

VARIABLE REFRIGERANT FLOW SYSTEMS VRF



PRODUCT SPECIFICATIONS

Commercial Modular Heating/Cooling System - 60HZ

Bulletin No. 210678

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Supersedes November 2016



SYSTEM OVERVIEW

The VRF commercial modular heating/cooling system consists of single or multiple variable-capacity outdoor units (Heat Recovery Units or Heat Pumps) connected to multiple indoor units in one system.

Variable-capacity outdoor units modulate the amount of refrigerant needed based on cooling and heating demands allowing for reduced energy usage at partial-load conditions.

Heat Recovery units allow individual indoor units in the system to simultaneously heat and cool at the same time, while the compressor load benefits from the internal heat recovery.

Heat Pump units allow for operation in heating or cooling mode. All indoor units will operate in the same mode at the same time.

The VRF system provides a broad range of different applications for settings such as highrise buildings, offices, hotels and schools.

Small size and individual components make the VRF system ideal for retrofit in older buildings where room for ductwork is limited.

Customized heating/cooling capacities with flexible indoor unit combinations for each room size and shape.

A wide range of indoor unit styles are available to suit any application.

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**ASHRAE 90.1
COMPLIANT**
6 to 35 Tons

The space-saving VRF system uses less space than a conventional ducted rooftop unit. Minimum installation footprint reduces the floor load and can eliminate the need for mechanical rooms in many applications.

The small size of the units make them easy to transport to the jobsite.

Longer total piping lengths (up to 3200 ft. length and 360 ft. drop) for large building applications.

High efficiency oil balance and return technology assures proper compressor operation throughout the system.

Easy installation and total system control.

A wide variety of control options are available for any type of application.

Centralized monitoring of the entire system allows control from a single location,

Communication wiring is shared by both indoor and outdoor units for an easier installation.

NOTE - See individual Product Specifications bulletins for Outdoor Units, Indoor Units, Controls, Mode Selection Boxes and Branch Pipes for additional information about specifications, ratings, dimensions and other data.

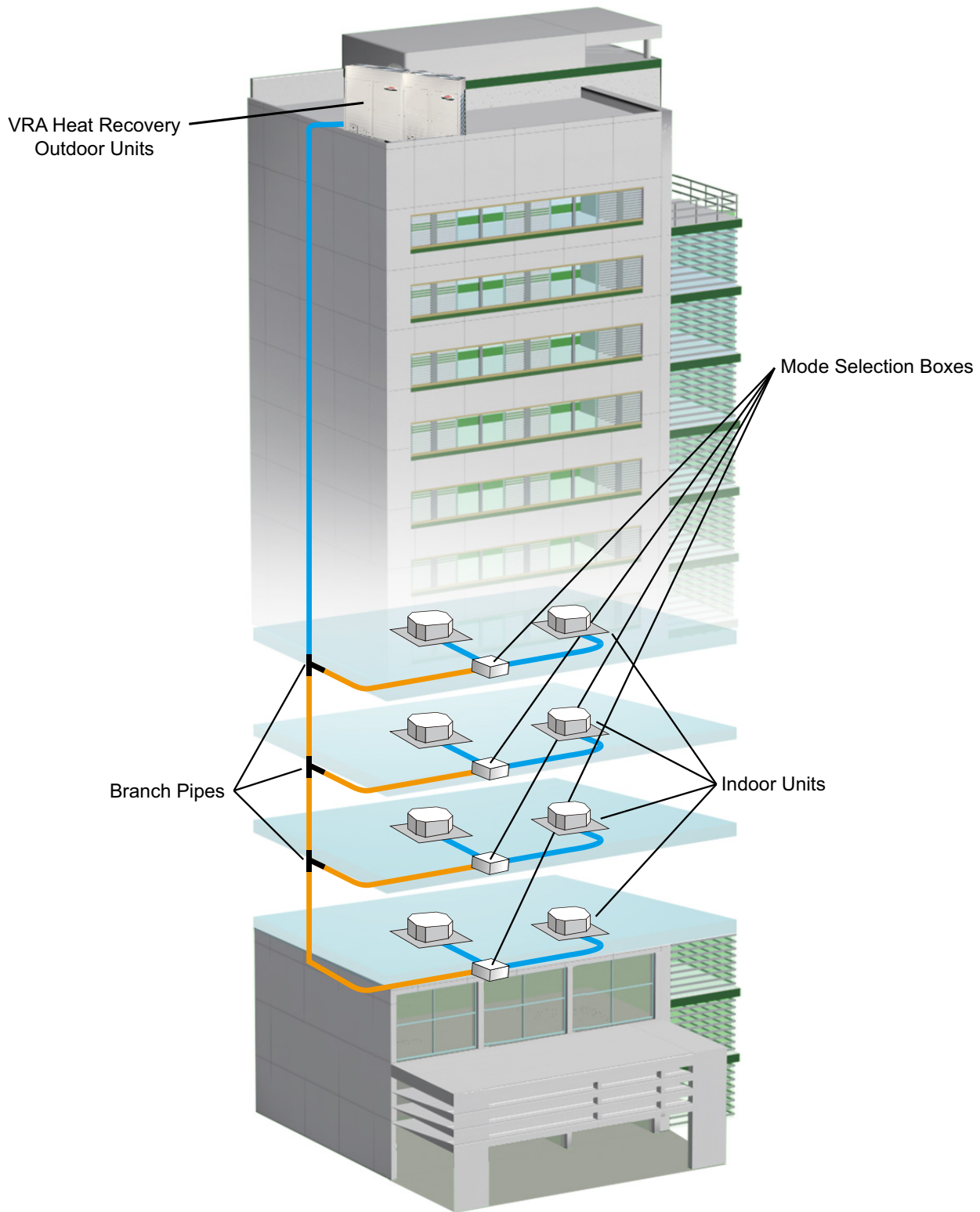
APPROVALS

AHRI Certified to AHRI Standard 1230-2014 (6 to 35 ton systems) and AHRI 210/240-2014 (3 to 5 ton heat pump systems).

Units are ETL certified for the U.S. and Canada.

BASIC SYSTEM OVERVIEW

TYPICAL SYSTEM LAYOUT (Heat Recovery System Shown)

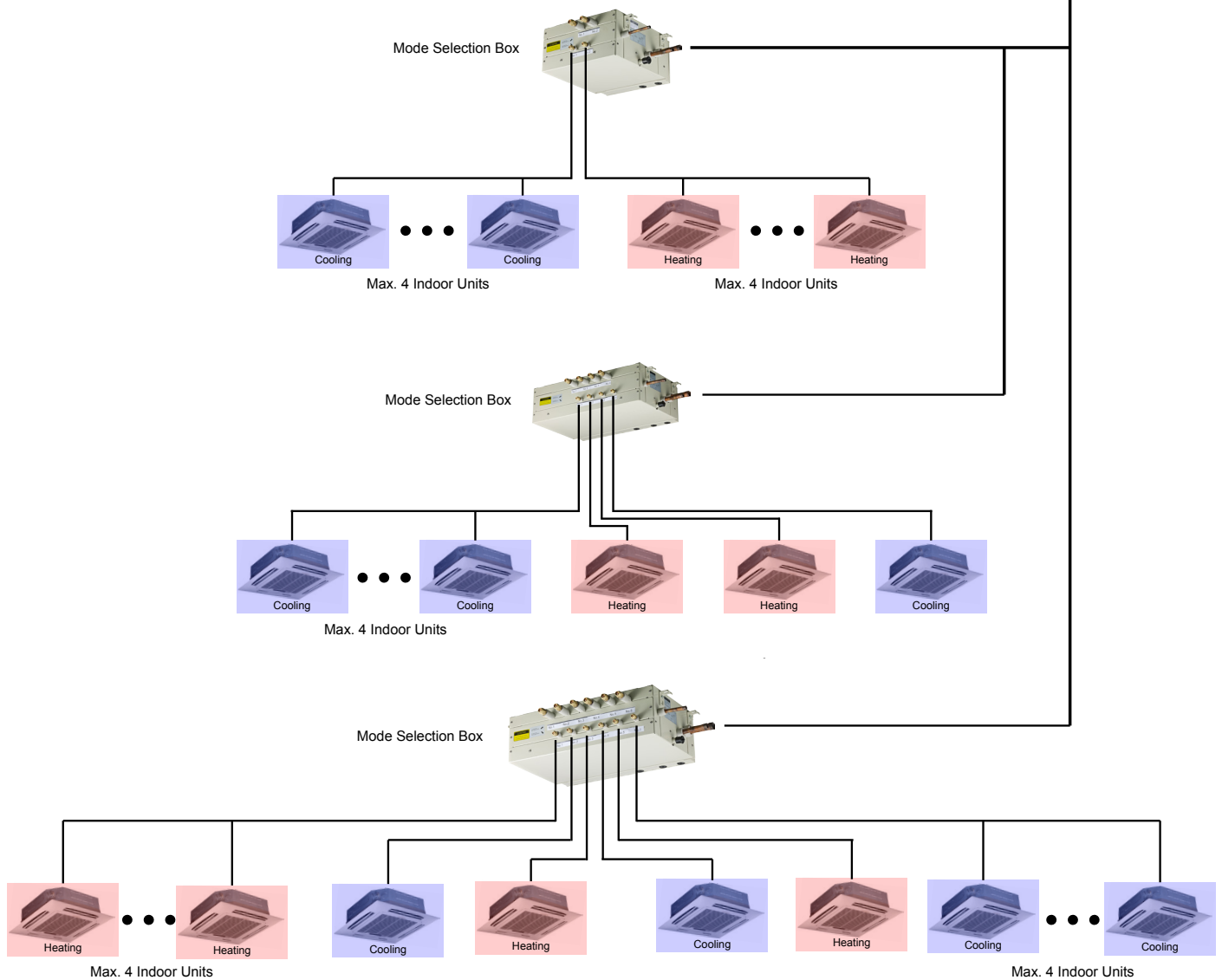


BASIC SYSTEM OVERVIEW (CONTINUED)

VRA HEAT RECOVERY SYSTEM (Simultaneous Heating and Cooling)

VRF
Heat Recovery
Outdoor Unit

NOTE - See Product Specifications for individual components for additional details.



SYSTEM COMBINATIONS - STANDARD SYSTEMS

HEAT RECOVERY MODELS

Model No.	Capacity	Outdoor Unit Combinations	Maximum Number of Indoor Units
VRA072H4	6 Ton	(1) VRA072H4	13
VRA096H4	8 Ton	(1) VRA096H4	16
VRA120H4	10 Ton	(1) VRA120H4	20
VRA144H4	12 Ton	(1) VRA144H4	26
VRA168H4	14 Ton	(1) VRA096H4 + (1) VRA072H4	29
VRA192H4	16 Ton	(1) VRA096H4 + (1) VRA096H4	33
VRA216H4	18 Ton	(1) VRA120H4 + (1) VRA096H4	36
VRA240H4	20 Ton	(1) VRA120H4 + (1) VRA120H4	39
VRA264H4	22 Ton	(1) VRA120H4 + (1) VRA144H4	46
VRA288H4	24 Ton	(1) VRA144H4 + (1) VRA144H4	50
VRA312H4	26 Ton	(1) VRA120H4 + (1) VRA096H4 + (1) VRA096H4	53
VRA336H4	28 Ton	(1) VRA096H4 + (1) VRA120H4 + (1) VRA120H4	56
VRA360H4	30 Ton	(1) VRA120H4 + (1) VRA120H4 + (1) VRA120H4	60
VRA384H4	32 Ton	(1) VRA120H4 + (1) VRA120H4 + (1) VRA144H4	63
VRA408H4	34 Ton	(1) VRA144H4 + (1) VRA144H4 + (1) VRA120H4	63
VRA432H4	35 Ton	(1) VRA144H4 + (1) VRA144H4 + (1) VRA144H4	63

HEAT PUMP MODELS

Model No.	Capacity	Outdoor Unit Combinations	Maximum Number of Indoor Units
VPA072H4	6 Ton	(1) VPA072H4	13
VPA096H4	8 Ton	(1) VPA096H4	16
VPA120H4	10 Ton	(1) VPA120H4	20
VPA144H4	12 Ton	(1) VPA144H4	26
VPA168H4	14 Ton	(1) VPA096H4 + (1) VPA072H4	29
VPA192H4	16 Ton	(1) VPA096H4 + (1) VPA096H4	33
VPA216H4	18 Ton	(1) VPA120H4 + (1) VPA096H4	36
VPA240H4	20 Ton	(1) VPA120H4 + (1) VPA120H4	39
VPA264H4	22 Ton	(1) VPA120H4 + (1) VPA144H4	46
VPA288H4	24 Ton	(1) VPA144H4 + (1) VPA144H4	50
VPA312H4	26 Ton	(1) VPA120H4 + (1) VPA096H4 + (1) VPA096H4	53
VPA336H4	28 Ton	(1) VPA096H4 + (1) VPA120H4 + (1) VPA120H4	56
VPA360H4	30 Ton	(1) VPA120H4 + (1) VPA120H4 + (1) VPA120H4	60
VPA408H4	34 Ton	(1) VPA144H4 + (1) VPA144H4 + (1) VPA120H4	63

SYSTEM COMBINATIONS - LOW AMBIENT SYSTEMS



HEAT RECOVERY MODELS

Model No.	Capacity	Outdoor Units Combinations	Maximum Number of Indoor Units
VRA072L4	6 Ton	(1) VRA072L4	13
VRA096L4	8 Ton	(1) VRA096L4	16
VRA120L4	10 Ton	(1) VRA120L4	20
VRA144L4	12 Ton	(1) VRA072L4 + (1) VRA072L4	26
VRA168L4	14 Ton	(1) VRA072L4 + (1) VRA096L4	29
VRA192L4	16 Ton	(1) VRA096L4 + (1) VRA096L4	33
VRA216L4	18 Ton	(1) VRA096L4 + (1) VRA120L4	36
VRA240L4	20 Ton	(1) VRA120L4 + (1) VRA120L4	39
VRA264L4	22 Ton	(1) VRA072L4 + (1) VRA096L4 + (1) VRA096L4	46
VRA288L4	24 Ton	(1) VRA072L4 + (1) VRA096L4 + (1) VRA120L4	50
VRA312L4	26 Ton	(1) VRA096L4 + (1) VRA096L4 + (1) VRA120L4	53
VRA336L4	28 Ton	(1) VRA096L4 + (1) VRA120L4 + (1) VRA120L4	56




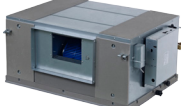

HEAT PUMP MODELS





Model No.	Capacity	Outdoor Units Combinations	Maximum Number of Indoor Units
VPA072L4	6 Ton	(1) VPA072L4	13
VPA096L4	8 Ton	(1) VPA096L4	16
VPA120L4	10 Ton	(1) VPA120L4	20
VPA144L4	12 Ton	(1) VPA072L4 + (1) VPA072L4	26
VPA168L4	14 Ton	(1) VPA072L4 + (1) VPA096L4	29
VPA192L4	16 Ton	(1) VPA096L4 + (1) VPA096L4	33
VPA216L4	18 Ton	(1) VPA096L4 + (1) VPA120L4	36
VPA240L4	20 Ton	(1) VPA120L4 + (1) VPA120L4	39
VPA264L4	22 Ton	(1) VPA072L4 + (1) VPA096L4 + (1) VPA096L4	46
VPA288L4	24 Ton	(1) VPA072L4 + (1) VPA096L4 + (1) VPA120L4	50
VPA312L4	26 Ton	(1) VPA096L4 + (1) VPA096L4 + (1) VPA120L4	53

OUTDOOR UNITS





	VRA Heat Recovery Outdoor Unit (Standard)	VRA Heat Recovery Outdoor Unit (Low Ambient)	VPA Heat Pump Outdoor Unit (Standard)	VPA Heat Pump Outdoor Unit (Low Ambient)	VPA Mini Heat Pump Outdoor Unit
Capacity (Tons)					
3					•
4					•
5					•
6	•	•	•	•	
8	•	•	•	•	
10	•	•	•	•	
12	•	•	•	•	
14	•	•	•	•	
16	•	•	•	•	
18	•	•	•	•	
20	•	•	•	•	
22	•	•	•	•	
24	•	•	•	•	
26	•	•	•	•	
28	•	•	•		
30	•		•		
32	•		•		
34	•		•		
35	•				

INDOOR UNITS

Capacity (kBtuh)	Compact 360° Cassette	360° Cassette	Concealed Medium Static Ducted	Concealed High Static Ducted	
	V22A	V33B	VMDB	VHIA	
					
007	•		•		
009	•	•	•		
012	•	•	•		
015	•	•	•		
018		•	•		
024		•	•	•	
030		•	•	•	
036		•	•	•	
048		•	•		•
054					•
072					•
096					•

Capacity (kBtuh)	Wall-Mount Non-Ducted	Ceiling/Floor Mount Non-Ducted	Dedicated Outdoor Air Concealed Ducted (Heat Pump Systems Only)	Upflow Air Handler
	VWMB	VCFA	VOSA	VVCA
				
007	•			
009	•			
012	•	•		
015	•	•		
018	•	•		•
024	•	•		•
030	•	•		•
036		•	•	•
048		•	•	•
054		•	•	•
072				

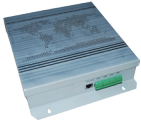



CONTROLS

	Wireless Remote Control	Non-Programmable Wired Controller	Programmable Wired Controller	Indoor Unit Central Controller
				
Features	V0STAT52P	V0STAT54P	V0STAT51P	V0CTRL75P
Maximum Controllable Indoor Units	¹ Multiple	1	1	64
Backlight	✓	✓	✓	✓
Current Time	✓	---	✓	---
System On/Off	✓	✓	✓	✓
System On/Off Timer	✓	---	✓	✓
System Mode Setting	✓	✓	✓	✓
Fan Speed Setting	✓	✓	✓	✓
Room Temperature Setting	✓	✓	✓	✓
Horizontal Swing	² ✓	---	² ✓	² ✓
Vertical Swing	² ✓	---	---	---
Air Direction	² ✓	---	---	---
Economy Mode	² ✓	---	---	---
Group Setting	---	---	---	✓
Controller Lock	✓	---	✓	✓
Mode Lock	---	---	---	✓
Address Setting	✓	---	---	---
Address Display	---	---	---	✓
Error Code Display	---	---	✓	✓
Emergency Stop/Start	---	---	---	✓
Building Management Access	---	---	---	✓
Control via Internet	---	---	---	✓
Air Filter Reminder	---	---	✓	✓
78°F Shortcut Setting	---	✓	---	---
50°F Heat Setting	---	---	✓	---

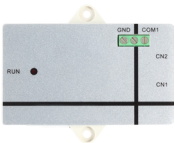


¹ One wireless remote control can individually control multiple indoor units in different areas (room to room).

² Available if indoor unit is equipped with this feature.


CENTRALIZED CONTROLS

BACnet Gateway	LonWorks Gateway	15-Inch LVM Touch Panel Centralized Control System	12-Inch LVM Touch Panel Centralized Control System
			
V0CTRL86P	V0CTRL87P	LVM Touch Panel V0CTRL15P	LVM Touch Panel V0CTRL12P
		LVM Hardware V0CTRL85P	LVM Hardware V0CTRL85P
		LVM Software V0CTRL91P	LVM Software V0CTRL91P

MISCELLANEOUS





Key Card Interface Module	Infrared Sensor	Non-Programmable ERV Controller
		
V0CTRL88P	V0SNSR78P	V0STAT53P

MONITORING

Outdoor Unit Central Monitor

V0CTRL80P

MODE SELECTION BOXES

NOTE - For VRA Heat Recovery Units Only

1 group, 1 indoor unit maximum	2 groups of 4, 8 indoor units maximum	4 groups of 4, 16 indoor units maximum	6 groups of 4, 24 indoor units maximum
			
V8MSBB01	V8MSBB02	V8MSBB03	V8MSBB04

BRANCH BOX

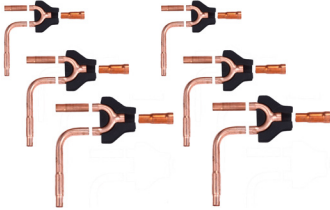
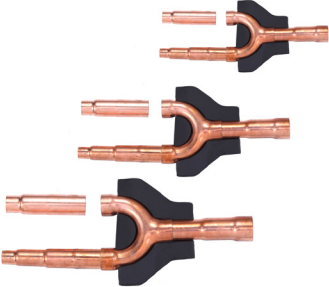
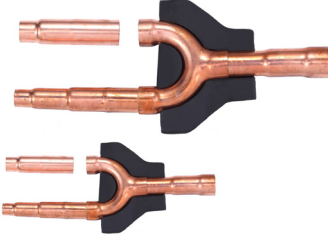
NOTE - For Mini Heat Pumps only

Up to 9 indoor units with three branch boxes



V8MIDB01

BRANCH PIPES

Outdoor Branch Pipe	Mode Selection Box Branch Pipe	Indoor Branch Pipe
For connecting multiple outdoor units VRA Heat Recovery (HR) and VPA Heat Pump (HP) to the main branch piping	For connecting the main refrigerant piping to the Mode Selection Box for VRA Heat Recovery Units only.	For connecting the Mode Selection Box to the indoor units (VRA Heat Recovery Units) or connecting outdoor unit pipe and indoor units (VPA Heat Pumps).
		
V8ODBP02HR	V8MSBP01	V8IDBP01
V8ODBP03HR	V8MSBP02	V8IDBP02
V8ODBP02HP	V8MSBP03	V8IDBP03
V8ODBP03HP	V8MSBP04	V8IDBP04
- - -	V8MSBP05	V8IDBP05

NOTE - See Branch Pipe / Piping Selection Product Specifications for usage, dimensions and details.

REVISIONS

Sections	Description of Change
Indoor Units	Added V33B 360° Cassette, VMDB Concealed Medium Static Ducted and VWMB Wall-Mount Non-Ducted models
Outdoor Units	Added Low Ambient Units
System Combinations	Revised to reflect current product offering. Added Low Ambient System combinations.



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