


- Warning  • Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorised parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
 - Read the User's Manual carefully before using this product. The User's Manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.
- If you have any enquiries, please contact your local importer, distributor and/or retailer.

Cautions on product corrosion

1. Air conditioners should not be installed in areas where corrosive gases, such as acid gas or alkaline gas, are produced.
2. If the outdoor unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the outdoor unit close to the sea shore, contact your local distributor.



Daikin Industries (Thailand) Ltd.
United Business Center II Building, Floor 17
591 Sukhumvit Rd, Sukhumvit 33,
North Klongton, Wattana, Bangkok 10110

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APCVDT1509B

Daikin VRV AHU System

STANDARD SERIES AHUR-DBV/CBV &
OUTDOOR AIR SERIES AHUR-DBL/CBL

VRV AHU Applications



Airport



Lobby



Hospital



Factory



Shopping Mall



Sports Hall



Showroom



Warehouse



VRV AHU Introduction

Daikin released 2 series of VRV AHU, standard series model AHUR-DBV/CBV and outdoor air series model AHUR-DBL/CBL. It is a DX AHU that is specially designed to operate with VRV IV outdoor unit. This enabled the users to reduce maintenance costs and enjoy more space savings.

Daikin VRV AHU improves the indoor air quality caused by haze, pollutants, etc with options of pre-filters and primary filters.

This is the only total AHU solutions provided and manufactured completely by Daikin.



Total Daikin Solutions
(All products manufacture by Daikin Factory)

What is VRV?

Daikin VRV system is a multi-split type air conditioner for commercial buildings that uses variable refrigerant flow control invented by Daikin.



It enables long piping length up to 165m and maximum level difference (between outdoor and indoor units) of 90m to provide more design flexibility which can match even large-sized buildings.

It allows one touch selection control using intelligent Touch Manager and includes options to link with BACnet® to enhance the Building Management System (BMS).

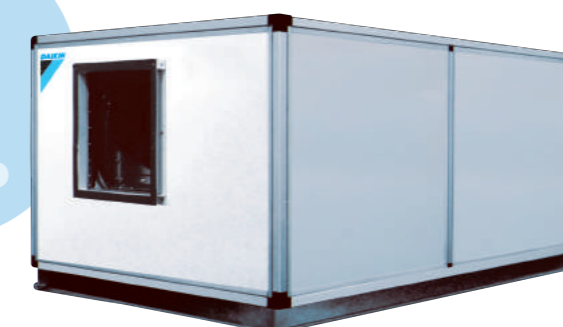
VRV AHU Application

From small to large commercial spaces, Daikin offers a wide range of R-410A inverter condensing units for use in conjunction with Air Handling Units (AHU) from 6 HP to 120 HP.

AHU provides large air volumes and high ESP (External Static Pressure) enabling the use of extensive ductworks. The refrigerant flows through the copper pipes using R-410A and operates like a large VRV fan coil unit.

Daikin AHU represents the ideal solution for large storage places, atrium, lobby, banquet halls, showrooms, exhibition halls, shopping malls, etc.

It also has the options to customize the specifications such as the filtration type, direction of air in-take and discharge, service access door and blower type (backward or forward curves and plug fan).



Features of VRV AHU

- Harnessing VRV IV VRT technology
- Inverter controlled system
- Can be easily controlled via standard wired remote control (BRC1E62)
- Comes in double skin panel model (Single skin option available)
- Easily managed using intelligent Touch Manager central control system
 - ✓ Communication protocol using DIII-Net to communicate with all existing Daikin communication devices. (option to connect directly to BACnet® BMS)
- Can be placed indoor or outdoor*1

Benefits of using VRV AHU

- Quality and warranty assured
 - ✓ VRV AHU are manufactured by Daikin factory.
- Ease of installation
 - ✓ No additional system such as cooling tower, chiller, and long water piping system are required. This also reduces the total system maintenance costs.
 - ✓ Flexible design of the ducting system.
- Cover large area with different ducting configuration.
- VRV AHU can provide ESP up to 500Pa*2 (Standard Model)
- Total solution concept
 - ✓ Integrating an AHU into the total building climate system enables both design and installation procedures to be based on a single common technology. This simplifies project follow-up, installation, commissioning and maintenance since only one party is involved.
- VRV AHU system can be combined with other types of indoor units to operate concurrently.

Notes:

*1 Optional items required
 *2 For ESP more than 500Pa, please contact Daikin's Sales Office
 *3 BACnet interface

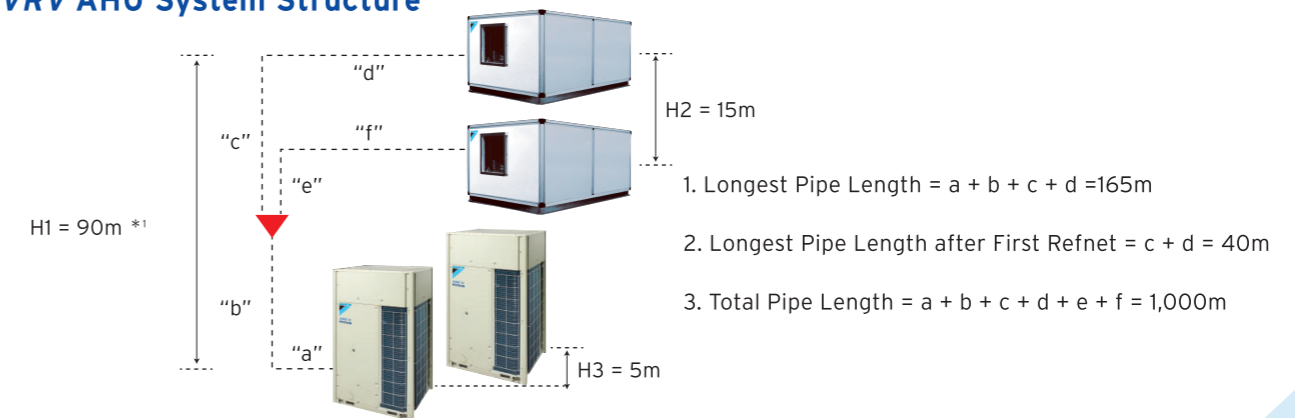
Options

Wide range of options to meet design requirements. Please contact Daikin's Sales Office on options below:

- Fan Type
 - ✓ Backward Curve Aerofoil
 - ✓ Plug Fan
 - ✓ Brushless DC Fan
- Fan Motor control
 - ✓ VSD
 - ✓ Fixed Speed
- AHU Coil Material Type
 - ✓ Copper Fin
 - ✓ Blue Fin
 - ✓ Epoxy Coated Fin and Coil
- AHU Drain Pan Type
 - ✓ Acrylic Enamel with Steel Coating
 - ✓ Galvanized Steel
- AHU Air Filter Type
 - ✓ Medium Filter
 - ✓ Extra Filter
 - ✓ Synthetic
 - ✓ Bag
 - ✓ HEPA
 - ✓ Aluminum
 - ✓ Cartridge
 - ✓ ULPA
- Special Option
 - ✓ Electric Heater
 - ✓ Mixing Box
 - ✓ Outdoor Roof
 - ✓ Heat Pipes
 - ✓ Motor Starter Box
- Customisation
 - ✓ Airflow
 - ✓ Capacity
 - ✓ ESP
 - ✓ Discharge Direction
 - ✓ Heat Recovery Wheel
 - ✓ Piping Outlet
- Controller for Outdoor Air Series
 - ✓ MicroTech III*3 (DDC)



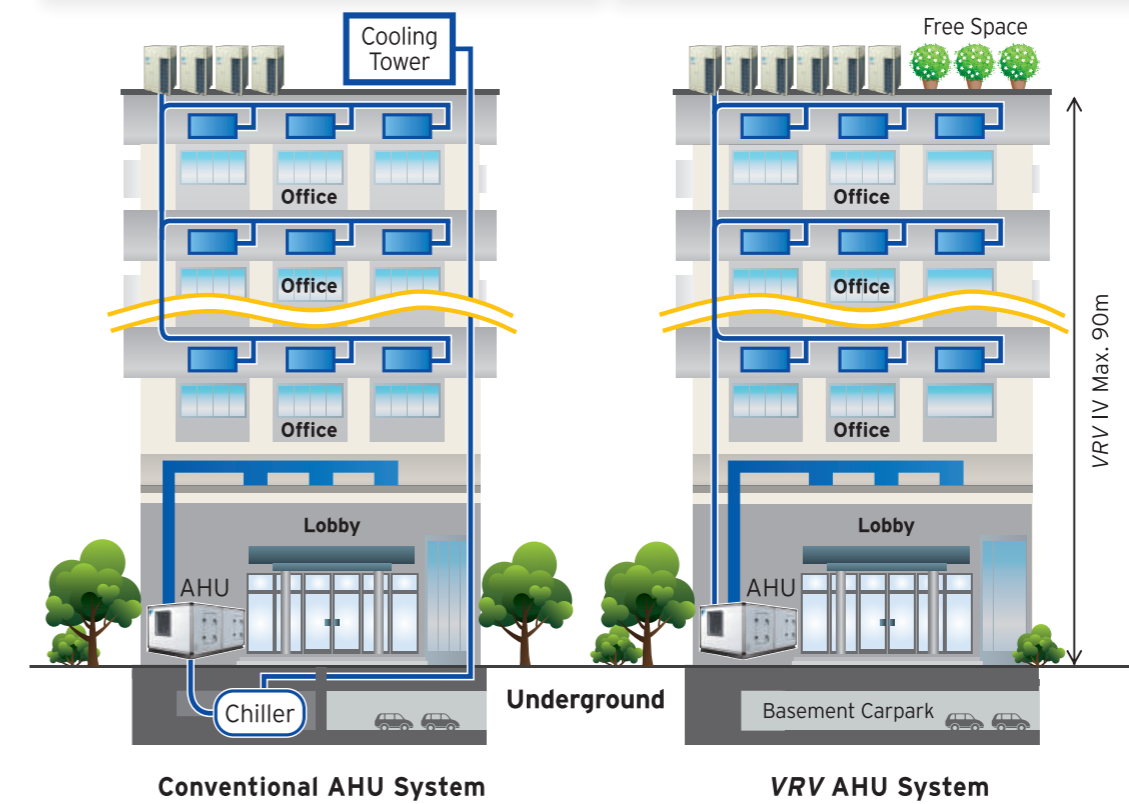
VRV AHU System Structure



*1 When level differences are 50m or more, the diameter of the main liquid piping size must be increased. If the outdoor unit is above the indoor unit, a dedicated setting on the outdoor unit is required. Please contact Daikin's Sales Office for more information.

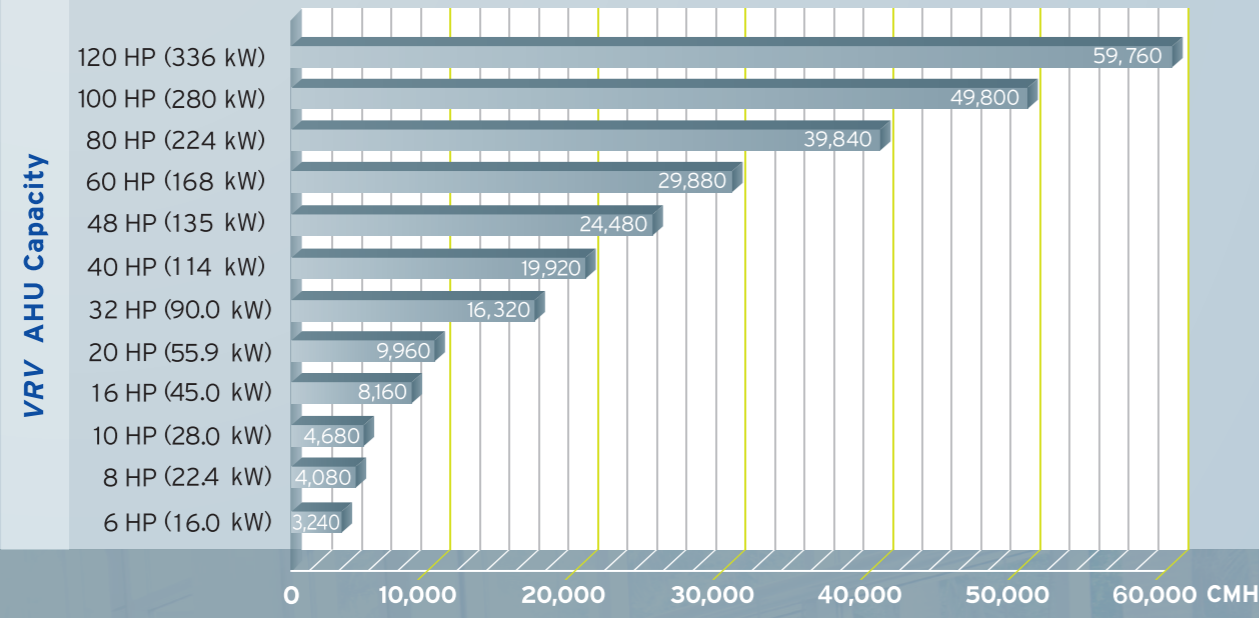
Comparison Table and Diagram for Conventional AHU System and VRV AHU System

Conventional AHU System	VRV AHU System
Require Frequent Maintenance (Cooling Tower + Chiller)	Easy Maintenance (same as common A/C System)
Higher Cost Due to Frequent Maintenance	No Additional Maintenance Cost
Require Larger Installation Space (AHU, Chiller, Cooling Tower)	Require Small Installation Space (AHU, VRV)
Complex System (HVAC Ducting, Chiller and Water Piping)	Simple System (HVAC Ducting)
Complex Control (Variable Frequency Device, Variable Air Volume Control)	Simple Control (Remote Control / intelligent Touch Manager / MicroTech III Controller)



VRV AHU Standard Series

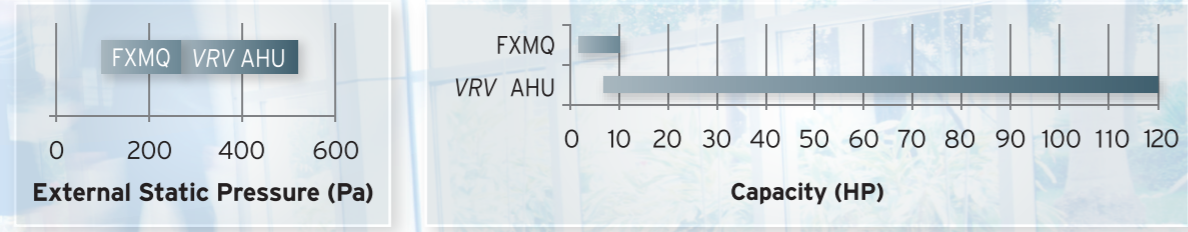
The VRV AHU standard series are available from the capacity range of 6 HP to 120 HP, also with airflow ranging from 3,240 CMH – 59,760 CMH.



Expanded Line Up for Daikin VRV Indoor Series

Comparison for External Static Pressure and Capacity between VRV AHU and Duct Typed Unit

VRV AHU offers higher ESP and Capacity as compared to duct type fan coil unit.



	From	To
FXMQ	100 Pa	270 Pa
VRV AHU	250 Pa	500 Pa

	From	To
FXMQ	2 HP	10 HP
VRV AHU	6 HP	120 HP

*For ESP more than 500Pa, please contact Daikin's Sales Office

VRV AHU Operation Range

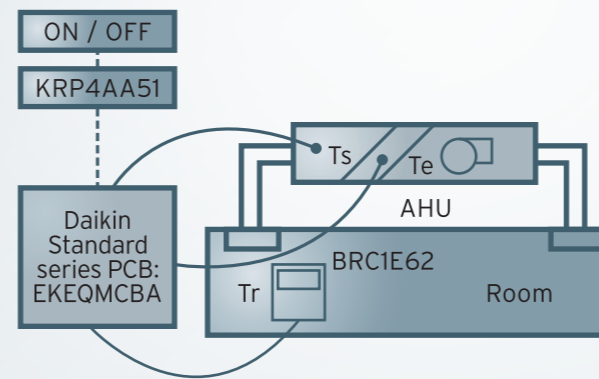
VRV AHU AHUR-DBV/CBV operation is similar as other VRV indoor unit. Following table is the list of operation range for AHU unit.

		Temperature Range
		Cooling
Entering Air Temperature to VRV AHU	Minimum	14°C WB
	Maximum	35°C DB / 25°C WB
Outdoor Unit	Minimum	-5°C DB
	Maximum	49°C DB
Expansion Valve	Minimum	-5°C DB
	Maximum	46°C DB
Standard series PCB	Minimum	-10°C DB
	Maximum	40°C DB

Possibility Z (Ts/Tr control):

Using Daikin wired remote controller (BRC1E62 - optional) Set point can be fixed via standard Daikin wired remote controller. Remote ON/OFF can be achieved by an optional adapter KRP4AA51.

No additional external controller is required. The cooling load is determined from the air suction temperature and set point on the Daikin remote controller.



Ts = Air suction temperature
Tr = Room temperature
Te = Evaporating temperature
AHU = Air Handling Unit

VRV AHU Standard Series Evaporator Coil, Expansion Valve and Standard series PCB

AHUR-DBV/CBV standard series model use DX coil. Each DX coil will be connected to one external expansion valve (EKEXV) and controlled by one standard series PCB (EKEQMCBA).

VRV AHU Standard Series Evaporator Coils

- 5 capacities of Evaporator Coils
 - 6HP **used on 6HP AHU unit**
 - 8HP **used on 8HP AHU unit**
 - 10HP **used on 10HP AHU unit**
 - 16HP **used on 16HP, 32HP, 48HP AHU unit**
 - 20HP **used on 20HP, 40HP, 60HP, 80HP, 100HP, 120HP AHU unit**

VRV AHU Expansion Valve (EKEXV)

- 5 capacities of AHU Expansion Valve
 - EKEXV140 for 6HP Coil
 - EKEXV200 for 8HP Coil
 - EKEXV250 for 10HP Coil
 - EKEXV400 for 16HP Coil
 - EKEXV500 for 20HP Coil

VRV AHU Standard series PCB (EKEQMCBA)

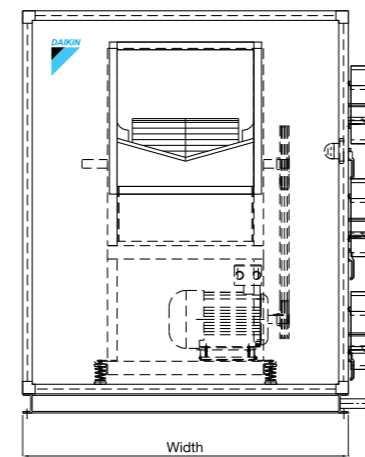


VRV AHU Expansion Valve

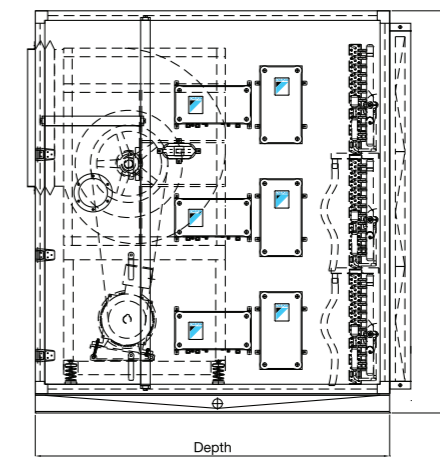
		EKEXV140	EKEXV200	EKEXV250	EKEXV400	EKEXV500
Casing	Colour	Ivory white				
	Material	Metal				
Dimensions	Unit	401 x 215 x 78				
	Weight	2.9				
Operation Range	Cooling	Min. ~ Max. °CDB				
	Refrigerant	R-410A				
Piping connections	Liquid	Type	Brazed connection			
		OD mm	9.52	12.7	15.9	
	Gas	Type	Brazed connection			
		OD mm	9.52			
Heat Insulation	Both inlet and outlet					

VRV AHU Standard series PCB

		EKEQMCBA
Application	Outdoor Unit	Multi
	Casing	White grey Resin
Dimensions	Unit	132 x 400 x 200
	Weight	3.6
Operation Range	Cooling	Min. ~ Max. °CDB
	Phase	1
Power Supply	Frequency Hz	50/60
	Voltage V	230/220

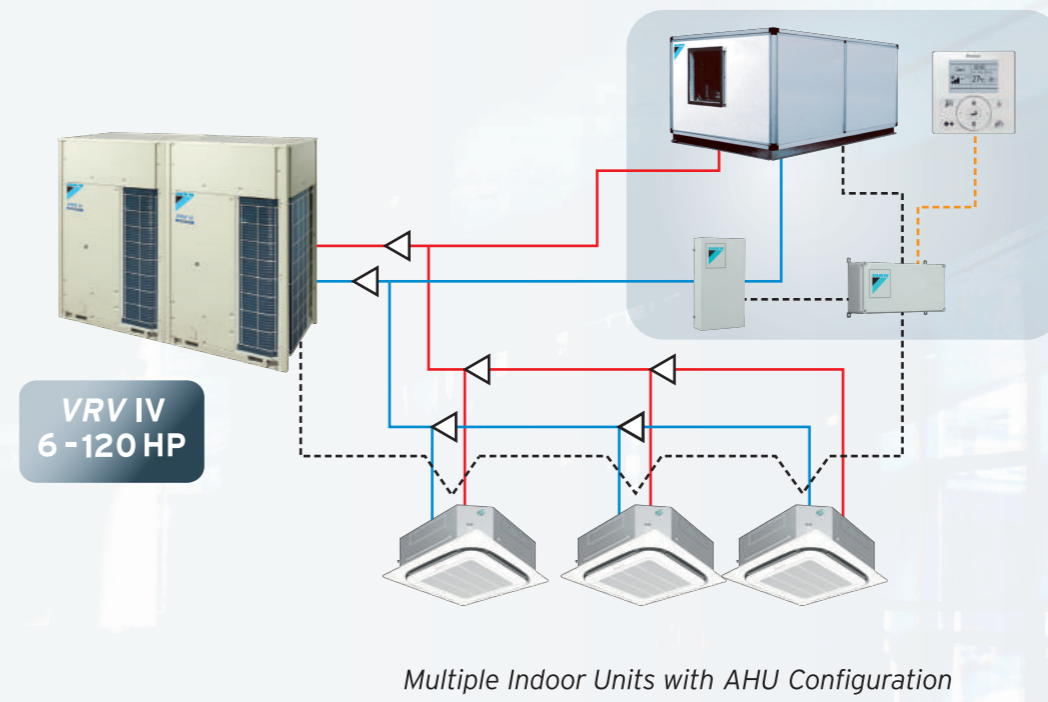
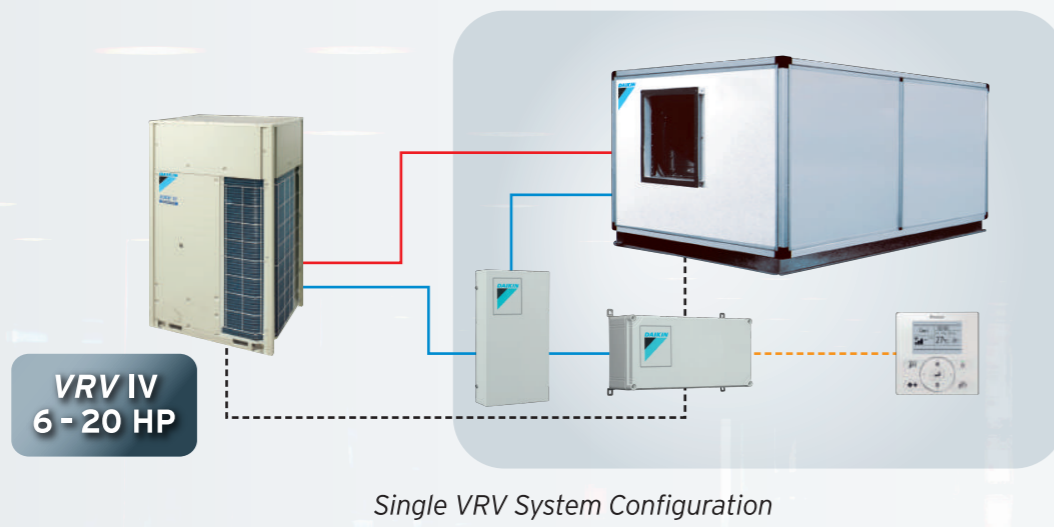


Front View

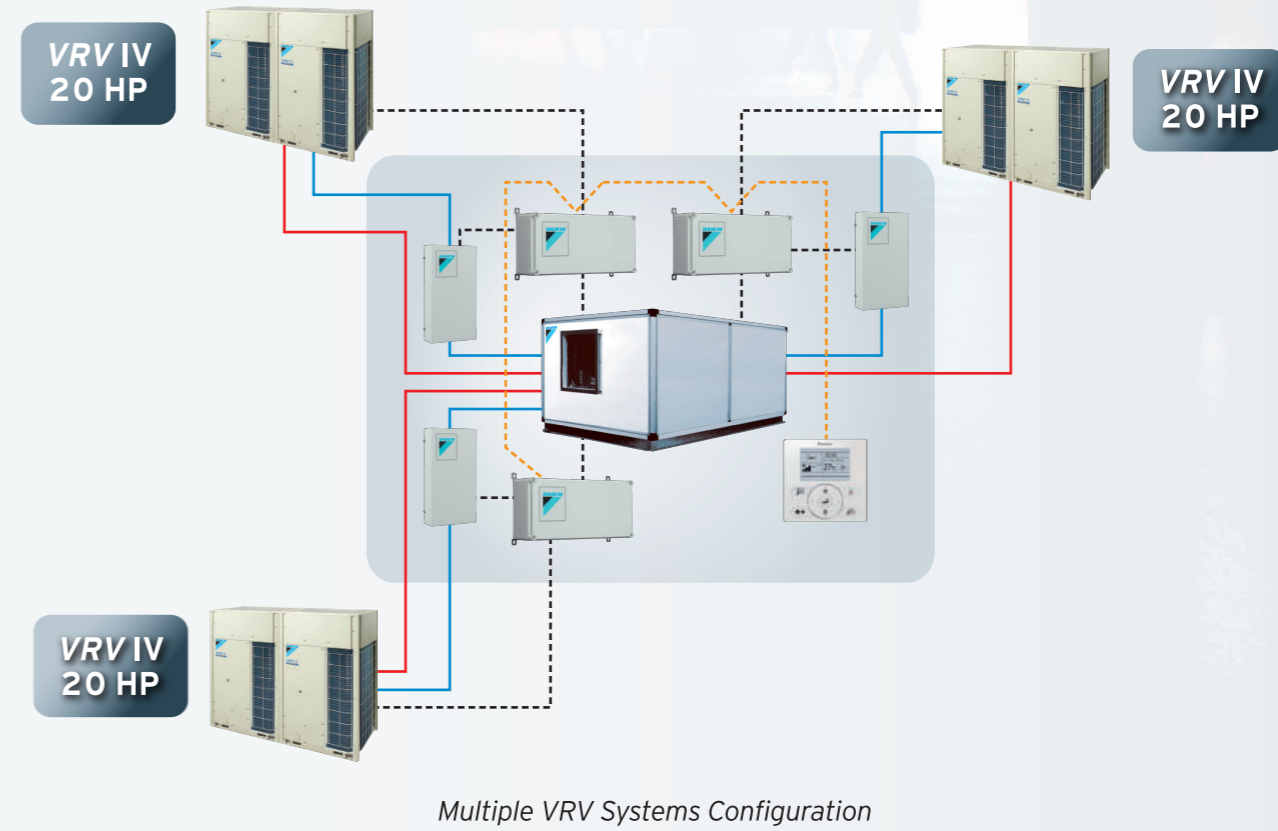
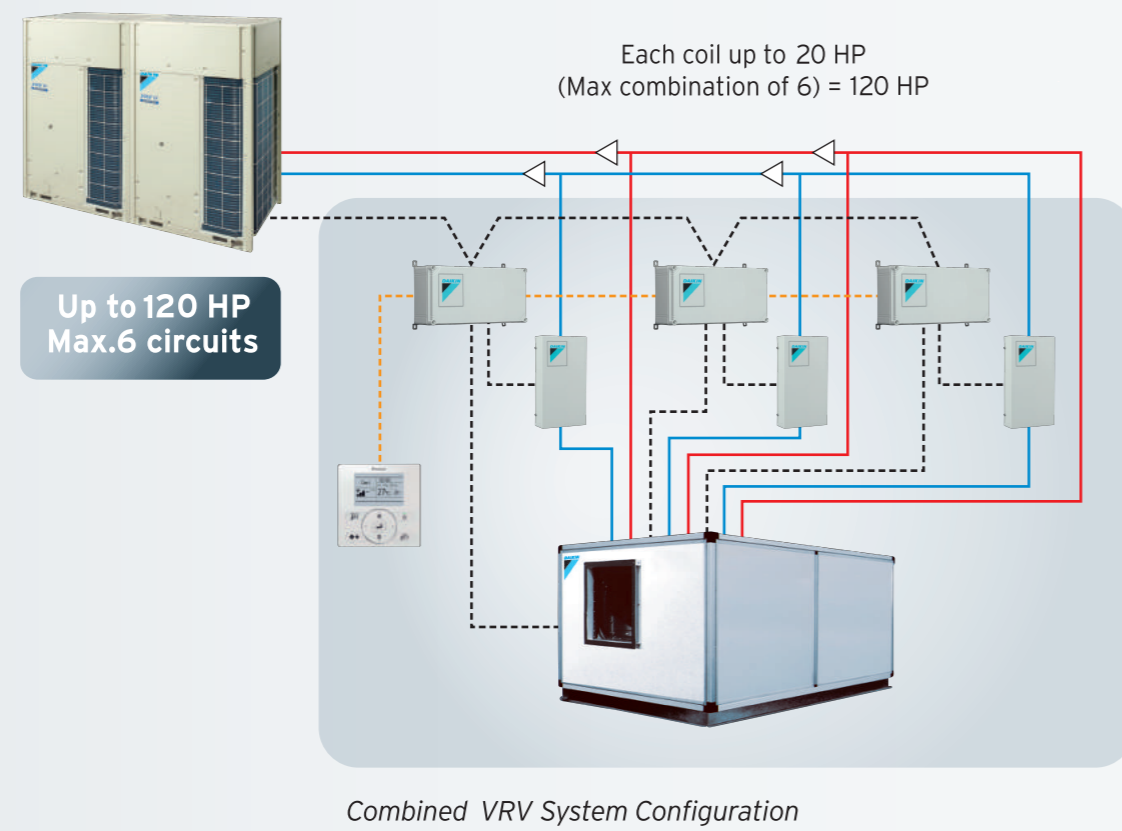


Side View

VRV Connection to AHU Configuration



*In case of more than 60 HP system, connection is Multiple VRV system.



*In case of more than 60 HP system, connection is Multiple VRV system.

--- Control Wiring - - - Remote Control Wiring (P₁,P₂) — Liquid — Gas

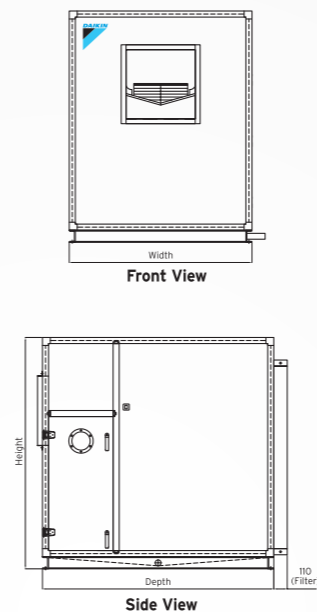
AHU SPECIFICATION (AHUR-DBV/CBV)

1	CASING/INSULATION (DB SERIES)	50mm Thickness Double Skinned Panel 0.5mm Thickness White Colourbond Steel Sheet 50mm Thickness Polyurethane Foam 40Kg/m ³ Density
	CASING / INSULATION (CB SERIES)	25mm Thickness Double Skinned Panel 0.5mm Thickness White Colourbond Steel Sheet 0.5mm Thickness Galvanized Steel Sheet 25mm Thickness PU Foam 40Kg/m ³
2	CASING-FRAME (DB SERIES)	Steel With Black Epoxy Paint
	CASING-FRAME (CB SERIES)	Extruded Aluminium Pentapost Profile
3	COIL TUBE	DX Coil Copper Tube
	FIN	Aluminium Slit
	HEADER	Copper Tube
	FRAME WORKING PRESSURE	Galvanized Steel 10Kg/cm ²
4	FAN TYPE	(Brand = Kruger) Double Width Double Inlet Forward Curved Centrifugal Belt Drive Fan
	WHEEL HOUSING FRAME	Galvanized Steel Galvanized Steel Steel With Polyester Powder Coating
5	MOTOR	(Brand = Teco) Three-Phase Induction Motor Totally Enclosed Fan-Cooled Type Protection = IP55 Insulation Class = F
6	VIBRATION ISOLATOR	Spring Isolator
7	DRAIN PAN (DB SERIES)	1.2mm (SUS 304) Beneath The Drain Pan is Covered With PU Insulation 40Kg/m ³ Density
	DRAIN PAN (CB SERIES)	1.6mm (Steel Sheet With Epoxy Coated) Beneath The Drain Pan is Covered With PU Insulation 40Kg/m ³ Density
8	AIR FILTER	(Brand = AAF) Type = R29 Class = G3 (AFI = 80-85%) Synthetic washable Size = Full (24" x 24" x 2") Half (12" x 24" x 2")

Drawings and Dimension of AHU

Model	Dimension W x D x H (mm)	Model	Dimension W x D x H (mm)
AHUR06DBV	1,300 X 1,200 X 1,200	AHUR06CBV	1,200 X 1,100 X 850
AHUR08DBV	1,300 X 1,400 X 1,200	AHUR08CBV	1,300 X 1,200 X 1,100
AHUR10DBV	1,500 X 1,400 X 1,200	AHUR10CBV	1,500 X 1,200 X 1,100
AHUR16DBV	1,800 X 1,500 X 1,200	AHUR16CBV	1,700 X 1,400 X 1,100
AHUR20DBV	2,100 X 1,600 X 1,200	AHUR20CBV	2,000 X 1,500 X 1,100
AHUR32DBV	1,800 X 1,800 X 1,600	AHUR32CBV	1,700 X 1,700 X 1,500
AHUR40DBV	2,100 X 1,800 X 1,600	AHUR40CBV	2,000 X 1,700 X 1,500
AHUR48DBV	1,800 X 1,950 X 2,300	AHUR48CBV	1,700 X 1,850 X 2,100
AHUR60DBV	2,100 X 1,950 X 2,300	AHUR60CBV	2,000 X 1,950 X 2,200
AHUR80DBV	4,000 X 1,800 X 1,600	AHUR80CBV	3,900 X 1,700 X 1,500
AHUR100DBV	4,000 X 1,950 X 2,300	AHUR100CBV	3,900 X 1,850 X 2,200
AHUR120DBV	4,000 X 1,950 X 2,350	AHUR120CBV	3,900 X 1,950 X 2,200

* Dimension does not include Standard series PCB, Expansion Valve and Pre-filter



AHUR-DBV/CBV SPECIFICATIONS

Model	AHUR06DBV/DBVH AHUR06CBV/CBVH				AHUR08DBV/DBVH AHUR08CBV/CBVH				AHUR10DBV/DBVH AHUR10CBV/CBVH				AHUR16DBV/DBVH AHUR16CBV/CBVH				AHUR20DBV/DBVH AHUR20CBV/CBVH				AHUR32DBV/DBVH AHUR32CBV/CBVH											
	Total Cooling Capacity	NET (KW) **				16.4 16.3 16.2 16.0 15.9 22.9 22.8 22.7 22.4 22.3 28.4 28.3 28.2 28.0 27.8 45.7 45.5 45.3 45.0 44.6 56.8 56.6 56.3 56.0 55.7 91.4 91.0 90.6 90.0 89.2				11.9 11.8 11.7 11.5 11.4 16.8 16.7 16.6 16.3 16.2 20.9 20.8 20.7 20.5 20.3 33.5 33.3 33.1 32.6 32.4 41.8 41.6 41.3 40.9 40.7 67.0 66.6 66.2 65.3 64.8				17.6 24.0 29.8 48.3 59.4 96.6				13.1 17.9 22.3 36.2 44.3 72.4				3.240 4,080 4,680 8,160 9,960 16,320				27/19 27/19 27/19 27/19 27/19				14.7/13.3 13.6/12.7 12.5/12.4 13.5/12.7 13.4/12.6 13.5/12.7		
Total Sensible Cooling Capacity	GROSS (KW) **				17.6 24.0 29.8 48.3 59.4 96.6				13.1 17.9 22.3 36.2 44.3 72.4				3.240 4,080 4,680 8,160 9,960 16,320				27/19 27/19 27/19 27/19 27/19				14.7/13.3 13.6/12.7 12.5/12.4 13.5/12.7 13.4/12.6 13.5/12.7											
Air Flow	CMH				3,240 4,080 4,680 8,160 9,960 16,320				27/19 27/19 27/19 27/19 27/19				14.7/13.3 13.6/12.7 12.5/12.4 13.5/12.7 13.4/12.6 13.5/12.7																			
Ent. Temp.	°CDB/°CWB				27/19 27/19 27/19 27/19 27/19				14.7/13.3 13.6/12.7 12.5/12.4 13.5/12.7 13.4/12.6 13.5/12.7																							
Lea. Temp.	°CDB/°CWB				14.7/13.3 13.6/12.7 12.5/12.4 13.5/12.7 13.4/12.6 13.5/12.7																											
Coil Type	DX COIL (R410A) 8mm. WAVE SIFT SURFACE & STRAIGHT EDGE																															
Coil Face Area	m ²				0.491 0.443 0.54 0.78 0.99 1.56				2.56 2.41 2.91 2.91				3.0 3.0 4.0 5.5 7.5				3.0 4.0 5.5 7.5															
Coil Face Vel.	m/s				1.83 2.56 2.41 2.91 2.91				3.0 3.0 4.0 5.5 7.5				3.0 4.0 5.5 7.5																			
Air PD In Coil	Pa				100 100 100 100 100				100 100 100 100				100 100 100 100																			
Air PD In Pre Filter **	Pa				80 80 80 80 80				80 80 80 80				80 80 80 80																			
Air Filter Size 12"X24K2" **	PCS.				1 1 1 1 1				1 1 1 1 1				1 1 1 1 1																			
Air Filter Size 24"X24K2" **	PCS.				1 1 1 1 1				1 1 1 1 1				1 1 1 1 1																			
Air PD In Casing	Pa				30 30 30 30 30				30 30 30 30				30 30 30 30																			
ESP Initial	Pa				250 300 350 450 500 250 300 350 450 500 250 300 350 450 500 250 300 350 450 500 250 300 350 450 500 250 300 350 450 500				250 300 350 450 500 250 300 350 450 500 250 300 350 450 500 250 300 350 450 500 250 300 350 450 500																							
Total Statics Pressure	Pa				460 510 560 660 710 460 510 560 660 710 460 510 560 660 710 460 510 560 660 710 460 510 560 660 710 460 510 560 660 710				460 510 560 660 710 460 510 560 660 710 460 510 560 660 710 460 510 560 660 710 460 510 560 660 710				460 510 560 660 710 460 510 560 660 710 460 510 560 660 710 460 510 560 660 710																			
Fan Type	FORWARD CURVE																															
Model	FDA200CM				FDA250TM				FDA250TM				FDA315TM				FDA355TM				FDA450TM											
Fan Motor	Kw				1.5 2.2 1.5 2.2 2.2 3.0 3.0 4.0 4.0 5.5 7.5				1.5 2.2 2.2 3.0 3.0 4.0 4.0 5.5 7.5				1.5 2.2 2.2 3.0 3.0 4.0 4.0 5.5 7.5				1.5 2.2 2.2 3.0 3.0 4.0 4.0 5.5 7.5															
POLE	4				4				4				4				4															
Power Supply (50Hz/60Hz)	Volts/Ph./Hz.				380-415/3/50 / 380-415/3/60				380-415/3/50 / 380-415/3/60				380-415/3/50 / 380-415/3/60				380-415/3/50 / 380-415/3/60															
FIA	amp				3.64 5.28 3.64 5.28 5.28 6.58 6.58 8.92 8.92 12.0 12.0 15.4				3.64 5.28 3.64 5.28 5.28 6.58 6.58 8.92 8.92 12.0 12.0 15.4				3.64 5.28 3.64 5.28 5.28 6.58 6.58 8.92 8.92 12.0 12.0 15.4				3.64 5.28 3.64 5.28 5.28 6.58 6.58 8.92 8.92 12.0 12.0 15.4															
Machine Weight (DBV)	kg				545 550 550 560 600 610 765 775 890 900 920 1,090 1,110				545 550 550 560 600 610 765 775 890 900 920 1,090 1,110				545 550 550 560 600 610 765 775 890 900 920 1,090 1,110				545 550 550 560 600 610 765 775 890 900 920 1,090 1,110															
Machine Weight (CBV)	kg				480 485 480 485 530 540 740 750 850 860 880 990 1,010				480 485 480 485 530 540 740 750 850 860 880 990 1,010				480 485 480 485 530 540 740 750 850 860 880 990 1,010				480 485 480 485 530 540 740 750 850 860 880 990 1,010															
Sound Pressure Level (SPL)	dBA				60 61 62 63 64 64 65 57 59 60 54 56 57 59 60 62 63 64 66 67 67 67 68 70 71 68 69 70 71 72 69 69 70 71 73				60 61 62 63 64 64 65 57 59 60 54 56 57 59 60 62 63 64 66 67 67 67 68 70 71 68 69 70 71 72 69 69 70 71 73				60 61 62 63 64 64 65 57 59 60 54 56 57 59 60 62 63 64 66 67 67 67 68 70 71 68 69 70 71 72 69 69 70 71 73				60 61 62 63 64 64 65 57 59 60 54 56 57 59 60 62 63 64 66 67 67 67 68 70 71 68 69 70 71 72 69 69 70 71 73															
Standard series PCB	Model/PCS.				EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 2 pcs.				EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 2 pcs.				EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 2 pcs.				EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 1 pc. EKEQMCBAV3 / 2 pcs.															
Expansion Valve	Model/PCS.				EKEXV140 / 1 pc. EKEXV200 / 1 pc. EKEXV250 / 1 pc. EKEXV400 / 1 pc. EKEXV500 / 1 pc. EKEXV500 / 2 pcs.				EKEXV140 / 1 pc. EKEXV200 / 1 pc. EKEXV250 / 1 pc. EKEXV400 / 1 pc. EKEXV500 / 1 pc. EKEXV500 / 2 pcs.				EKEXV140 / 1 pc. EKEXV200 / 1 pc. EKEXV250 / 1 pc. EKEXV400 / 1 pc. EKEXV500 / 1 pc. EKEXV500 / 2 pcs.				EKEXV140 / 1 pc. EKEXV200 / 1 pc. EKEXV250 / 1 pc. EKEXV400 / 1 pc. EKEXV500 / 1 pc. EKEXV500 / 2 pcs.															
Piping	Liquid pipes				mm 9.5 (Braze connection) 9.5 (Braze connection) 9.5 (Braze connection) 12.7 (Braze connection) 15.9 (Braze connection) 12.7 (Braze connection) x 2				mm 9.5 (Braze connection) 9.5 (Braze connection) 9.5 (Braze connection) 12.7 (Braze connection) 15.9 (Braze connection) 12.7 (Braze connection) x 2				mm 9.5 (Braze connection) 9.5 (Braze connection) 9.5 (Braze connection) 12.7 (Braze connection) 15.9 (Braze connection) 12.7 (Braze connection) x 2				mm 9.5 (Braze connection) 9.5 (Braze connection) 9.5 (Braze connection) 12.7 (Braze connection) 15.9 (Braze connection) 12.7 (Braze connection) x 2															
Connections	Gas pipes **				mm 15.9 (Braze connection) 19.1 (Braze connection) 22.2 (Braze connection) 28.6 (Braze connection) 28.6 (Braze connection) 28.6 (Braze connection) x 2				mm 15.9 (Braze connection) 19.1 (Braze connection) 22.2 (Braze connection) 28.6 (Braze connection) 28.6 (Braze connection) 28.6 (Braze connection) x 2				mm 15.9 (Braze connection) 19.1 (Braze connection) 22.2 (Braze connection) 28.6 (Braze connection) 28.6 (Braze connection) 28.6 (Braze connection) x 2				mm 15.9 (Braze connection) 19.1 (Braze connection) 22.2 (Braze connection) 28.6 (Braze connection) 28.6 (Braze connection) 28.6 (Braze connection) x 2															
Drain pipes	mm				32 32 32 32 32				32 32 32 32 32				32 32 32 32 32																			
Refrigerant Control	Electronic expansion valve				Electronic expansion valve				Electronic expansion valve				Electronic expansion valve																			
Panel	Double Skinned																															
Capacity Index	140				200				250				400				500				800											

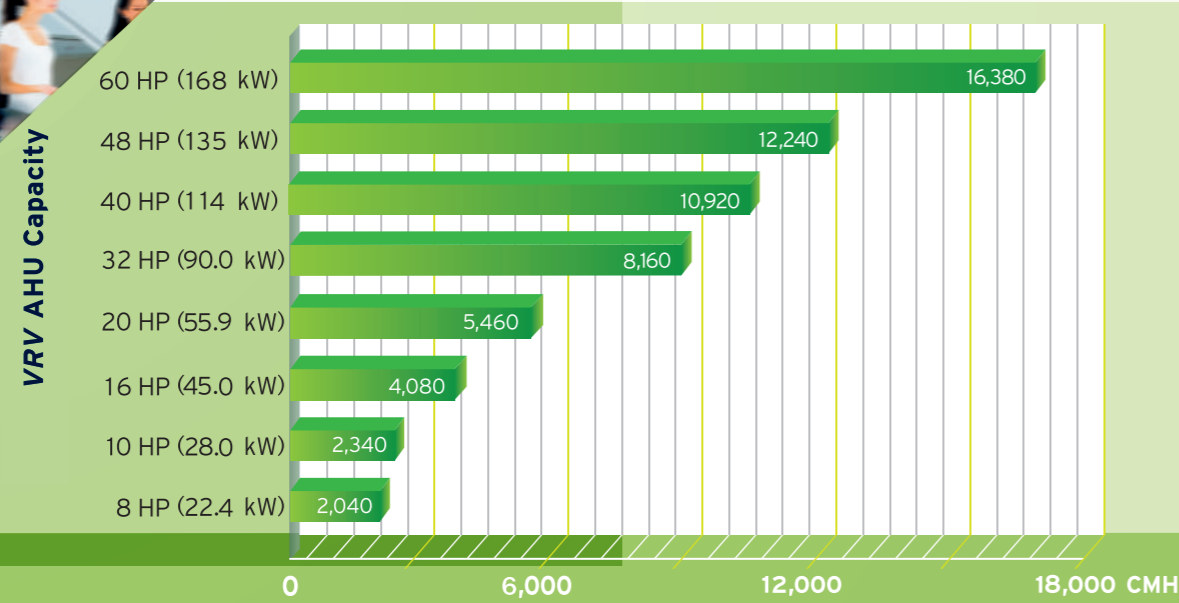
Notes:
 1. Net capacity includes indoor fan heat.
 2. Gross capacity do not include indoor fan heat.
 3. With pre filter, AAF synthetic R29 & class G3 (Washable) eff 80-85%.
 4. It is necessary to reduce piping size by reducer when connection (19.1 → 15.9, 22.2 → 19.1, 28.6 → 22.2, 34.9 → 28.6)

System Pattern	Total CR	VRV Indoor	AHU
VRV DX Indoor unit(s) + AHU	50-110%	0-110%	0-60%
Only AHU (Pair AHU & Multi AHU)	50-110%	-	50-110%

Conversion formula
 kcal/h = kW x 860
 Btu/h = kW x 3412
 cfm = m³/min x 35.3

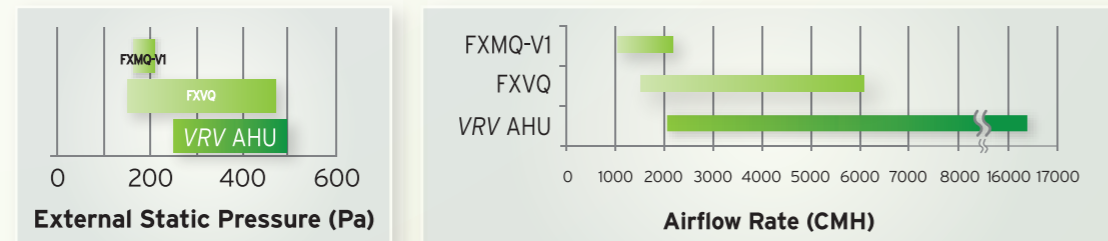
VRV AHU Outdoor Air Series

The VRV AHU Outdoor air series are available from the capacity range of 8 HP to 60 HP, also with airflow ranging from 2,040 CMH - 16,380 CMH.



Comparison for ESP and Capacity between VRV AHU, Ceiling Mounted Duct Type and Floor Standing Duct Type.

VRV AHU offers higher ESP and airflow rate as compared to duct type units.



	From	To
FXMQ-V1	185 Pa	205 Pa
FXVQ	150 Pa	480 Pa
VRV AHU	250 Pa	500 Pa

	From (CMH)	To (CMH)
FXMQ-V1	1,080	2,100
FXVQ	1,518	6,072
VRV AHU	2,040	16,380

*For ESP more than 500Pa, please contact Daikin's Sales Office

VRV AHU Operation Range

VRV AHU AHUR-DBL/CBL operation is similar as other VRV indoor unit. Following table is the list of operation range for AHU unit.

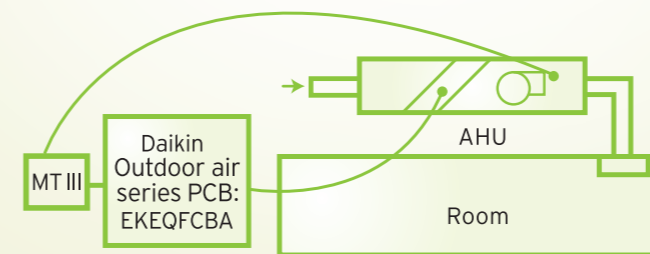
		Temperature Range
		Cooling
Entering Air Temperature to VRV AHU	Minimum	14°C WB
	Maximum	32°C WB
Outdoor Unit	Minimum	-5°C DB
	Maximum	49°C DB
Expansion Valve	Minimum	-5°C DB
	Maximum	46°C DB
Outdoor air series PCB	Minimum	-10°C DB
	Maximum	40°C DB

Possibility X (Td/Tr control):

Precise air temperature control via MicroTech III (MT III) controller (option)

Room temperature is controlled as a function of the air handling unit suction or discharge air (customer selection). The MT III controller translates the temperature difference between set point and air suction temperature (or air discharge temperature or room temperature) into a reference voltage (0-10V) which is transferred to the Daikin Outdoor air series PCB (EKEQFCBA).

This reference voltage will be used as the main input value for the compressor frequency control.



Td = Air discharge temperature (13°C ~ 28°C) Te = Evaporating temperature AHU = Air Handling Unit

MicroTech III controller (option)



MT III controller is recommended for Outdoor air series AHU controlling, switching and monitoring functions. This controller is programmed to optimize the performance and efficiency of VRV AHU automatically. It can also communicate with Daikin's intelligent Touch Manager via BACnet protocol easily.

VRV AHU Expansion Valve

	EKEXV200	EKEXV250	EKEXV400	EKEXV500
Casing	Colour	Ivory white		
	Material	Metal		
Dimensions	Unit	H x W x D mm 401 x 215 x 78		
	Weight	Kg 2.9		
Operation Range	Cooling	Min. ~ Max. °CDB -5.0 ~ 46.0		
Refrigerant	Type	R-410A		
		Type Braze connection		
Piping connections	Liquid	OD mm	9.52	12.7 15.9
		Type	Braze connection	
	Gas	OD mm	9.52	
		Heat Insulation	Both inlet and outlet	

VRV AHU Outdoor Air Series Evaporator Coil, Expansion Valve and Outdoor Air Series PCB

AHUR-DBL/CBL Outdoor air series use DX coil. Each DX coil will be connected to one external expansion valve (EKEXV) and controlled by one Outdoor air series PCB (EKEQFCBA).

VRV AHU Outdoor air Series Evaporator Coil

- 4 capacities of Evaporator Coil
 - 8HP used on 8HP AHU unit
 - 10HP used on 10HP AHU unit
 - 16HP used on 16HP, 32HP, 48HP AHU unit
 - 20HP used on 20HP, 40HP, 60HP AHU unit

VRV AHU Expansion Valve (EKEXV)

- 4 capacities of AHU Expansion Valve
 - EKEXV200 for 8HP Coil
 - EKEXV250 for 10HP Coil
 - EKEXV400 for 16HP Coil
 - EKEXV500 for 20HP Coil

VRV AHU Outdoor air series PCB (EKEQFCBA)



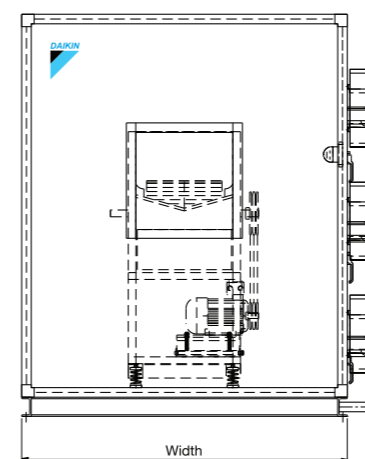
Installation of AHU Outdoor air series PCB should be positioned under a shaded area. Alternatively, a panel should be provided at the Outdoor air series PCB to block off direct sunlight.

Direct sunlight will increase the temperature inside the Outdoor air series PCB and may reduce its lifetime and influence its operation.

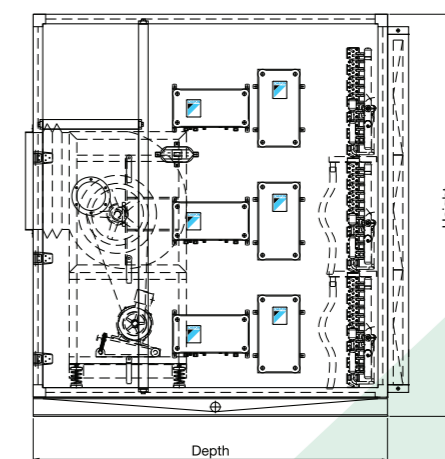
Operating temperature of the Outdoor air series PCB is between -10°C and 40°C.

VRV AHU Outdoor Air Series PCB

	EKEQFCBA	
Application	Multi	
Outdoor Unit	VRV IV	
Casing	Colour	White grey
	Material	Resin
Dimensions	Unit H x W x D mm 132 x 400 x 200	
Weight	Unit Kg 3.9	
Operation Range	Cooling	Min. ~ Max. °CDB -10.0 ~ 40.0
	Phase	1
Power Supply	Frequency Hz	50/60
	Voltage V	230/220

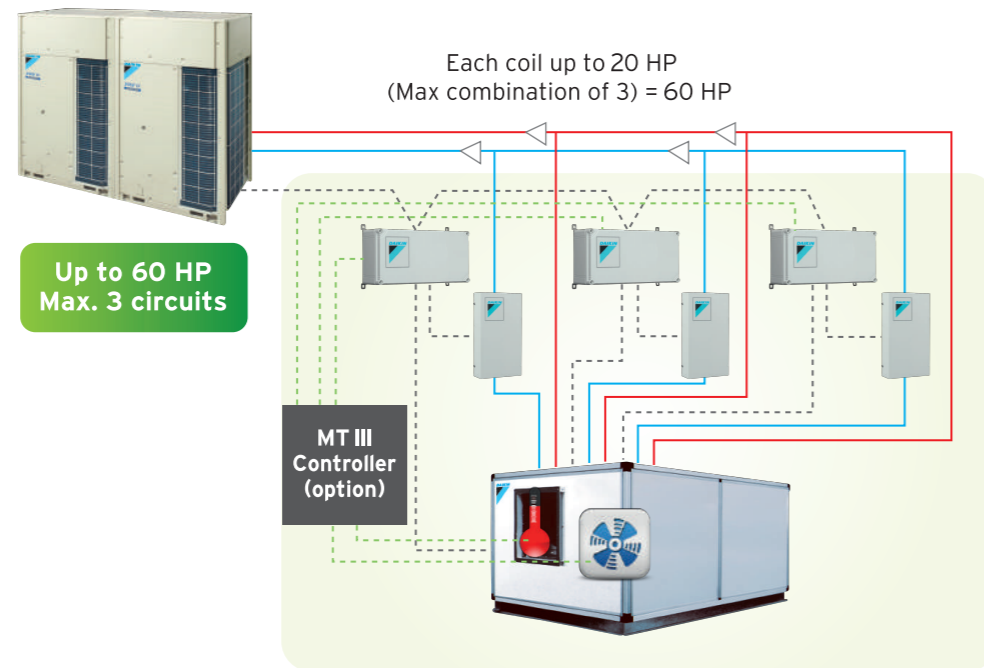
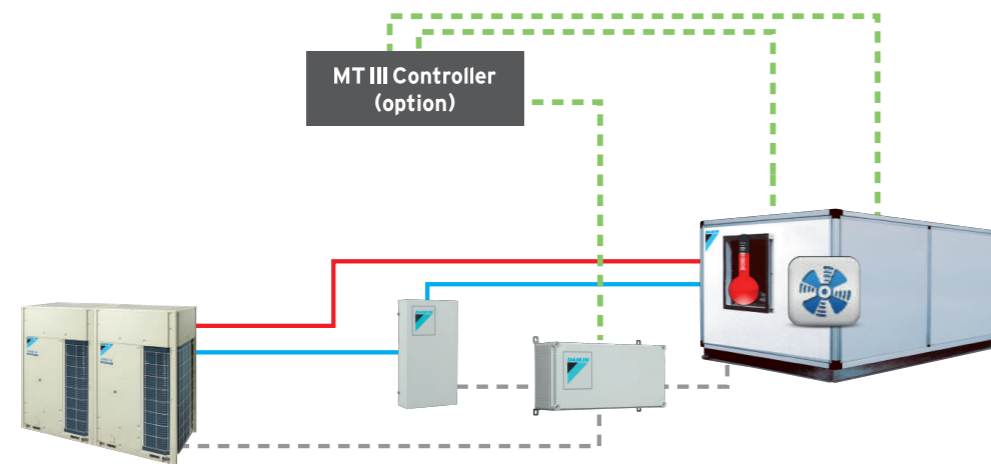


Front View



Side View

VRV AHU Configuration



Combined VRV System Configuration

--- Control Wiring - - - - MT III Control Wiring - - - - Liquid - - - - Gas

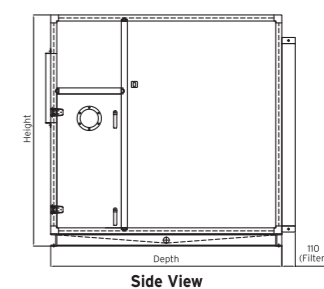
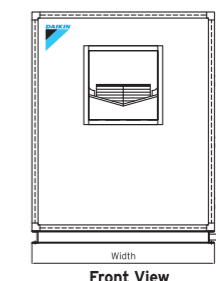
AHU SPECIFICATION (AHUR-DBL/CBL)

1	CASING / INSULATION (DBL SERIES)	50mm Thickness Double Skinned Panel (Thermal Break) 0.5mm Thickness White Colourbond Steel Sheet 50mm Thickness Polyurethane Foam 40Kg/m ³ Density
	WEATHER PROOF ROOF	SUS 304
2	CASING / INSULATION (CBL SERIES)	25mm Thickness Double Skinned Panel 0.5mm Thickness White Colourbond Steel Sheet 0.5mm Thickness Galvanized Steel Sheet 25mm Thickness Polyurethane Foam 40Kg/m ³ Density
	CASING-FRAME (DBL SERIES)	Steel With Black Epoxy Paint
3	CASING-FRAME (CBL SERIES)	Extruded Aluminium Profile
	COIL	DX Coil
	TUBE	Copper Tube
	FIN	Aluminum Slit Type
	HEADER	Copper Tube-Connect
	FRAME	Galvanized Steel
4	WORKING PRESSURE	10Kg/cm ²
	FAN	(Brand = Kruger)
	TYPE	Double Width Double Inlet Forward Curved Centrifugal Belt Drive Fan
	WHEEL	Galvanized Steel Sheet
5	HOUSING	Galvanized Steel Sheet
	FRAME	Steel With Polyester Powder Coating
6	MOTOR	(Brand = Teco) Three-Phase Induction Motor Totally Enclosed Fan-Cooled Type Protection = IP55 Insulation Class = F, IE1
	VIBRATION ISOLATOR	Spring Isolator
7	DRAIN PAN (DBL SERIES)	1.2mm (SUS 304) The Drain Pan is Covered With PU Insulation 40Kg/m ³ Density
	DRAIN PAN (CBL SERIES)	1.6mm (Steel Sheet With Epoxy Coated) Beneath The Drain Pan is Covered With PU Insulation 40Kg/m ³ Density
8	AIR FILTER	(Brand = AAF) Type = R29 Class = G3 (AFI = 80-85%) Synthetic Washable Size = Full (24" x 24" x 2") Half (12" x 24" x 2")

Drawings and Dimension of AHU

Model	Dimension W x D x H (mm)
AHUR08DBL	1,300 X 1,400 X 1,200
AHUR10DBL	1,500 X 1,400 X 1,200
AHUR16DBL	1,800 X 1,500 X 1,200
AHUR20DBL	2,100 X 1,600 X 1,200
AHUR32DBL	1,800 X 1,800 X 1,600
AHUR40DBL	2,100 X 1,800 X 1,600
AHUR48DBL	1,800 X 1,950 X 2,200
AHUR60DBL	2,100 X 1,950 X 2,200

Model	Dimension W x D x H (mm)
AHUR08CBL	1,300 X 1,200 X 1,100
AHUR10CBL	1,500 X 1,200 X 1,100
AHUR16CBL	1,700 X 1,400 X 1,100
AHUR20CBL	2,000 X 1,500 X 1,100
AHUR32CBL	1,700 X 1,700 X 1,500
AHUR40CBL	2,000 X 1,700 X 1,500
AHUR48CBL	1,700 X 1,850 X 2,100
AHUR60CBL	2,000 X 1,950 X 2,200



* Dimension does not include Outdoor air series PCB, Expansion Valve and Pre-filter

AHUR-DBL/CBL SPECIFICATIONS

Model	AHUR08DBL/CBL AHUR08DBLH/CBLH	AHUR10DBL/CBL AHUR10DBLH/CBLH	AHUR16DBL/CBL AHUR16DBLH/CBLH	AHUR20DBL/CBL AHUR20DBLH/CBLH	
Total Cooling Capacity	NET (kW) ¹⁾	22.8	28.3	45.3	56.7
Total Sensible Cooling Capacity		10.9	13.2	21.7	27.6
Total Cooling Capacity	GROSS (kW) ²⁾	23.3	28.9	46.3	58.4
Sensible Cooling Capacity		11.4	13.8	22.7	29.3
Air Flow	CMH	2,040	2,340	4,080	5,460
Ent. Temp.	°CDB/°CWB	33/28	33/28	33/28	33/28
Lea. Temp.	°CDB/°CWB	19.4/18.9	18.4/18	19.3/19.0	19.9/19.6
Coil Type		DX-COIL (R410A) 8mm. WAVE SUIT SURFACE & STRAIGHT EDGE			
Coil Face Area	m ²	0.443	0.54	0.784	0.99
Coil Face Vel.	m/s	1.28	1.20	1.45	1.53
Air PD In Coil	Pa	50	50	50	50
Air PD In Pre Filter ³⁾	Pa	80	80	80	80
Air Filter Size 12"X24"X2" ³⁾	PCS.	1	-	1	-
Air Filter Size 24"X24"X2" ³⁾	PCS.	1	2	2	3
Air PD In Casing	Pa	30	30	30	30
ESP Initial	Pa	250	300	350	450
Total Static Pressure	Pa	410	460	510	610
Fan Type		FORWARD CURVE			
Model	FSA280CM	FSA280CM	FDA250TM	FDA250TM	
Fan Motor	KW	0.75	1.1	1.5	2.2
	POLE	4	4	4	4
Power Supply (50Hz/60Hz)	Volt/Ph./Hz.	380-415/3/50 / 380-415/3/60			
FLA	amp.	2.05	2.82	3.64	5.28
Machine Weight (DBL)	kg	545	605	700	815
Machine Weight (CBL)	kg	475	520	670	785
Sound Pressure Level (SPL)	dBA	56	57	55	55
Outdoor Air series PCB	Model/PCS.	EKEGFCBAV3 / 1 pc.			
Expansion Valve	Model/PCS.	EKEV250 / 1 pc.			
Piping	Liquid pipes	9.5 (Braze connection)			
	Gas pipes ⁴⁾	19.1 (Braze connection)			
	Drain pipes	32			
Refrigerant Control		Electronic expansion valve			
Panel		Double Skinned			
Capacity Index		200	250	400	500

Model	AHUR32DBL/CBL AHUR32DBLH/CBLH	AHUR40DBL/CBL AHUR40DBLH/CBLH	AHUR48DBL/CBL AHUR48DBLH/CBLH	AHUR60DBL/CBL AHUR60DBLH/CBLH	
Total Cooling Capacity	NET (kW) ¹⁾	90.3	114.4	136.0	171.7
Total Sensible Cooling Capacity		43.1	56.2	65.2	84.4
Total Cooling Capacity	GROSS (kW) ²⁾	92.6	116.8	138.9	175.2
Sensible Cooling Capacity		45.4	58.6	68.1	87.9
Air Flow	CMH	8,160	10,920	12,240	16,380
Ent. Temp.	°CDB/°CWB	33/28	33/28	33/28	33/28
Lea. Temp.	°CDB/°CWB	19.3/19.0	19.9/19.6	19.3/19.0	19.9/19.6
Coil Type		DX-COIL (R410A) 8mm. WAVE SUIT SURFACE & STRAIGHT EDGE			
Coil Face Area	m ²	1.568	1.98	2.35	2.97
Coil Face Vel.	m/s	1.45	1.53	1.45	1.53
Air PD In Coil	Pa	50	50	50	50
Air PD In Pre Filter ³⁾	Pa	80	80	80	80
Air Filter Size 12"X24"X2" ³⁾	PCS.	2	-	3	-
Air Filter Size 24"X24"X2" ³⁾	PCS.	4	6	6	9
Air PD In Casing	Pa	30	30	30	30
ESP Initial	Pa	250	300	350	450
Total Static Pressure	Pa	410	460	510	610
Fan Type		FORWARD CURVE			
Model	FDA315TM	FDA400TM	FDA400TM	FDA500TM	
Fan Motor	KW	3.0	4.0	5.5	7.5
	POLE	4	4	4	4
Power Supply (50Hz/60Hz)	Volt/Ph./Hz.	380-415/3/50 / 380-415/3/60			
FLA	amp.	6.58	8.92	12.0	15.4
Machine Weight (DBL)	kg	985	1,005	1,280	1,645
Machine Weight (CBL)	kg	870	890	1,075	1,275
Sound Pressure Level (SPL)	dBA	63	64	63	65
Outdoor Air series PCB	Model/PCS.	EKEGFCBAV3 / 2 pcs.			
Expansion Valve	Model/PCS.	EKEV400 / 2 pcs.			
Piping	Liquid pipes	12.7 (Braze connection) x 2			
	Gas pipes ⁴⁾	28.6 (Braze connection) x 2			
	Drain pipes	32			
Refrigerant Control		Electronic expansion valve			
Panel		Double Skinned			
Capacity Index		800	1,000	1,200	1,500

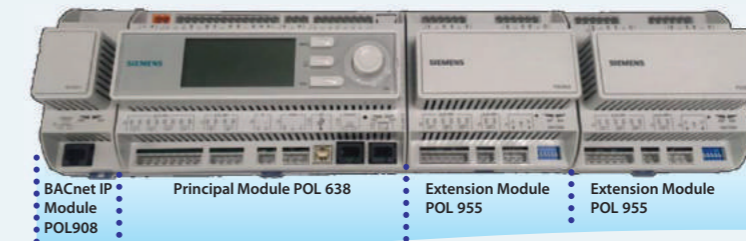
Notes:
 1. Net capacity includes indoor fan heat.
 2. Gross capacity do not include indoor fan heat.
 3. With pre filter, AAF synthetic R29 & class G3 (Washable) eff 80-85%.
 4. It is necessary to reduce piping size by reducer when connection (19.1 → 15.9, 22.2 → 19.1, 28.6 → 22.2, 34.9 → 28.6)
 5. Air temperature control via an external MT III controller (option).

System Pattern	Total CR	VRV Indoor	AHU
Only AHU (Pair AHU)	50-110%	-	50-110%

Conversion formula
 kcal/h=kWx860
 Btu/h=kWx3412
 cfm=m³/minx35.3

MicroTech III Controller (Option)

MicroTech III consists of 4 components in a fixed configuration.



Features of MicroTech III

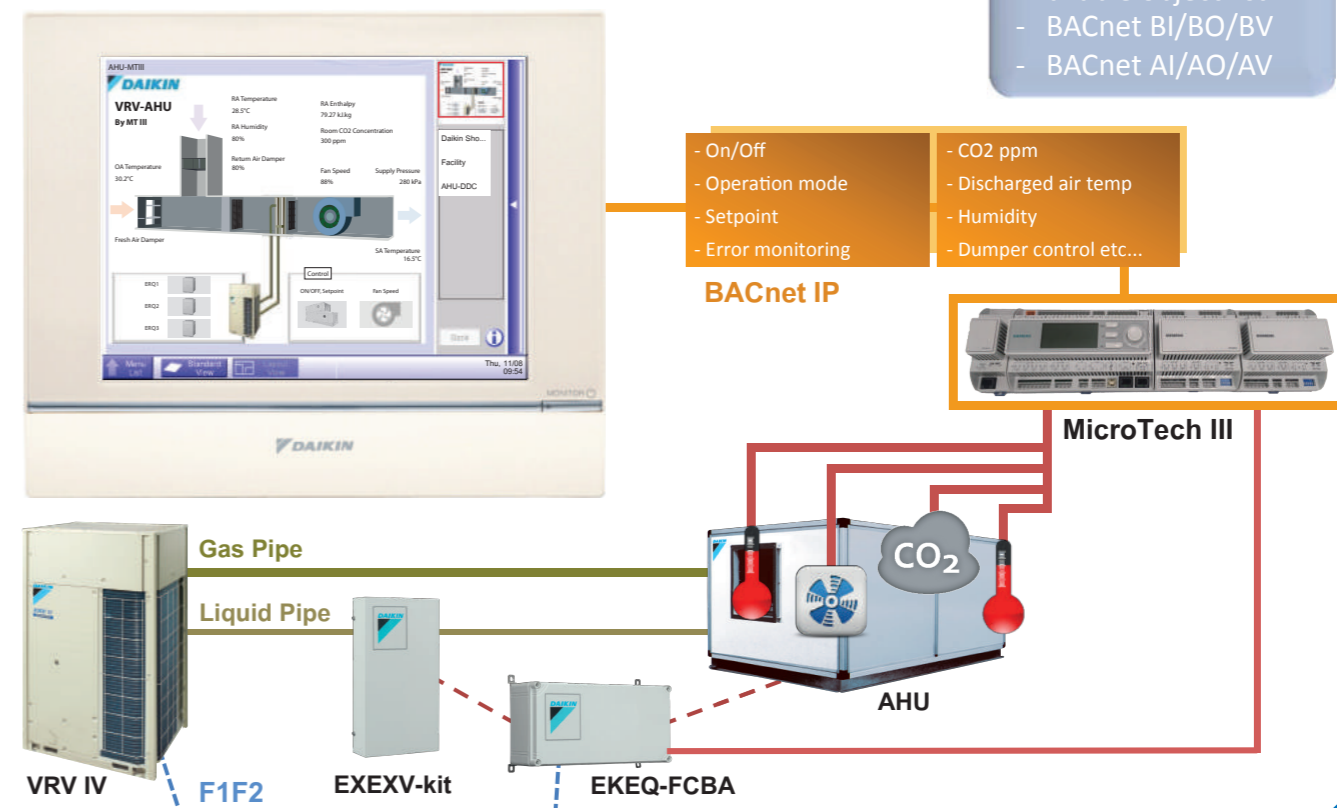
- BACnet IP Module for integration of MicroTech III AHU Controller in networks featuring the BACnet Protocol. Compatible with Daikin intelligent Touch Manager (iTm) or 3rd party BMS.
- Principal Module POL 638 and Extension Module POL 955 have selected analog and digital I/O contacts programmed for control and monitoring of sensors and other related devices in a VRV Outdoor Air Series AHU.
- HMI screen on the Principal Module POL 638 allows easy testing and commissioning and even without a centralised controller or 3rd party BMS.

Functions of MicroTech III

- Supply air control using the supply air sensor
 - Used for temperature control.
- Air quality control – CO2 Levels
 - The controls of the mixing damper can be dependent on the CO2 set point.
 - User can define the CO2 set point.
 - The fresh air damper will be difference between 100% and the percentage opening of the mixing damper.
- Fan airflow control
 - The fan speed control can be done through
 - Direct (w/o inverters).
 - DirectVar (with inverters).
 - Analog controlled variable speed drive with digital release.
 - Pressure control to meet the pressure set points in the duct.
- Monitoring points for other features
 - Room humidity
 - Electric heating coil
 - Outside, room and return temperature
 - VRV alarm

MicroTech III can connect to intelligent Touch Manager.

Monitor and control devices related to AHU such as Fan, sensors, and damper



Available object list
 - BACnet BI/BO/BV
 - BACnet AI/AO/AV

- On/Off
- Operation mode
- Setpoint
- Error monitoring
- CO2 ppm
- Discharged air temp
- Humidity
- Damper control etc...

BACnet IP

MicroTech III

Case Study of Customization

Flexible customization of AHU

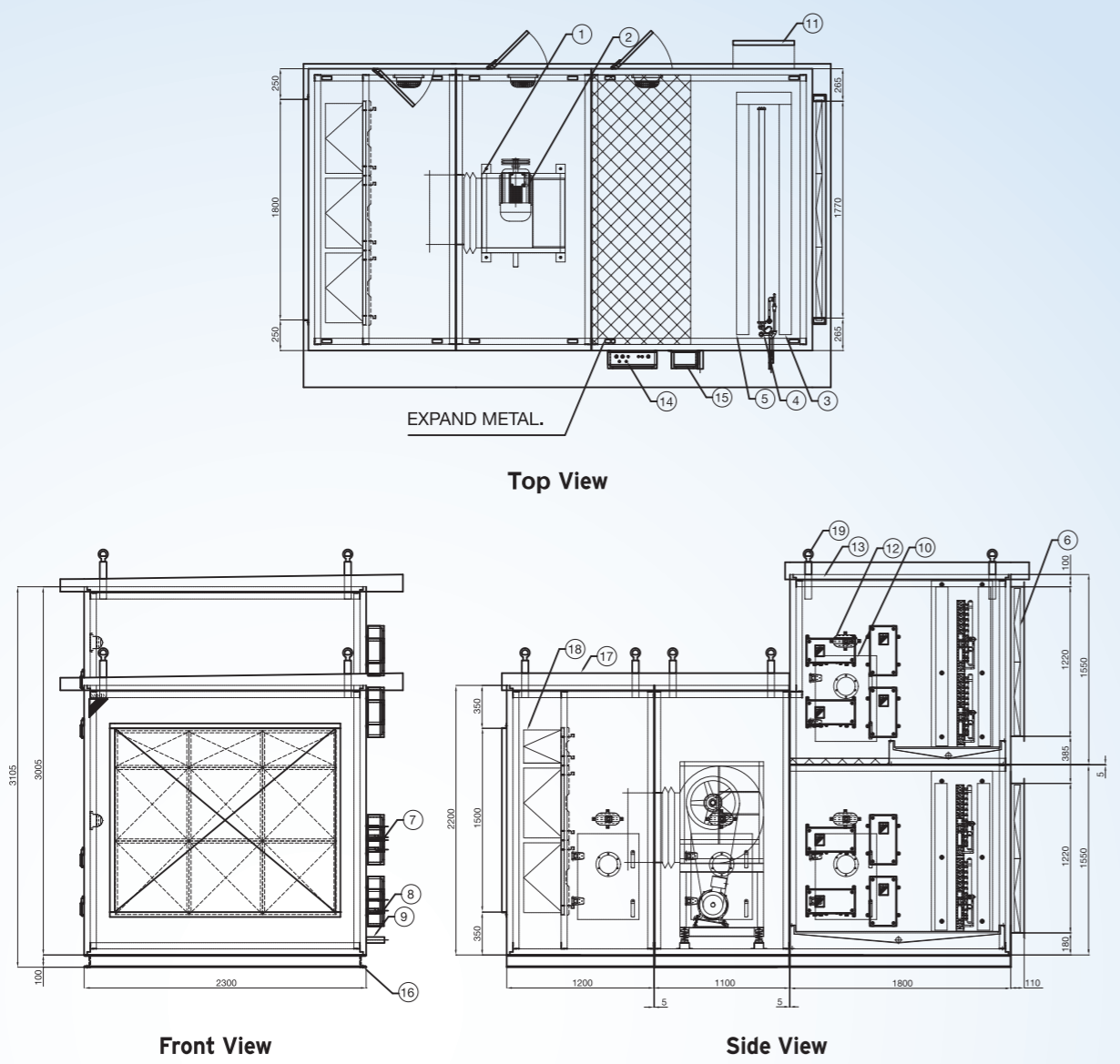
Daikin's AHU can be customized to meet your requirements

Case 1

■ Specification

SA FLOW	14,000	CMH.	PRECOIL CAPACITY	23,960	Kcal/Hr.
BYPASS FLOW	-	CMH.	MAINCOIL CAPACITY	224,598	Kcal/Hr.
RA FLOW	14,000	CMH.	REHEATCOIL CAPACITY	23,960	Kcal/Hr.
OA FLOW	-	CMH.	ESP.	800	Pa
			TSP.	1,400	Pa

■ Drawing



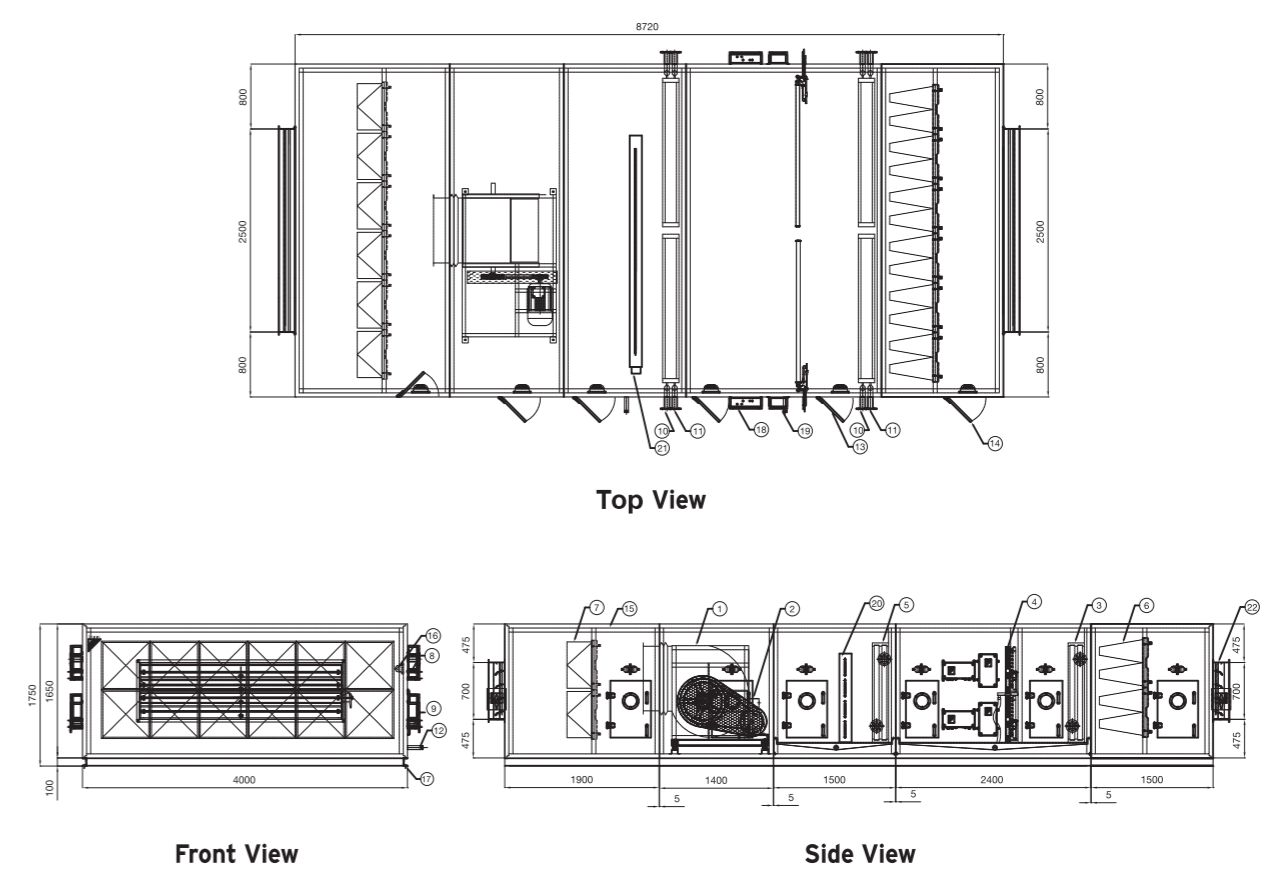
NO.	Parts name	NO.	Parts name	NO.	Parts name
1	FAN	8	SUCTION PIPE = 2 PCS.	14	OUTDOOR AIR SERIES PCB (EKEQFCBA) = 4 PCS.
2	MOTOR	(REDUCER PIPE 1B = 2 PCS)	15	EXPANSION VALVE (EKEXV500) = 4 PCS.	
3	PRE COIL = 2 PCS.	9	DRAIN PIPE = 1 PC.	16	ANCHOR HOLE Ø18-ALL
4	MAIN COIL = 4 PCS.	10	ACCESS DOOR = 4 PCS.	17	ROOF (SUS)
5	HEATING COIL = 2 PCS.	11	SERVICE PANEL = 2 PCS.	18	MED FILTER = 9 PCS.
6	PRE FILTER = 12 PCS.	12	MARINE LAMP 11W+SWITCH = 4 PCS.	19	EYE BOLTS B-1130-20 = 12 PCS.
7	LIQUID PIPE = 2 PCS.	13	SANWICH PANEL		

Case 2

■ Specification

SA FLOW	31,794	CMH.	PRE COOLING CAPACITY	12,383	Kcal/hr.
BYPASS FLOW	-	CMH.	MAIN COOLING CAPACITY	190,318	Kcal/hr.
RA FLOW	31,794	CMH.	RE-HEAT CAPACITY	12,383	Kcal/hr.
OA FLOW	-	CMH.	ESP.	750	Pa
			TSP.	1,460	Pa

■ Drawing



NO.	Parts name	NO.	Parts name	NO.	Parts name
1	FAN BDB630TM	9	SUCTION PIPE 1-3/8B = 4 PCS.	16	MARINE LAMP 11W+SWITCH = 2 PCS.
2	MOTOR22KW.4P (380/3PH/60HZ)	(REDUCER PIPE 1B = 4 PCS)	17	ANCHOR HOLE ø18-ALL	
3	PRE WC. 3/8"-2Rx13FPIx45STx1730=2PCS.	10	INLET PIPE (PRE,RE-HEAT) 2B = 4PCS.	18	STANDARD SERIES PCB (EKEQMCBA) = 4 PCS.
4	MAIN DC. 3/8"-4Rx14FPIx22STx1730=4PCS.	11	OUTLET PIPE (PRE,RE-HEAT) 2B = 4PCS.	19	EXPANSION VALVE (EKEXV500) = 4 PCS.
5	RH WC. 3/8"-2Rx13FPIx45STx1730=2PCS.	12	DRAIN PIPE 2 B = 2 PCS.	20	E/H 3PH/380V/50HZ/30KW
6	BAG FILTER 24"x24"x12" = 12 PCS.	13	ACCESS DOOR 400X700MM = 2 PCS.	21	TERMINAL BOX
7	MED FILTER 24"x24"x12" = 12 PCS.	14	ACCESS DOOR 500X700MM = 4 PCS.	22	VOLUME DAMPER
8	LIQUID PIPE 5/8B = 4 PCS.	15	SANWICH PANEL 50 MM.		

*Please contact to Daikin sales office for more information