



VRV

**VRV AURORA
AIR-COOLED
SYSTEMS**





Applications:



COLD CLIMATE



RESIDENTIAL



OFFICE



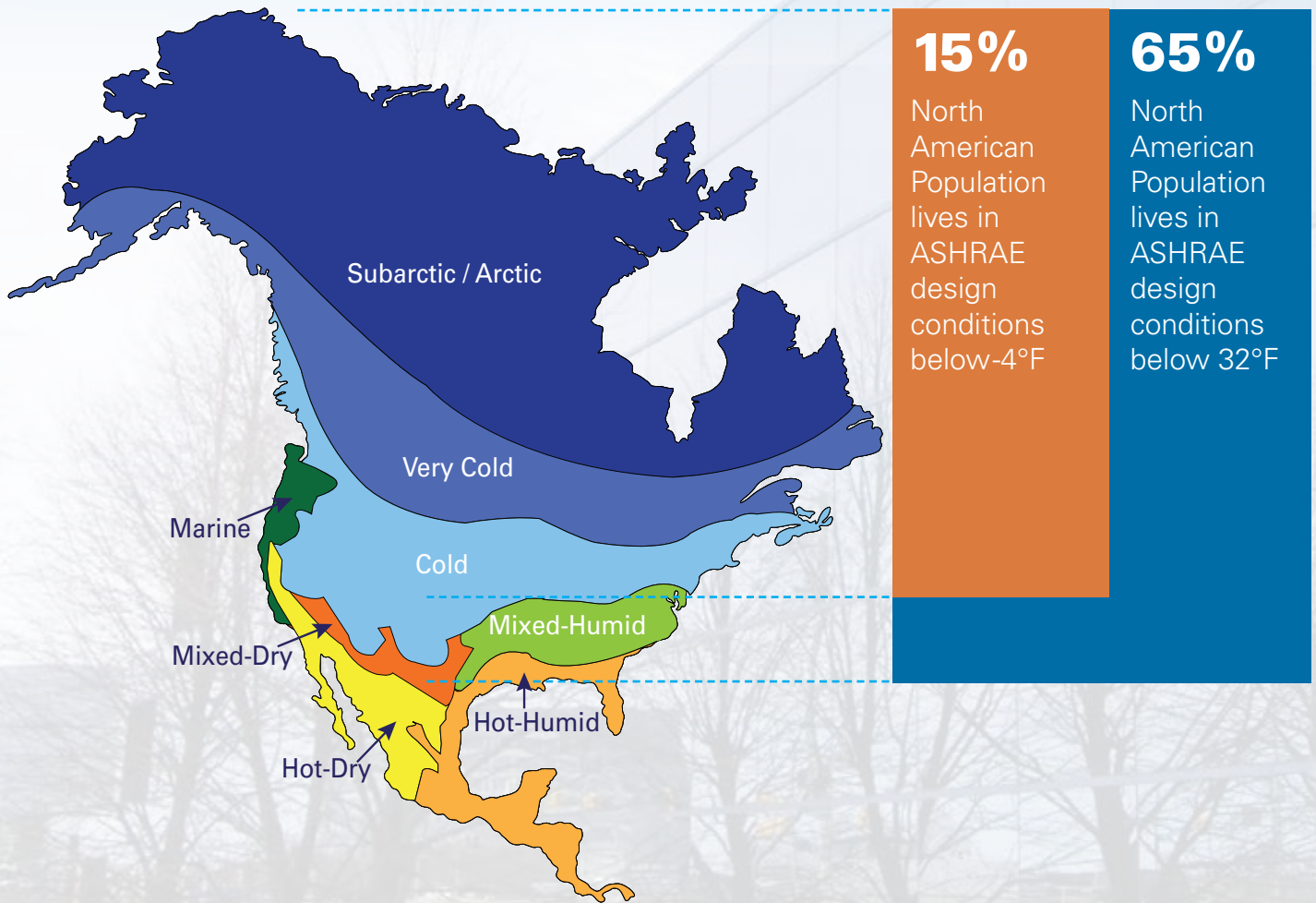
RETAIL



SCHOOLS

DAIKIN VRV AURORA

Engineered for Cold Climate and Heating Dominant Applications



Known for high efficiencies and reliable operation, air-cooled heat pumps have been the traditional and the primary heating solution in temperate climates.

Historically, demand for high heating capacities and efficiencies in cold and very cold regions has forced engineers to use a combination of backup heat and/or conditioned mechanical rooms when relying on heat pump for heating solutions.

Daikin VRV AURORA air-cooled systems introduce a new benchmark for the VRF industry by integrating advanced technologies to deliver comfort, precise

control, reliable and energy efficient heating solutions for cold climate applications.

VRV AURORA systems can simplify design and optimize cost by delivering heating capacities down to -22°F (-30°C). The increased heating capacities at lower ambient temperature, compared to VRV IV systems, provide an alternative solution to help minimize the need for backup heat or conditioned mechanical rooms to deliver reliable heating operations in cold climates.

FEATURES AND BENEFITS

- » VRF Industry's first air-cooled system that delivers heating capacities down to -22°F (-30°C) as standard
- » Daikin's inverter based vapor injection compressor is designed to deliver heating capacity of up to 100% of nominal at 0°F (-18°C), up to 85% of nominal at -13°F (-25°C) and up to 60% of nominal at -22°F (-30°C)
- » Year round comfort and energy savings with Variable Refrigerant Temperature technology (VRT)
- » Refrigerant-cooled efficient and stable inverter board operation, independent of ambient conditions
- » Hot gas base pan circuit allows installation without an additional drain pan heater
- » Heat recovery models designed to provide continuous heating during defrost and oil return**
- » Added peace of mind with Auto Changeover ability to back up (auxiliary) heat
- » Long pipe lengths up to 1640 ft. total and ability to connect up to 41*** indoor units with up to

- 100 ft. vertical separation between indoor units provides design and installation flexibility
- » Corrosion resistant, 1000 hours salt spray tested Daikin PE blue fin heat exchanger
- » Ships factory standard with coil guards



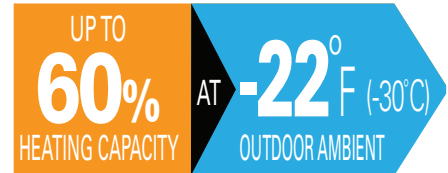
Outstanding warranty* with 10-Year Replacement Compressor Warranty and 10-Year Parts as standard ensures our confidence in our *VRV AURORA*.

* Complete warranty details available from your local Daikin manufacturer's representative or distributor or online at www.daikincomfort.com or www.daikinac.com.

** Heat recovery multi-modules only for continuous heating during defrost.

*** Varies by model.

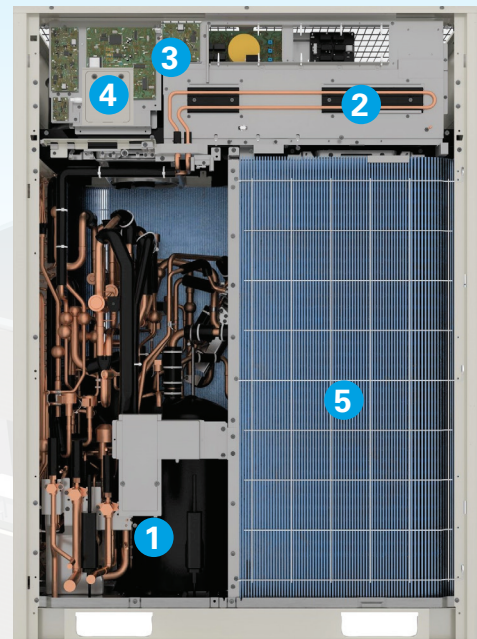
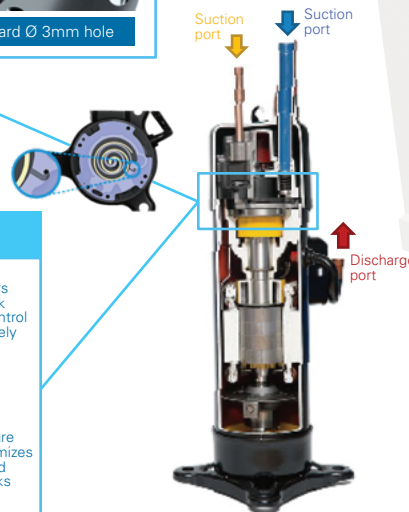
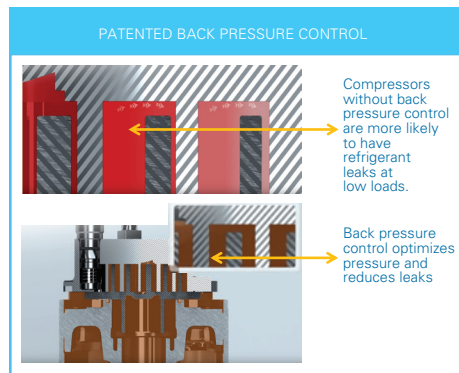
VRF industry's first air-cooled system that is designed to deliver heating capacities down to -22°F (-30°C) as standard



1 Daikin K-type Vapor Injection Scroll Compressor

- » Compressor technology with spiral design and injection valves for precise refrigerant control.
- » Strong and efficient motors for optimized compressor performance and part load efficiencies.

Up to three times more Vapor Injection compared to other vapor injection Compressors

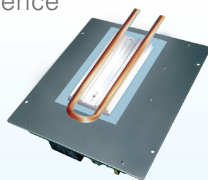


» New back pressure control mechanism optimizes the internal compressor pressure with the intermediate pressure adjusting port according to operating conditions. This stabilizes the orbiting scroll, reducing leaks and scroll friction during operation (compared to compressors without back pressure control).

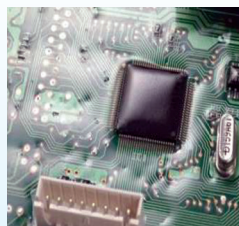
5 4-Sided, Corrosion Protected Heat Exchanger Coil. The VRV AURORA comes as standard with a corrosion resistant coil coating — 1000 hr of salt spray testing according to ASTM B117.

2 Inverter Board Cooled by Refrigerant Circuit.

Minimum influence on electronics from ambient temperature. Section of the coil in the unit is permanently set as condenser for cooling of the inverter board.



3 Special Coating applied on printed circuit board for protection against dust and water.



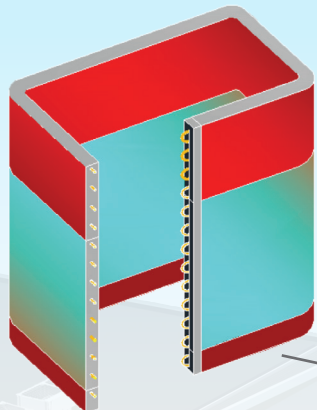
4



Service Window for access to multi-functional digital display for easy commissioning and troubleshooting.

5 4-SIDED, 3-ROW HEAT EXCHANGER

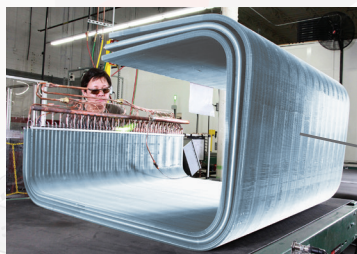
» The heat exchanger features a vertically divided, optimized refrigerant circuit which delivers high efficiencies and capacities across the operation range. The innovative heat exchanger design provides additional benefits as mentioned below.



Example – Heat Recovery Only: 60% heating, 40% cooling of total load

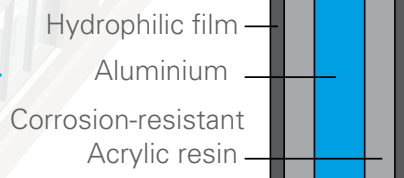
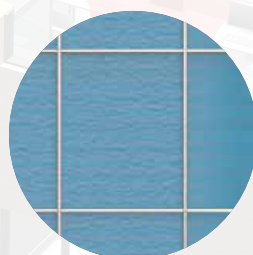
Hot Gas Defrost Circuit. No base pan heater is required to avoid ice accumulation at the bottom of the coil.

7mm Coil – 3 Row. Improved heat exchanger efficiency over previous coil realizes highly integrated heat exchanger performance (increase row, resistance fin pitch) by reducing of airflow resistance which changes cooling tube to Ø7mm.



Corrosion Protected Coil. The *VRV AURORA* comes as standard with a corrosion protected coil — 1000 hr of salt spray testing according to ASTM B117

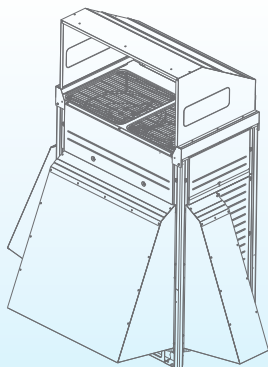
Mechanically bonded to aluminum waffle louvered fins increases surface area for more efficient heat transfer



ACCESSORIES FOR LOW AMBIENT CONDITIONS

Heavy Snow Areas

- » In areas where snow fall or drift is significant, field fabricated snow hoods can be added to the outdoor units.
- » Daikin provides snow hood specification drawings for this purpose.
- » These hoods are also suitable to protect outdoor units exposed to prevailing winds in extreme low ambient conditions.



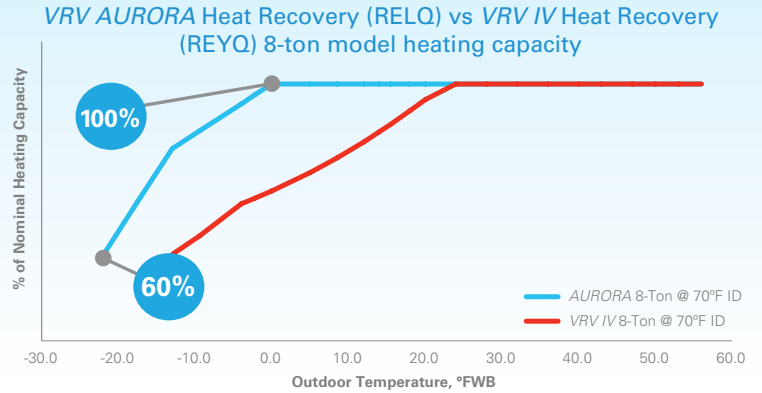
Hail Guards

- » Outdoor coil protection from hail storms is available.
- » This is a factory supplied optional accessory.
- » Four separate guards for each of the exposed areas of the heat exchanger are supplied.



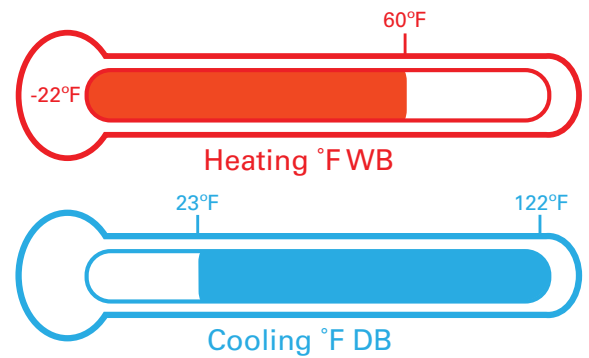
HEATING PERFORMANCE

» Leveraging our patented vapor injection compressor technology, the VRV AURORA is designed to deliver heating capacities up to 100% of nominal at 0°F (-18°C), up to 85% of nominal at -13°F (-25°C) and up to 60% of nominal at -22°F (-30°C).



WIDE OPERATION RANGE

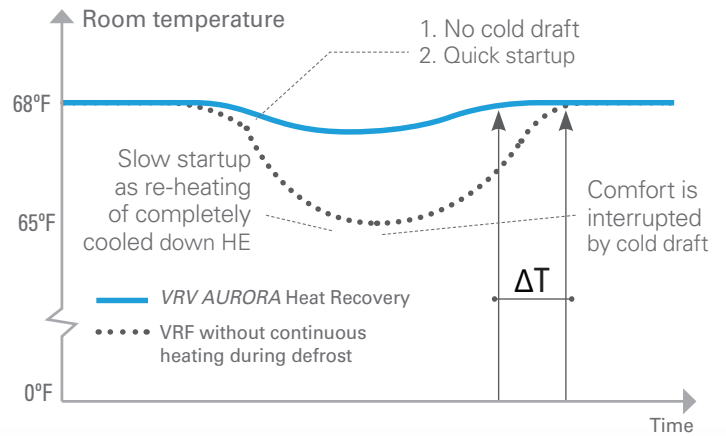
- » Daikin VRV AURORA is designed for operation in a wide range of temperatures.
- » Systems are designed to operate from -22°F to 60°F in heating and from 23°F to 122°F in cooling.
- » When combined with single port branch selector boxes, the VRV AURORA heat recovery systems can deliver cooling down to -4°F.



CONTINUOUS HEATING DURING DEFROST*

- » Reduces cold drafts.
- » No extra energy for reheating indoors, piping & zone.

* Heat recovery multi-modules only.



SIMPLE COMMISSIONING AND SERVICING

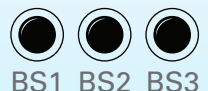
- » New configurator software designed to assist in the commissioning and maintenance of the system.
- » 3-digit 7-segment digital display on the unit for improved and faster configuration, commissioning, and troubleshooting compared to previous models.



Digital Display



Programming Switches

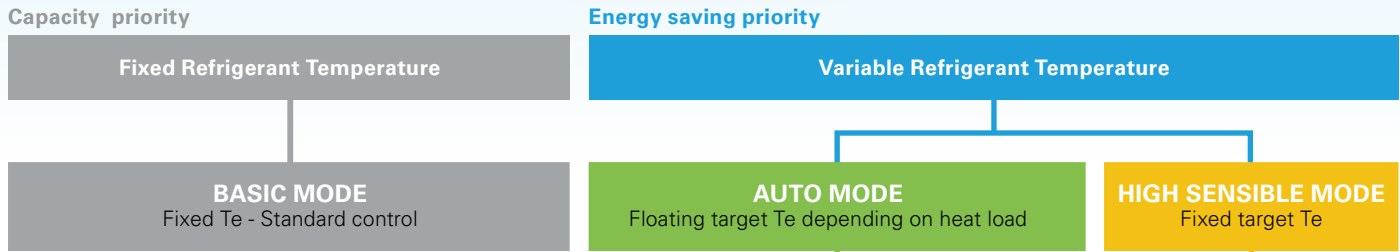


VRT MODE CONTROL SELECTION TO MATCH USER PREFERENCES

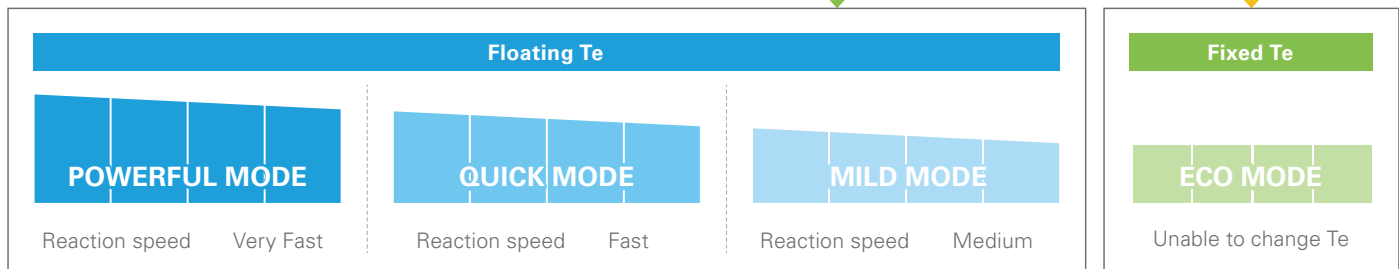


This chart reflects the operation trend of a VRV system when in normal operation and under VRT control. Actual energy savings through VRT vary based on the building location, load characteristics, occupancy and system usage conditions.

Basic mode is selected to maintain optimal comfort. VRT is selected to save energy and prevent excessive cooling.



Selecting VRT enables operation to be optimised for either energy efficiency or rapid cooling.



- » Can boost capacity above 100% if needed.
The refrigerant temperature can go lower in cooling than the set minimum.
- » Gives priority to very fast reaction speed.
The refrigerant temperature goes down fast to keep the room setpoint stable.

- » Gives priority to fast reaction speed.
The refrigerant temperature goes down fast to keep the room setpoint stable.

- » Gives priority to efficiency.
The refrigerant temperature goes down gradually giving priority to the efficiency of the system instead of the reaction speed.

AIR TREATMENT SYSTEMS

Daikin's Outside Air Processing Unit can combine fresh air treatment and air conditioning, supplied from a single system. The compact Energy Recovery Ventilator is designed to improve indoor air quality while reducing the overall HVAC system power consumption. This is achieved by providing fresh outside air and recovering waste heat from exhaust air leaving the conditioned space.

		OUTSIDE AIR PROCESSING UNIT, FXMQ-MFVJU	ENERGY RECOVERY VENTILATOR, VAM-GVJU
VRV Refrigerant Piping		Connectible	Not Connectible
VRV Control Wiring		Connectible	
High Efficiency Filter (MERV 8 and MERV 13)		Option	Not Available
Ventilation System		Air supply	Air supply and Air exhaust
Power Supply	V/ph/Hz	208-230/1/60	
Airflow Rate	CFM	635, 988, 1236	300/300/170, 470/470/390, 600/600/500, 1200/1200/930

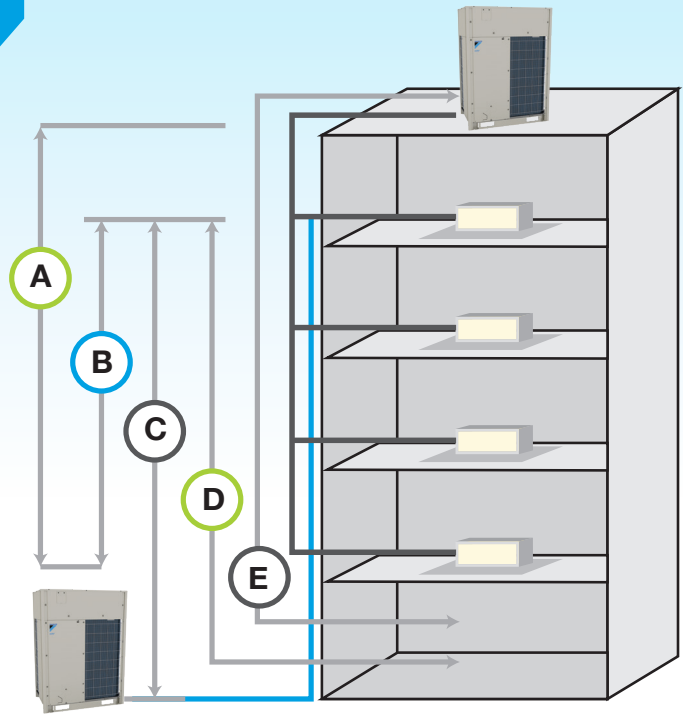
DAIKIN VRV AURORA SPECIFICATIONS

PIPING LIMITATIONS Liquid Line Max (ft)		VRV AURORA	
		Heat Pump	Heat Recovery
A	Vertical Drop	164 (295) ¹	
B	Between IDU	100 (49) ³	
C	Vertical Rise	130 (295) ¹	130 (195) ¹
D	From 1st Joint	130 (295) ²	
E	Linear Length	540	
Total Network		1640	

¹ Field setting changes and upsizing are required above 164 ft. (vertical drop) and 130 ft. (vertical rise). Refer to Installation Manual for details.

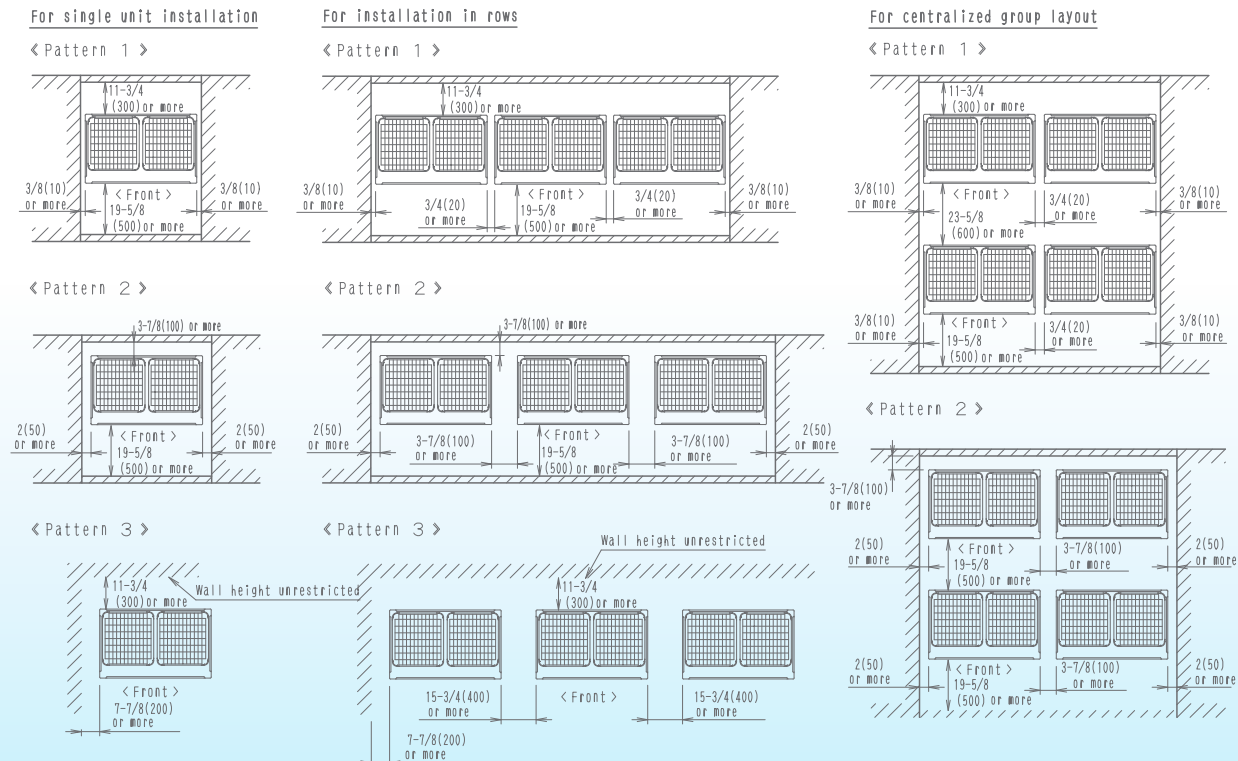
² Upsizing is required for extension up to 295 ft. Refer to Installation Manual for details.

³ Limitations may apply above 49 ft.; refer to Installation Manual for details.



VRV AURORA INSTALLATION SPACE

- » During installation, install the units using the most appropriate of the patterns shown in the figure for the location in question, taking into consideration human traffic and wind.
- » If the number of units installed is more than that shown in the pattern in the figure, install the units so that there is no air short circuiting.
- » Consider the space needed for the refrigerant piping when installing the units, as determined by local codes.
- » If the space requirements in the figure do not apply, contact your contractor or Daikin directly.
- » The installation space requirement shown in the figure is a reference for cooling. Refer to Installation Manual for further details.



VRV AURORA Series Heat Pump and Heat Recovery Units (208-230 & 460V)

Model	208-230V/3Ph/60Hz	Heat Pump	RXLQ72BTJA	RXLQ96BTJA	RXLQ120BTJA	RXLQ144BTJA	RXLQ192BTJA	RXLQ240BTJA						
		Heat Recovery	RELQ72BTJA	RELQ96BTJA	RELQ120BTJA	RELQ144BTJA	RELQ192BTJA	RELQ240BTJA						
	460V/3Ph/60Hz	Heat Pump	RXLQ72BYDA	RXLQ96BYDA	RXLQ120BYDA	RXLQ144BYDA	RXLQ192BYDA	RXLQ240BYDA						
		Heat Recovery	RELQ72BYDA	RELQ96BYDA	RELQ120BYDA	RELQ144BYDA	RELQ192BYDA	RELQ240BYDA						
	Combination	Heat Pump				2 x RXLQ72T	2 x RXLQ96T	2 x RXLQ120T						
Heat Recovery					2 x RELQ72T	2 x RELQ96T	2 x RELQ120T							
Performance	Nominal Cooling Capacity	Btu/h	72,000	96,000	120,000	144,000	192,000	240,000						
	Nominal Heating Capacity	Btu/h	81,000	108,000	135,000	162,000	216,000	270,000						
	Operation Range Cooling	°F (°C) DB	23' to 122 (-5' to 50)											
	Operation Range Heating	°F (°C) WB	-22 to 60 (-30 to 16)											
	Sound Pressure	dBA	60	61	63.5	63	64	67						
Fan	Airflow (Cooling)	CFM	6956	7989	8806	6956 + 6956	7989 + 7989	8806 + 8806						
	Airflow (Heating)	CFM	7283	7283	7283	7283 + 7283	7283 + 7283	7283 + 7283						
	Fan Motor Output and Quantity	kW	0.80 x 2	0.80 x 2	0.80 x 2	0.80 x 2 + 0.80 x 2	0.80 x 2 + 0.80 x 2	0.80 x 2 + 0.80 x 2						
	Fan ESP: Standard/Max	in. WG	0.12/0.32											
Compressor	Compressor Type	Type	Inverter											
Refrigerant Piping	System Configuration: Heat Pump: HP, Heat Recovery: HR		HP	HR	HP	HR	HP	HR	HP	HR	HP	HR	HP	HR
	Liquid Pipe (Main Line)	in	3/8				1/2				5/8			
	Suction Gas Pipe (Main Line)	in	3/4		7/8		1-1/8						1-3/8	
	Discharge Gas Pipe (Main Line)	in	N/A	5/8	N/A	3/4	N/A	3/4	N/A	7/8	N/A	1-1/8	N/A	1-1/8
Refrigerant Piping Layout	Maximum Vertical Pipe Length OD Above	ft	164 (295 With Field Settings)											
	Maximum Vertical Pipe Length OD Below	ft	HP: 130 (295 With Field Settings) HR: 130 (195 With Field Settings)											
	Max. Vertical Pipe Length between IDU	ft	98											
	Maximum Actual Pipe Length	ft	541											
	Maximum Equivalent Pipe Length	ft	623											
	Total Piping Length	ft	1640											
Refrigerant	Refrigerant		R410A											
Connection Ratio	Connectible Indoor Unit Ratio	%	70 - 200 ²											
	Maximum Number of Indoor Units	Qty	12	16	20	25	33	41						
Unit	Outdoor Unit Size (H x W x D)	in (mm)	66-11/16 x 48-7/8 x 30-3/16 (1694 x 1242 x 767)						66-11/16 x 48-7/8 x 30-3/16 + 66-11/16 x 48-7/8 x 30-3/16 (1694 x 1242 x 767) + (1694 x 1242 x 769)					
	Weight	lbs.(kgs)	727 (330)	793 (360)	793 (360)	727+727 (330+330)	793+793 (360+360)	793+793 (360+360)						
Electrical (RXLQ-TATJA / RELQ-TATJA)	Maximum Over Current Protection (MOP)	A	70	80	90	70 + 70	80 + 80	90 + 90						
	Minimum Circuit Amps (MCA)	A	60.8	76.5	83.4	60.8 + 60.8	76.5 + 76.5	83.4 + 83.4						
Electrical (RXLQ-TAYDA / RELQ-TAYDA)	Maximum Over Current Protection (MOP)	A	35	45	50	35 + 35	45 + 45	50 + 50						
	Minimum Circuit Amps (MCA)	A	28.1	39.8	43.4	28.1 + 28.1	39.8 + 39.8	43.4 + 43.4						

¹ Cooling operation for heat recovery models can be extended down to -4°F with application rules and conditions

² Varies based on indoor model selected

Please refer to Engineering Manual for details about specifications.

VRV INDOOR UNITS

INDOOR UNIT TYPE		MBH TONS	CAPACITY													
			5.8	7.5	09	12	15	18	24	30	36	42	48	54	60	
DUCTED	FXMQ_TBVJU HSP DC Concealed Ducted Unit (High Static)			▲	▲	▲	▲	▲	▲	▲	▲	▲		▲	▲	
	FXSQ_TBVJU MSP Concealed Ducted Unit (Medium Static)		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲		▲	▲	
	FXDQ_MVJU LSP Slim Concealed Ducted Unit (Low Static)			▲	▲	▲		▲	▲							
	FXTO_TBVJU Multi-Position Air Handling Unit (Upflow, Downflow, Horizontal Left and Horizontal Right)				▲	▲		▲	▲	▲	▲	▲	▲	▲	▲	▲
	FXNQ_MVJU9 Concealed Floor-Standing Unit			▲	▲	▲		▲	▲							
DUCT-FREE	FXFQ_AAVJU Round Flow Sensing Cassette, Ceiling Mounted			▲	▲	▲	▲	▲	▲	▲	▲	▲		▲	▲	
	FXUQ_PVJU 4-Way Blow Ceiling-Suspended Cassette							▲	▲	▲	▲					
	FXZQ_TBVJU VISTA 2x2 Ceiling Mounted Cassette		▲	▲	▲	▲	▲	▲								
	FXEQ_PVJU Ceiling-Mounted Cassette (Single Flow)			▲	▲	▲	▲	▲	▲							
	FXHQ_MVJU Ceiling-Suspended Unit					▲			▲		▲					
	FXAQ_PVJU Wall-Mounted Unit			▲	▲	▲		▲	▲							
	FXLQ_MVJU9 Floor-Standing Unit			▲	▲	▲		▲	▲							

▲ Comfort cooling/heating Condensate pump standard Outside air connection possible



The optional *DZK* increases the flexibility of the Daikin VRV and SkyAir systems in both residential and commercial applications by adding a Zoning Box to an indoor unit fan coil (FXMQ-P or FBQ-P series, respectively) allowing several separate ducts to supply air to different individually controlled zones.

DAIKIN ZONING KIT (DZK) – KIT STRUCTURE AND GENERAL TECHNICAL DATA								
	Zoning Box with Control Box				Wired Thermostat	Wireless Thermostat	Wireless Lite Thermostat	BACnet™ Interface
DZK Product Number	DZKS048E-4	DZKS030E4-4	DZKS015E4-4	DZKS048E6-4	DZK-MTS-4-W	DZK-ZTS-4-W	DZK-LTS-4-W	DZK-BACNET-HUB4

DAIKIN VRV CONTROLS

Optimized for VRV technology, Daikin controls provide highly scalable solutions for all applications and budgets. VRV controls offer solutions to meet your project controls needs from individual zone control with local controllers to centrally controlling the building with Centralized Controllers and/or interfacing with Building Management Systems (BMS) for comfort control in an easily managed and operated system.

PROJECT REQUIREMENTS	DAIKIN VRV CONTROLS										
	 Madoka Remote Controller	 DKN Cloud Wi-Fi Adaptor	 Navigation Remote Controller	 Daikin One+ Smart Thermostat	 Daikin One Touch	 intelligent Touch Manager	 BACnet™ Interface	 LonWorks® Interface	 Modbus® Interface	 BACnet™ MSTP Adaptor	 Simple Edge
Individual zone control	■	■	■	■	■	■	■	■	■	■	
Independent cool and heat set-points	■	■	■	■	■	■				■	
Individual zone control with weekly programmable scheduling		■	■	■	■	■	■	■	■	■	
Basic On/Off control for indoor units	■	■	■	■	■	■	■	■	■	■	
Advanced multi-zone control of small to medium size projects						■	■	■	■	■	
Advanced multi-zone control of large commercial projects						■	■	■			
Advanced multi-zone control with scheduling logic and calendar						■					
Automatic cooling/heating changeover for heat pump systems	■	■	■	■	■	■					
Single input batch shutdown of all connected air handlers						■	■	■	■	■	
Web browser control and monitoring						■	■	■	■	■	■
E-mail notification of system alarms and equipment malfunctions						■	■	■	■	■	■
Multiple tenant power billing for shared condenser applications						■					
Temperature set-point range restrictions	■		■	■	■	■	■	■	■	■	
Graphical user interface with floor plan layout						■	■	■	■	■	
Start/stop control of ancillary building systems*						■	■	■	■	■	
Daikin VRV integration with BACnet based automation systems						■	■			■	
Daikin VRV integration with LonWorks based automation systems								■			
Daikin VRV integration with Modbus based automation systems		■							■		
Wi-Fi option remote access through smartphone app		■		■	■						
View service data on a graphical view											■
Trend and Plot (Current and Past Data)											■
Adjust outdoor unit field settings remotely											■
Multisite Monitoring				■	■						■
Automated Reports											■

* Requires WAGO® IO module (for use with iTM only).

■ Native application or feature for this device. ■ Dependent upon capabilities of the third party energy management system

About Daikin:

Daikin Industries, Ltd. (DIL) is a global Fortune 1000 company and is recognized as one of the largest HVAC (Heating, Ventilation, Air Conditioning) manufacturers in the world. Founded in 1924, Daikin is celebrating 100 years of HVAC worldwide leadership. DIL is primarily engaged in developing indoor comfort systems and refrigeration products for residential, commercial, and industrial applications. Its consistent success is derived, in part, from a focus on innovative, energy-efficient, and premium quality indoor climate and comfort management solutions.



WARNINGS:

- » Always use a licensed 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 licensed contractor to install those parts and accessories. Use of unauthorized 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.
- » For any inquiries, contact your local Daikin sales office.

ADDITIONAL INFORMATION

Before purchasing this appliance, read important information about its estimated annual energy consumption, yearly operating cost, or energy efficiency rating that is available from your retailer.



Our continuing commitment to quality products may mean a change in specifications without notice.

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