	VAM500FB	VAM650FB	VAM800FB	VAM1000FB	VAM1500FB	VAM2000FB
Power supply	Name		VE								
	Phase		1~								
	Frequency	Hz	50/60								
	Voltage	V	220-240/220								
Voltage range	Min.	%	-10								
	Max.	%	10								

2 Specifications

2-2 Electrical Specifications					VAM150FA	VAM250FA	VAM350FB	VAM500FB	VAM650FB	VAM800FB	VAM1000FB	VAM1500FB	VAM2000FB
Current	Minimum circuit amps (MCA)			A	0.9			1.3	1.6	2.5	3.0	5.0	
	Maximum fuse amps (MFA)			A	15		16						
	Fan motor rated output			kW	0.03x2		0.08x2		0.106x2	0.210x2		0.210x4	
	Full load amps (FLA)	Fan motor		A	0.4			0.6	0.7	1.1	1.3	2.2	
		Fan motor 2		A	0.4			0.6	0.7	1.1	1.3	2.2	
		Fan motor 3		A	-							2.2	
		Fan motor 4		A	-							2.2	
	Normal amps - 50Hz	Heat exchange mode	Ultra high	A	0.67	0.72	0.60	0.81	0.93	1.69	1.71	3.76	3.87
			High	A	0.57		0.49	0.62		1.23	1.25	3.04	3.16
			Low	A	0.33	0.32	0.19	0.34	0.35	0.46	0.76	1.42	1.32
		Bypass mode	Ultra high	A	0.67	0.72	0.60	0.81	0.93	1.69	1.71	3.76	3.87
			High	A	0.57		0.49	0.62		1.23	1.25	3.04	3.16
			Low	A	0.33	0.32	0.19	0.34	0.35	0.46	0.76	1.42	1.32
	Normal amps - 60Hz	Heat exchange mode	Ultra high	A	0.66	0.64	0.60	0.81	0.93	1.69	1.71	3.76	3.87
			High	A	0.59	0.56	0.49	0.62		1.23	1.25	3.04	3.16
			Low	A	0.33	0.29	0.19	0.34	0.35	0.46	0.76	1.42	1.32
		Bypass mode	Ultra high	A	0.66	0.64	0.60	0.81	0.93	1.69	1.71	3.76	3.87
			High	A	0.59	0.56	0.49	0.62		1.23	1.25	3.04	3.16
			Low	A	0.33	0.29	0.19	0.34	0.35	0.46	0.76	1.42	1.32

Notes

(1) Operation sound is measured at 1.5m below the center of the body.

(2) Air flow rate can be changed to Low mode or High mode.

(3) Normal amplitude, input and efficiency depend on the mentioned conditions.

(4) Sound values are measured in an anechoic chamber. Operating sound level generally becomes higher than this value depending on the operating conditions, reflected sound, and peripheral noise.

(5) The noise level at the air discharge port is about 8dB higher than the operating sound of the unit.

(6) The specifications, designs and information here are subject to change without notice.

(7) Voltage range: units are suitable for use on electrical systems where voltage supplied to unit terminal is not below or above listed range limits.

(8) Maximum allowable voltage range variation between phases is 2%.

(9) MCA/MFA: MCA = 1.25 x FLA(FM1) + FLA(FM2); MFA ≤ 4 x FLA; (VAM2000 is regarded as 2x VAM1000)

(10) Select wire size based on the value of MCA

(11) Instead of a fuse, use a circuit breaker

(12) MCA = 1.25 x FLA (FM1) + FLA (FM2)

(13) MCA represents maximum input current. MFA represents capacity which may accept MCA.

(14) Next lower standard fuse rating minimum 16A

3 Electrical data

3 - 1 Electrical Data

VAM350-2000FB

Unit model name	Power supply				FM	
	50Hz	60Hz	MCA	MFA	kW	FLA
VAM350FB	Power supply Max.: 264V Min.: 198V	Power supply Max.: 242V Min.: 198V	0.9	16	0.08 x 2	0.4 x 2
VAM500FB			1.3	16	0.08 x 2	0.6 x 2
VAM650FB			1.6	16	0.106 x 2	0.7 x 2
VAM800FB			2.5	16	0.210 x 2	1.1 x 2
VAM1000FB			3.0	16	0.210 x 2	1.3 x 2
VAM1500FB			5.0	16	0.210 x 2	2.2 x 4
VAM2000FB			5.0	16	0.210 x 2	2.2 x 4

LEGEND

MCA : minimum circuit Amps. (A)
MFA : maximum fuse Amps. (A) (see note 5)
kW : fan motor rated output (kW)
FLA : full load Amps. (A)
FM : Fan motor

NOTES

1. Voltage range:
   The units are suitable for use on electrical systems where the voltage, supplied to unit terminals, is not below or above listed range limits.
2. The maximum allowable voltage variation between phases is 2%.
3. MCA = 1.25 x FLA (FM1) + FLA (FM2)
   MCA represents maximum unit input current.
   MFA represents acceptable capacity for MCA.
   (Next lower standard fuse rating minimum 16A).
4. Select a wire size based on the MCA value.
5. Instead of a fuse, use a circuit breaker.

4D082062

4 Options

4 - 1 Options

VAM150-250FA

Item			Model	VAM150FA	VAM250FA
Controlling device	Remote control			BRC301B61	
	Wired remote control			BRC1D52 / BRC1E52Z / BRC1E52B (note 6)	
	Centralized controlling device	Central remote control		DCS302C51 (for general) DCS302C51 (For EC market)	
		Unified on/off controller		DCS301B61 (for general) DCS301B51 (For EC market)	
		Schedule timer		DST301B51 (for general) DST301B51 (For EC market)	
	PC board adapter	Wiring adapter for electrical appendices		KRP2A61 (for general) KRP2A51 (For EC market)	
		For humidifier		KRP50-2	
		Installation box for adapter PCB		KRP50-2A90 (Mounted electric component assy of HRV)	
		For heater control kit		BRP4A50	

Additional function	Silencer	Model name	-	-
		Nominal pipe diameter (mm)	-	-
	Air filter for replacement		YAFF323F15	YAFF323F25
	High efficiency filter		YAFF323F15	YAFF323F25
Duct adapter			-	-
		Nominal pipe diameter (mm)	-	-
Duct adapter			-	-
Adapter for discharge			-	-

Interlock adapter for VRV

Indoor unit	FXYC-K	FXYK-K	FXYF-K	FXYS-K	FXYH-K	FXYA-K	FXYL(M)-KJ	FXYM-K(J)
Adapter for wiring	KRP1B61 *	KRP1B61	KRP1B2 *	KRP1B61		KRP1B3	KRP1B61	
Installation box for adapter PCB **	KRP1B96 Note 2,3	-	KRP1C98 Note 4	-	-	KRP1B93 Note 3	-	-

NOTES

1. Installation box marked with ** is required for each adapter marked with *.
2. Up to 2 adapters can be fixed for each installation box.
3. Only one installation box can be installed for each indoor unit.
4. Up to 2 adapters can be fixed for each indoor unit.
5. Flexible duct size *** is for the duct from HRV unit to branch duct (or air outlet).
6. *BRC1E52A contains languages English, German, French, Dutch, Spanish, Italian, Greek, Portuguese, Russian, Turkish and Polish.
   BRC1E52B contains languages English, German, Albanian, Bulgarian, Croatian, Czech, Hungarian, Romanian, Serbian, Slovak and Slovenian.

3TW24921-1B

VAM350-2000FB

Model type: Ceiling mounted duct connection

Item			VAM350FB	VAM500FB	VAM650FB	VAM800FB	VAM100FB	VAM1500FB	VAM2000FB
Controlling device	Remote control		BRC301B61						
	Wired remote control		BRC1D52						
			BRC1E52A / BRC1E52B *						
	Centralized controlling device	Central remote control	DCS302C51						
		Unified on/off controller	DCS301B51						
		Schedule timer	DTS301B51						
	PC board adapter	Wiring adapter for electrical appendices	KRP2A51 + Installation box KRP1B101						
		For humidifier	KRP1C4 + Installation box KRP50-2A90						
		For heater kit	BRP4A50A						
		Fixing plate	-					EKMPVAM **	
Additonal function	Silencer	Model name	-	KDDM24B50	KDDM24B100	KDDM24B100	KDDM24B100	KDDM24B100 x 2	KDDM24B100 x 2
		Nominal pipe diameter (mm)	-	ø 200	ø 200	ø 250	ø 250	ø 250	ø 250
	Air suctions/ discharge grill	Model name	K-DGL150A	K-DGL200A	K-DGL200A	K-DGL250A	K-DGL250A	K-DGL250A	K-DGL250A
		Nominal pipe diameter (mm)	150	200	200	250	250	250	250
	High efficiency filter	EN779 F6	EKAFV50F6		EKAFV80F6		EKAFV100F6	EKAFV100F6 x 2	EKAFV100F6 x 2
		EN779 F7	EKAFV50F7		EKAFV80F7		EKAFV100F7	EKAFV100F7 x 2	EKAFV100F7 x 2
		EN779 F8	EKAFV50F8		EKAFV80F8		EKAFV100F8	EKAFV100F8 x 2	EKAFV100F8 x 2
Adapter for discharge			-	KDAJ25K36A	KDAJ25K56	KDAJ25K56	KDAJ25K56	-	-
CO_2 sensor			BRYMA65	BRYMA65	BRYMA65	BRYMA100	BRYMA100	BRYMA200	BRYMA200

NOTES

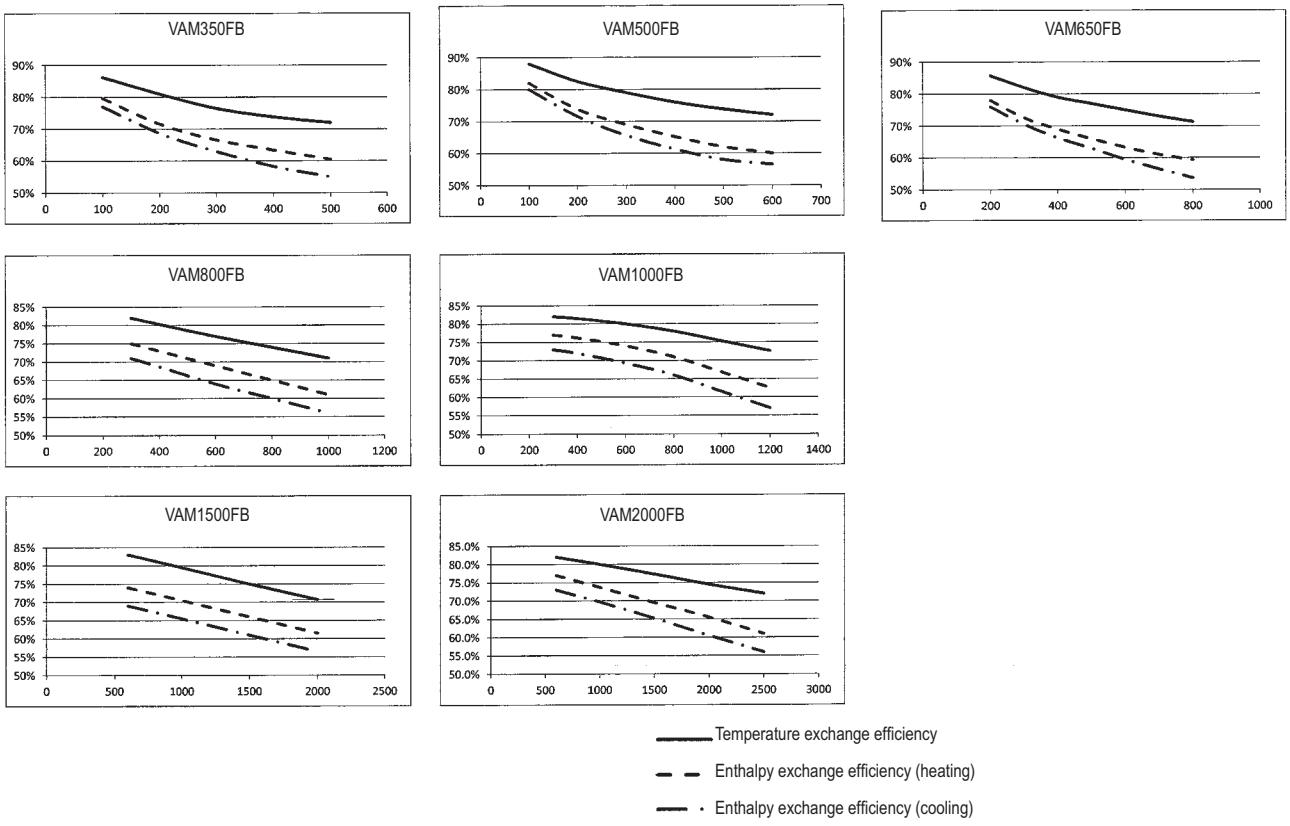
1. *BRC1E52A contains languages English, German, French, Dutch, Spanish, Italian, Greek, Portuguese, Russian, Turkish and Polish.
   BRC1E52B contains languages English, German, Albanian, Bulgarian, Croatian, Czech, Hungarian, Romanian, Serbian, Slovak and Slovenian.
2. Fixing plate marked with ** is necessary for installation of option PC boards on VAM1500FB/VAM2000FB.
3. Humidifier & heater kit can not be combined.

3D082107

5 Exchange efficiency

5 - 1 Exchange efficiency

VAM350-2000FB

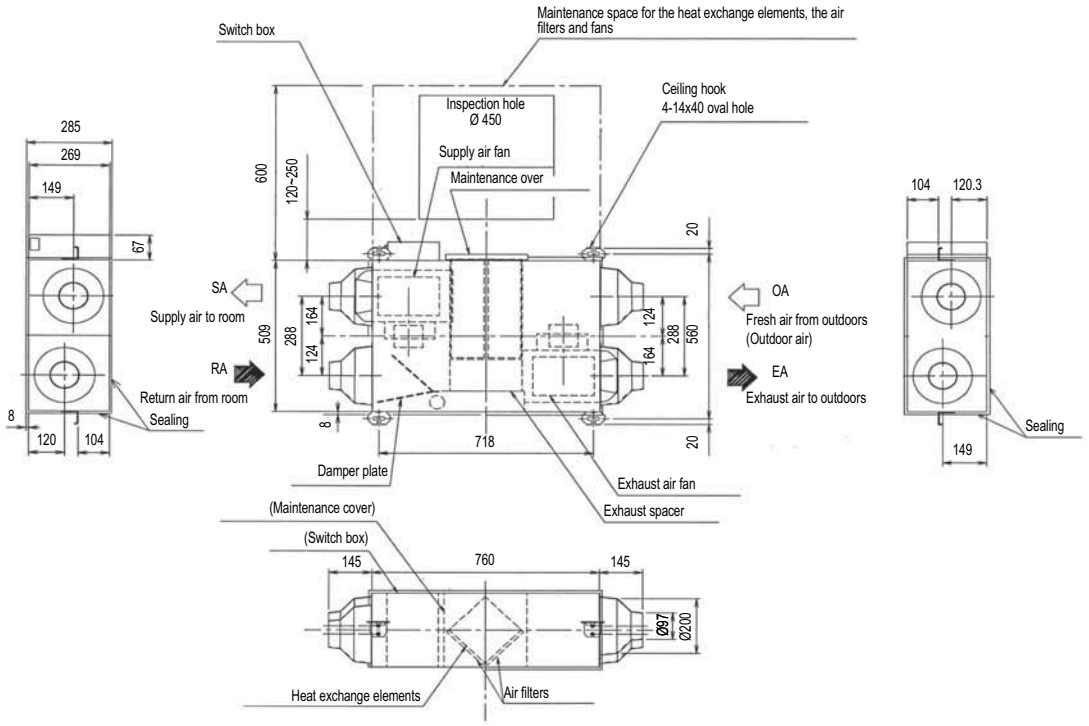


3D082313

6 Dimensional drawings

6 - 1 Dimensional Drawings

VAM150FA

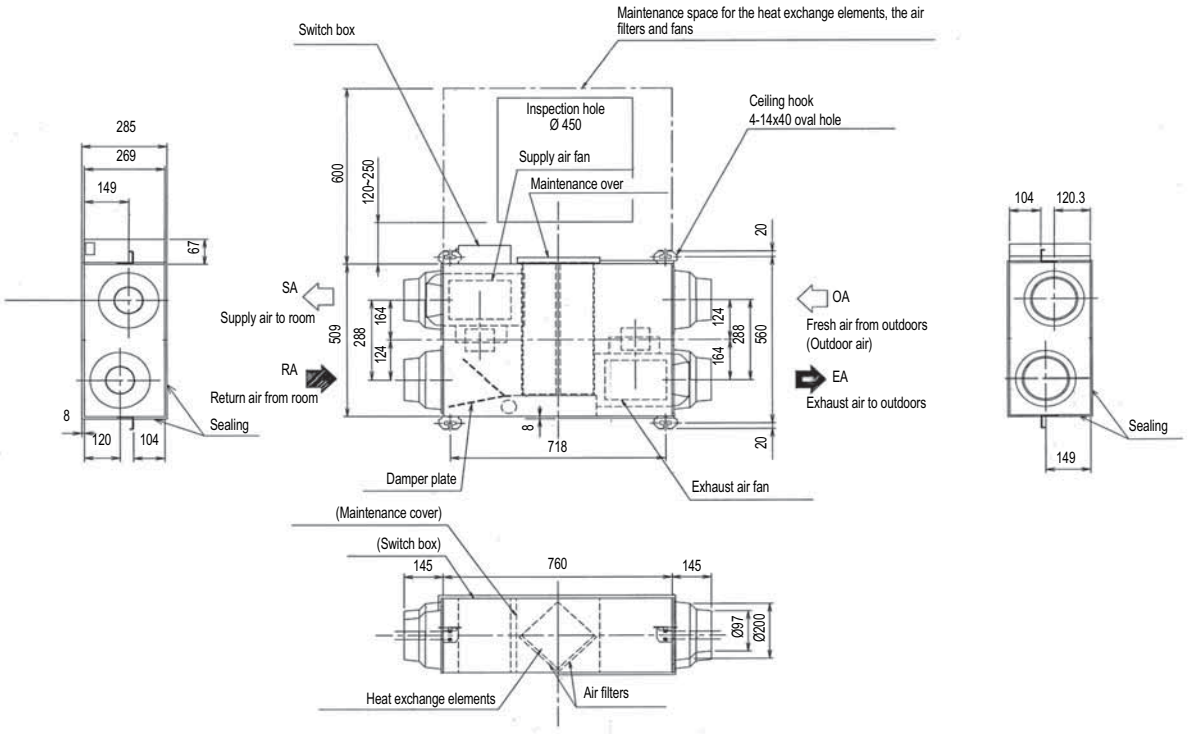


NOTE

1 Be sure to provide the inspection hole (450x450 mm) to inspect the air filters, the exchange elements and fans.

3TW27874-1

VAM250FA



NOTE

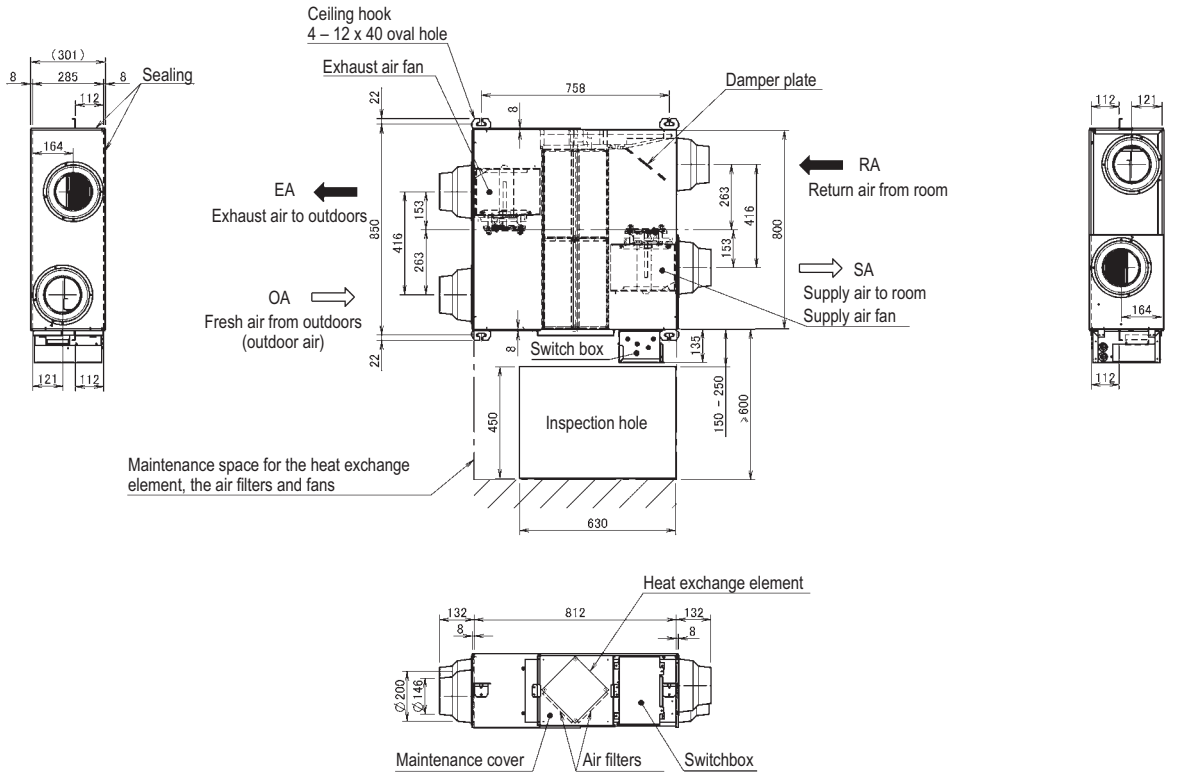
1 Be sure to provide the inspection hole (450x450 mm) to inspect the air filters, the exchange elements and fans.

3TW27884-1

6 Dimensional drawings

6 - 1 Dimensional Drawings

VAM350FB

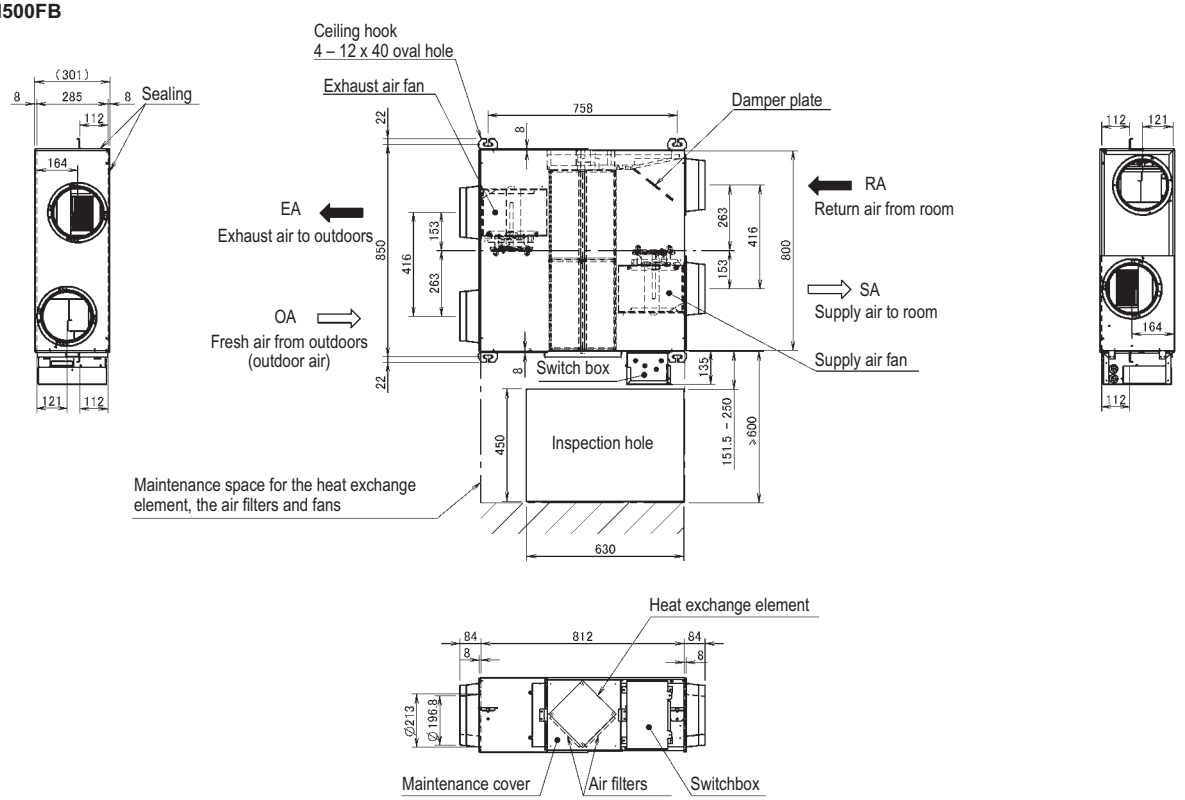


NOTES

1. Be sure to provide the inspection hole to inspect the air filters, the exchange elements and fans.

3D081162

VAM500FB



NOTES

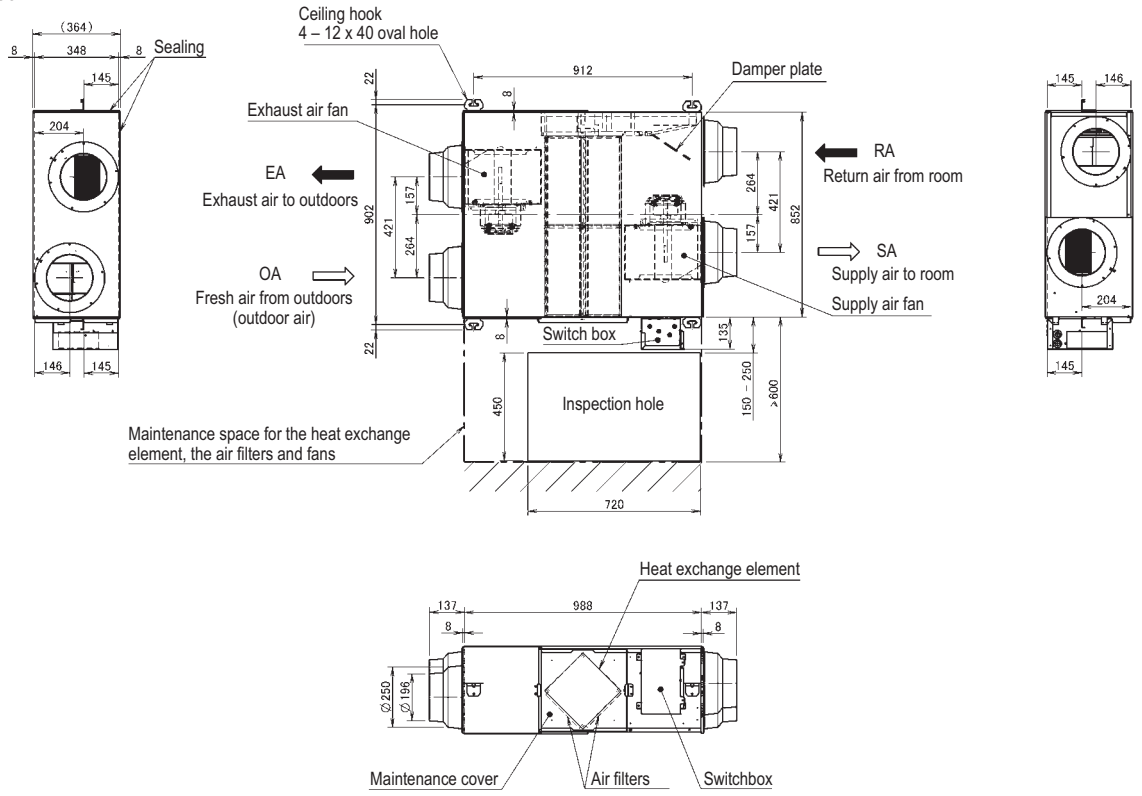
1. Be sure to provide the inspection hole to inspectthe air filters, the exchange elements and fans.

3D081163

6 Dimensional drawings

6 - 1 Dimensional Drawings

VAM650FB

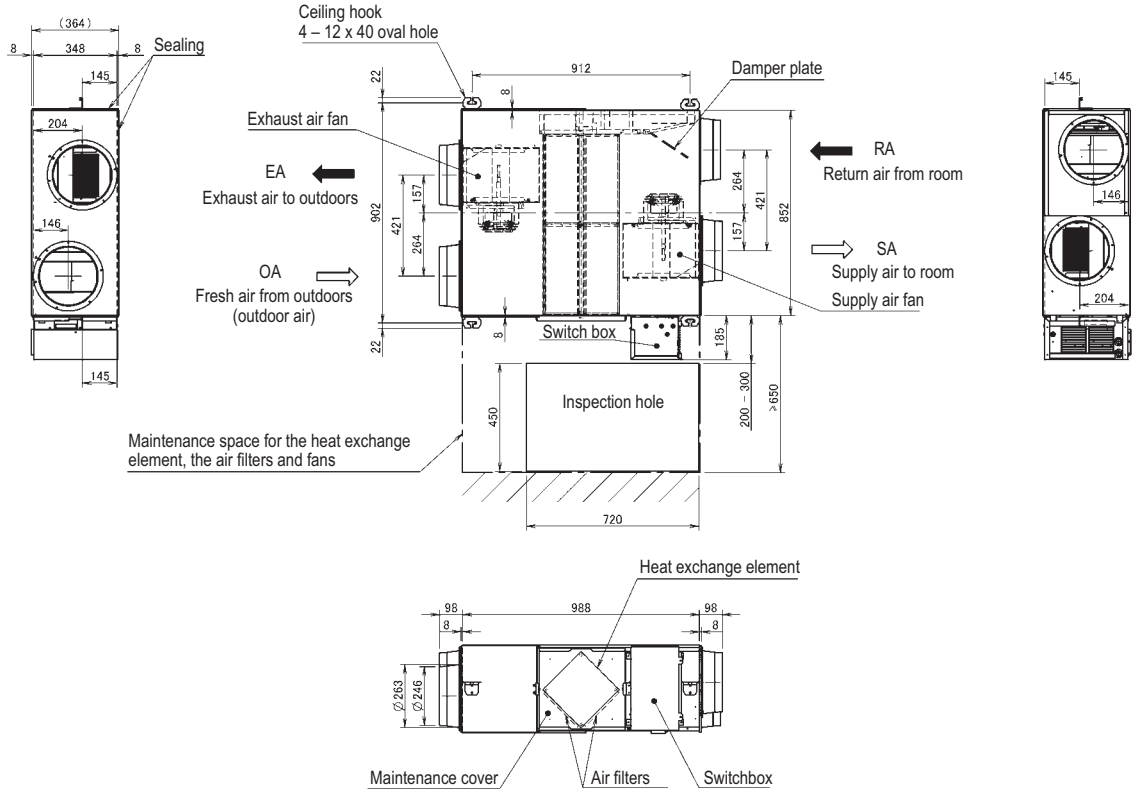


NOTES

1. Be sure to provide the inspection hole to inspect the air filters, the exchange elements and fans.

3D081164

VAM800FB



NOTES

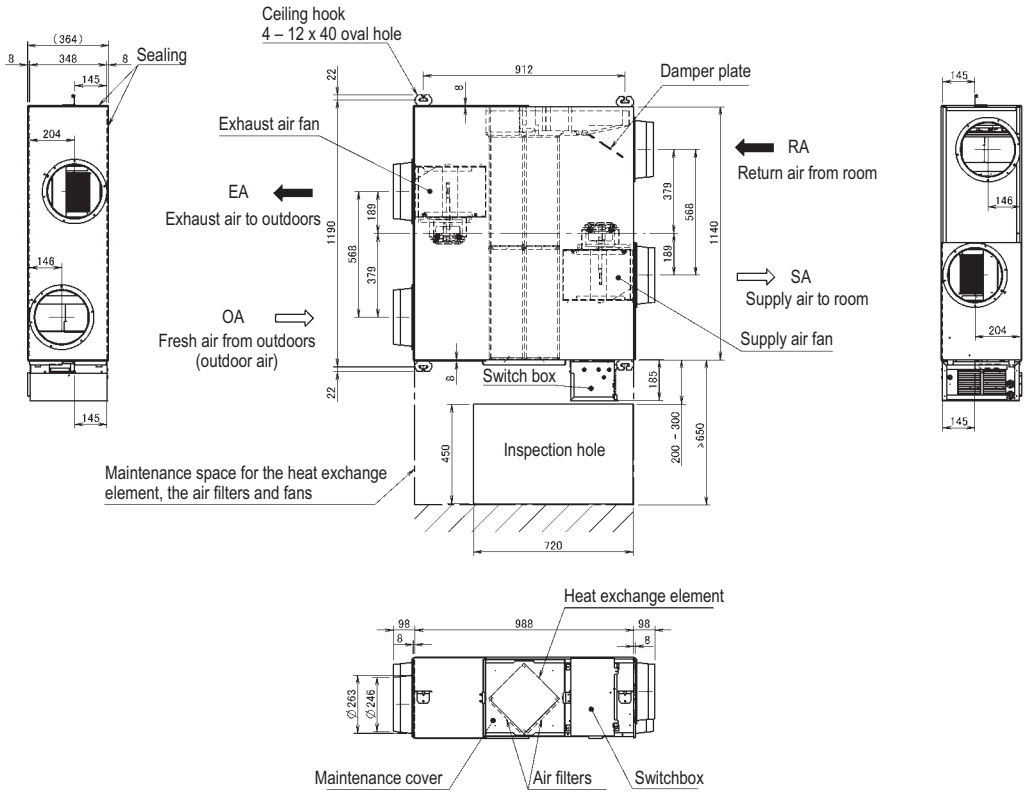
1. Be sure to provide the inspection hole to inspect the air filters, the exchange elements and fans.

3D081165

6 Dimensional drawings

6 - 1 Dimensional Drawings

VAM1000FB

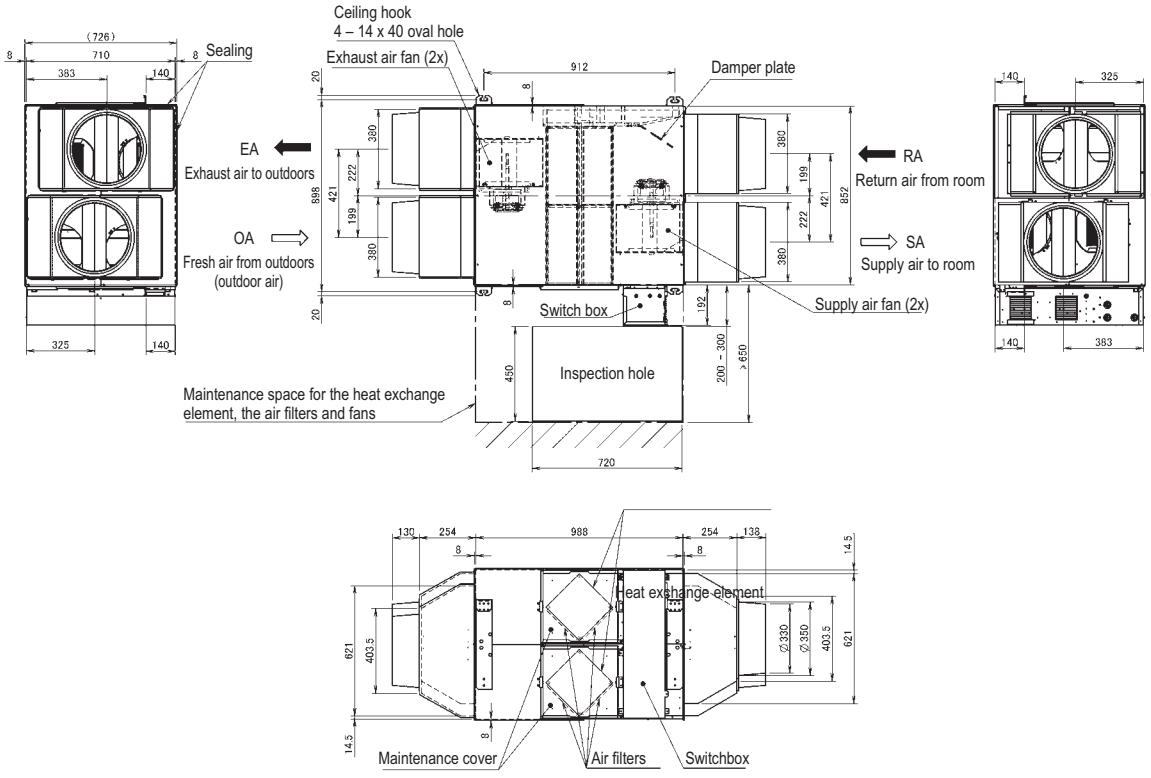


NOTES

1. Be sure to provide the inspection hole to inspect the air filters, the exchange elements and fans.

3D081166

VAM1500FB



NOTES

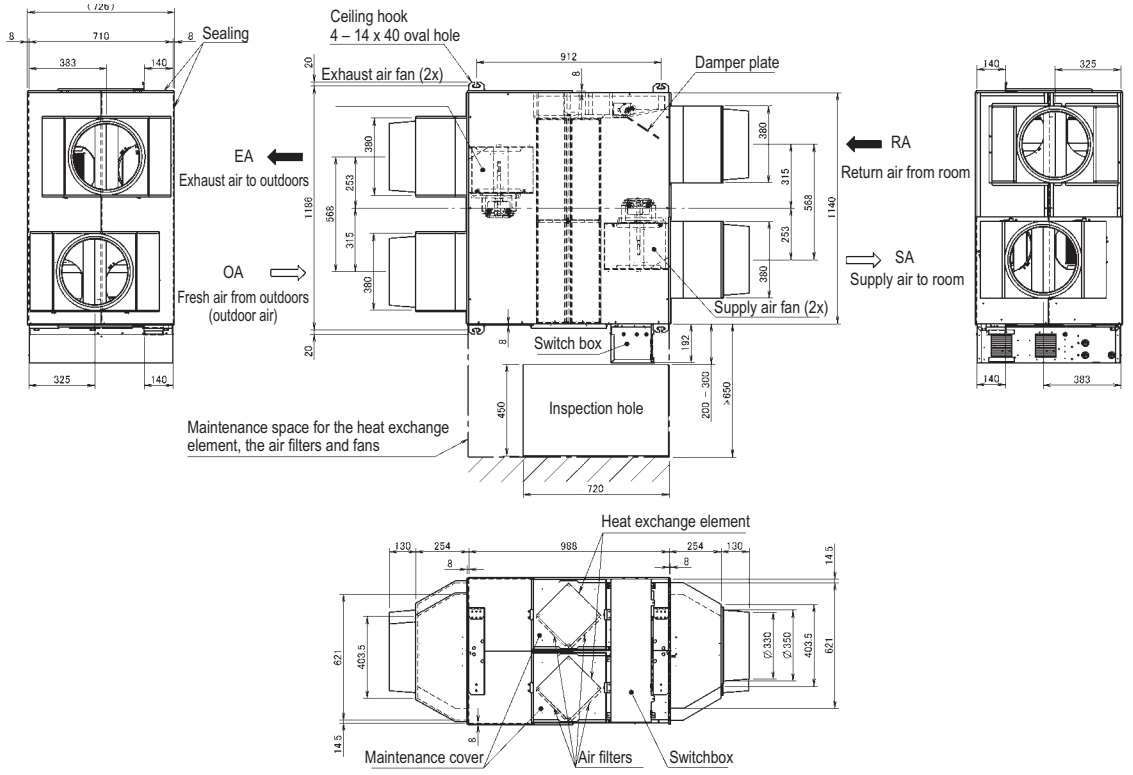
1. Be sure to provide the inspection hole to inspect the air filters, the exchange elements and fans.

3D081167

6 Dimensional drawings

6 - 1 Dimensional Drawings

VAM2000FB



NOTES

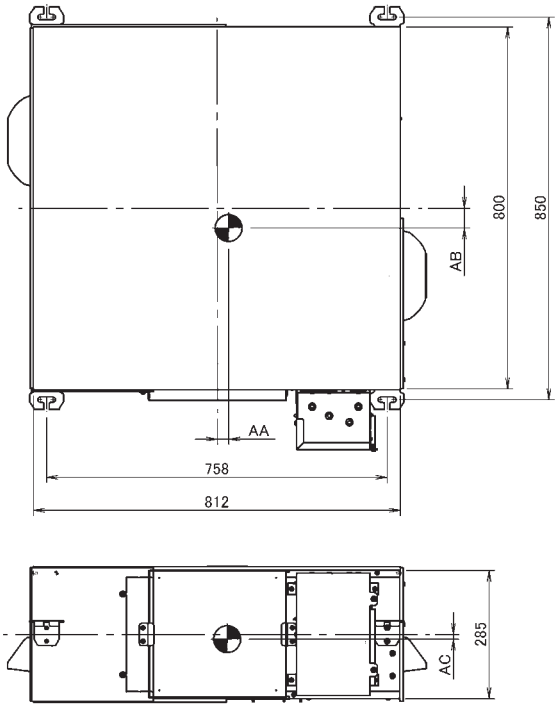
1. Be sure to provide the inspection hole to inspect the air filters, the exchange elements and fans.

3D081168

7 Centre of gravity

7 - 1 Centre of Gravity

VAM350-500FB



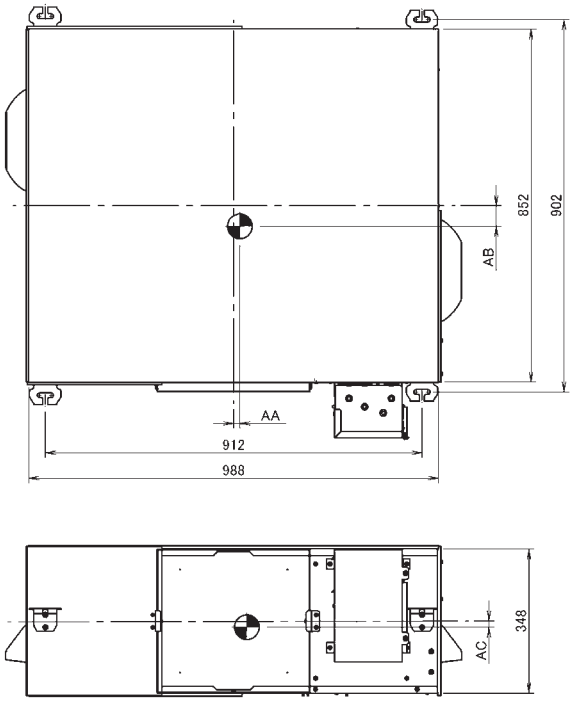
Design ref.	AA	AB	AC
VAM350FB	24	51	10
VAM500FB	23	36	9

NOTES

1. The shown unit is VAM350FB

4D081262

VAM650-800FB



Design ref.	AA	AB	AC
VAM650FB	20	42	6
VAM800FB	32	58	5

NOTES

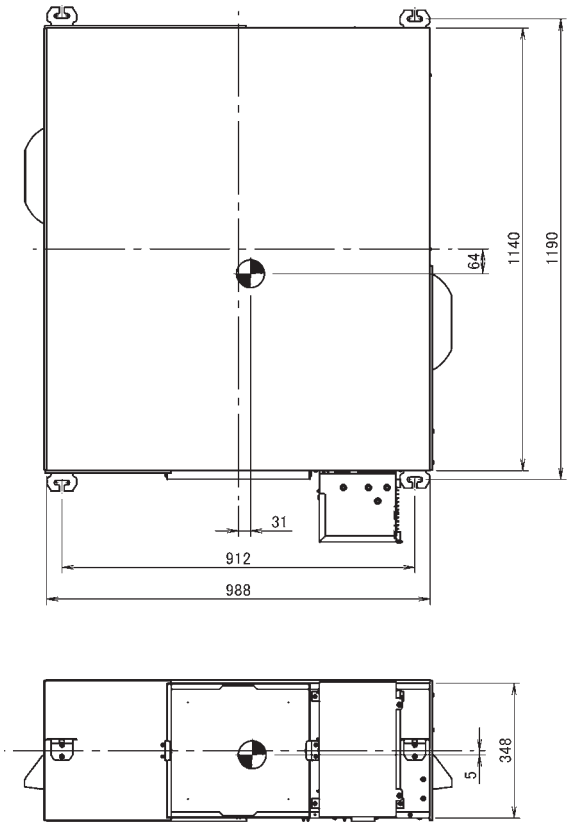
1. The shown unit is VAM650FB

4D081263

7 Centre of gravity

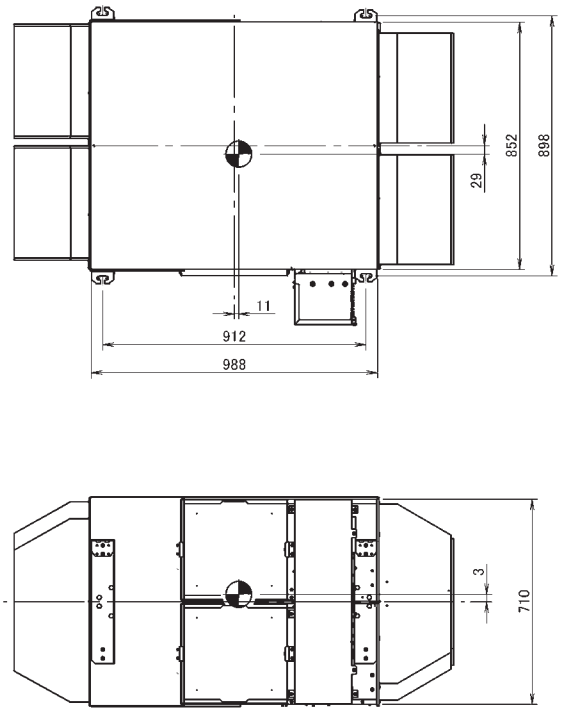
7 - 1 Centre of Gravity

VAM1000FB



4D081264

VAM1500FB

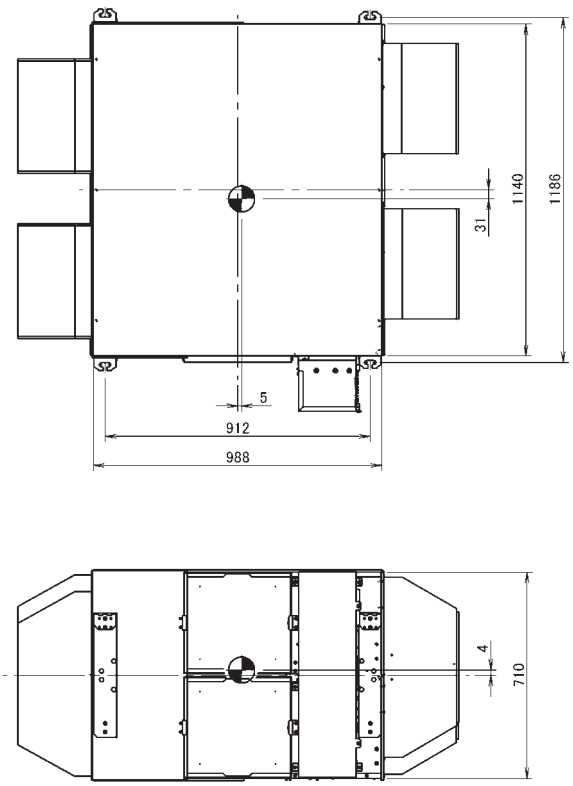


4D081265

7 Centre of gravity

7 - 1 Centre of Gravity

VAM2000FB



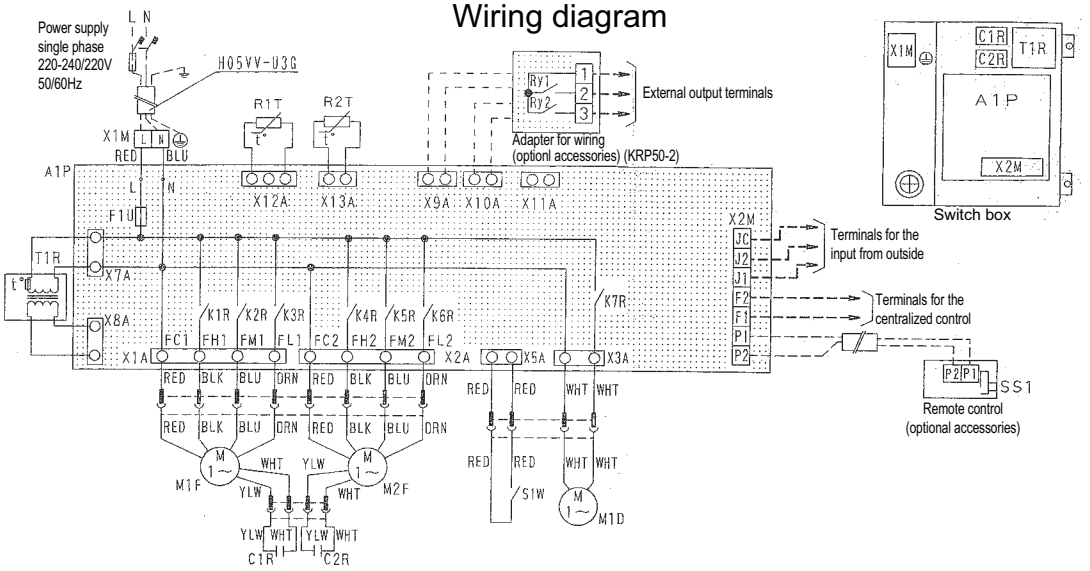
4D081266

8 Wiring diagrams

8 - 1 Wiring Diagrams - Single Phase

VAM150-250FA

Wiring diagram



L - RED	N - BLU	M2F	Motor (exhaust fan motor)	Optional accessories	
A1P	Printed circuit board	Q1L • Q2L	Thermo switch (MF1 • 2 built-in)	Adapter for wiring (KRP50-2)	
C1R • C2R	Capacitor (M1F • M2F)	R1T	Thermistor (indoor air)	Ry1	Magnetic relay (On/Off)
F1U	Fuse (250V, 10A)	R2T	Thermistor (outdoor air)	Ry2	Magnetic relay (humidifier operation)
K1R ~ K3R	Magnetic relay (M1F)	S1W	Limit switch	X9A • 10A	Connector (KRP50-20)
K4R ~ K6R	Magnetic relay (M2F)	T1R	Transformer (supply 220-240V/22V)	Remote control	
K7R	Magnetic relay (M1D)	X1M	Terminal (power supply)	SS1	Selector switch (main/sub)
M1D	Motor (damper motor)	X2M	Terminal (control)	Optional connector	
M1F	Motor (air supply fan motor)			X11A	Connector (adapter power supply)

: Terminals

: Connector

: Wire clamp

: Field wiring

: Protective earth

Colors: BLK: Black GRN: Green
BLU: Blue RED: Red
BRN: Brown WHT: White
ORN: Orange YLW: Yellow

2TW24836-1C

⚠ Before obtaining access to terminal devices, all power supply circuits must be interrupted.

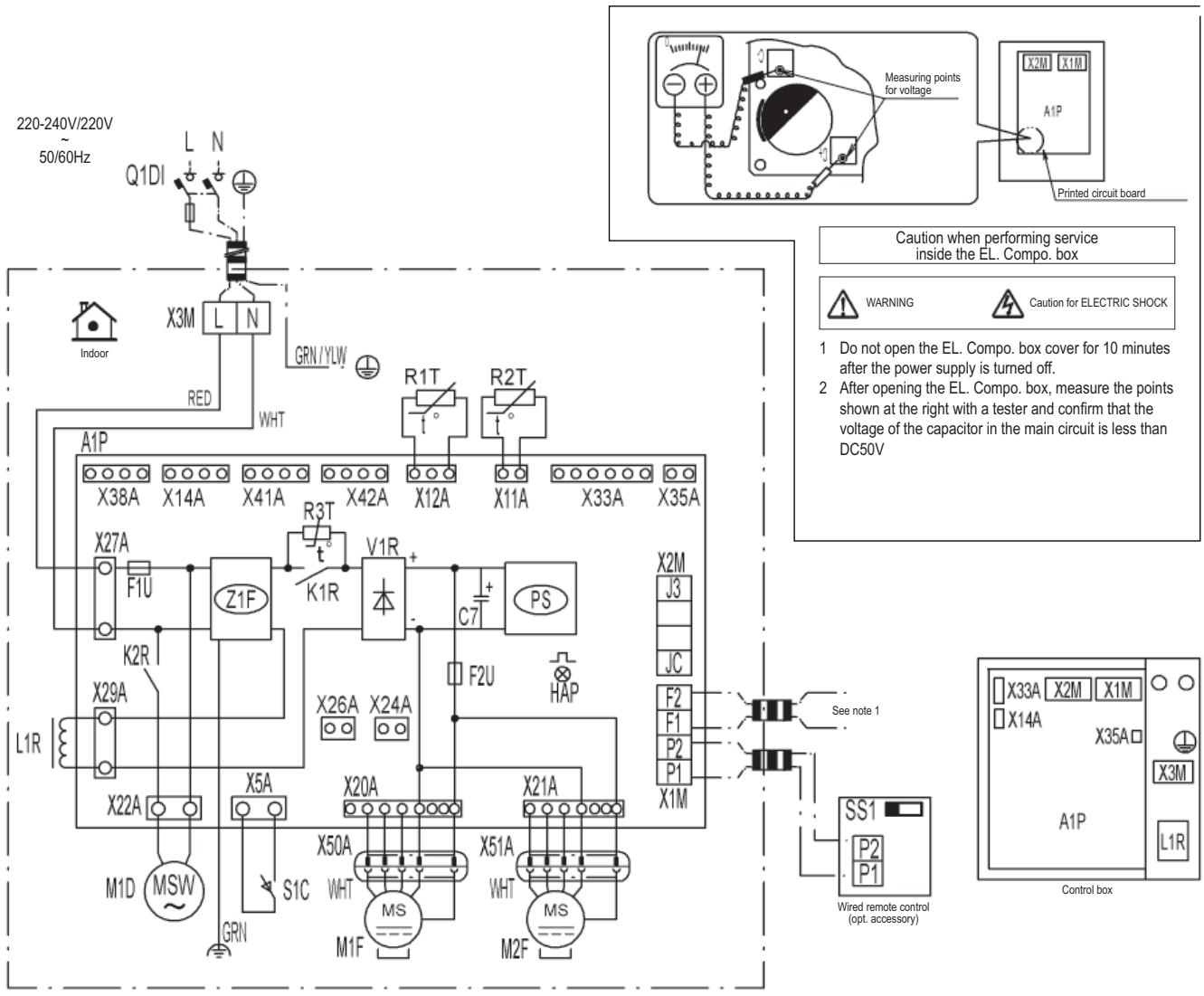
⚠ Clean the heat exchange elements once every two years or more often and the air filter once a year or more often. (Before cleaning, make sure that the unit is not operating.)

⏚ To prevent electric shock hazards, provide grounding work according to the installation manual.

8 Wiring diagrams

8 - 1 Wiring Diagrams - Single Phase

VAM350-650FB



A1P	Printed circuit board	Q1DI	Field earth leak detector (Max. 300 mA)	REMOTE CONTROL	
C1	Capacitor (M1F)			SS1	Selector switch
F1U	Fuse T, 6.3A, 250V (A1P)	R1T	Thermistor (Indoor air)		CONNECTOR FOR OPTION (See note 3)
F1U	Fuse T, 5A, 250V (A1P)	R2T	Thermistor (Outdoor air)	X14A	Connector (CO_2 sensor)
HAP	Pilot lamp (Service monitor - green)	R3T	Thermistor (PTC)	X24A	Connector (Outside damper)
K1R	Magnetic relay	S1C	Limit switch damper motor	X26A	Connector (Filter sign)
K2R	Magnetic relay	X1M	Terminal (A1P)	X33A	Connector (Contact PCB)
L1R	Reactor	X2M	Terminal (Outside input) (A1P)	X35A	Connector (Appendices PCB)
M1F	Motor (Supply air fan)	X3M	Terminal (Power supply)	X38A	Connector (Multi tenant)
M2F	Motor (Exhaust air fan)	V1R	Diode bridge	X41A	Connector (Humidity sensor 1)
M1D	Motor (Damper)	Z1F	Noise filter	X42A	Connector (Humidity sensor 2)
PS	Switching power supply (A1P)				

L : Live
N : Neutral
: Field wiring
: Terminal strip
: Connector
: Connection
: Relay connector
: Protective earth (screw)
: Noiseless earth

Colors: BLK: Black, BLU: Blue, ORG: Orange, RED: Red, WHT: White, YLW: Yellow, GRN: Green

3D080682A

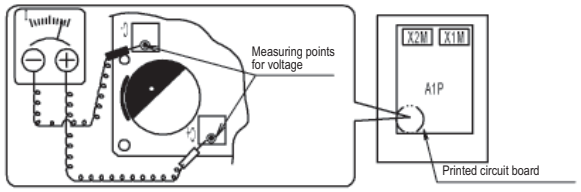
NOTES

1 In case you use the central remote control, connect it to the unit in accordance with the attached manual.
2 When connecting the input wires from outside, fresh-up or on/off control operation can be selected. (Contact with a minimum applicable load of 12V DC, 1mA)
3 For details of connection see the attached manual of the option kit.
4 SS1 (A1P) has already been set to “nor.” at factory set. The unit will not run if the setting is changed.

8 Wiring diagrams

8 - 1 Wiring Diagrams - Single Phase

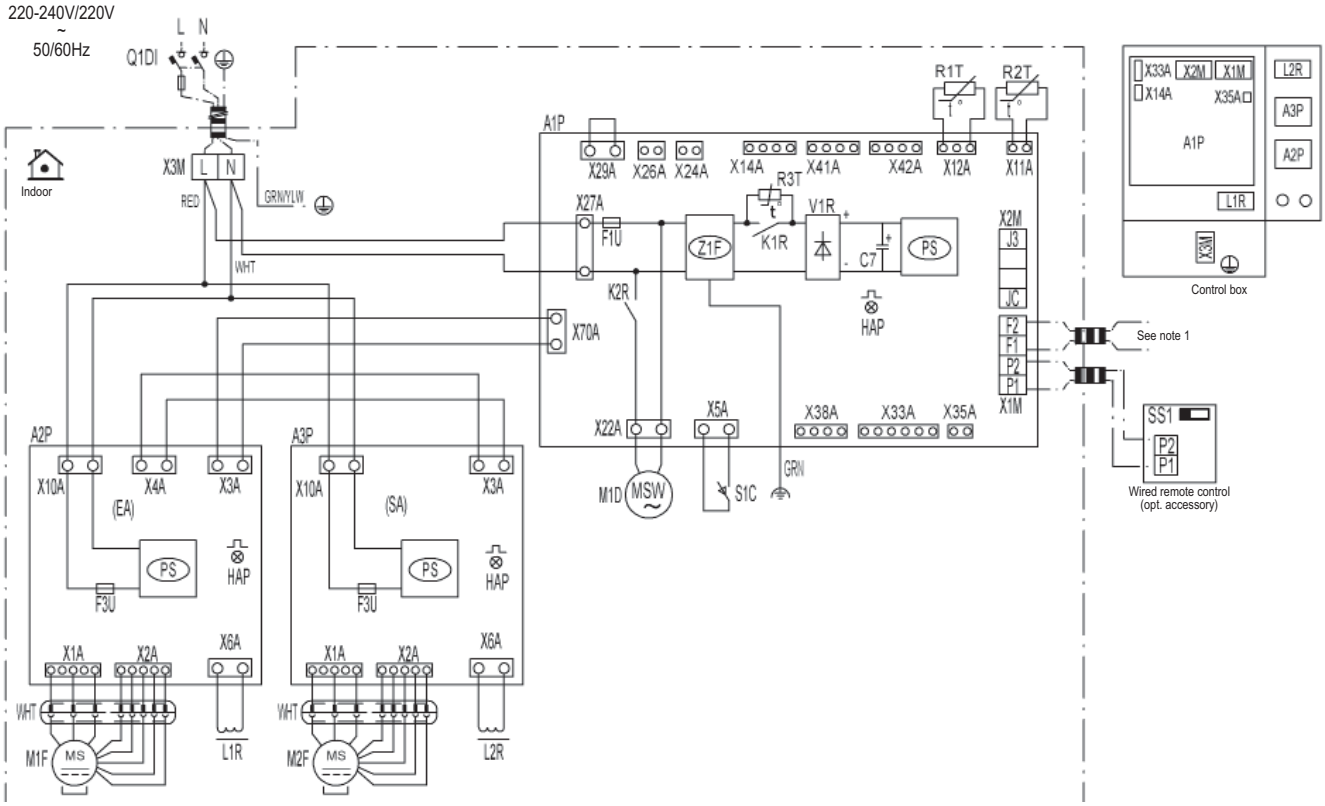
VAM800-1000FB



Caution when performing service inside the EL. Compo. box

WARNING Caution for ELECTRIC SHOCK

1 Do not open the EL. Compo. box cover for 10 minutes after the power supply is turned off.
2 After opening the EL. Compo. box, measure the points shown at the right with a tester and confirm that the voltage of the capacitor in the main circuit is less than DC50V



A1P	Printed circuit board	M1D	Motor (Damper)	REMOTE CONTROL	
A2P	Printed circuit board assy (Fan)	PS	Switching power supply (A1P)	SS1	Selector switch
A3P	Printed circuit board assy (Fan)	Q1DI	Field earth leak detector (Max. 300 mA)	CONNECTOR FOR OPTION (See note 3)	
C1	Capacitor (M1F)			X14A	Connector (CO_2 sensor)
F1U	Fuse T, 6.3A 250V (A1P)	R1T	Thermistor (Indoor air)	X24A	Connector (Outside damper)
F3U	Fuse T, 5A, 250V (A1P)	R2T	Thermistor (Outdoor air)	X26A	Connector (Filter sign)
HAP	Pilot lamp (Service monitor - green)	R3T	Thermistor (PTC)	X33A	Connector (Contact PCB)
K1R	Magnetic relay	S1C	Limit switch damper motor	X35A	Connector (Appendices PCB)
K2R	Magnetic relay	X1M	Terminal (A1P)	X38A	Connector (Multi tenant)
L1R	Reactor	X2M	Terminal (Outside input) (A1P)	X41A	Connector (Humidity sensor 1)
L2R	Reactor	X3M	Terminal (Power supply)	X42A	Connector (Humidity sensor 2)
M1F	Motor (Supply air fan)	V1R	Diode bridge		
M2F	Motor (Exhaust air fan)	Z1F	Noise filter		

L : Live
N : Neutral
: Field wiring
: Terminal strip
: Connector
: Connection
: Relay connector
: Protective earth (screw)
: Noiseless earth

Colors: BLK: Black, BLU: Blue, ORG: Orange, RED: Red, WHT: White, YLW: Yellow, GRN: Green

3D080683A

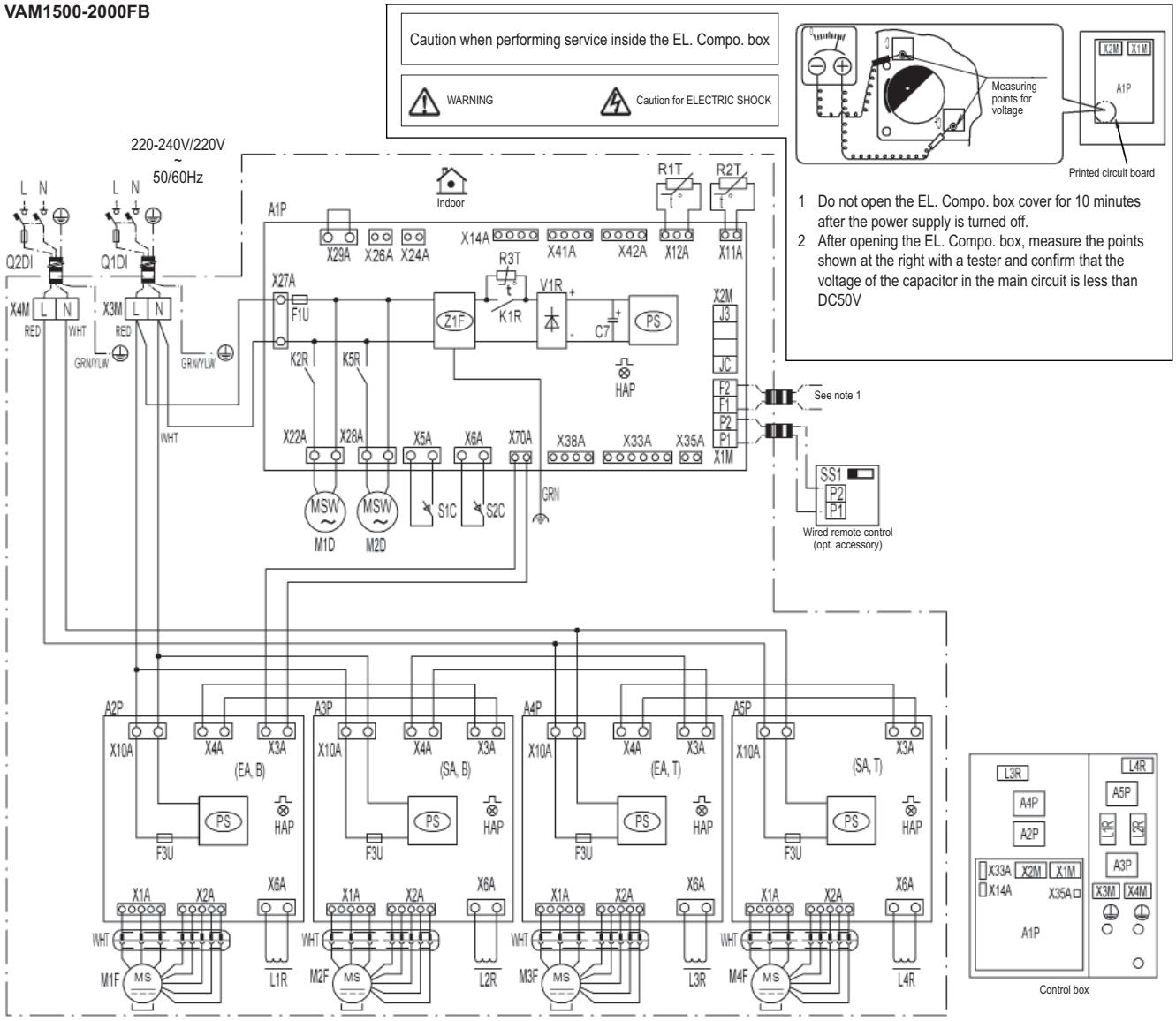
NOTES

1 In case you use the central remote control, connect it to the unit in accordance with the attached manual.
2 When connecting the input wires from outside, fresh-up or on/off control operation can be selected. (Contact with a minimum applicable load of 12V DC, 1mA)
3 For details of connection see the attached manual of the option kit.
4 SS1 (A1P) has already been set to “nor.” qt factory set. The unit will not run if the setting is changed.

8 Wiring diagrams

8 - 1 Wiring Diagrams - Single Phase

VAM1500-2000FB



A1P	Printed circuit board	M4F	Motor (Supply air fan) (Top)	V1R	Diode bridge
A2P - A4P	Printed circuit board assy (Fan)	M1D,M2D	Motor (Damper)	Z1F	Noise filter
A5P	Printed circuit board assy (Fan)	PS	Switching power supply (A1P)	REMOTE CONTROL	
C1	Capacitor (M1F)	Q1DI, Q2DI	Field earth leak detector (Max. 300 mA)	SS1	Selector switch
F1U	Fuse T, 6.3A 250V (A1P)			CONNECTOR FOR OPTION (See note 3)	
F3U	Fuse T, 5A, 250V (A1P)	R1T	Thermistor (Indoor air)	X14A	Connector (CO_2 sensor)
HAP	Pilot lamp (Service monitor - green)	R2T	Thermistor (Outdoor air)	X24A	Connector (Outside damper)
K1R	Magnetic relay	R3T	Thermistor (PTC)	X26A	Connector (Filter sign)
K2R, K5R	Magnetic relay	S1C, S2C	Limit switch damper motor	X33A	Connector (Contact PCB)
L1R - L4R	Reactor	X1M	Terminal (A1P)	X35A	Connector (Appendices PCB)
M1F	Motor (Exhaust air fan) (Bottom)	X2M	Terminal (Outside input) (A1P)	X41A	Connector (Humidity sensor 1)
M2F	Motor (Supply air fan) (Bottom)	X3M	Terminal (Power supply)	X42A	Connector (Humidity sensor 2)
M3F	Motor (Exhaust air fan) (Top)				

L : Live
N : Neutral
: Field wiring
: Terminal strip
: Connector
: Connection
: Relay connector
: Protective earth (screw)
: Noiseless earth

Colors: BLK: Black, BLU: Blue, ORG: Orange, RED: Red, WHT: White, YLW: Yellow, GRN: Green

2D080684A

NOTES

1 In case you use the central remote control, connect it to the unit in accordance with the attached manual.
2 When connecting the input wires from outside, fresh-up or on/off control operation can be selected. (Contact with a minimum applicable load of 12V DC, 1mA)
3 For details of connection see the attached manual of the option kit.
4 SS1 (A1P) has already been set to “nor.” at factory set. The unit will not run if the setting is changed.

9 Sound data

9 - 1 Sound Power Spectrum

VAM150FA

Power level data (in case of Total Heat Exchange mode)

(dB)

Model	Power supply		Hz / NOTCH	63	125	250	500	1000	2000	4000	8000
VAM150FA	50Hz	220V	U-H	50	48	46	40.5	38.5	34	25.5	27
			H	47	47	42	40	37.5	27.5	25	26.5
			L	44	42	38.5	35.5	29.5	21.5	22.5	23.5
		230V	U-H	51	49	47	41.5	39.5	35	27	28.5
			H	47.5	47.5	42.5	39.5	37	28.5	26	27.5
			L	44	42	38.5	36	29.5	21.5	22.5	23.5
		240V	U-H	53	50.5	46.5	42	40	36.5	30	31.5
			H	49.5	49.5	45	42	39.5	31.5	29.5	31.5
			L	44.5	42.5	39.5	36	30	22.5	23.5	25
	60Hz	220V	U-H	52	51	46	42.5	39.5	33.5	24.5	27
			H	49	49	44.5	40.5	37	29.5	26	27.5
			L	41	42	39	35.5	29	21	21.5	23.5

NOTES

1. Operation sound is measured in an anechoic chamber.
2. The operating sound level may become greater than this value depending on the operating conditions, reflected sound and peripheral noise.
3. Operation sound differs with operation and ambient conditions.
4. The power levels have been calculated on the assumption that the measuring point were right under the source of operating sound.

4D036765

VAM250FA

Power level data (in case of Total Heat Exchange mode)

(dB)

Model	Power supply		Hz / NOTCH	63	125	250	500	1000	2000	4000	8000
VAM250FA	50Hz	220V	U-H	51.5	51	48	42	38.5	33.5	25.5	25.5
			H	49.5	48.5	46	40	36.5	29	22	23.5
			L	44.5	44	42	34	28	19.5	21	22
		230V	U-H	52	51.5	47	43	39.5	34	27	27
			H	50.5	49.5	47	41	37.5	30	24.5	26
			L	44.5	44.5	42	35	28	19.5	21	22
		240V	U-H	51.5	52.5	48	44.5	41	36	29	29.5
			H	52	52	48.8	40.5	37	32.5	28	30
			L	45	44.5	43	34.5	28.5	21	22.5	23.5
	60Hz	220V	U-H	51.5	52	49	43.5	39.5	34	25.5	25.5
			H	49	50	45.5	40	38	30	24.5	26
			L	44.5	41	39	34.5	30.5	20	20	22

NOTES

1. Operation sound is measured in an anechoic chamber.
2. The operating sound level may become greater than this value depending on the operating conditions, reflected sound and peripheral noise.
3. Operation sound differs with operation and ambient conditions.
4. The power levels have been calculated on the assumption that the measuring point were right under the source of operating sound.

4D036766

9 Sound data

9 - 1 Sound Power Spectrum

VAM350FB

Power level data (in case of Total Heat Exchange mode)

(dB)

Model	Power supply		Hz / NOTCH	63	125	250	500	1000	2000	4000	8000
VAM350FB	50Hz	220V	U-H	57.5	53	49.5	45	42.5	39.5	31.5	25.5
			H	58.5	51	46.5	43.5	40.5	35	26	26.5
			L	58.5	45.5	41.5	38	33.5	24	25	27
		230V	U-H	59.5	54	50.5	46	43.5	40.5	32.5	27.5
			H	60	52	49	46	42	35.5	29.5	28.5
			L	59.5	46	42.5	38.5	34.5	25	26	28
		240V	U-H	62	55.5	52	47.5	45	42	34.5	30
			H	64	54.5	49.5	46	44	38.5	31	32
			L	60	46.5	44	39	35	26	26.5	28.5
	60Hz	220V	U-H	59	53.5	52.5	48.5	45	41	32.5	27.5
			H	61.5	52	49.5	46.5	41.5	37	28	30
			L	55.5	44	41	36	32.5	32.5	22.5	24

NOTES

1. Operation sound is measured in an anechoic chamber.
2. The operating sound level may become greater than this value depending on the operating conditions, reflected sound, and peripheral noise.
3. Operation sound deffers with operation and ambient conditions.
4. The power levels have been calculated on the assumption that the measuring point were right under the source of operating sound.

4D036767

VAM500FB

Power level data (in case of Total Heat Exchange mode)

(dB)

Model	Power supply		Hz / NOTCH	63	125	250	500	1000	2000	4000	8000
VAM500FB	50Hz	220V	U-H	57	54	41	48	45	37.5	27.5	25.5
			H	54	51.5	49	46	42.5	36	26.5	26
			L	50.5	47.5	44	39	33.5	25	23	24.5
		230V	U-H	57.5	54.5	51.5	48.5	45.5	38	28.5	26.5
			H	55	52.5	50	47	43.5	37	28	28
			L	51.5	48.5	45	.9.5	34.5	26.5	25	26.5
		240V	U-H	58.5	55.5	52.5	49.5	46.5	39	29.5	28.5
			H	56.5	54	41.5	48.5	45.5	38.5	30	30
			L	52	48.5	45.5	40	34.5	27	25.5	27.5
	60Hz	220V	U-H	57.5	54	51	49	46.5	39	29	25.5
			H	55	52	49.5	47	44	36	26.5	26
			L	51	47	44	39.5	33	23.5	22.5	25.5

NOTES

1. Operation sound is measured in an anechoic chamber.
2. The operating sound level may become greater than this value depending on the operating conditions, reflected sound and peripheral noise.
3. Operation sound differs with operation and ambient conditions.
4. The power levels have been calculated on the assumption that the measuring point were right under the source of operating sound.

4D036768

VAM650FB

Power level data (in case of Total Heat Exchange mode)

(dB)

Model	Power supply		Hz / NOTCH	63	125	250	500	1000	2000	4000	8000
VAM650FB	50Hz	220V	U-H	62	58	52.5	48.5	45.5	41.5	34	26
			H	61	56.5	51	47	44.5	39	30	26
			L	53.5	50.5	46	42	37.5	32	24	25.5
		230V	U-H	62.5	58.5	53	49	46	42	35	27
			H	61.5	57	51.5	47.5	45	39.5	30.5	27
			L	54.5	51.5	47	43	38.5	33	26	27.5
		240V	U-H	63.5	59.5	54	50	47	43	36	28.5
			H	63	58.5	53	49	46.5	51.5	32.5	29.5
			L	56	43	48.5	44.5	40	34.5	28	30
	60Hz	220V	U-H	59.5	58	53.5	48.5	46	43	38	23
			H	61.5	56	51	47	44	40	30	26.5
			L	54	51	46	42	38.5	31	23	25.5

NOTES

1. Operation sound is measured in an anechoic chamber.
2. The operating sound level may become greater than this value depending on the operating conditions, reflected sound and peripheral noise.
3. Operation sound differs with operation and ambient conditions.
4. The power levels have been calculated on the assumption that the measuring point were right under the source of operating sound.

4D036769

VAM800FB

Power level data (in case of Total Heat Exchange mode)

(dB)

Model	Power supply		Hz / NOTCH	63	125	250	500	1000	2000	4000	8000
VAM800FB	50Hz	220V	U-H	58	58	52.5	49.5	48.5	41.5	33.5	26
			H	58.5	57	51.5	49.5	47	40.5	31	27.5
			L	54.5	54.5	47.5	44.5	43	35.5	24.5	23.5
		230V	U-H	58.5	59.5	53	50	49	42	34	27
			H	59	58.5	52	50	47.5	41	31.5	28.5
			L	55.5	54	49.5	46.5	44	37.5	27.5	28
		240V	U-H	59	58	53	50	49	43.5	34.5	27
			H	59.5	59	52.5	50.5	48	41.5	32	29.5
			L	58	58	51	48	46.5	39	29.5	30.5
	60Hz	220V	U-H	58	57.5	54	40.5	49	43	33.5	26
			H	58.5	57.5	52.5	50	47	39.5	30	27
			L	54	54	48.5	45	43	35	24	23.5

NOTES

1. Operation sound is measured in an anechoic chamber.
2. The operating sound level may become greater than this value depending on the operating conditions, reflected sound and peripheral noise.
3. Operation sound differs with operation and ambient conditions.
4. The power levels have been calculated on the assumption that the measuring point were right under the source of operating sound.

4D036770

9 Sound data

9 - 1 Sound Power Spectrum

VAM1000FB

Power level data (in case of Total Heat Exchange mode)

(dB)

Model	Power supply		Hz / NOTCH	63	125	250	500	1000	2000	4000	8000
VAM1000FB	50Hz	220V	U-H	62	58.5	54	50.5	49	42	35.5	28
			H	61	57	52	50	48	38.5	31	25.5
			L	58	55	49	45.5	43.5	36.5	27.5	24
		230V	U-H	62.5	57.5	54.5	51	49.5	42.5	37	29
			H	61.5	57.5	52.5	50.5	48.5	39	31.5	26.5
			L	58.5	55	49	47	43.5	37	28	25
		240V	U-H	62.5	59	54.5	51.5	50.5	42.5	37	29
			H	62	58	53	51	49	38.5	32	27.5
			L	59	55.5	49.5	47.5	44.0	37.5	29	26
	60Hz	220V	U-H	62.5	57.5	53.5	52	49.5	42	36	27
			H	61	57	52	50	48	38	30	24.5
			L	59	54	51	47.5	43	35.5	26	24.5

NOTES

1. Operation sound is measured in an anechoic chamber.
2. The operating sound level may become greater than this value depending on the operating conditions, reflected sound and peripheral noise.
3. Operation sound differs with operation and ambient conditions.
4. The power levels have been calculated on the assumption that the measuring point were right under the source of operating sound.

4D036771

VAM1500FB

Power level data (in case of Total Heat Exchange mode)

(dB)

Model	Power supply		Hz / NOTCH	63	125	250	500	1000	2000	4000	8000
VAM1500FB	50Hz	220V	U-H	60.5	61	55.5	52.5	50.5	46	29.5	29.5
			H	60.5	60	53.5	51.5	49.5	44.5	37	31
			L	58.5	58	51	49	47	39.5	30.5	31
		230V	U-H	61	61.5	57	54.5	52	48.5	41.5	30.5
			H	61	60.5	54.5	52.5	49.5	43	34	31.5
			L	59.5	59.5	52	49.5	48	40.5	31.5	32
		240V	U-H	61.5	63	59	56	53	46.5	40.0	32
			H	61	60.5	54	52	49.5	43	34	31.5
			L	60	60	52.5	50	48.5	41	32	32.5
	60Hz	220V	U-H	62	62	57	54.5	52	46	37	31
			H	61	60.5	56	53	50	42.5	33	31.5
			L	59.5	59	51.5	49	45.5	39.5	31.5	32.5

NOTES

1. Operation sound is measured in an anechoic chamber.
2. The operating sound level may become greater than this value depending on the operating conditions, reflected sound and peripheral noise.
3. Operation sound differs with operation and ambient conditions.
4. The power levels have been calculated on the assumption that the measuring point were right under the source of operating sound.

4D036772

VAM2000FB

Power level data (in case of Total Heat Exchange mode)

(dB)

Model	Power supply		Hz / NOTCH	63	125	250	500	1000	2000	4000	8000
VAM2000FB	50Hz	220V	U-H	65	61.5	57	54	53	45	39.5	32.5
			H	64	60	55	53	51	41.5	34.5	30.5
			L	62	58	51.5	50	48.5	40.5	32.5	30.5
		230V	U-H	65.5	62	58	55.5	53.5	45.5	40	33
			H	65	61	56.5	54	52	42.5	35.5	32
			L	62	59	53	50.5	48.5	40.5	33	31
		240V	U-H	66	62.5	58	55	54	46	40.5	33.5
			H	65	61	56	54	52	42.5	35.5	32
			L	63	60	54.5	52	50	41.5	34	32.5
	60Hz	220V	U-H	66.5	61.5	57.5	56	53.5	46	40.5	33
			H	64	60	55	53	51	41	33.5	30
			L	60.5	57.5	51	48.5	46.5	41	32.5	32.5

NOTES

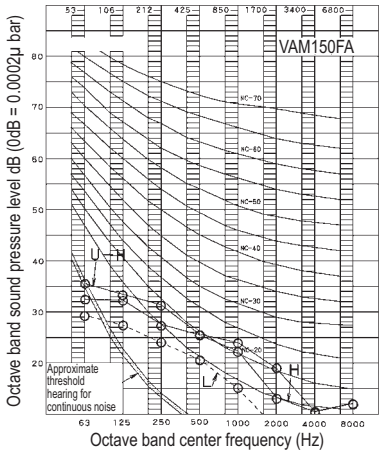
1. Operation sound is measured in an anechoic chamber.
2. The operating sound level may become greater than this value depending on the operating conditions, reflected sound and peripheral noise.
3. Operation sound differs with operation and ambient conditions.
4. The power levels have been calculated on the assumption that the measuring point were right under the source of operating sound.

4D036837

9 Sound data

9 - 2 Sound Pressure Spectrum

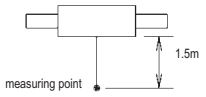
VAM150FA



4D036868

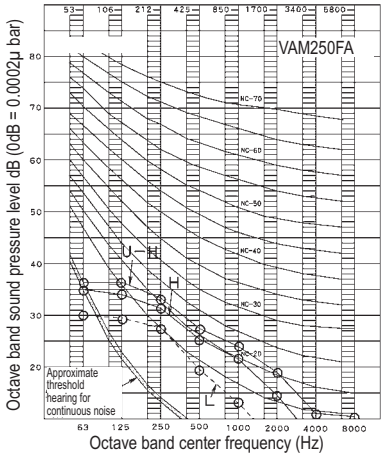
NOTES

1. Over All (dB):
   (B,G,N is already rectified)
2. Operating conditions:
   - Power source:
     Model: VAM150FA
   - Ventilation mode: Total heat exchange
3. Measuring place:
   - Operation noise is measured in an anechoic chamber.
   - The operation noise level becomes greater than this value depending on the operation conditions, reflected sound and peripheral noise.
   - Operation noise differs with operation and ambient conditions.
   - U-H: ultra-high, H: high, L: low
4. Operation noise differs with operation and ambient conditions
5. Location of microphone.



Scale	Air flow rate		
	U-H	H	I
A	27	26	20.5
C			

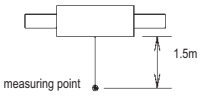
VAM250FA



4D036870

NOTES

1. Over All (dB):
   (B,G,N is already rectified)
2. Operating conditions:
   - Power source:
     Model: VAM250FA
   - Ventilation mode: Total heat exchange
3. Measuring place:
   - Operation noise is measured in an anechoic chamber.
   - The operation noise level becomes greater than this value depending on the operation conditions, reflected sound and peripheral noise.
   - Operation noise differs with operation and ambient conditions.
   - U-H: ultra-high, H: high, L: low
4. Operation noise differs with operation and ambient conditions
5. Location of microphone.

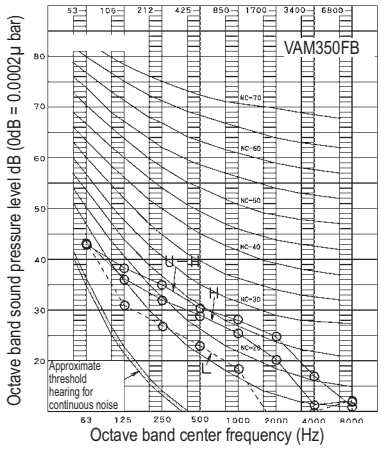


Scale	Air flow rate		
	U-H	H	I
A	28	26	21
C			

9 Sound data

9 - 2 Sound Pressure Spectrum

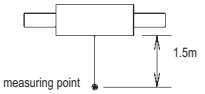
VAM350FB



4D036871

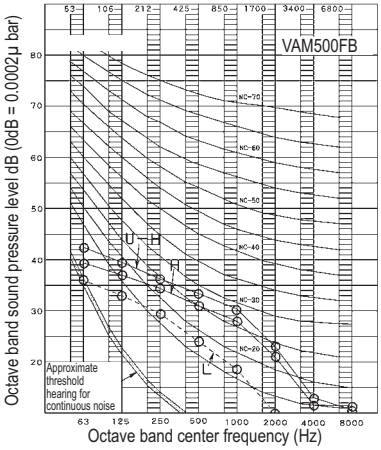
NOTES

1. Over All (dB):
   (B,G,N is already rectified)
2. Operating conditions:
   - Power source:
     Model: VAM350FB
   - Ventilation mode: Total heat exchange
3. Measuring place:
   - Operation noise is measured in an anechoic chamber.
   - The operation noise level becomes greater than this value depending on the operation conditions, reflected sound and peripheral noise.
   - Operation noise differs with operation and ambient conditions.
   - U-H: ultra-high, H: high, L: low
4. Operation noise differs with operation and ambient conditions
5. Location of microphone.



Scale	Air flow rate		
	U-H	H	I
A	32	31.5	23.5
C			

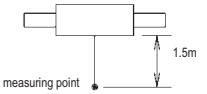
VAM500FB



4D036872

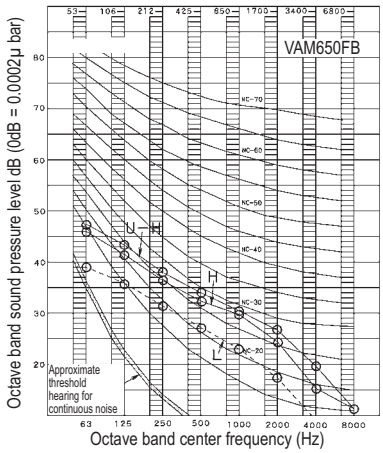
NOTES

1. Over All (dB):
   (B,G,N is already rectified)
2. Operating conditions:
   - Power source:
     Model: VAM500FB
   - Ventilation mode: Total heat exchange
3. Measuring place:
   - Operation noise is measured in an anechoic chamber.
   - The operation noise level becomes greater than this value depending on the operation conditions, reflected sound and peripheral noise.
   - Operation noise differs with operation and ambient conditions.
   - U-H: ultra-high, H: high, L: low
4. Operation noise differs with operation and ambient conditions
5. Location of microphone.



Scale	Air flow rate		
	U-H	H	I
A	33	31.5	24.5
C			

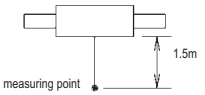
VAM650FB



4D036873

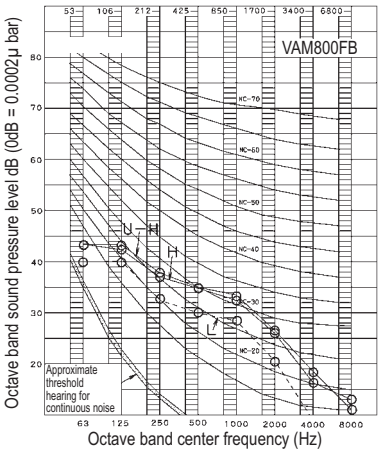
NOTES

1. Over All (dB):
   (B,G,N is already rectified)
2. Operating conditions:
   - Power source:
     Model: VAM650FB
   - Ventilation mode: Total heat exchange
3. Measuring place:
   - Operation noise is measured in an anechoic chamber.
   - The operation noise level becomes greater than this value depending on the operation conditions, reflected sound and peripheral noise.
   - Operation noise differs with operation and ambient conditions.
   - U-H: ultra-high, H: high, L: low
4. Operation noise differs with operation and ambient conditions
5. Location of microphone.



Scale	Air flow rate		
	U-H	H	I
A	34.5	33	27
C			

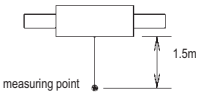
VAM800FB



4D036874

NOTES

1. Over All (dB):
   (B,G,N is already rectified)
2. Operating conditions:
   - Power source:
     Model: VAM800FB
   - Ventilation mode: Total heat exchange
3. Measuring place:
   - Operation noise is measured in an anechoic chamber.
   - The operation noise level becomes greater than this value depending on the operation conditions, reflected sound and peripheral noise.
   - Operation noise differs with operation and ambient conditions.
   - U-H: ultra-high, H: high, L: low
4. Operation noise differs with operation and ambient conditions
5. Location of microphone.

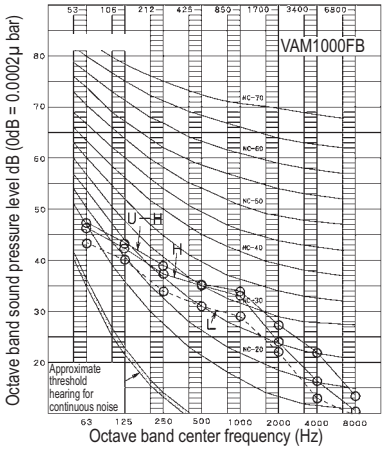


Scale	Air flow rate		
	U-H	H	I
A	35.5	34.5	31
C			

9 Sound data

9 - 2 Sound Pressure Spectrum

VAM1000FB

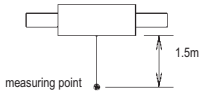


4D036875

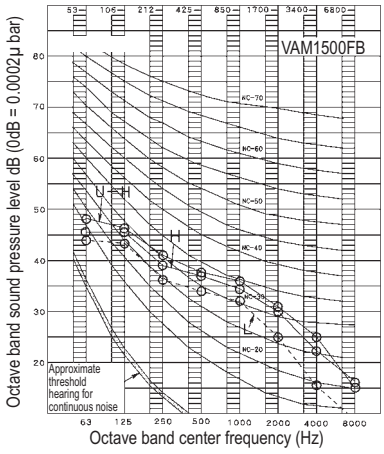
NOTES

1. Over All (dB):
   (B,G,N is already rectified)
2. Operating conditions:
   - Power source:
     Model: VAM1000FB
   - Ventilation mode: Total heat exchange
3. Measuring place:
   - Operation noise is measured in an anechoic chamber.
   - The operation noise level becomes greater than this value depending on the operation conditions, reflected sound and peripheral noise.
   - Operation noise differs with operation and ambient conditions.
   - U-H: ultra-high, H: high, L: low
4. Operation noise differs with operation and ambient conditions
5. Location of microphone.

Scale	Air flow rate		
	U-H	H	I
A	36	35	31.5
C			



VAM1500FB

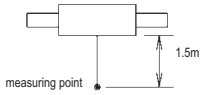


4D036876

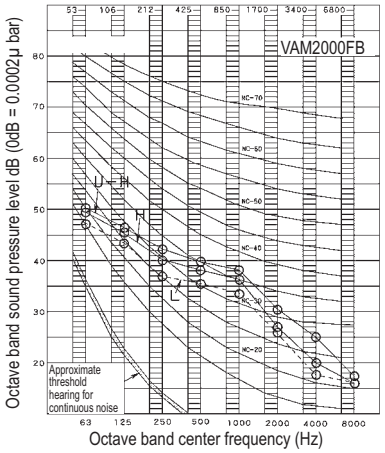
NOTES

1. Over All (dB):
   (B,G,N is already rectified)
2. Operating conditions:
   - Power source:
     Single phase: 50Hz 220V
     Model: VAM1500FB
   - Ventilation mode: Total heat exchange
3. Measuring place:
   - Operation noise is measured in an anechoic chamber.
   - The operation noise level becomes greater than this value depending on the operation conditions, reflected sound and peripheral noise.
   - Operation noise differs with operation and ambient conditions.
   - U-H: ultra-high, H: high, L: low
4. Operation noise differs with operation and ambient conditions
5. Location of microphone.

Scale	Air flow rate		
	U-H	H	I
A	39.5	38	34
C			



VAM2000FB

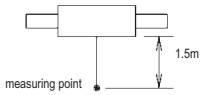


4D036877

NOTES

1. Over All (dB):
   (B,G,N is already rectified)
2. Operating conditions:
   - Power source:
     Model: VAM2000FB
   - Ventilation mode: Total heat exchange
3. Measuring place:
   - Operation noise is measured in an anechoic chamber.
   - The operation noise level becomes greater than this value depending on the operation conditions, reflected sound and peripheral noise.
   - Operation noise differs with operation and ambient conditions.
   - U-H: ultra-high, H: high, L: low
4. Operation noise differs with operation and ambient conditions
5. Location of microphone.

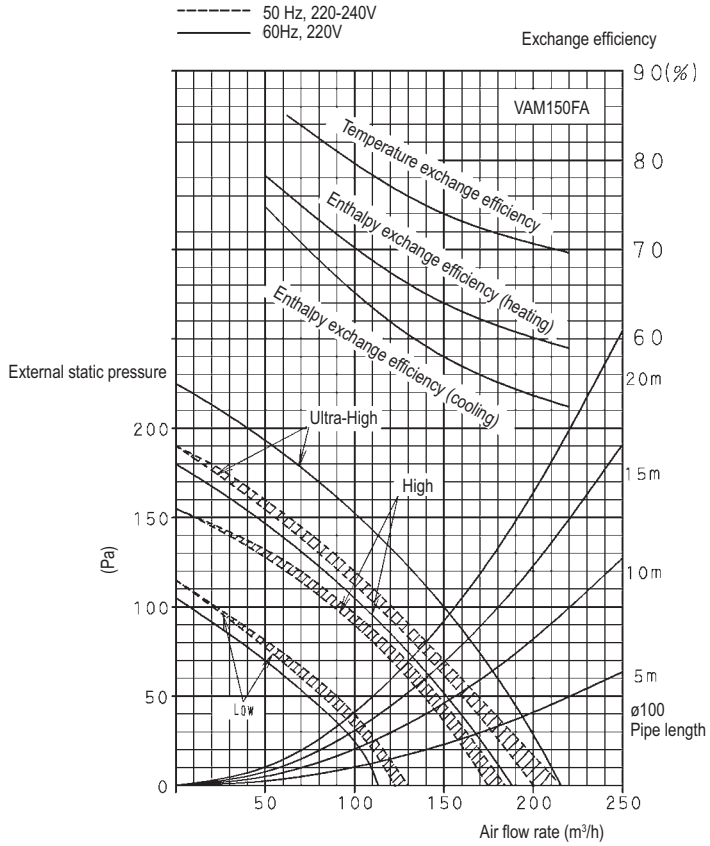
Scale	Air flow rate		
	U-H	H	I
A	40	38	35
C			



10 Fan characteristics

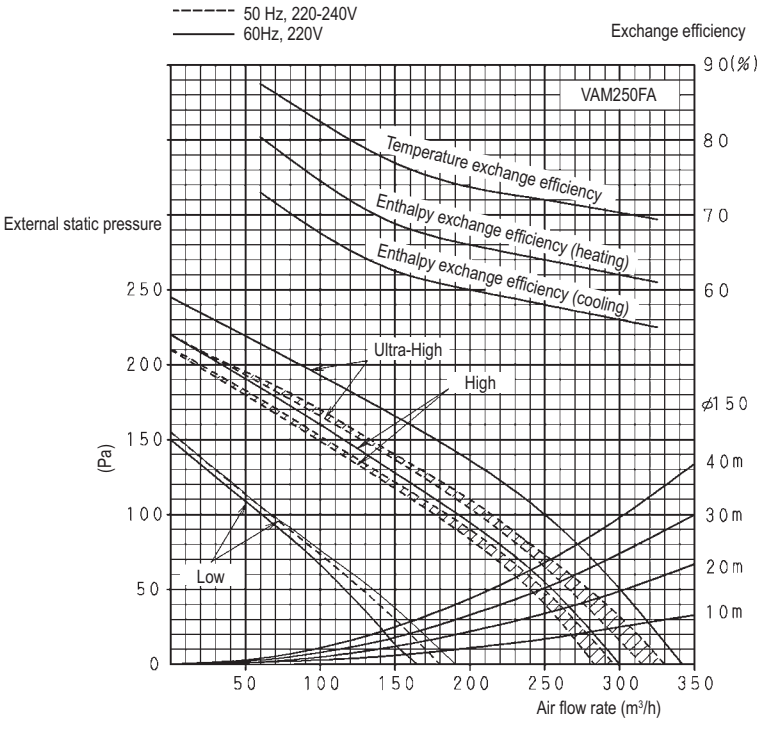
10 - 1 Fan Characteristics

VAM150FA



4D036773

VAM250FA

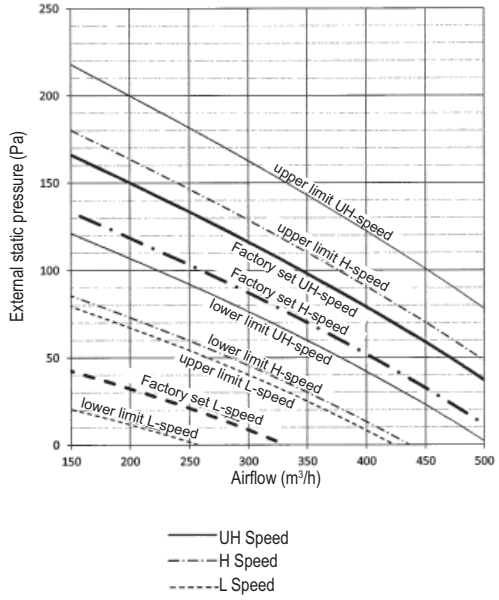


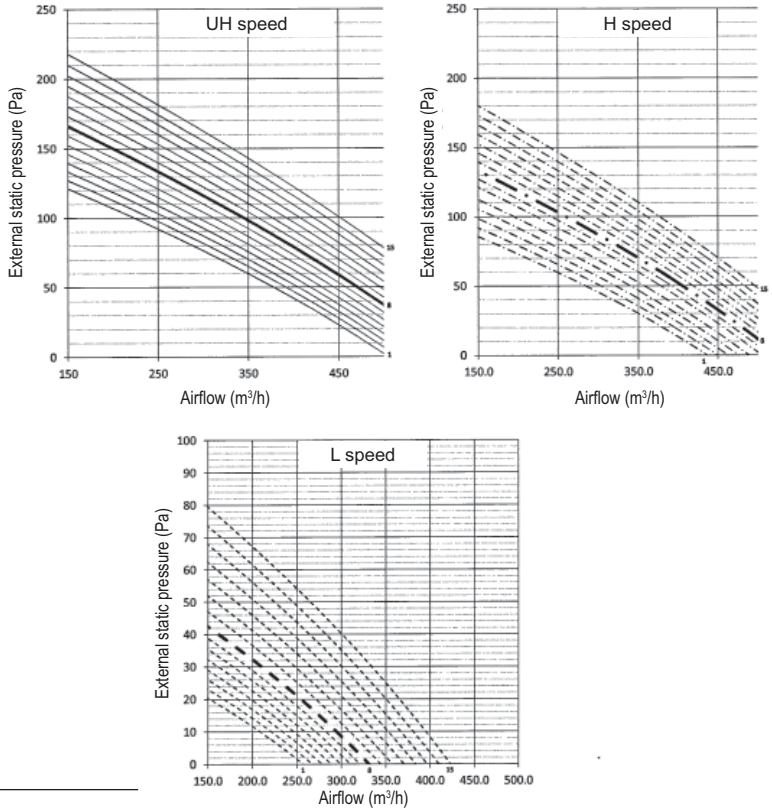
4D036774

10 Fan characteristics

10 - 1 Fan Characteristics

VAM350FB



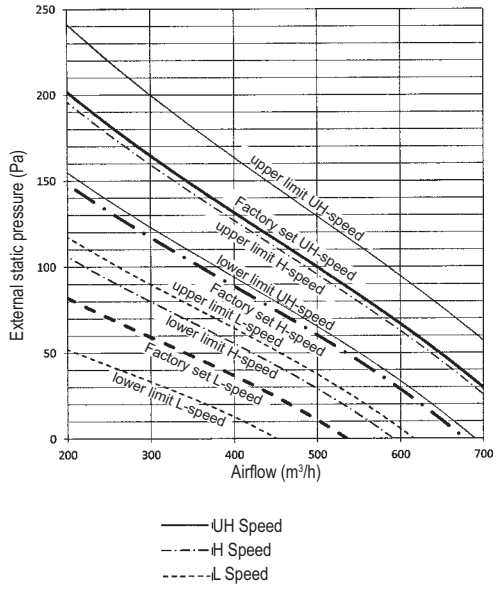


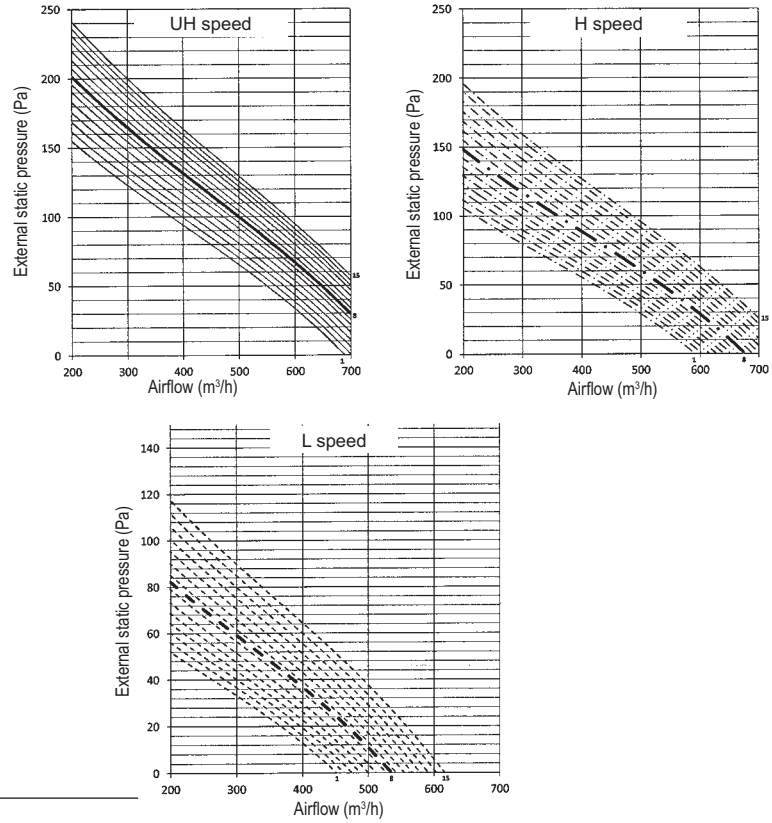
NOTES

1. The fan speeds are valid for 230V 50Hz power supply

3D082177

VAM500FB





NOTES

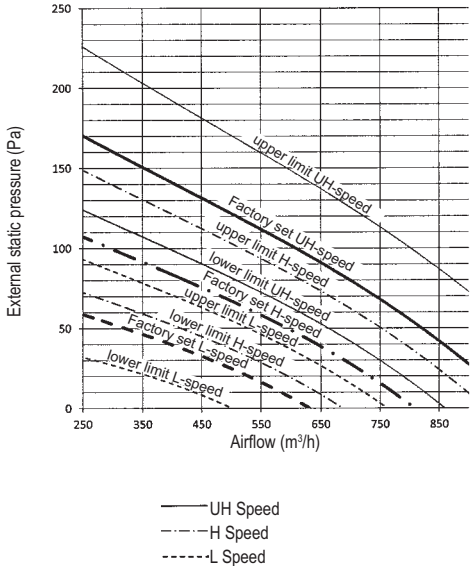
1. The fan speeds are valid for 230V 50Hz power supply

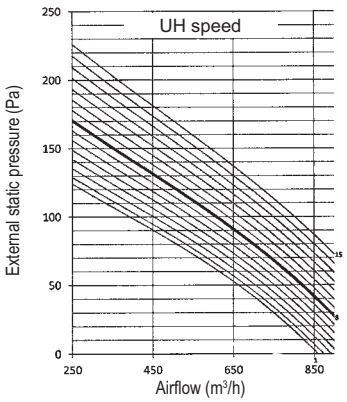
3D082178

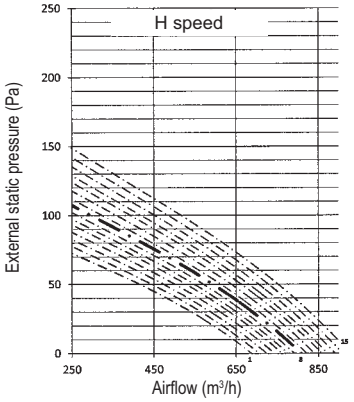
10 Fan characteristics

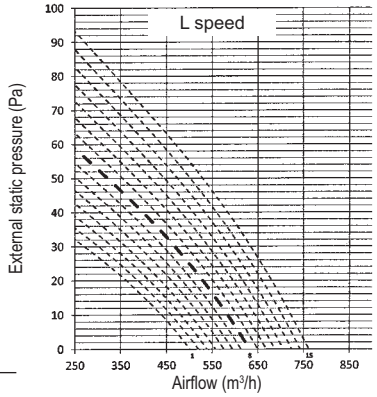
10 - 1 Fan Characteristics

VAM650FB







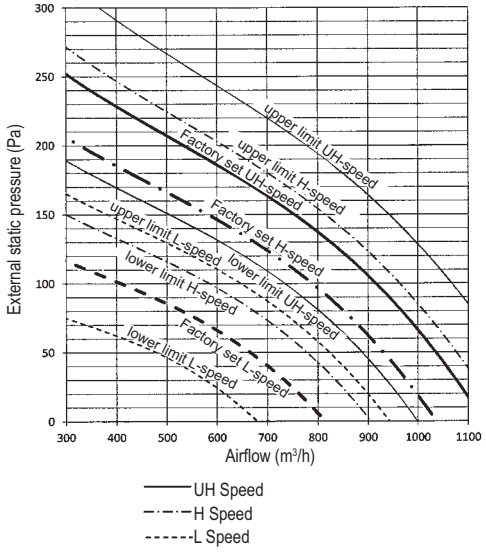


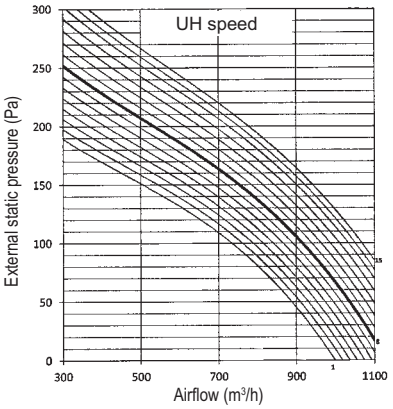
NOTES

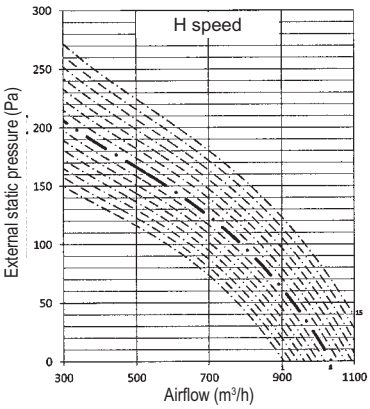
1. The fan speeds are valid for 230V 50Hz power supply

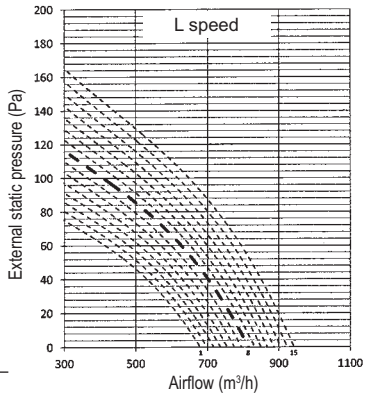
3D082179

VAM800FB









NOTES

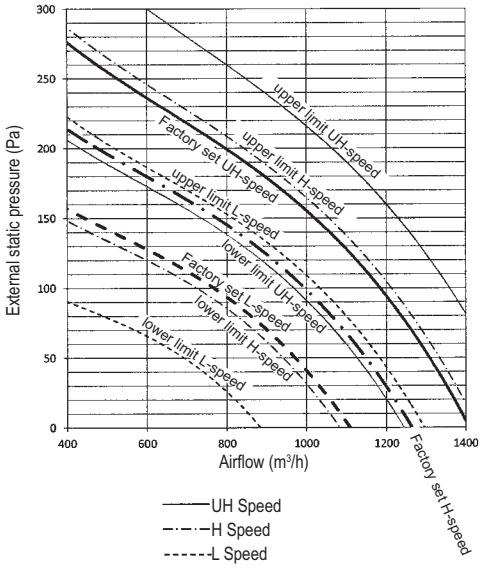
1. The fan speeds are valid for 230V 50Hz power supply

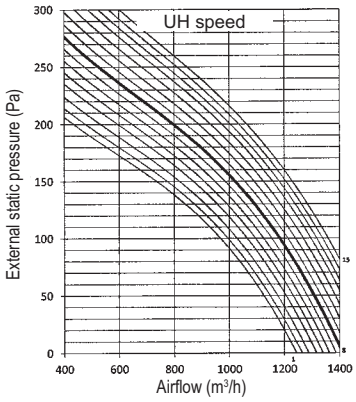
3D082180

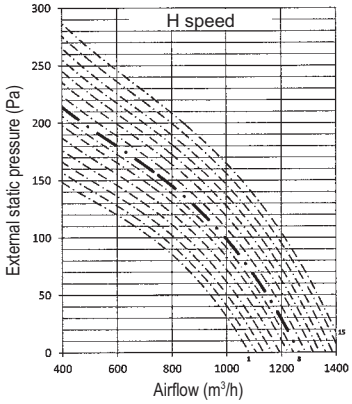
10 Fan characteristics

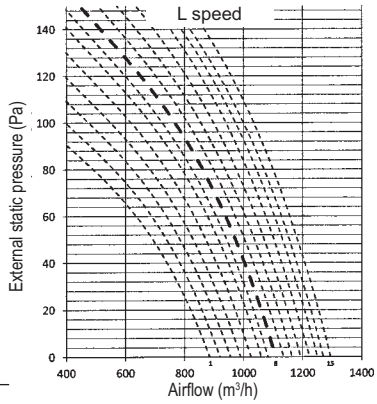
10 - 1 Fan Characteristics

VAM1000FB







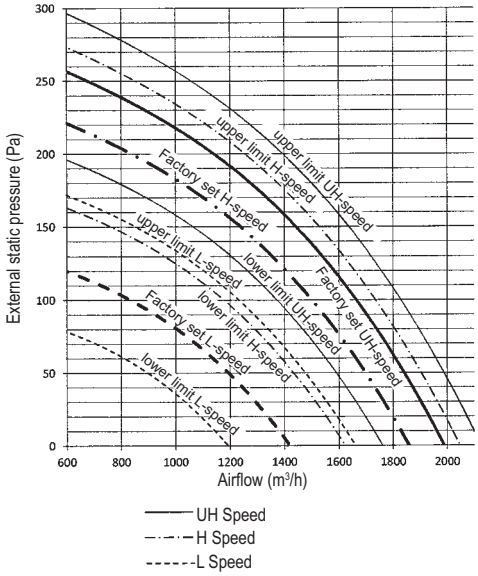


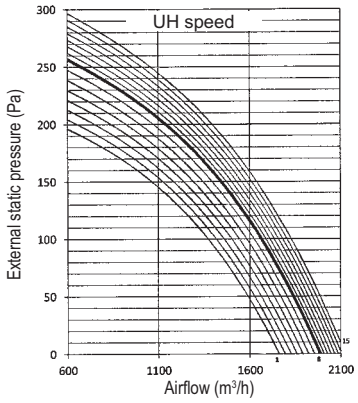
NOTES

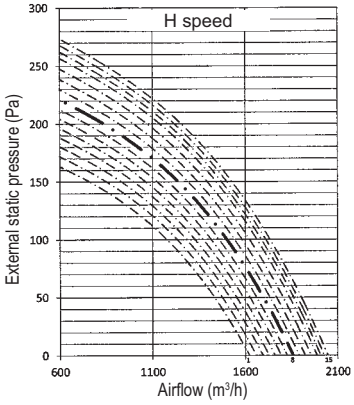
1. The fan speeds are valid for 230V 50Hz power supply

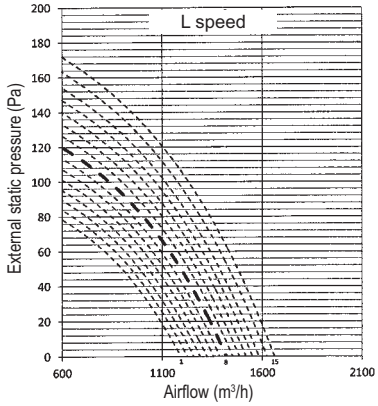
3D082181

VAM1500FB









NOTES

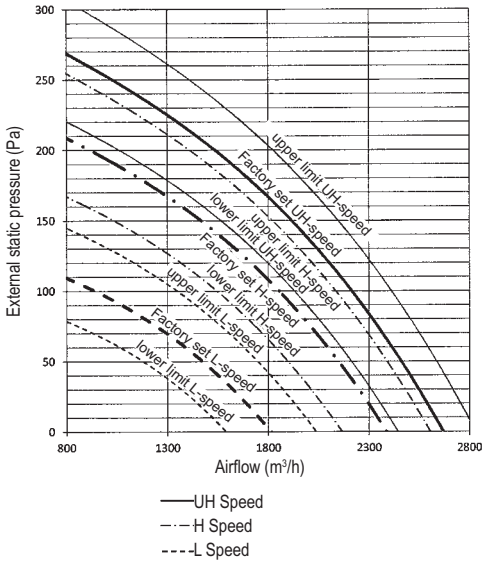
1. The fan speeds are valid for 230V 50Hz power supply

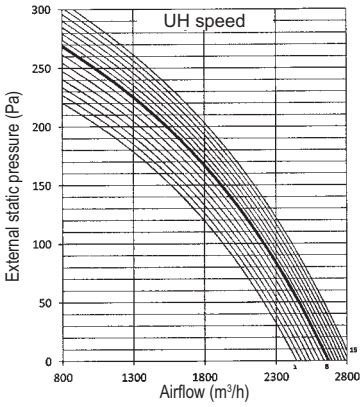
3D082182

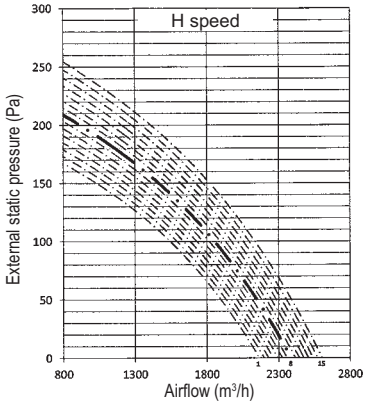
10 Fan characteristics

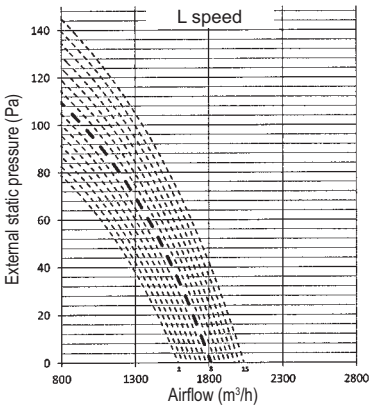
10 - 1 Fan Characteristics

VAM2000FB









NOTES

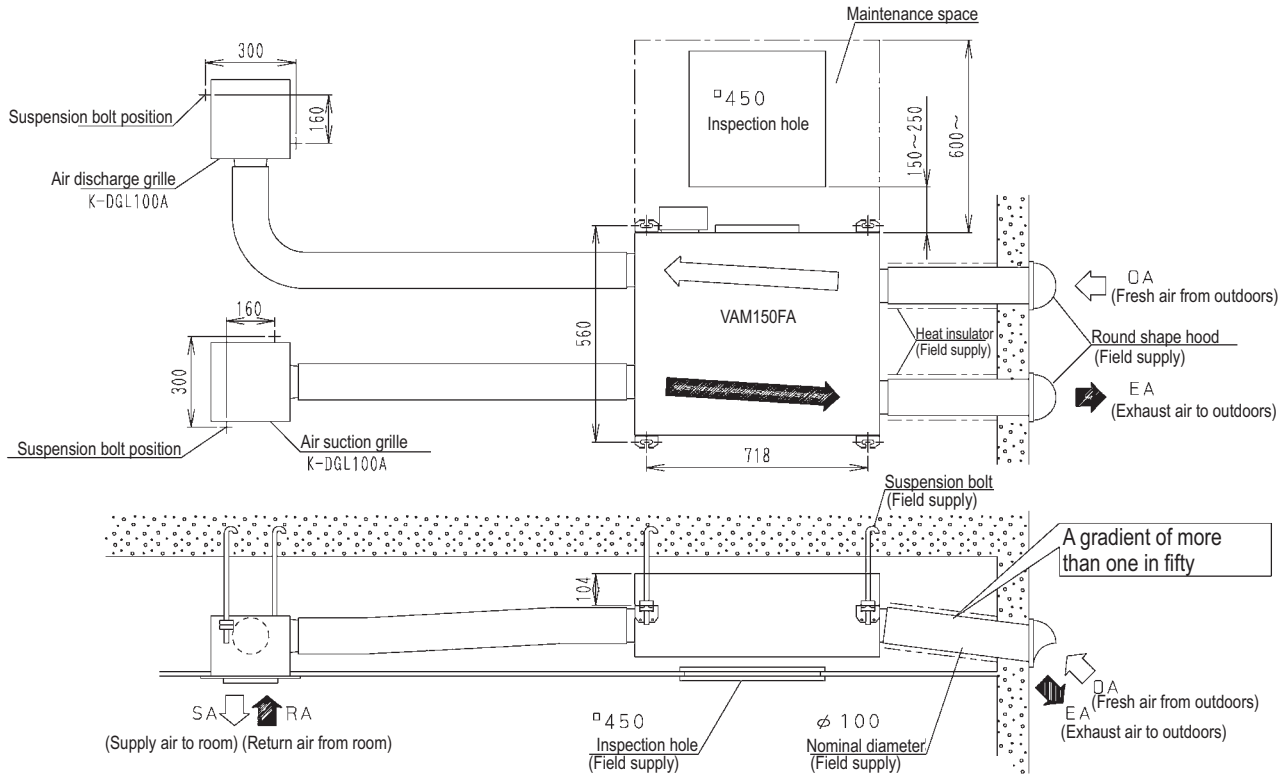
1. The fan speeds are valid for 230V 50Hz power supply

3D082183

11 Installation

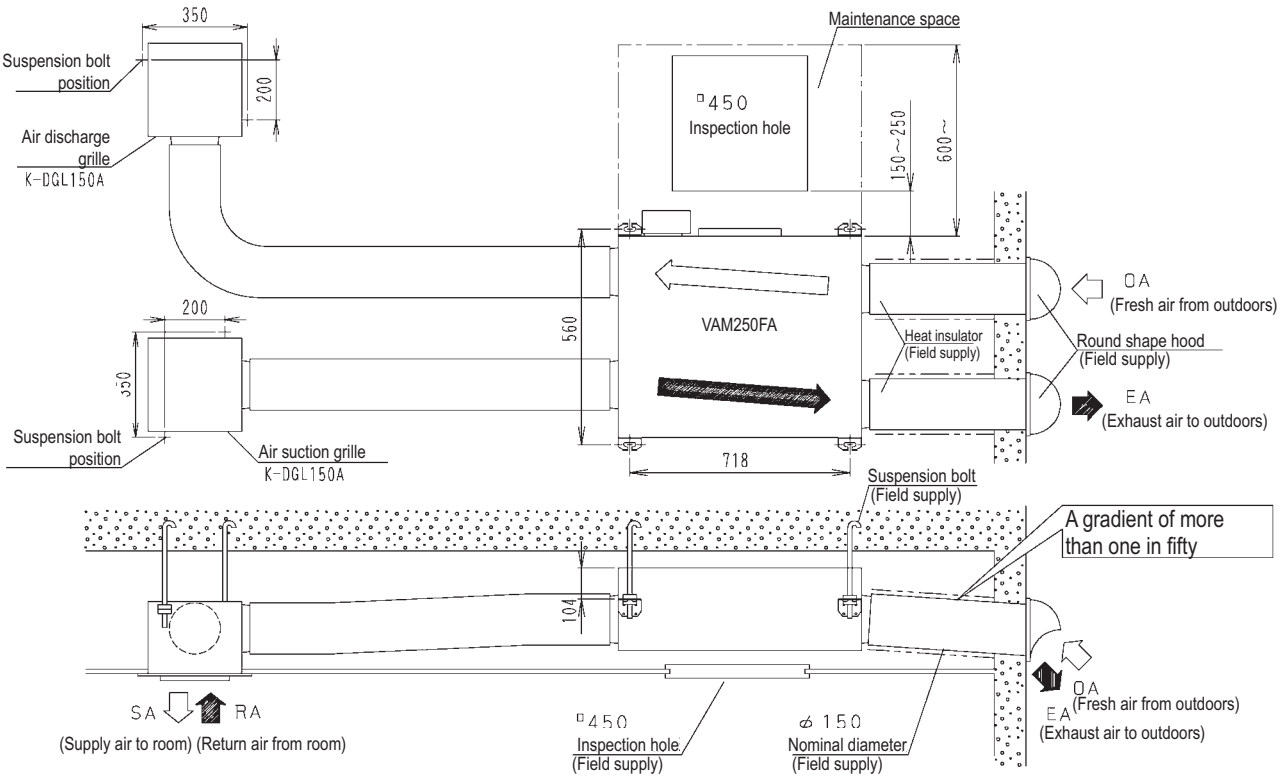
11 - 1 Installation Method

VAM150FA



3D036781

VAM250FA

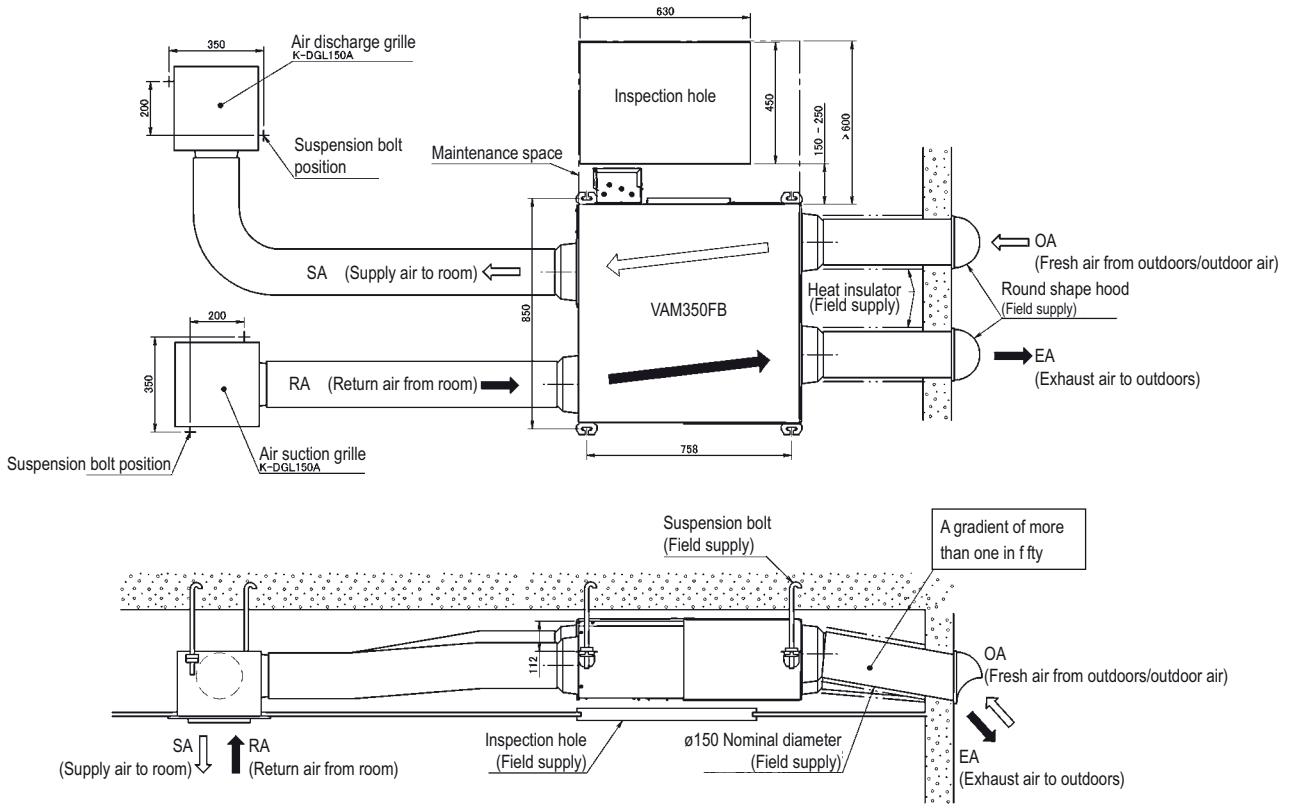


3D036782

11 Installation

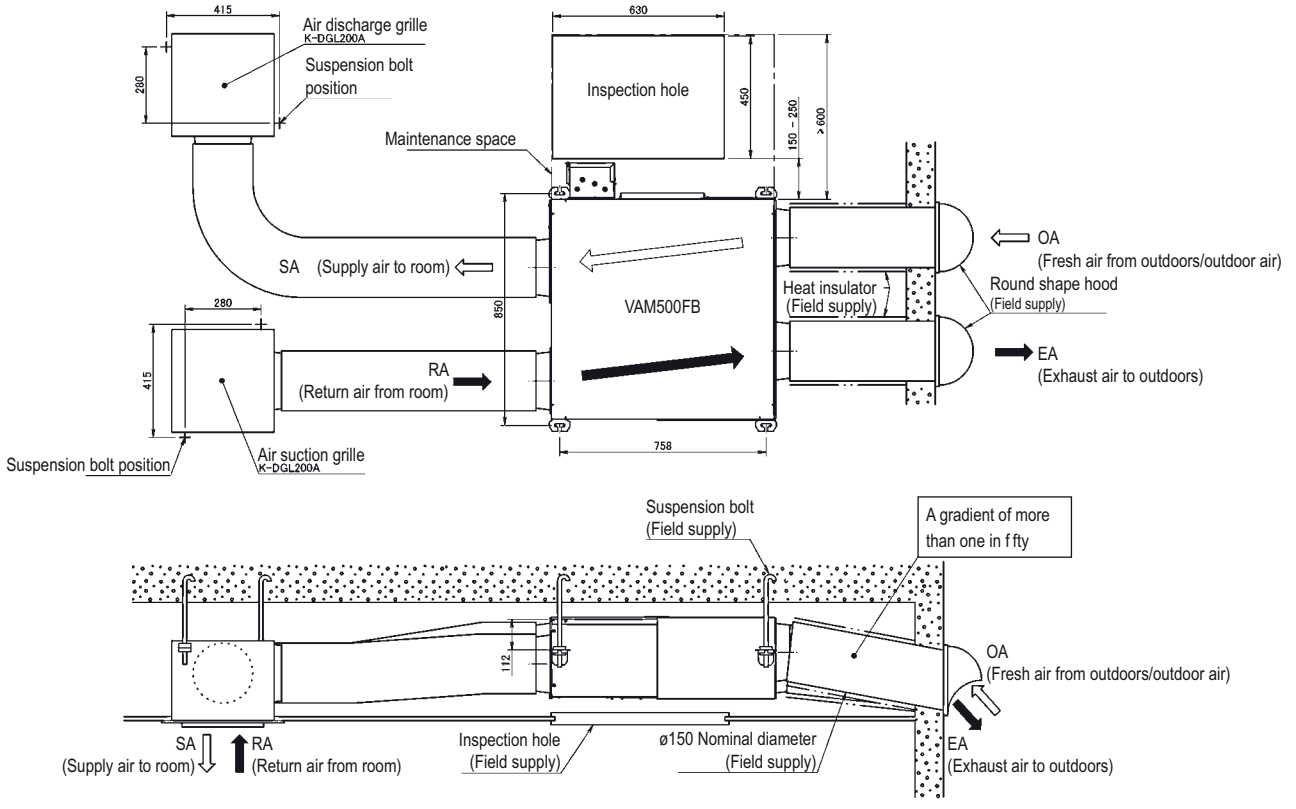
11 - 1 Installation Method

VAM350FB



3D081267

VAM500FB

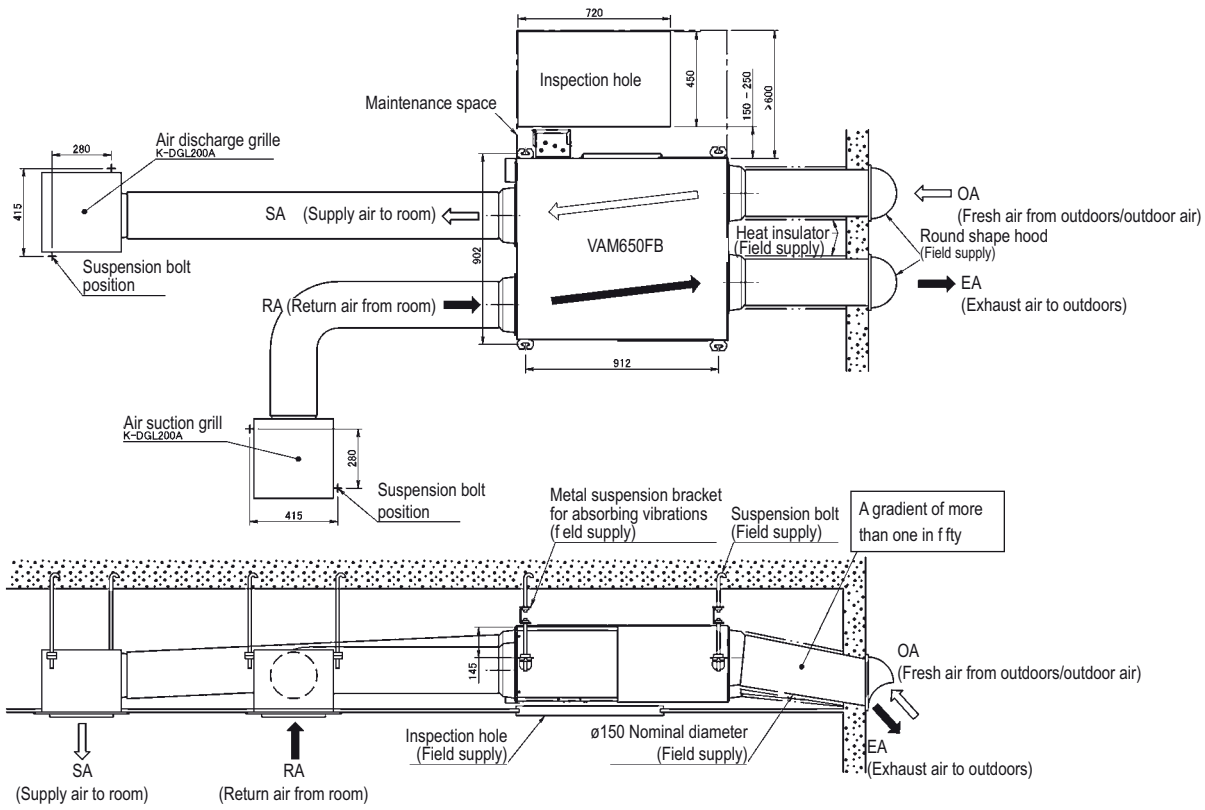


3D081268

11 Installation

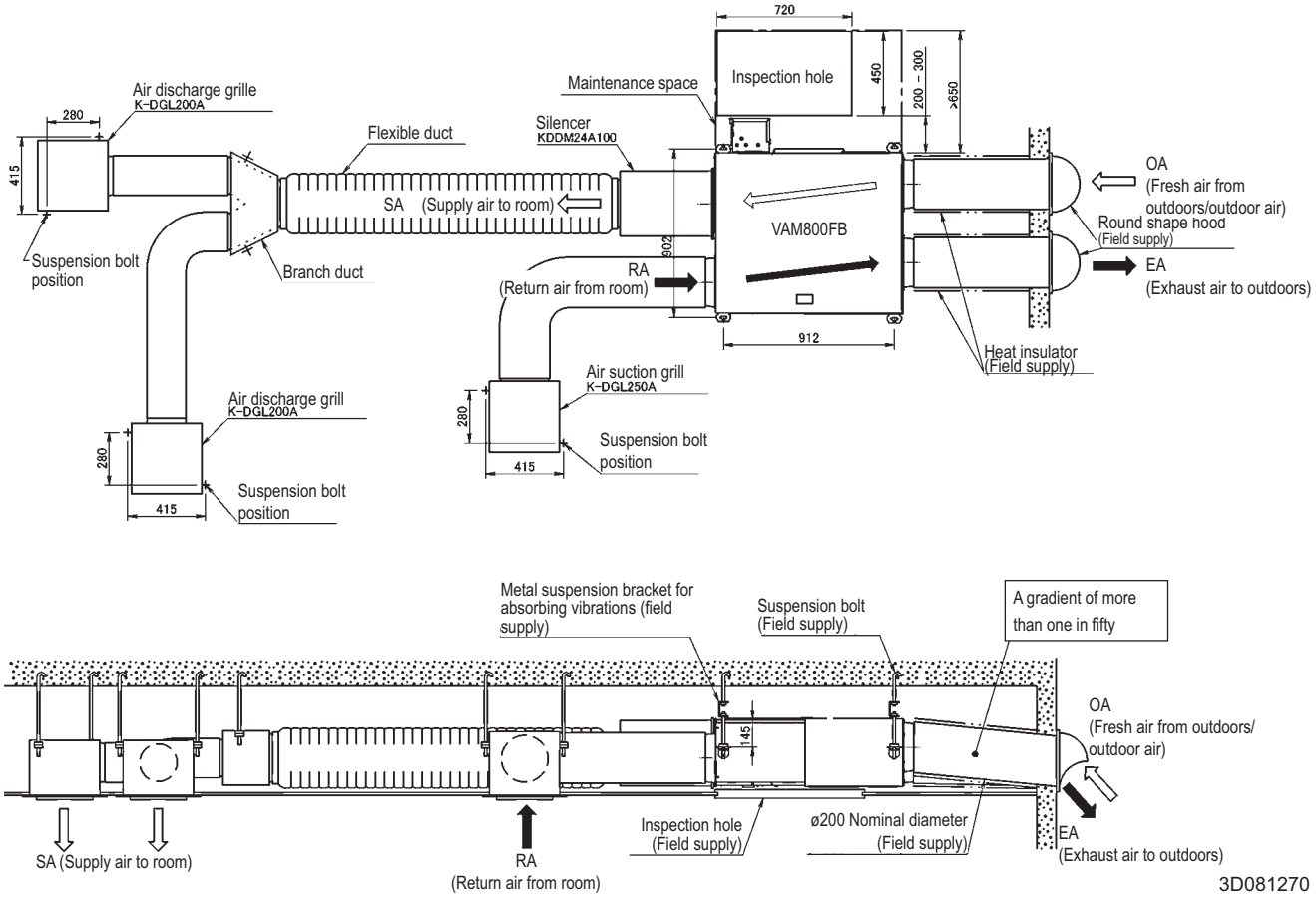
11 - 1 Installation Method

VAM650FB



3D081269

VAM800FB

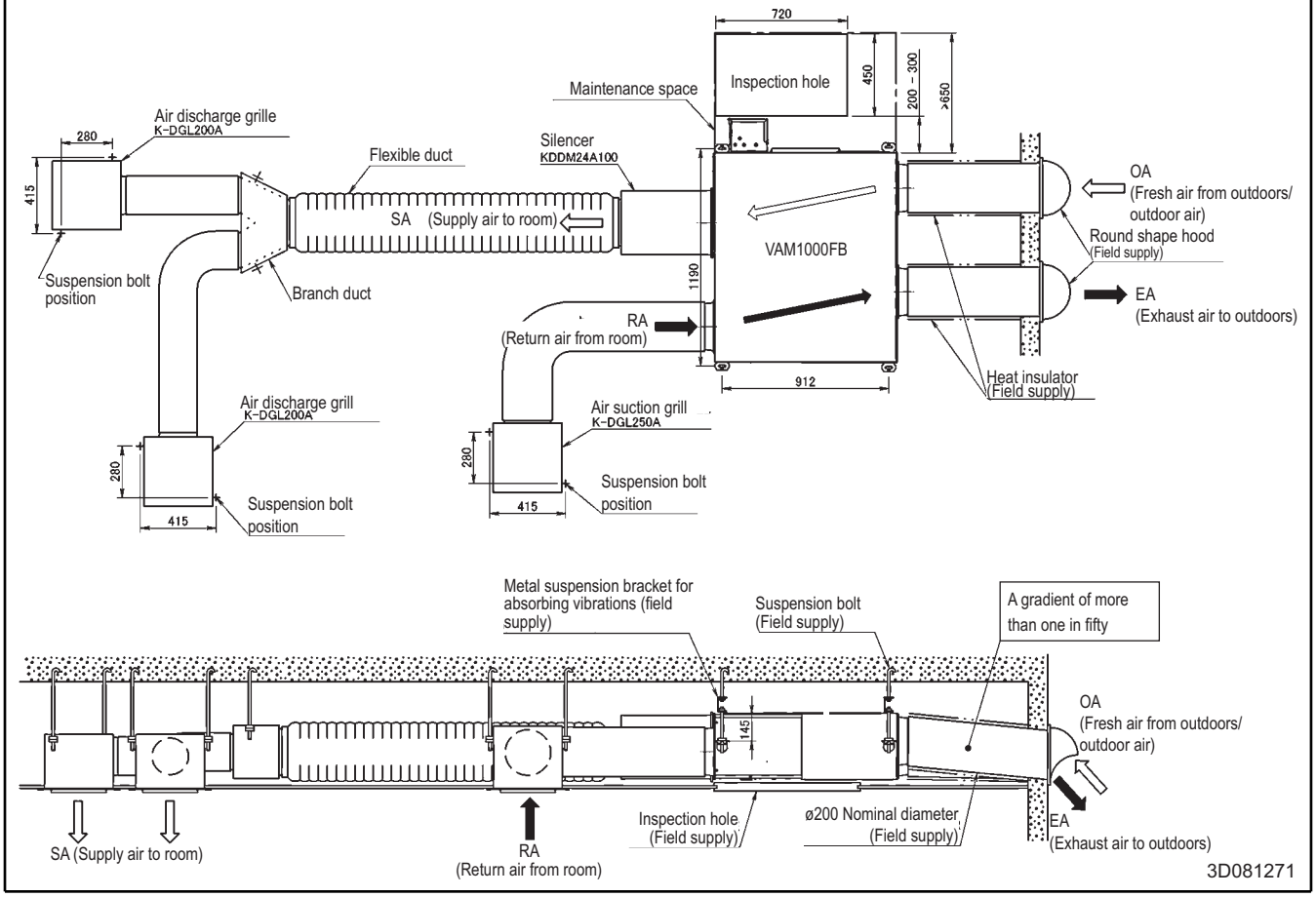


3D081270

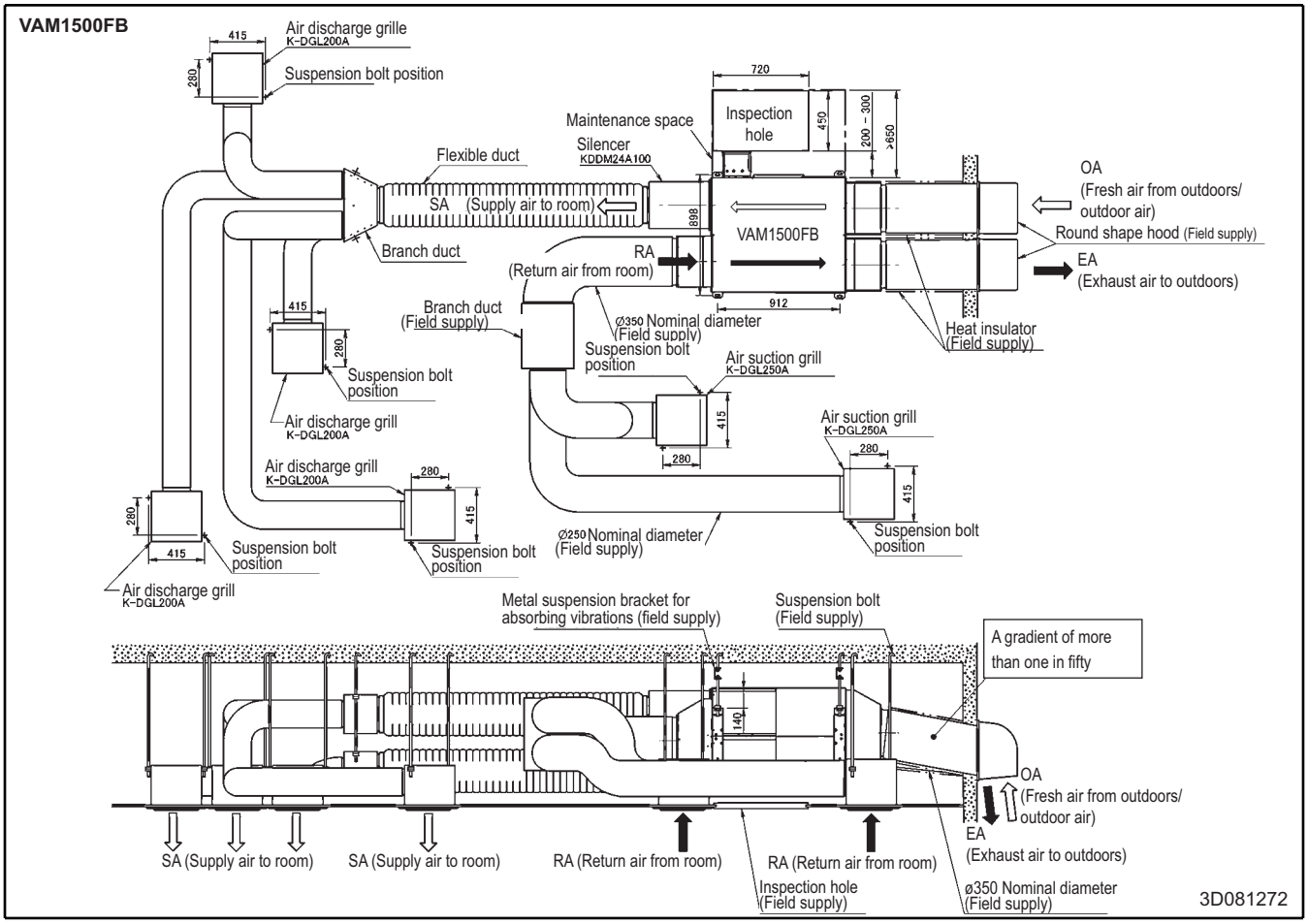
11 Installation

11 - 1 Installation Method

VAM1000FB



VAM1500FB



11 Installation

11 - 1 Installation Method