Heat reclaim ventilation and air processing Technical data book

VKM-GB

VKM50GBV1
VKM80GBV1
VKM100GBV1

EEDEN20

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1 Features

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Pre heating or cooling of fresh air for lower load on the air conditioning system

- Energy saving ventilation using indoor heating, cooling and moisture recovery
- Creates a high quality indoor environment by pre conditioning incoming fresh air
- Ideal solution for shops, restaurants or offices requiring maximum floor space for furniture, decorations and fittings
- Free cooling possible when outdoor temperature is below indoor temperature (eg. during nighttime)
- Low energy consumption thanks to DC fan motor
- Prevent energy losses from over-ventilation while improving indoor air quality with optional CO2 sensor
- Shorter installation time thanks to easy adjustment of nominal air flow rate, so less need for dampers compared with traditional installation.
- Specially developed heat exchange element with High Efficiency Paper (HEP)
- Can operate in over- and under pressure

2 Specifications

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Technical specifications					VKM50GB	VKM80GB	VKM100GB
Fresh air conditioning load	Cooling			kW	4.71 (1) / 1.91 (2) / 3.5 (3)	7.46 (1) / 2.96 (2) / 5.6 (3)	9.12 (1) / 3.52 (2) / 7.0 (3)
	Heating			kW	5.58 (1) / 2.38 (2) / 3.5 (3)	8.79 (1) / 3.79 (2) / 5.6 (3)	10.69 (1) / 4.39 (2) / 7.0 (3)
Power input - 50Hz	Heat exchange mode	Nom.	Ultra high	kW	0.270	0.330	0.410
			High	kW	0.230	0.280	0.365
			Low	kW	0.170	0.192	0.230
	Bypass mode	Nom.	Ultra high	kW	0.270	0.330	0.410
			High	kW	0.230	0.280	0.365
			Low	kW	0.140	0.192	0.230
Connection ratio	Outdoor units	with only ventilation units connected	Minimum	%	50		
			Maximum	%	130		
	Ventilation units	when combined with VRV® indoor	Maximum	%	130		
Casing	Material				Galvanised steel plate		
Insulation material					Self-extinguishable urethane foam		
Dimensions	Unit	Height		mm	387		
		Width		mm	1,764		
		Depth		mm	832	1,214	
Weight	Unit			kg	94	110	112
Heat exchanger	Type				Cross fin coil		
	Rows	Quantity			2		
	Stages	Quantity			12		
	Fin pitch			mm	2.2		
	Face area			m^2	0.078	0.118	0.165
Fan	Type				Sirocco fan		
	Air flow rate - 50Hz	Heat exchange mode	Ultra high	m^3/h	500 (4)	750	950
			High	m^3/h	500 (4)	750	950
			Low	m^3/h	440 (4)	640	820
		Bypass mode	Ultra high	m^3/h	500 (4)	750	950
			High	m^3/h	500 (4)	750	950
			Low	m^3/h	440 (4)	640	820
	External static pressure - 50Hz	Ultra high		Pa	210		150
		High		Pa	170	160	100
		Low		Pa	140	110	70
Fan motor	Quantity				2		
	Output	50 Hz		W	210		
Temperature exchange efficiency - 50Hz	Ultra high			%	76	78	74
	High			%	76	78	74
Temperature exchange efficiency - 50Hz	Low			%	77.5	79	76.5
Enthalpy exchange efficiency - 50Hz	Cooling	Ultra high		%	64	66	62
		High		%	64	66	62
		Low		%	67	68	66
	Heating	Ultra high		%	67	71	65
		High		%	67	71	65
		Low		%	69	73	69
Operation range	Around unit			°CDB	0°C~40°CDB, 80% RH or less		
	Supply air			°CDB	-15°C~40°CDB, 80% RH or less		
	Return air			°CDB	0°C~40°CDB, 80% RH or less		
	On coil temperature	Cooling	Max.	°CDB	-15		
		Heating	Min.	°CDB	43 (5)		
Sound pressure level - 50Hz	Heat exchange mode	Ultra high		dBA	39	41.5	41
		High		dBA	37	39	
		Low		dBA	35.5	37	36.5
	Bypass mode	Ultra high		dBA	40	41.5	41
		High		dBA	38	39	
		Low		dBA	35.5	37	36.5
Piping connections	Liquid	Type			C1220T (Flare connection)		
		OD		mm	6.4	6.35	
	Gas	Type			C1220T (Flare connection)		
		OD		mm	12.7		
	Drain				PT3/4 external thread		
Refrigerant	Control				Electronic expansion valve		
	Type				R-410A		
	GWP				2,087.5		
Heat exchange system					Air to air cross flow total heat (sensible + latent heat) exchange		
Heat exchange element					Specially processed non-flammable paper		
Air filter	Type				Multidirectional fibrous fleeces		
Connection duct diameter				mm	200	250	
Operation mode					Heat exchange mode / Bypass mode / Fresh-up mode		

Standard accessories: Operation manual; Quantity: ;

2 Specifications

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Standard accessories: Installation manual; Quantity: ;

Standard accessories: Duct connecting flange; Quantity: ;

Standard accessories: M4 tapping screw to connect duct; Quantity: ;

Standard accessories: Refrigerant piping insulation cover; Quantity: ;

Standard accessories: Clamps; Quantity: ;

Electrical specifications					VKM50GB	VKM80GB	VKM100GB
Power supply	Name					V1	
	Phase					1~	
	Frequency			Hz		50	
	Voltage			V		220-240	
Voltage range	Min.			%		-10	
	Max.			%		10	
Current	Minimum circuit amps (MCA)			A		3.25	
	Maximum fuse amps (MFA)			A		15	
	Fan motor rated output			kW		0.210x2	
	Full load amps (FLA)	Fan motor		A		1.3	
		Fan motor 2		A		1.3	
	Normal amps - 50Hz	Heat exchange mode	Ultra high	A	1.65	2.12	2.57
			High	A	1.42	1.79	2.08
			Low	A	1.08	1.29	1.44
		Bypass mode	Ultra high	A	1.64	2.12	2.57
			High	A	1.51	1.81	2.08
			Low	A	0.89	1.29	1.44

(1)Cooling and heating capacities are based on the following conditions. Fan is based on High and Ultra-high |
(2)This value indicates the heat reclaimed from the heat recovery ventilator. |
(3)Use this value to calculate the capacity as indoor unit. |
(4)Air flow rate can be changed to Low mode or High mode. |
(5)Instead of a fuse, use a circuit breaker |
Cooling: indoor temp. 27°CDB, 19°CWB; outdoor temp. 35°CDB |
Heating: indoor temp. 20°CDB; outdoor temp. 7°CDB, 6°CWB |
Operation sound measured at 1.5m below the center of the unit is converted to that measured in an anechoic chamber, built in accordance with JIS C1502 condition. |
The actual operation sound varies depending on the surrounding conditions (near running unit's sound, reflected sound etc.) and is normally higher than this value. |
For operation in a quiet room, it is required to take measures to lower the sound. For more details, refer to the data book |
The sound level at the air discharge port is about 8-11dB higher than operating sound of the unit. For operation in a quiet room, it is required to take measures to lower the sound, for example install more than 2m soft duct near the air discharge grille. |
Normal amplitude, input and efficiency depend on the mentioned conditions. |
OA: fresh air from outdoors, RA: return air from the room |
The specifications, designs and information here are subject to change without notice. |
Temperature Exchange Efficiency is a mean value in cooling and heating |
Efficiency is measured under following condition: ratio of rated external static pressure has been kept as follows: outdoor side to indoor side = 7 to 1 |
In heating operation, freezing of the outdoor unit coil increases, heating capacity decreases and the system goes into defrost operation. |
In defrost operation the fans of the units continue driving (factory settings). Purpose is to maintain the amount of ventilation & humidification. |
Contains fluorinated greenhouse gases |
When connected to VRV heat recovery outdoor unit, bring the RA (exhaust gas intake) of this unit directly in from the ceiling, connect to BS unit identical to the VRV indoor unit (master unit), and use group-linked operation. See the engineering data for details. |
When connecting the indoor unit directly to the duct, always take the same system on the indoor unit as with the outdoor unit. |
Perform group-linked operation and make the direct duct connection settings from the remote controller. (Mode No. '17 (27)' - first code n°5; second code n°6) |
Also, do no connect to the outlet side of the indoor unit. Depending on the fan strength ans static pressure, the unit might back up |
Voltage range: units are suitable for use on electrical systems where voltage supplied to unit terminal is not below or above listed range limits. |
Maximum allowable voltage range variation between phases is 2%. |
MCA/MFA: MCA = 1.25 x FLA(FM1) + FLA(FM2); MFA <= 4 x FLA; next lower standard fuse rating: min. 15A |
Select wire size based on the value of MCA |
At 80% RH |
Specifications measured at fan curve 8 (factory settings)

3 Electrical data

3 - 1 Electrical Data

VKM-GB

Model	Power supply					IFM		Input (W)
	Hz	Volts	Voltage range	MCA	MFA	KW	FLA	
VKM50GB	50	220 ~ 240V	Max. 264W Min. 198V	3.25	15	0.21 x 2	1.3 x 2	270
VKM80GB				3.25	15	0.21 x 2	1.3 x 2	330
VKM100GB				3.25	15	0.21 x 2	1.3 x 2	410

SYMBOLS

MCA : Min. Circuit Amps (A)
MFA : Max. Fuse Amps (See note 5)
kW : Fan Motor Rated Output (kW)
FLA : Full Load Amps (A)
IFM : Indoor Fan Motor

NOTES

1. Voltage range
   Units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.
2. Maximum allowable voltage unbalance between phases is 2%.
3. MCA/MFA
   $MCA = 1.25 \times FLA_{(FM1)} + FLA_{(FM2)}$
   $MFA \leq 4 \times FLA$
   (Next lower standard fuse rating. Min. 15A)
4. Select wire size based on the MCA.
5. Instead of fuse, use circuit breaker.

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4 Options

4 - 1 Options

VKM-GB
VKM-GBM

Member			Applicable model: VKM50,80,100GBMV1 VKM50,80,100GBV1
Controlling device	Remote controller		BRC1D52/BRC1E52 (※1)
	Centralized controlling device	Central remote controller	DCS302CA51/DCS302CA61
		Unified ON/OFF controller	DCS301BA51/DCS301BA61
		Shedule Timer	DST301BA51/DST301BA61
	PC Board Adapter	Wiring adapter for electrical appendices	BRP4A50A
		For ON signal output	
		For heater control kit	

NOTES

※1 Necessary when operating Heat Reclaim Ventilation (VKM) independently. When operating interlocked with other air conditioners, use the remote controllers of the air conditioners.

Member			Applicable model: VKM50GBMV1 VKM50GBV1	VKM80GBMV1 VKM80GBV1	VKM5100GBMV1 VKM100GBV1
Additonal function	Silencer			KDDM24B100	
		Nominal pipe diameter (mm)	-	ø 250mm	
	Air suction / Discharge grill	White	K-DGL200C	K-DGL250C	
		Nominal pipe diameter (mm)	ø 200	ø 250	
	Air filter for replacement		KAF241H80M	KAF241H100M	
	CO_2 sensor		BRYMA65	BRYMA100	

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5 Capacity tables

5 - 1 Cooling Capacity Tables

VKM-GB(M)

Model	Outdoor °CWB	Coil inlet air temp													
		14.0°CWB		16.0°CWB		18.0°CWB		19.0°CWB		20.0°CWB		22.0°CWB		24.0°CWB	
		20.0°CDB		23.0°CDB		26.0°CDB		27.0°CDB		28.0°CDB		30.0°CDB		32.0°CDB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	10.0	1.9	1.5	2.3	1.8	2.6	2.0	2.8	2.0						
	12.0	1.9	1.5	2.3	1.8	2.6	2.0	2.8	2.0						
	14.0	1.9	1.5	2.3	1.8	2.6	2.0	2.8	2.0	3.0	2.0				
	16.0	1.9	1.5	2.3	1.8	2.6	2.0	2.8	2.0	3.0	2.0				
	18.0	1.9	1.5	2.3	1.8	2.6	2.0	2.8	2.0	3.0	2.0				
	20.0	1.9	1.5	2.3	1.8	2.6	2.0	2.8	2.0	3.0	2.0				
	21.0			2.3	1.8	2.6	2.0	2.8	2.0	3.0	2.0				
	23.0			2.3	1.8	2.6	2.0	2.8	2.0	3.0	2.0	3.3	2.1		
	25.0			2.3	1.8	2.6	2.0	2.8	2.0	3.0	2.0	3.3	2.0		
	27.0			2.3	1.8	2.6	2.0	2.8	2.0	3.0	2.0	3.2	2.0		
	29.0			2.3	1.8	2.6	2.0	2.8	2.0	3.0	2.0	3.2	2.0		
	31.0			2.3	1.8	2.6	2.0	2.8	2.0	3.0	2.0	3.1	2.0		
	33.0			2.3	1.8	2.6	2.0	2.8	2.0	3.0	2.0	3.1	2.0	3.1	1.8
	35.0					2.6	2.0	2.8	2.0	3.0	2.0	3.0	1.9	3.1	1.8
	37.0					2.6	2.0	2.8	2.0	2.9	2.0	3.0	1.9	3.0	1.8
	39.0					2.6	2.0	2.8	2.0	2.9	2.0	2.9	1.9	3.0	1.8
80	10.0	3.0	2.7	3.6	3.0	4.2	3.2	4.5	3.2						
	12.0	3.0	2.7	3.6	3.0	4.2	3.2	4.5	3.2						
	14.0	3.0	2.7	3.6	3.0	4.2	3.2	4.5	3.2	4.8	3.3				
	16.0	3.0	2.7	3.6	3.0	4.2	3.2	4.5	3.2	4.8	3.2				
	18.0	3.0	2.7	3.6	3.0	4.2	3.2	4.5	3.2	4.8	3.2				
	20.0	3.0	2.7	3.6	3.0	4.2	3.2	4.5	3.2	4.8	3.2				
	21.0			3.6	3.0	4.2	3.2	4.5	3.2	4.8	3.2				
	23.0			3.6	3.0	4.2	3.2	4.5	3.2	4.8	3.2	5.3	3.2		
	25.0			3.6	3.0	4.2	3.2	4.5	3.2	4.8	3.2	5.2	3.2		
	27.0			3.6	3.0	4.2	3.2	4.5	3.2	4.8	3.2	5.1	3.1		
	29.0			3.6	3.0	4.2	3.2	4.5	3.2	4.8	3.2	5.1	3.1		
	31.0			3.6	3.0	4.2	3.2	4.5	3.2	4.8	3.2	5.0	3.1		
	33.0			3.6	3.0	4.2	3.2	4.5	3.2	4.8	3.2	4.9	3.0	5.0	2.8
	35.0					4.2	3.2	4.5	3.2	4.7	3.2	4.8	3.0	4.9	2.8
	37.0					4.2	3.2	4.5	3.2	4.6	3.2	4.8	3.0	4.9	2.8
	39.0					4.2	3.2	4.5	3.2	4.6	3.2	4.7	2.9	4.9	2.7
100	10.0	3.9	3.2	4.5	3.6	5.2	4.0	5.6	4.0						
	12.0	3.9	3.2	4.5	3.6	5.2	4.0	5.6	4.0						
	14.0	3.9	3.2	4.5	3.6	5.2	4.0	5.6	4.0	6.0	4.0				
	16.0	3.9	3.2	4.5	3.6	5.2	4.0	5.6	4.0	6.0	4.0				
	18.0	3.9	3.2	4.5	3.6	5.2	4.0	5.6	4.0	6.0	4.0				
	20.0	3.9	3.2	4.5	3.6	5.2	4.0	5.6	4.0	6.0	4.0				
	21.0			4.5	3.6	5.2	4.0	5.6	4.0	6.0	4.0				
	23.0			4.5	3.6	5.2	4.0	5.6	4.0	6.0	4.0				
	25.0			4.5	3.6	5.2	4.0	5.6	4.0	6.0	4.0	6.5	4.0		
	27.0			4.5	3.6	5.2	4.0	5.6	4.0	6.0	4.0	6.4	4.0		
	29.0			4.5	3.6	5.2	4.0	5.6	4.0	6.0	4.0	6.3	3.9		
	31.0			4.5	3.6	5.2	4.0	5.6	4.0	6.0	4.0	6.2	3.9		
	33.0			4.5	3.6	5.2	4.0	5.6	4.0	6.0	4.0	6.1	3.8	6.3	3.6
	35.0					5.2	4.0	5.6	4.0	5.9	3.9	6.0	3.8	6.2	3.6
	37.0					5.2	4.0	5.6	4.0	5.8	3.9	5.9	3.7	6.1	3.5
	39.0					5.2	4.0	5.6	4.0	5.7	3.9	5.8	3.7	6.0	3.5

NOTES - HINWEISE - ΣΗΜΕΙΩΣΕΙΣ - NOTAS - REMARQUES - NOTE - OPMERKINGEN - ПРИМЕЧАНИЯ - NOTLAR

1. Cooling and heating capacities are based on the following conditions. Fan is based on High and Ultra-high. The figures in the parenthesis indicate the heat reclaimed from the heat recovery ventilator. When calculating the capacity as indoor units, use the following figures:

   Die Kühl- und Heizleistung basiert auf den folgenden Bedingungen. Der Ventilator basiert auf Hoch und Ultra-Hoch. Die Zahlen in Klammern geben die vom Wärmerückgewinnungsventilator rückgewonnene Wärme an. Verwenden Sie bei der Berechnung der Leistung als Innengeräte die folgenden Zahlen:

   Οι αποδόσεις ψύξης και θέρμανσης βασίζονται στις ακόλουθες συνθήκες. Ο ανεμιστήρας βασίζεται σε υψηλό και εξαιρετικά υψηλό. Οι αριθμοί στην παρένθεση υποδεικνύουν τη θέρμανση που ανακτάται από τον ανεμιστήρα ανάκτησης θερμότητας. Κατά τον υπολογισμό της απόδοσης των εσωτερικών μονάδων, χρησιμοποιήστε τους ακόλουθους αριθμούς:

   Las capacidades de calefacción y refrigeración se basan en las condiciones siguientes. El ventilador está en modo de funcionamiento alto o muy alto. Las cifras entre paréntesis indican el calor recuperado del ventilador de recuperación de calor. Cuando calcule la capacidad en el caso de unidades interiores, utilice las siguientes cifras:

   Les puissances frigorifiques et calorifiques sont basées sur les conditions suivantes. Le ventilateur est basé sur Élevé et Très élevé. Les chiffres entre parenthèses indiquent la chaleur récupérée du ventilateur-récupérateur de chaleur. Lors du calcul de la puissance des unités intérieures, utilisez les chiffres suivants :

   I valori della capacità di raffrescamento e riscaldamento si basano sulle condizioni descritte di seguito. Il ventilatore fa riferimento ai valori Alta e Altissima. Le cifre tra parentesi indicano il calore recuperato dall'unità di ventilazione a recupero di calore. Per il calcolo della capacità per le unità interne, utilizzare i dati seguenti:

   De vermogens voor koelen en verwarmen zijn gebaseerd op de volgende situatie. Ventilatorwaarden op basis van Hoog en Ultrahoog. De cijfers tussen aanhalingstekens duiden op warmte die teruggewonnen is door de warmteterugwinstventilator. Gebruik voor de berekening van het vermogen voor de binnenunits de volgende cijfers:

   Данные производительности по охлаждению и отоплению основаны на следующих условиях. Скорость вращения вентилятора - высокая или очень высокая. Цифры в скобках указывают тепло, полученное от вентилятора рекуперации тепла. При расчете производительности внутренних блоков используйте следующие данные:

   Soğutma ve ısıtma kapasiteleri aşağıdaki koşullara bağlıdır. Fan Yüksek ve Ultra-Yüksek konumdadır. Parantez içinde verilen rakamlar ısı geri kazanım vantilatöründen elde edilen ısıyı göstermektedir. İç üniteler için kapasiteyi hesaplarken, aşağıdaki rakamları kullanın:

   VKM50GB(M): 3.5kW
   VKM80GB(M): 5.6kW
   VKM100GB(M): 7.0kW

2. Coil inlet air temp
   Schlangeneinlasslufttemp
   Θερμ. αέρα εισόδου στοιχείου
   Temperatura del aire que entra en la batería
   Température de l'air en entrée de bobine
   Temp. aria in ingresso nella batteria
   Inlaatluchttemp. spoel
   Температура поступающего в змеевик воздуха
   Serpantin girişi hava sıcaklığı

3. TC: Total capacity; kW - SHC: Sensible heat capacity
   TC: Gesamtleistung; kW - SHC: Sensible Wärmekapazität
   TC: Συνολική απόδοση; kW - SHC: Απόδοση αισθητής θέρμανσης
   TC: Capacidad total; kW - SHC: Capacidad de calor sensible
   TC: Puissance totale; kW - SHC: Puissance calorifique sensible
   TC: Capacità totale; kW - SHC: Capacità termica sensibile
   TC: Totaal vermogen; kW - SHC: Voelbaar verwarmingsvermogen
   TC: Общая мощность; кВт - SHC: Производительность по сухому теплу
   TC: Toplam kapasite; kW - SHC: Hissedilebilir ısı kapasitesi

5 Capacity tables

5 - 2 Heating Capacity Tables

VKM-GB(M)

Class	Capacity	Outdoor		Coil Inlet air temp.°CDB					
	DX-Coil Only	°CDB	°CWB	16.0	18.0	20.0	21.0	22.0	24.0
50	2.8kW index 25	-14.7	-15.0	2.2	2.2	—	—	—	—
		-12.6	-13.0	2.3	2.3	—	—	—	—
		-10.5	-11.0	2.4	2.4	—	—	—	—
		-9.5	-10.0	2.5	2.4	—	—	—	—
		-8.5	-9.1	2.5	2.5	—	—	—	—
		-7.0	-7.6	2.6	2.6	2.7	—	—	—
		-5.0	-5.6	2.7	2.7	2.7	—	—	—
		-3.0	-3.7	2.8	2.8	3.0	3.0	—	—
		0.0	-0.7	3.0	3.0	3.1	3.1	—	—
		3.0	2.2	3.1	3.1	3.2	3.1	3.0	—
		5.0	4.1	3.3	3.2	3.2	3.1	3.0	—
		7.0	6.0	3.4	3.4	3.2	3.1	3.0	—
		9.0	7.9	3.5	3.4	3.2	3.1	3.0	—
		11.0	9.8	3.6	3.4	3.2	3.1	3.0	2.8
		13.0	11.8	3.6	3.4	3.2	3.1	3.0	2.8
		15.0	13.7	3.6	3.4	3.2	3.1	3.0	2.8
80	4.5kW index 40	-14.7	-15.0	3.4	3.4	—	—	—	—
		-12.6	-13.0	3.6	3.6	—	—	—	—
		-10.5	-11.0	3.7	3.7	—	—	—	—
		-9.5	-10.0	3.9	3.7	—	—	—	—
		-8.5	-9.1	3.9	3.9	—	—	—	—
		-7.0	-7.6	4.1	4.1	4.2	—	—	—
		-5.0	-5.6	4.2	4.2	4.2	—	—	—
		-3.0	-3.7	4.4	4.4	4.7	4.6	—	—
		0.0	-0.7	4.7	4.7	4.9	4.9	—	—
		3.0	2.2	4.9	4.9	5.0	4.9	4.7	—
		5.0	4.1	5.2	5.0	5.0	4.9	4.7	—
		7.0	6.0	5.3	5.3	5.0	4.9	4.7	—
		9.0	7.9	5.5	5.3	5.0	4.9	4.7	—
		11.0	9.8	5.7	5.3	5.0	4.9	4.7	4.4
		13.0	11.8	5.7	5.3	5.0	4.9	4.7	4.4
		15.0	13.7	5.7	5.3	5.0	4.9	4.7	4.4
100	5.6kW index 50	-14.7	-15.0	4.4	4.4	—	—	—	—
		-12.6	-13.0	4.6	4.6	—	—	—	—
		-10.5	-11.0	4.8	4.8	—	—	—	—
		-9.5	-10.0	5.0	4.8	—	—	—	—
		-8.5	-9.1	5.0	5.0	—	—	—	—
		-7.0	-7.6	5.2	5.3	—	—	—	—
		-5.0	-5.6	5.4	5.4	5.4	—	—	—
		-3.0	-3.7	5.6	5.6	6.0	—	—	—
		0.0	-0.7	6.0	6.0	6.2	6.2	—	—
		3.0	2.2	6.2	6.2	6.4	6.2	6.0	—
		5.0	4.1	6.6	6.4	6.4	6.2	6.0	—
		7.0	6.0	6.8	6.8	6.4	6.2	6.0	—
		9.0	7.9	7.0	6.8	6.4	6.2	6.0	—
		11.0	9.8	7.2	6.8	6.4	6.2	6.0	5.6
		13.0	11.8	7.2	6.8	6.4	6.2	6.0	5.6
		15.0	13.7	7.2	6.8	6.4	6.2	6.0	5.6

NOTES - HINWEISE - ΣΗΜΕΙΩΣΕΙΣ - NOTAS - REMARQUES - NOTE - OPMERKINGEN - ПРИМЕЧАНИЯ - NOTLAR

1. Cooling and heating capacities are based on the following conditions. Fan is based on High and Ultra-high. The figures in the parenthesis indicate the heat reclaimed from the heat recovery ventilator. When calculating the capacity as indoor units, use the following figures:

   Die Kühl- und Heizleistung basiert auf den folgenden Bedingungen. Der Ventilator basiert auf Hoch und Ultra-Hoch. Die Zahlen in Klammern geben die vom Wärmerückgewinnungsventilator rückgewonnene Wärme an. Verwenden Sie bei der Berechnung der Leistung als Innengeräte die folgenden Zahlen:

   Οι αποδόσεις ψύξης και θέρμανσης βασίζονται στις ακόλουθες συνθήκες. Ο ανεμιστήρας βασίζεται σε υψηλό και εξαιρετικά υψηλό. Οι αριθμοί στην παρένθεση υποδεικνύουν τη θέρμανση που ανακτάται από τον ανεμιστήρα ανάκτησης θερμότητας. Κατά τον υπολογισμό της απόδοσης των εσωτερικών μονάδων, χρησιμοποιήστε τους ακόλουθους αριθμούς:

   Las capacidades de calefacción y refrigeración se basan en las condiciones siguientes. El ventilador está en modo de funcionamiento alto o muy alto. Las cifras entre paréntesis indican el calor recuperado del ventilador de recuperación de calor. Cuando calcule la capacidad en el caso de unidades interiores, utilice las siguientes cifras:

   Les puissances frigorifiques et calorifiques sont basées sur les conditions suivantes. Le ventilateur est basé sur Élevé et Très élevé. Les chiffres entre parenthèses indiquent la chaleur récupérée du ventilateur-récupérateur de chaleur. Lors du calcul de la puissance des unités intérieures, utilisez les chiffres suivants :

   I valori della capacità di raffrescamento e riscaldamento si basano sulle condizioni descritte di seguito. Il ventilatore fa riferimento ai valori Alta e Altissima. Le cifre tra parentesi indicano il calore recuperato dall'unità di ventilazione a recupero di calore. Per il calcolo della capacità per le unità interne, utilizzare i dati seguenti:

   De vermogens voor koelen en verwarmen zijn gebaseerd op de volgende situatie. Ventilatorwaarden op basis van Hoog en Ultrahoog. De cijfers tussen aanhalingstekens duiden op warmte die teruggewonnen is door de warmteterugwinstventilator. Gebruik voor de berekening van het vermogen voor de binnenunits de volgende cijfers:

   Данные производительности по охлаждению и отоплению основаны на следующих условиях. Скорость вращения вентилятора - высокая или очень высокая. Цифры в скобках указывают тепло, полученное от вентилятора рекуперации тепла. При расчете производительности внутренних блоков используйте следующие данные:

   Soğutma ve ısıtma kapasiteleri aşağıdaki koşullara bağlıdır. Fan Yüksek ve Ultra-Yüksek konumdadır. Parantez içinde verilen rakamlar ısı geri kazanım vantilatöründen elde edilen ısıyı göstermektedir. İç üniteler için kapasiteyi hesaplarken, aşağıdaki rakamları kullanın:

   VKM50GB(M): 3.5kW
   VKM80GB(M): 5.6kW
   VKM100GB(M): 7.0kW

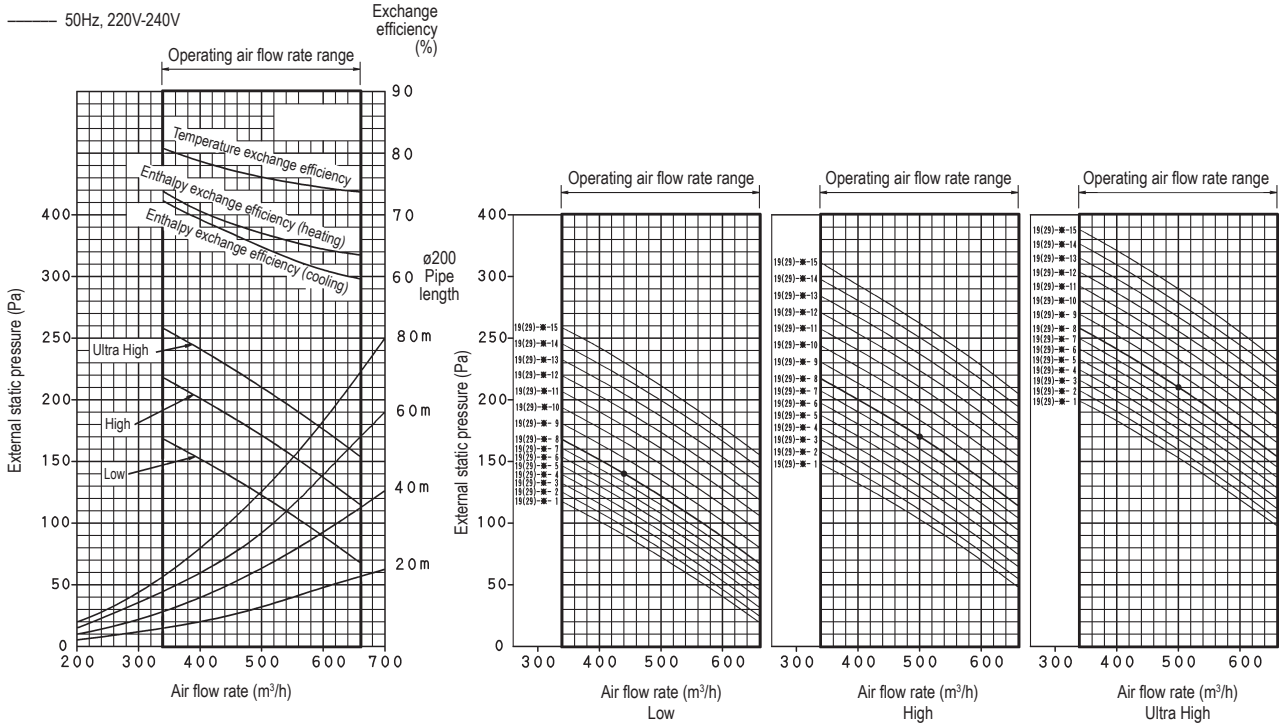
2. Coil inlet air temp
   Schlangeneinlasslufttemp
   Θερμ. αέρα εισόδου στοιχείου
   Temperatura del aire que entra en la batería
   Température de l'air en entrée de bobine

   Temp. aria in ingresso nella batteria
   Inlaatluchttemp. spoel
   Температура поступающего в змеевик воздуха
   Serpantin girişi hava sıcaklığı

6 Exchange efficiency

6 - 1 Exchange efficiency

VKM50GB

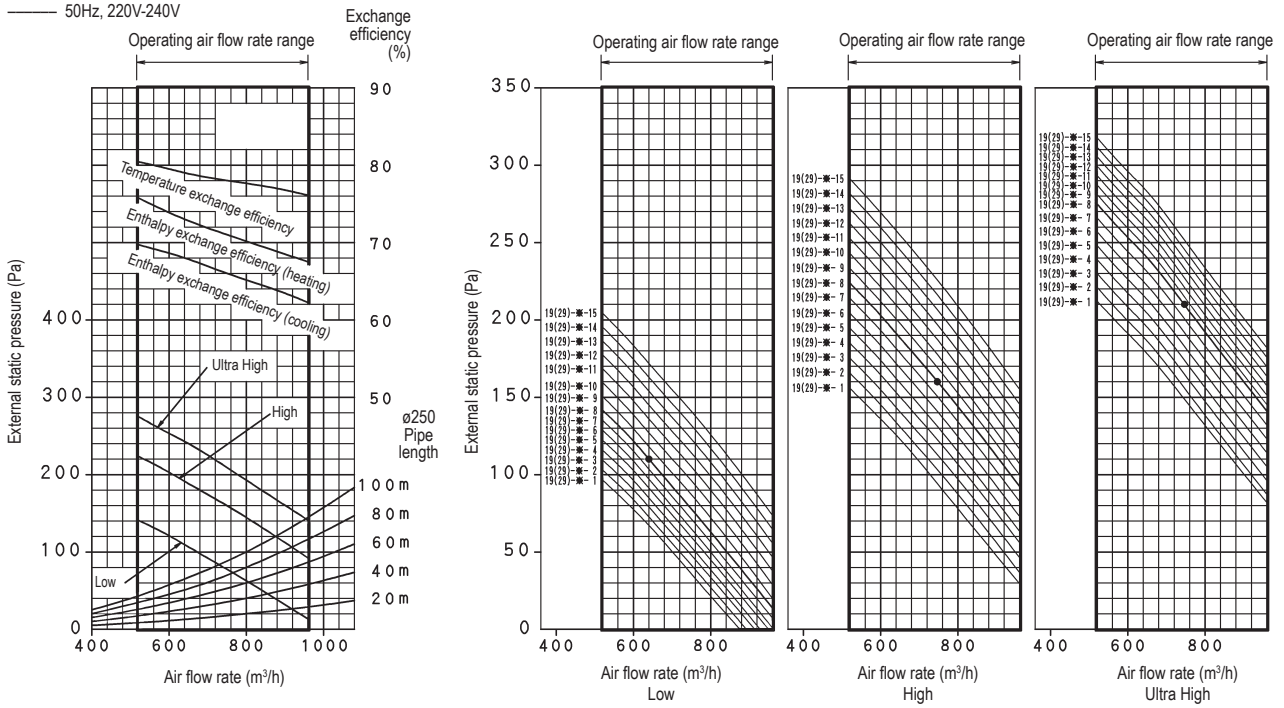


[Reading of Performance Characteristics]

1) For example: 19(29)-✱-07
   Mode no. : 19(29)
   First code: ✱ (Supply ⌜2⌟ Exhaust ⌜3⌟)
   Second code no. : 07
2) Rated point: ●
3) The characteristic of each tap becomes a setup of the characteristic of the same code number.

3D082904

VKM80GB



[Reading of Performance Characteristics]

1) For example: 19(29)-✱-07
   Mode no. : 19(29)
   First code: ✱ (Supply ⌜2⌟ Exhaust ⌜3⌟)
   Second code no. : 07
2) Rated point: ●
3) The characteristic of each tap becomes a setup of the characteristic of the same code number.

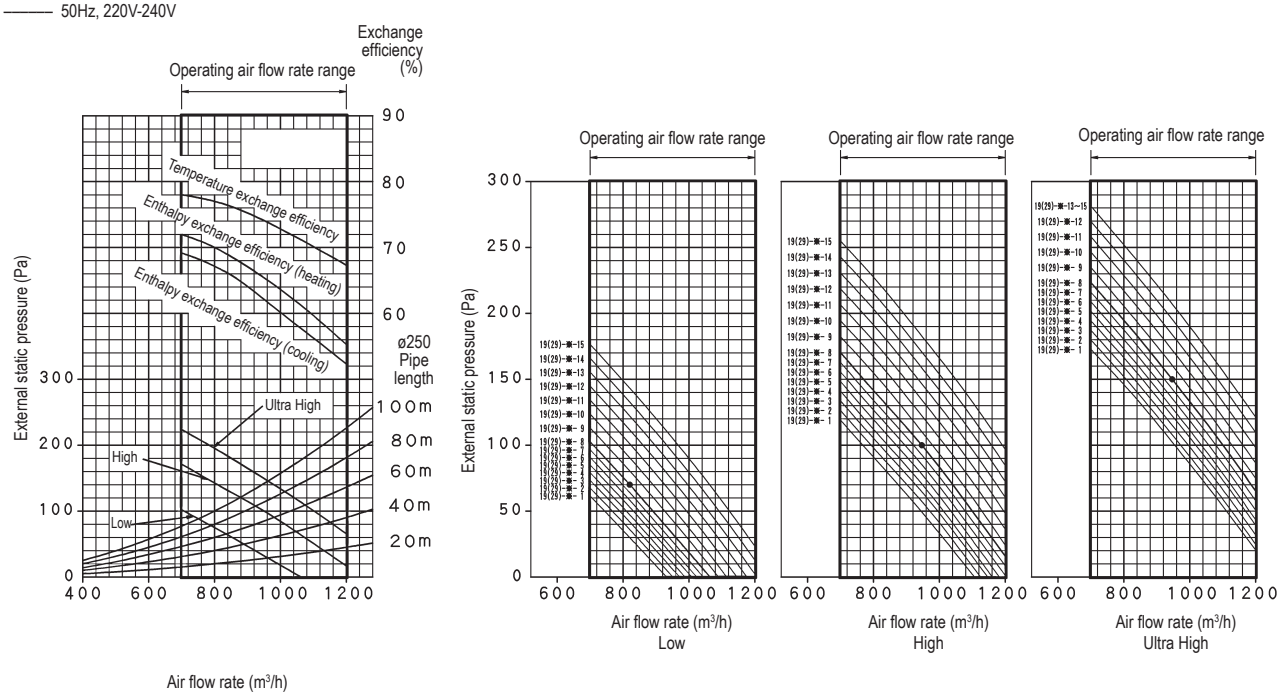
3D082905

6 Exchange efficiency

6 - 1 Exchange efficiency

VKM100GB

——— 50Hz, 220V-240V



[Reading of Performance Characteristics]

1) For example: 19(29)-✱-07
   Mode no. : 19(29)
   First code: ✱ (Supply 「2」 Exhaust 「3」)
   Second code no. : 07

2) Rated point: ●

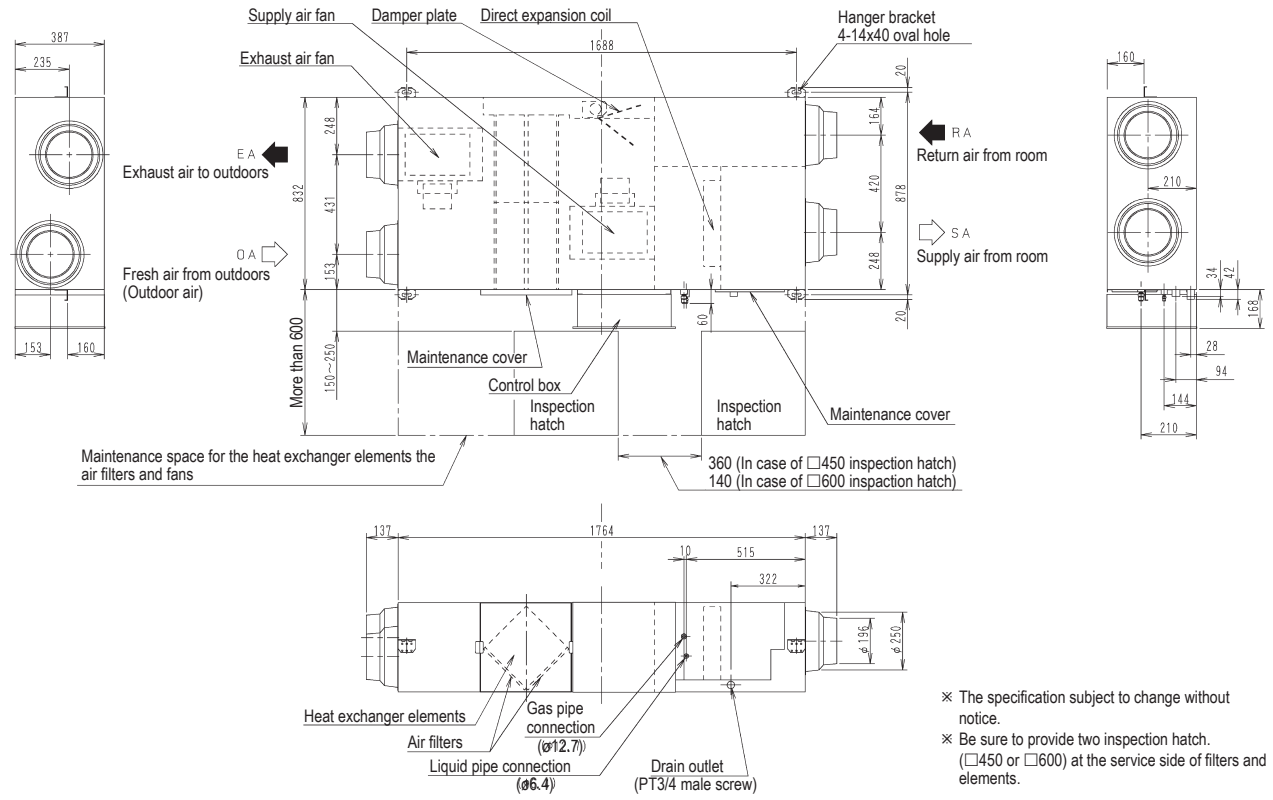
3) The characteristic of each tap becomes a setup of the characteristic of the same code number.

3D082906

7 Dimensional drawings

7 - 1 Dimensional Drawings

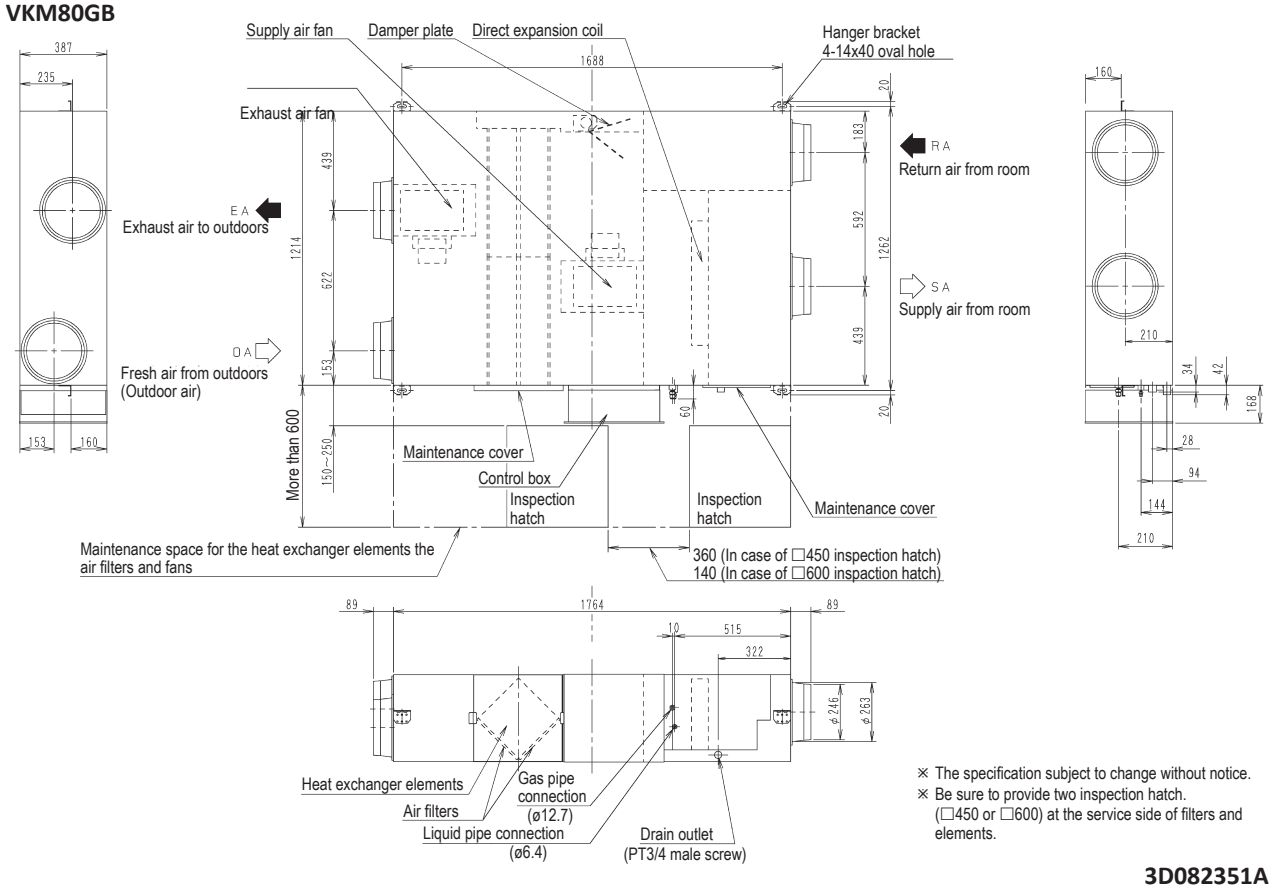
VKM50GB



※ The specification subject to change without notice.
※ Be sure to provide two inspection hatch. (☐450 or ☐600) at the service side of filters and elements.

3D082350A

VKM80GB



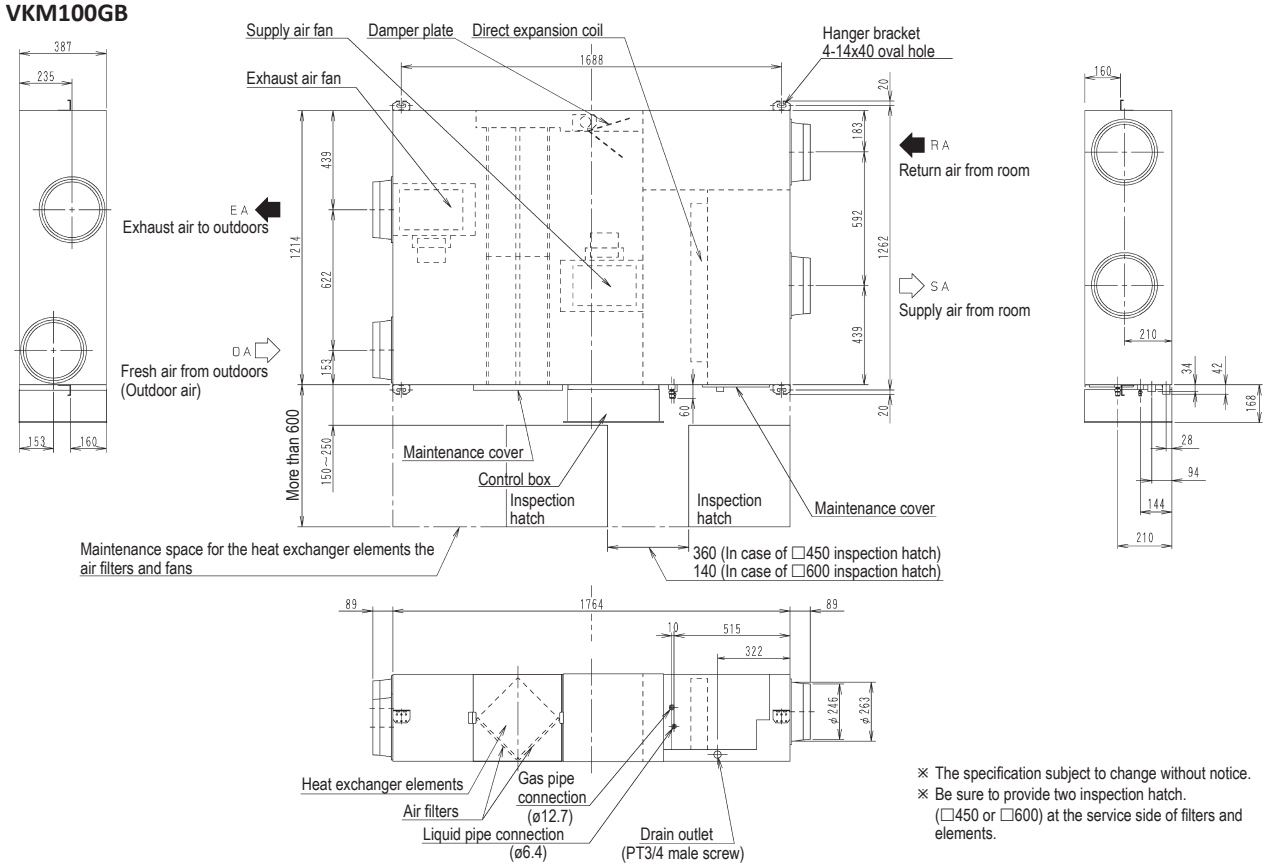
※ The specification subject to change without notice.
※ Be sure to provide two inspection hatch. (☐450 or ☐600) at the service side of filters and elements.

3D082351A

7 Dimensional drawings

7 - 1 Dimensional Drawings

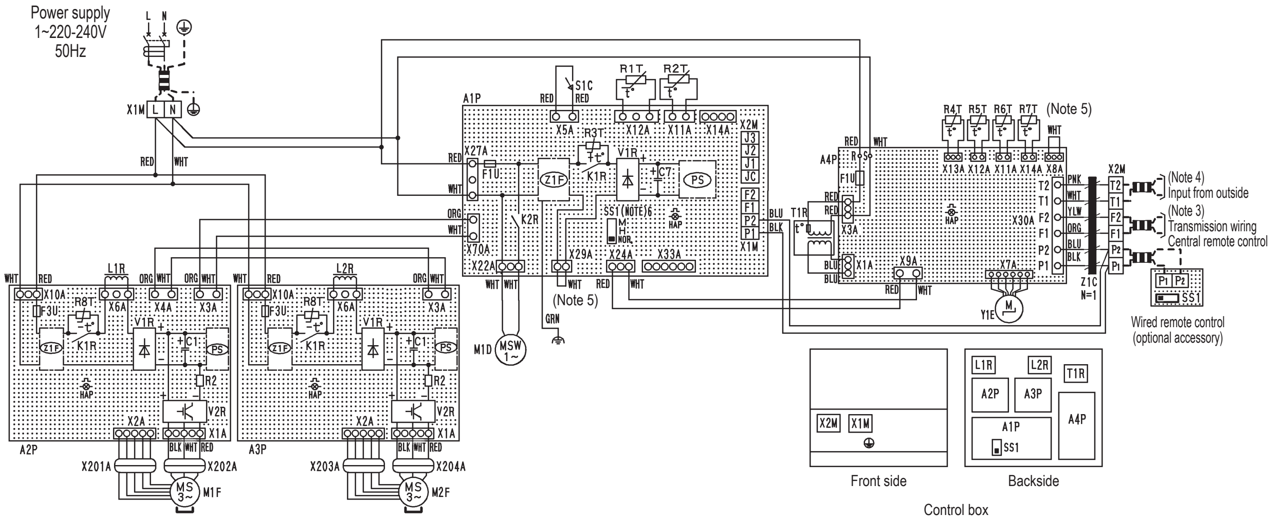
VKM100GB



8 Wiring diagrams

8 - 1 Wiring Diagrams - Single Phase

VKM-GB



A1P	Printed circuit board	M1F	Motor (exhaust fan)	X1M	Terminal block (power supply)
A2P	Printed circuit board (Exhaust fan)	M2F	Motor (supply fan)	X2M	Terminal block (operation)
A3P	Printed circuit board (Supply fan)	PS	Switching power supply (A1P, A2P, A3P)	X1M, X2M	Terminal block (operation) (A1P)
A4P	Printed circuit board	R2	Resistor (A2P, A3P)	X201A~X204A	Relaying connector
C1	Capacitor (A2P, A3P)	R1T	Thermistor (indoor air)	Y1E	Electronic expansion valve
C7	Capacitor (A1P)	R2T	Thermistor (outdoor air)	Z1C	Ferrite core
F1U	Fuse T, 6.3A, 250V (A1P)	R3T	Thermistor (PTC) (A1P)	Z1F	Noise filter (A1P, A2P, A3P)
F1U	Fuse Ⓑ, 5A, 250V (A4P)	R4T	Thermistor (coil indoor air)		Remote controller
F3U	Fuse T, 6.3A, 250V (A2P, A3P)	R5T	Thermistor (coil liquid pipe)	SS1	Selector switch (remote controller)
HAP	Pilot lamp (service monitor-green) (A1P)	R6T	Thermistor (coil gas pipe)		Connector for option (A1P)
HAP	Pilot lamp (service monitor-green) (A2P, A3P)	R7T	Thermistor (coil outdoor air)	X14A	Connector (CO_2 sensor)
HAP	Pilot lamp (service monitor-green) (A4P)	R8T	Thermistor (NTC) (A2P, A3P)	X33A	Connector (adapter for wiring)
K1R	Magnetic relay (A1P, A2P, A3P)	S1C	Limit switch (damper motor)		
K2R	Magnetic relay	SS1	Selector switch (A1P)		
L1R	Reactor	T1R	Transformer (220-240V/22V)		
L2R	Reactor	V1R	Diode bridge (A1P, A2P, A3P)		
M1D	Motor (damper motor)	V2R	Power module (A2P, A3P)		

NOTES

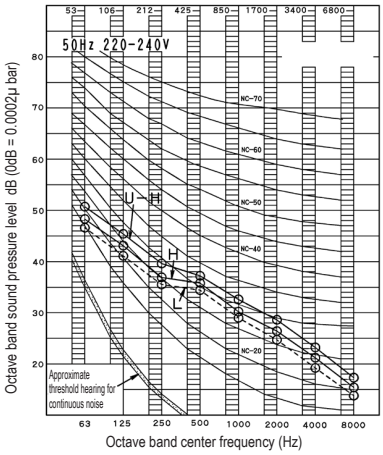
1. ◯◯, ▷– : connector, ▭▭▭, -◯- : terminal, ▯▭ : short circuit connector
2. --▮▮-- :field wiring
3. In case using central remote control, connect it to the unit in accordance with the attached manual.
4. When connecting the input wires from outside, forced OFF or ON/OFF control operation can be selected by remote control, in details, refer to the installation manual attached to the unit.
5. Do not remove short circuit connector of X8A (A4P), X29A (A1P). If removed, the unit will not work.
6. SS1(A1P) has already been set to "NOR." at factory set, the unit will not work if the settings are changed.
7. Symbols show as follows
   BLK: BLACK, RED: RED, BLU: BLUE, WHT: WHITE, YLW: YELLOW, ORG: ORANGE, GRN: GREEN.

3D082392E

9 Sound data

9 - 1 Sound Pressure Spectrum

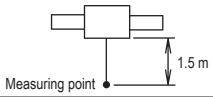
VKM50GB



NOTES

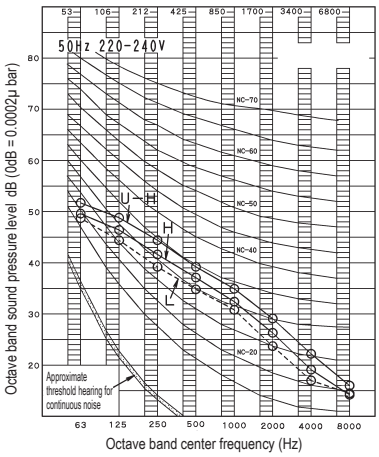
1. Over All (dB):
   (B. G. N is already rectified)
2. Operating conditions:
   Power source: Single phase 50Hz 220-240V
   Model: VKM50GB
   Ventilation mode: total heat exchange
3. Measuring place:
   Operation noise is measured in an anechoic chamber.
   The operation noise level become greater than 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. Location of microphone:

Scale	Air flow rate		
	U-H	H	L
A	39	37	35.5
C			



4D082356

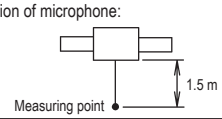
VKM80GB



NOTES

1. Over All (dB):
   (B. G. N is already rectified)
2. Operating conditions:
   Power source: Single phase 50Hz 220-240V
   Model: VKM80GB
   Ventilation mode: total heat exchange
3. Measuring place:
   Operation noise is measured in an anechoic chamber.
   The operation noise level become 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. Location of microphone:

Scale	Air flow rate		
	U-H	H	L
A	41.5	39	37
C			

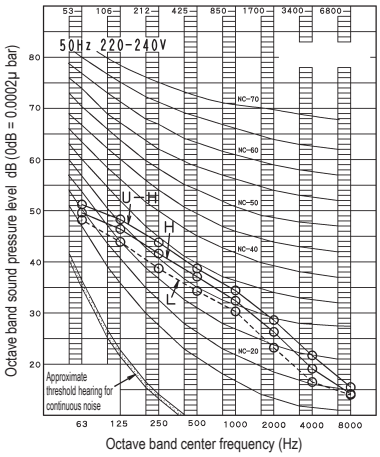


4D082357

9 Sound data

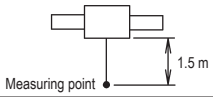
9 - 1 Sound Pressure Spectrum

VKM100GB



NOTES

1. Over All (dB):
   (B. G. N is already rectified)
2. Operating conditions:
   Power source: Single phase 50Hz 220-240V
   Model: VKM100GB
   Ventilation mode: total heat exchange
3. Measuring place:
   Operation noise is measured in an anechoic chamber.
   The operation noise level become 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. Location of microphone:



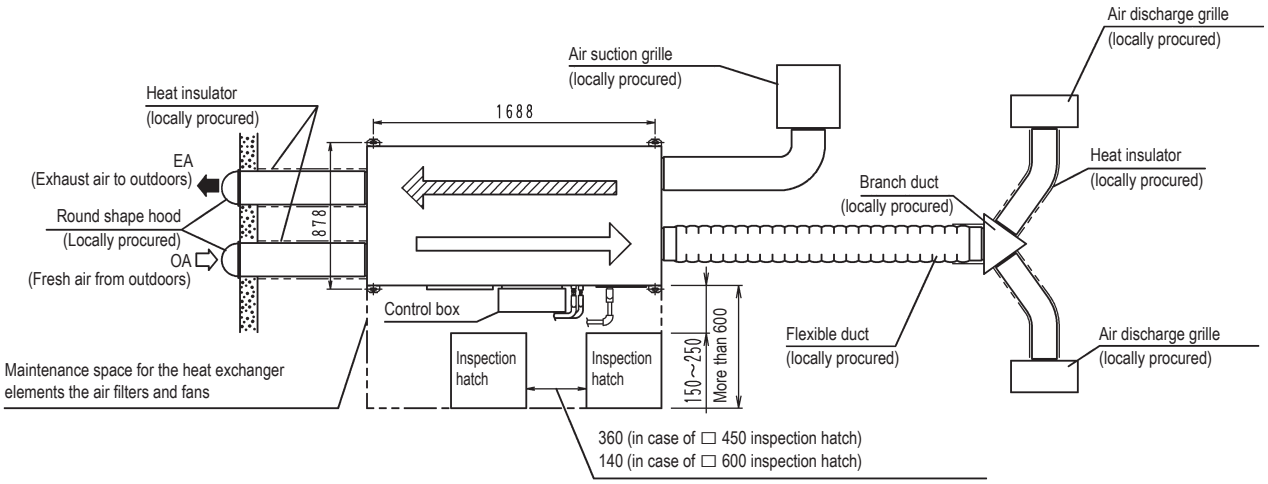
Scale	Air flow rate		
	U-H	H	L
A	41	39	36.5
C			

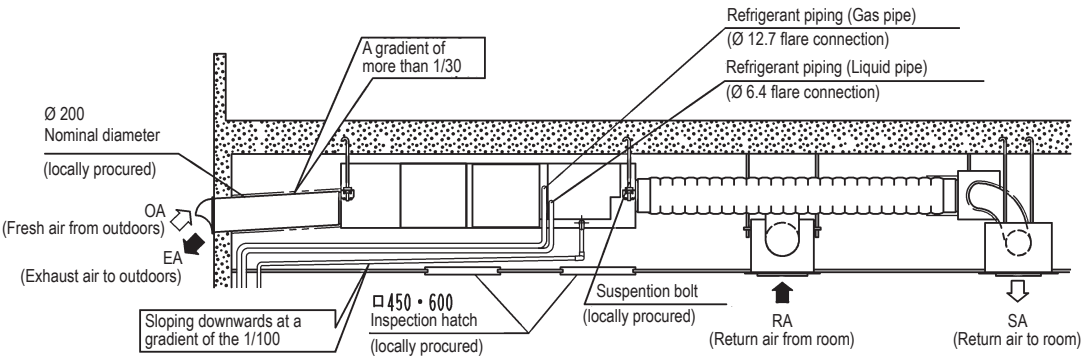
4D082358

10 Installation

10 - 1 Installation Method

VKM50GB





NOTES

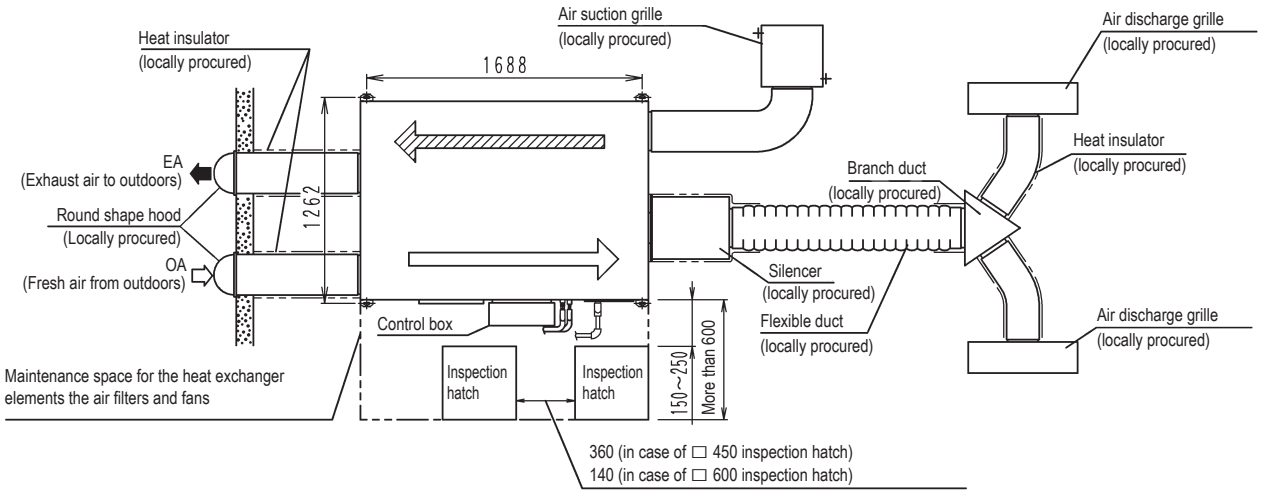
1. Leave space for servicing the unit and include inspection hatch. (Always open a hole on the side of the control box so that the air filters, heat exchange elements, and fans can easily be inspected and serviced.)
2. Install the two outdoor ducts with down slope (slope of 1/30 or more) to prevent entry of rain water, also, provide insulation for three ducts (outdoor ducts and indoor supply air duct) to prevent dew condensation. (Material: glass wool of 25mm thick)
3. Do not turn the unit upside down.
4. Make sure to install drain piping, and insulate drain piping to prevent dew condensation.
5. Keep the drain pipe short and sloping downwards at a gradient of at least 1/100 to prevent air from forming.
6. Do not use a bent cap or a round hood as the outdoor hood if they might get rained on directly (we recommend using a deep hood) (optional accessory).
7. In areas where freezing may occur, always take steps to prevent the pipes from freezing.
8. Do not place something which shouldn't get wet at the below of this unit. The dew would fall at following case, where humidity is 80% more, or the exit of drain socket is choked up, or the air filter is very dirty.

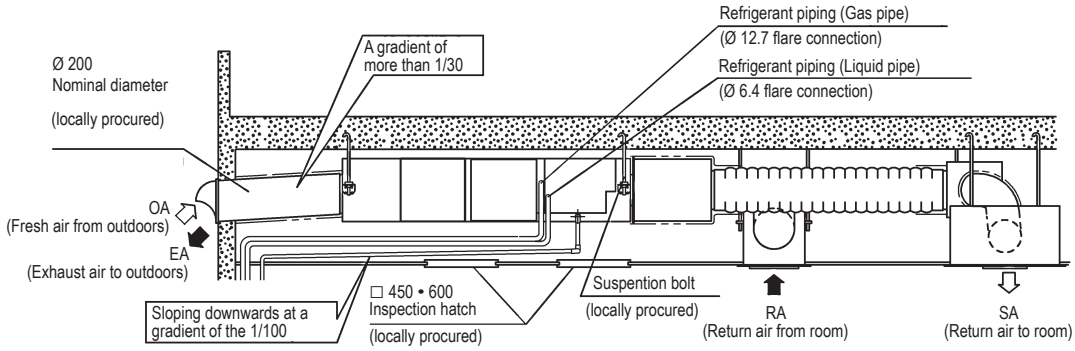
3D083014

10 Installation

10 - 1 Installation Method

VKM80GB





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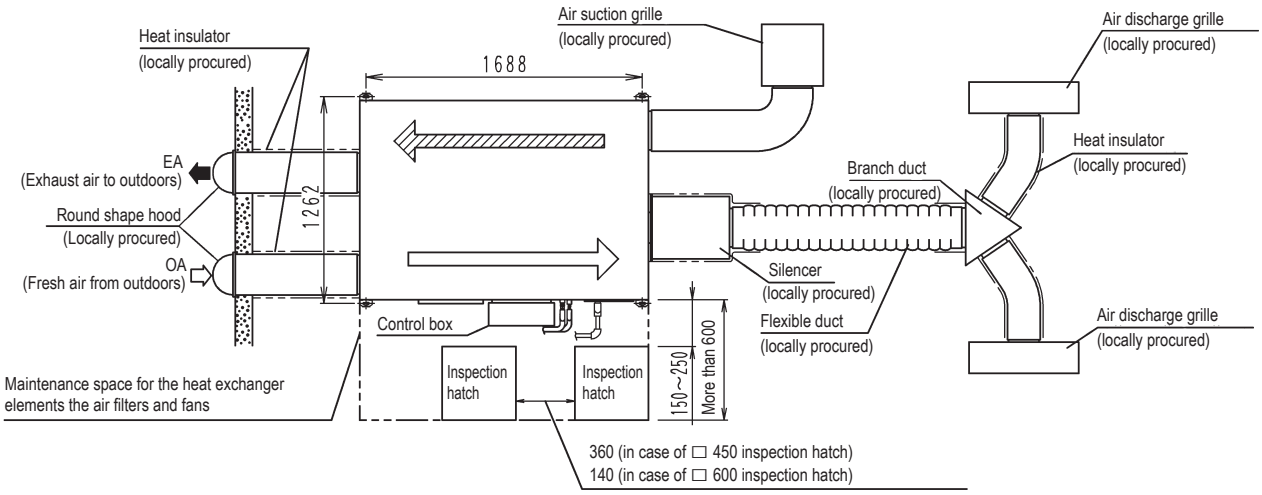
8. Do not place something which shouldn't get wet at the below of this unit. The dew would fall at following case, where humidity is 80% more, or the exit of drain socket is choked up, or the air filter is very dirty.

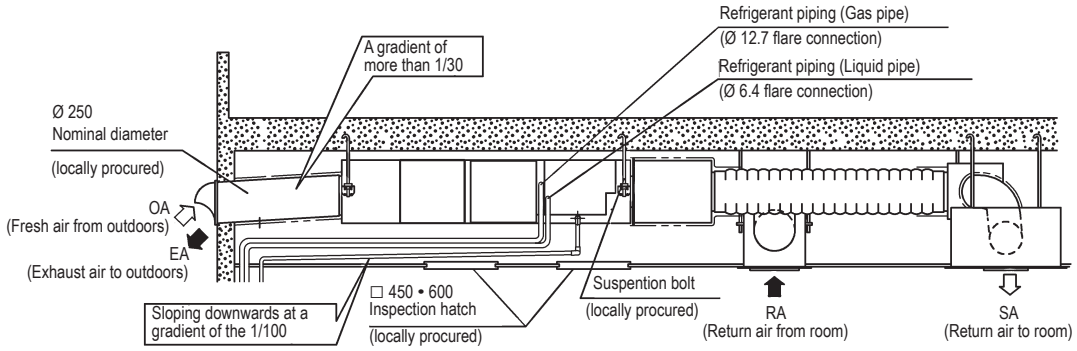
3D083015

10 Installation

10 - 1 Installation Method

VKM100GB





NOTES

1. Leave space for servicing the unit and include inspection hatch. (Always open a hole on the side of the control box so that the air filters, heat exchange elements, and fans can easily be inspected and serviced.)
2. Install the two outdoor ducts with down slope (slope of 1/30 or more) to prevent entry of rain water, also, provide insulation for three ducts (outdoor ducts and indoor supply air duct) to prevent dew condensation. (Material: glass wool of 25mm thick)
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7. In areas where freezing may occur, always take steps to prevent the pipes from freezing.
8. Do not place something which shouldn't get wet at the below of this unit. The dew would fall at following case, where humidity is 80% more, or the exit of drain socket is choked up, or the air filter is very dirty.

3D083016

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