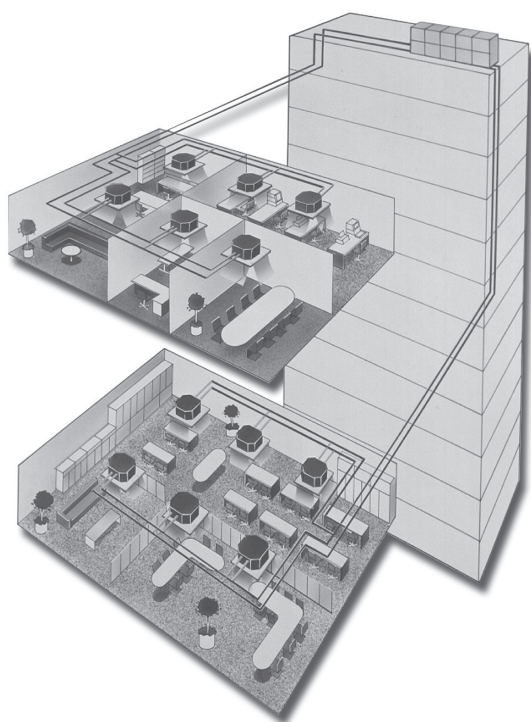


ENGINEERING MANUAL

INVERTER-DRIVEN MULTI-SPLIT SYSTEM HEAT PUMP AIR CONDITIONERS



Engineering Manual

< Outdoor Units >

208/230V

(H,Y)VAHP072B32S, (H,Y)VAHP096B32S,
(H,Y)VAHP120B32S, (H,Y)VAHP144B32S,
(H,Y)VAHP168B32S, (H,Y)VAHP192B32S,
(H,Y)VAHP216B32S, (H,Y)VAHP240B32S,
(H,Y)VAHP264B32S, (H,Y)VAHP288B32S,
(H,Y)VAHP312B32S, (H,Y)VAHP336B32S,
(H,Y)VAHP360B32S, (H,Y)VAHP384B32S,
(H,Y)VAHP408B32S, (H,Y)VAHP432B32S

460V

(H,Y)VAHP072B42S, (H,Y)VAHP096B42S,
(H,Y)VAHP120B42S, (H,Y)VAHP144B42S,
(H,Y)VAHP168B42S, (H,Y)VAHP192B42S,
(H,Y)VAHP216B42S, (H,Y)VAHP240B42S,
(H,Y)VAHP264B42S, (H,Y)VAHP288B42S,
(H,Y)VAHP312B42S, (H,Y)VAHP336B42S,
(H,Y)VAHP360B42S, (H,Y)VAHP384B42S,
(H,Y)VAHP408B42S, (H,Y)VAHP432B42S

575V

(H,Y)VAHP072B52S, (H,Y)VAHP096B52S,
(H,Y)VAHP120B52S, (H,Y)VAHP144B52S,
(H,Y)VAHP168B52S, (H,Y)VAHP192B52S,
(H,Y)VAHP216B52S, (H,Y)VAHP240B52S,
(H,Y)VAHP264B52S, (H,Y)VAHP288B52S,
(H,Y)VAHP312B52S, (H,Y)VAHP336B52S,
(H,Y)VAHP360B52S, (H,Y)VAHP384B52S,
(H,Y)VAHP408B52S, (H,Y)VAHP432B52S

IMPORTANT NOTICE AND SAFETY SUMMARY



1. Introduction

This Engineering Manual concentrates on heat pump air conditioning units. Read this manual carefully before performing installations or operations.


This manual must be considered as a permanent part of the air conditioning equipment and must remain with the air conditioning equipment.

(Transportation/Installation Work) > (Refrigerant Piping Work) > (Electrical Wiring Work) > (Ref. Charge Work) > (Test Run) > (User)

2. Important Safety Instructions

Signal Words	
 WARNING	Indicates a hazardous situation that, if not avoided, could result in death or serious injury.
 CAUTION	Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates information considered important, but not hazard-related (for example, messages relating to property damage).

General Precautions

 WARNING	To reduce the risk of serious injury or death, read these instructions thoroughly and follow all warnings or cautions included in all manuals that accompanied the product and are attached to the unit. Refer back to these instructions as needed.
--	--

- This system must be installed by personnel certified by Johnson Controls-Hitachi Air Conditioning. Personnel must be qualified according to local codes and regulations. Incorrect installation could cause leaks, electric shock, fire or explosion. In areas where Seismic "Performance requirements are specified, the appropriate measures must be taken during installation to guard against possible damage or injury that might occur in an earthquake if the unit is not installed correctly, injuries may occur due to a falling unit.
- Use appropriate Personal Protective Equipment (PPE), such as gloves and protective goggles and, where appropriate, have a gas mask nearby. Also use electrical protection equipment and tools suited for electrical operation purposes. Keep a heat shields, fire blankets and a fire extinguisher nearby during brazing. Use care in handling, rigging, and setting of bulky equipment.
- When transporting, be careful when picking up, moving and mounting these units. Although the unit may be packed using plastic straps, do not use them for transporting the unit from one location to another. Do not stand on or put any material on the unit. Get a partner to help, and bend with your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut fingers, so wear protective gloves.
- Do not touch or adjust any safety devices inside the indoor or outdoor units. All safety features, disengagement, and interlocks must be in place and functioning correctly before the equipment is put into operation. If these devices are improperly adjusted or tampered with in any way, a serious accident can occur. Never bypass or jump-out any safety device or switch.
- Johnson Controls-Hitachi Air Conditioning will not assume any liability for injuries or damage caused by not following steps outlined or described in this manual. Unauthorized modifications to Johnson Controls-Hitachi Air Conditioning products are prohibited as they...
 - May create hazards which could result in death, serious injury, equipment damage or property damage.
 - Will void product warranties.
 - May invalidate product regulatory certifications.
 - May violate OSHA standards.

NOTICE

Take the following precautions to reduce the risk of property damage.

- Be careful that moisture, dust, or variant refrigerant compounds not enter the refrigerant cycle during installation work. Foreign matter could damage internal components or cause blockages.
- If air filters are required on this unit, do not operate the unit without the air filter set in place. If the air filter is not installed, dust may accumulate and breakdown may result.
- Do not install this unit in any place where silicon gases can coalesce. If the silicon gas molecules attach themselves to the surface of the heat exchanger, the finned surfaces will repel water. As a result, any amount of drainage moisture condensate can overflow from the condensate pan and could run inside of the electrical box, possibly causing electrical failures.
- When installing the unit in a hospital or other facility where electromagnetic waves are generated from nearby medical and/or electronic devices, be prepared for noise and electronic interference Electromagnetic Interference (EMI). Do not install where the waves can directly radiate into the electrical box, controller cable, or controller. Inverters, appliances, high-frequency medical equipment, and radio communications equipment may cause the unit to malfunction. The operation of the unit may also adversely affect these same devices. Install the unit at least 10 ft. (approximately 3m) away from such devices.
- When a wireless controller is used, locate at a distance of at least 3.3 ft. (approximately 1m) between the indoor unit and electric lighting. If not, the receiver part of the unit may have difficulty receiving operation commands.
- Do not install the unit in any location where animals and plants can come into direct contact with the outlet air stream. Exposure could adversely affect the animals and plants.
- Do not install the unit with any downward slope to the side of the drain adapter. If you do, you may have drain water flowing back which may cause leaks.
- Be sure the condensate hose discharges water properly. If connected incorrectly, it may cause leaks.
- Do not install the unit in any place where oil can seep onto the units, such as table or seating areas in restaurants, and so forth. For these locations or social venues, use specialized units with oil-resistant features built into them. In addition, use a specialized ceiling fan designed for restaurant use. These specialized oil-resistant units can be ordered for such applications. However, in places where large quantities of oil can splash onto the unit, such as a factory, even the specialized units cannot be used. These products must not be installed in such locations.
- If the wired controller is installed in a location where electromagnetic radiation is generated, make sure that the wired controller is shielded and cables are sleeved inside conduit tubing.
- If there is a source of electrical interference near the power supply, install noise suppression equipment (filter).
- During the test run, check the unit's operation temperature. If the unit is used in an environment where the temperature exceeds the operation boundary, it may cause severe damage. Check the operational temperature boundary in the manual. If there is no specified temperature, use the unit within the operational temperature boundary of 32 to 104°F (0 to 40°C).
- Read installation and appropriate user manuals for connection with PC or peripheral devices. If a warning window appears on the PC, the product stops, does not work properly or works intermittently, immediately stop using the equipment.

Installation Precautions

WARNING

To reduce the risk of serious injury or death, the following installation precautions must be followed.

- When installing the unit into...
 - A wall: Make sure the wall is strong enough to hold the unit's weight. It may be necessary to construct a strong wood or metal frame to provide added support.
 - A room: Properly insulate any refrigerant tubing run inside a room to prevent "sweating" that can cause dripping and water damage to walls, floors or property within the space.
 - Damp or uneven areas: Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the unit to prevent water damage and abnormal vibration.
 - An area with high winds: Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable wind baffle.
 - A snowy area: Install the outdoor unit on a raised platform that is higher than anticipated snow levels and drifting snow. Provide snow protection hood.
- If the remote sensors are not used with this controller, then do not install this controller...
 - in a room where there is no thermostat.
 - where the unit is exposed to direct sunshine or direct light.
 - where the unit will be in close proximity to a heat source.
 - where hot/cold air from the outdoors, or a draft from elsewhere (such as air vents, diffusers or grilles) can affect air circulation.
 - in areas with poor air circulation and ventilation.
- Do not install the unit in the following places. Doing so can result in an explosion, fire, deformation, corrosion, or product failure.
 - Explosive or flammable atmosphere.
 - Where fire, oil, steam, or powder can directly enter the unit, such as in close proximity or directly above a kitchen stove.
 - Where oil (including machinery oil) may be present.
 - Where corrosive gases such as chlorine, bromine, or sulfide can accumulate, such as near a hot tub or hot spring.
 - Where dense, salt-laden airflow is heavy, such as in coastal regions.
 - Where the air quality is of high acidity.
 - Where harmful gases can be generated from decomposition.
- Do not position the condensate pipe for the indoor unit near any sanitary sewers where corrosive gases may be present. If you do, toxic gases can seep into breathable air spaces and can cause respiratory injuries. If the condensate pipe is installed incorrectly, water leakage and damage to the ceiling, floor, furniture, or other possessions may result. If condensate piping becomes clogged, moisture can back up and can drip from the indoor unit. Do not install the indoor unit where such dripping can cause moisture damage or uneven locations: Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the unit to prevent water damage and abnormal vibration.
- Before performing any brazing work, be sure that there are no flammable materials or open flames nearby.
- Perform a test run to ensure normal operation. Safety guards, shields, barriers, covers, and protective devices must be in place while the compressor/unit is operating. During the test run, keep fingers and clothing away from any moving parts.
- Clean up the site when finished, remembering to check that no tools, metal scraps or bits of wiring have been left inside the unit being installed.
- During transportation, do not allow the backrest of the forklift make contact with the unit, otherwise, it may cause damage to the heat exchanger and also may cause injury when stopped or started suddenly.
- Remove gas inside the closing pipe when the brazing work is performed. If the brazing filler metal is melted with remaining gas inside, the pipes will be blown off and it may cause injury.
- Be sure to use nitrogen gas for an airtight test. If other gases such as oxygen gas, acetylene gas or fluorocarbon gas are accidentally used, it may cause explosion or gas intoxication.

After installation work for the system has been completed, explain the "Safety Precautions," the proper use and maintenance of the unit to the customer according to the information in all manuals that came with the system. All manuals and warranty information must be given to the user or left near the Indoor Unit.

Refrigerant Precautions

WARNING

To reduce the risk of serious injury or death, the following refrigerant precautions must be followed.

- As originally manufactured, this unit contains refrigerant installed by Johnson Controls-Hitachi Air Conditioning. Johnson Controls-Hitachi Air Conditioning uses only refrigerants that have been approved for use in the unit's intended home country or market. Johnson Controls-Hitachi Air Conditioning distributors similarly are only authorized to provide refrigerants that have been approved for use in the countries or markets they serve. The refrigerant used in this unit is identified on the unit's faceplate and/or in the associated manuals. Any additions of refrigerant into this unit must comply with the country's requirements with regard to refrigerant use and must be obtained from Johnson Controls-Hitachi Air Conditioning distributors. Use of any non-approved refrigerant substitutes will void the warranty and will increase the potential risk of equipment damage, property damage, personal injury or death.
- Take measures to ensure that the refrigerant limitations in ASHRAE Standard 15 (Canada: B52), or other local codes, are followed. Refrigerant gas has leaked during the installation work, ventilate the room immediately.
- Check the design pressure for this product is 601 psi (4.15MPa). The pressure of the refrigerant R410A is 1.4 times higher than that of the refrigerant R22. Therefore, the refrigerant piping for R410A shall be thicker than that for R22. Make sure to use the specified refrigerant piping. If not, the refrigerant piping may rupture due to an excessive refrigerant pressure. Besides, pay attention to the piping thickness when using copper refrigerant piping. The thickness of copper refrigerant piping differs depending on its material.
- The refrigerant R410A is adopted. The refrigerant oil tends to be affected by foreign matters such as moisture, oxide film or other non-condensables. Perform the installation work with care to prevent moisture, dust, or different refrigerant from entering the refrigerant cycle. Foreign matter can be introduced into the cycle from such parts as expansion valve and the operation may be unavailable.
- To avoid the possibility of different refrigerant or refrigerant oil being introduced into the cycle, the sizes of the charging connections have been changed from R407C type and R22 type. It is necessary to prepare the appropriate tools listed in Installation and Maintenance manual before performing installation work.
- Use refrigerant pipes and joints which are approved for use with R410A.
- A compressor/unit comprises a pressurized system. Never loosen threaded joints while the system is under pressure and never open pressurized system parts.
- Before installation is complete, make sure that the refrigerant leak test has been performed. If refrigerant gases escape into the air, turn OFF the main switch, extinguish any open flames and contact your service contractor. Refrigerant (Fluorocarbon) for this unit is odorless. If the refrigerant must leak and come into contact with open flames, toxic gas could be generated. Also, because the fluorocarbons are heavier than air, they settle to the floor, which could cause asphyxiation.
- When installing the unit, and connecting refrigerant piping, keep all piping runs as short as possible, and make sure to securely connect the refrigerant piping before the compressor starts operating. If the refrigerant piping is not connected and the compressor activates with the stop valve opened, the refrigerant cycle will become subjected to extremely high pressure, which can cause an explosion or fire.
- Tighten the flare nut with a torque wrench in the specified manner. Do not apply excessive force to the flare nut when tightening. If you do, the flare nut can crack and refrigerant leakage may occur.
- When maintaining, relocating, and disposing of the unit, dismantle the refrigerant piping after the compressor stops.
- When pipes are removed out from under the piping cover, after the insulation work is completed, cover the gap between the piping cover and pipes by a packing (field-supplied). If the gap is not covered, the unit may be damaged if snow, rain water or small animals enter the unit.
- Do not apply an excessive force to the spindle valve at the end of opening. Otherwise, the spindle valve flies out due to refrigerant pressure. At the test run, fully open the gas and liquid valves, otherwise, these devices will be damaged. (It is closed before shipment.)
- If the arrangement for outdoor units is incorrect, it may cause flowback of the refrigerant and result in failure of the outdoor unit.
- The refrigerant system may be damaged if the slope of the piping connection kit exceeds $\pm 15^\circ$.

Electrical Precautions



Take the following precautions to reduce the risk of electric shock, fire or explosion resulting in serious injury or death.

- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause property damage, serious injury or death.
- Perform all electrical work in strict accordance with this installation and maintenance manual and all the relevant regulatory standards.
- Before servicing, open and tag all disconnect switches. Never assume electrical power is disconnected. Check with meter and equipment.
- Only use electrical protection equipment and tools suited for this installation.
- Insulate a wired controller against moisture and temperature extremes.
- Use specified cables between units.
- The new air conditioner may not function normally in the following instances:
 - If electrical power for the new air conditioner is supplied from the same transformer as the external equipment* referred to below.
 - If the power supply cables for this external equipment* and the new air conditioner unit are located in close proximity to each other.

External Equipment*: (Example): A lift, container crane, rectifier for electric railway, inverter power device, arc furnace, electric furnace, large-sized induction motor and large-sized switch.

Regarding the cases mentioned above, surge voltage may be inducted into the power supply cables for the packaged air conditioner due to a rapid change in power consumption of the device and an activation of a switch.

Check field regulations and standards before performing electrical work in order to protect the power supply for the new air conditioner unit.
- Communication cabling shall be a minimum of AWG18 (0.82mm²), 2-Conductor, Stranded Copper. Shielded cable must be considered for applications and routing in areas of high EMI and other sources of potentially excessive electrical noise to reduce the potential for communication errors. When shielded cabling is applied, proper bonding and termination of the cable shield is required as per Johnson Controls-Hitachi Air Conditioning guidelines. Plenum and riser ratings for communication cables must be considered per application and local code requirements.
- The polarity of the input terminals is important, so be sure to match the polarity when using contacts that have polarity.
- Use an exclusive power supply for the air conditioner at the unit's rated voltage.
- Highly dangerous electrical voltages may be used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause property damage, serious injury or death.
- Before installing the controller or remote devices, ensure that the indoor and outdoor unit operation has been stopped. Further, be sure to wait at least five minutes before turning off the main power switch to the indoor or outdoor units. Otherwise, water leakage or electrical breakdown may result.
- Do not open the service cover or access panel to the indoor or outdoor units without turning OFF the main power supply. Before connecting or servicing the controller or cables to indoor or outdoor units, open and tag all disconnect switches. Never assume electrical power is disconnected. Check with a meter and equipment.
- This equipment can be installed with a Ground Fault Circuit Breaker (GFCI), which is a recognized measure for added protection to a properly grounded unit. Install appropriate sized breakers / fuses / overcurrent protection switches, and wiring in accordance with local, state and NEC codes and requirements. The equipment installer is responsible for understanding and abiding by applicable codes and requirements.

- CONTENTS -

1. General Information (Features).....	1-1
2. Outdoor Units.....	2-1
2.1 Unit Nomenclature.....	2-1
2.2 Line-up	2-3
2.3 General Data	2-7
2.4 Dimensional Data and Weights	2-19
2.4.1 Overall Dimensional and Weight Data	2-19
2.4.2 Outdoor Units.....	2-20
2.5 Structure.....	2-44
2.6 Component Data	2-52
2.7 Service Space	2-54
2.7.1 Walls on Two Sides.....	2-55
2.7.2 Walls on Three Sides.....	2-55
2.7.3 Walls on Four Sides.....	2-56
2.8 Center of Gravity	2-57
2.9 Electrical Data	2-59
2.10 Sound Data	2-61
2.11 Control System.....	2-69
2.11.1 Refrigerant Cycle	2-69
2.11.2 Control System	2-73
2.11.3 Standard Operation Sequence	2-83
2.11.4 Safety and Control Device Setting.....	2-97
2.11.5 Electrical Wiring Diagram	2-99
2.11.5.1 Outdoor Units	2-99
2.12 Operation Temperature Range.....	2-109
2.13 Combinations of Indoor Units and Outdoor Units.....	2-111
2.14 Piping Work	2-113
2.14.1 Piping Work between Outdoor Units.....	2-113
2.14.2 Piping Sizes between Outdoor Units	2-115
2.14.3 Piping Size and Multi-Kit Selection	2-117
2.15 Electrical Wiring Connection	2-123
2.15.1 Power Supply Wiring	2-123
2.15.2 Electrical Characteristics	2-124
2.16 Additional Refrigerant Charge Calculation	2-126

- CONTENTS -

3. Optional Parts	3-1
3.1 Line Up	3-1
3.2 Outdoor Unit	3-2
3.2.1 Drain Adapter DBS-TP10A	3-2
3.2.2 Protection Net	3-3
3.2.3 Snow Protection Hood	3-5
3.2.4 Low Ambient Kit	3-8
3.2.4.1 Dimensional Data	3-8
3.2.4.2 Wiring Diagram	3-12
3.2.4.3 Installation Location and Precautions	3-13
3.2.4.4 Service Space	3-15
3.3 Piping Kit	3-18
3.3.1 Piping Connection Kit	3-20
3.3.2 Multi-Kit (Line Branch)	3-22
3.3.3 Multi-Kit (Header Branch)	3-24
4. Selection Data	4-1
4.1 Selection Guide	4-1
4.2 Outdoor Unit Capacity According to Temperature Condition and Connected IDU Capacity Ratio	4-5
4.3 Correction Factor According to Piping Length	4-37
4.4 Correction Factor According to Defrosting Operation	4-41
4.5 Correction Factor According to Altitude	4-41

1. General Informations (Features)

VRF Air Conditioners

Johnson Controls-Hitachi Air Conditioning proudly introduces new Variable Refrigerant Flow (VRF) air conditioners, a highly-efficient and reliable air-conditioning system. Recently, increased numbers of buildings are requiring "Intelligent" facilities that include communication networks, office automation, and a comfortable environment. In particular, a comfortable environment is becoming more of a year-around requirement in office buildings.

The VRF multi-split system air conditioner meets these requirements. The proven combination of the scroll compressor and inverter provides the best air conditioning for small and medium office buildings.

■ VRF System

Johnson Controls-Hitachi Air Conditioning has developed the VRF system with its customers in mind. This system, which is unique in the world, allows the interconnection of indoor units for all our VRF air conditioners.

This system provides the consumer with greater flexibility for installation, which means that the air-conditioning systems will integrate better within complex facility structures.

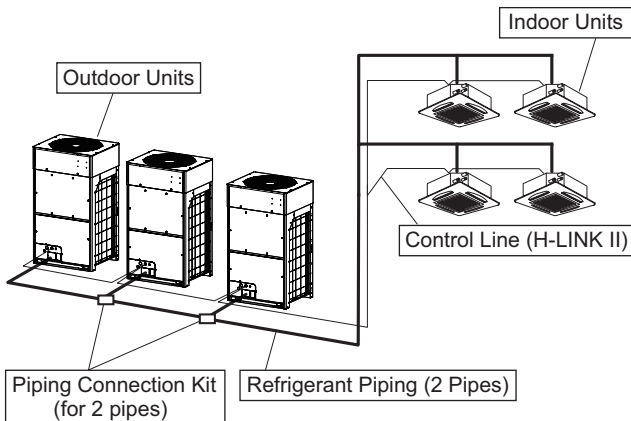
■ Wide Product Range of Outdoor Units

Along with space, structure, and necessary functions, in line with evolution in building design, the requirements for air conditioning have also diversified.

New VRF air conditioners offer three modular outdoor units.

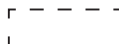
Because the most suitable unit can be selected from a wide range of heat pump type models, you can create a custom air conditioning environment to satisfy your specific building conditions.

System Configuration

	Heat Pump System
System / Appearance	 <p>The diagram illustrates a Heat Pump System configuration. On the left, three outdoor units are shown, connected by a horizontal refrigerant piping line. This line is labeled 'Refrigerant Piping (2 Pipes)'. A 'Piping Connection Kit (for 2 pipes)' is indicated at the connection point. On the right, four indoor units are shown, connected to the outdoor units via a 'Control Line (H-LINK II)'. The indoor units are labeled 'Indoor Units'.</p>
System Device	<div>Indoor Unit</div> + <div>Optional Controller</div> + <div>• Optional Decorative Panel for Cassette Type</div> + <div>Other Optional Parts</div>
	<div>Optional Multi-Kit</div> For Branch Connection of Indoor Units
	<div>Outdoor Unit</div> + <div>Other Optional Parts (Snow Protection Hood, Drain Adapter, Protection Net and Low Ambient Kit)</div>
	<div>Piping Connection Kit</div> For Branch Connection of Outdoor Units Heat Pump Type Applicable for 216MBH to 432MBH Outdoor Unit



: Necessary Equipments for System



: Necessary Equipments depending on Usage Purpose

Series Line-Up

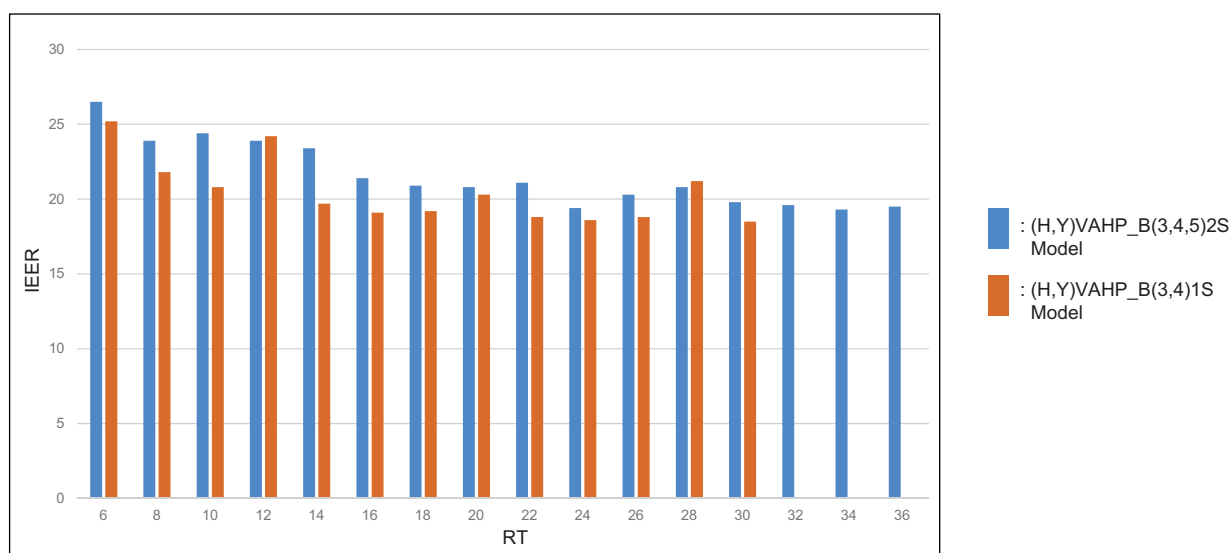
Series	Outdoor Unit Capacity MBH (RT)															
	72 (6)	96 (8)	120 (10)	144 (12)	168 (14)	192 (16)	216 (18)	240 (20)	264 (22)	288 (24)	312 (26)	336 (28)	360 (30)	384 (32)	408 (34)	432 (36)
(H,Y)VAHP_(3,4)1S	●	●	●	○	○	○	○	○	○	○	○	○	○	-	-	-
(H,Y)VAHP_(3,4,5)2S	★	★	★	★	★	★	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆

● : (H,Y)VAHP_B(3,4)1S Line-up (Single Module)
 ★ : (H,Y)VAHP_B(3,4,5)2S Line-up (Single Module)
 - : Not available

○ : (H,Y)VAHP_B(3,4)1S Line-up (Combination)
 ☆ : (H,Y)VAHP_B(3,4,5)2S Line-up (Combination)

Enhanced Energy-Saving

Enhanced Intermediate capacity by a variety of energy-saving technologies in order to achieve the energy-saving operation with high IEER (Integrated Energy Efficiency Ratio).



Energy Saving Technology

Bell-mouth

< Long Bell-mouth Structure >

Creates smooth air flow and reduces fan input by adopting the multi-stage enhance structure.

Long Blade Propeller Fan

Multi-stage Enhanced Structure
Smooth air flow by distributing multipolar vortex.

Long Bell-mouth
Suppress leakage and effectively operate in wide range.

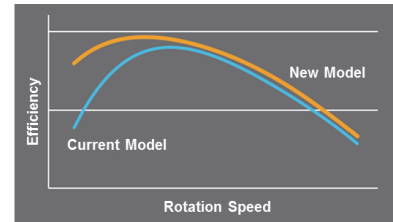


Compressor

< Improve Compressor Efficiency at Low Load Operation >

Optimizes oil rate by improving oil distribution to the compressor, expanding operation range at a low load operation.

Efficiency of Compressor (image)

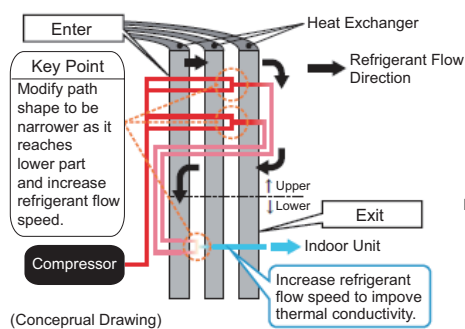


Heat Exchanger

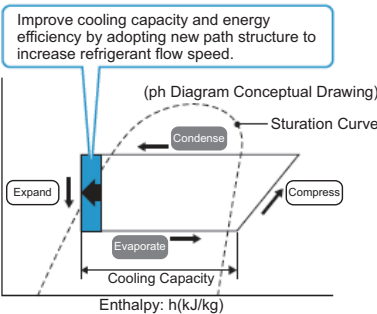
< Improve Efficiency at Low Load Cooling Operation with New Path Structure >

Adopts to the most effective heat exchanger path structure during low load cooling operation. The heat exchanger divides into the upper and lower parts, modifying the path shape to be narrower, as it reaches its lower part. The increased refrigerant flow speed improves thermal conductivity, energy efficiency, and cooling capacity.

• New Heat Exchanger Path Structure

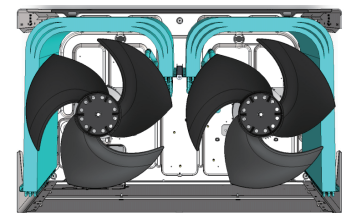


• Operation Condition at Low Load Cooling Operation



< Σ Shape Heat Exchanger > [More than 8RT]

Adopts the two fan structure for improved efficiency at a low load operation and a Σ shape heat exchanger to maximize the effect of the two fan structure for better energy savings.

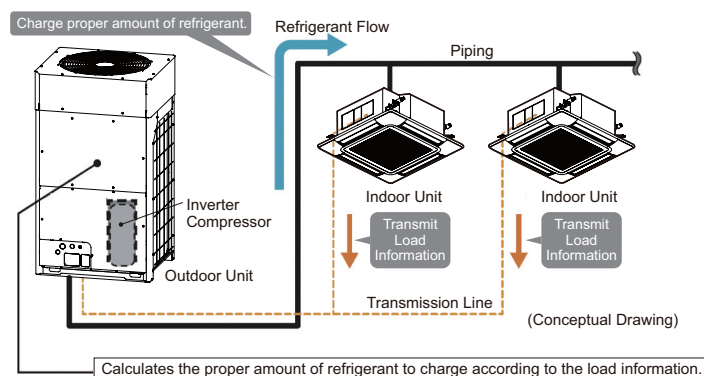


Operation Control

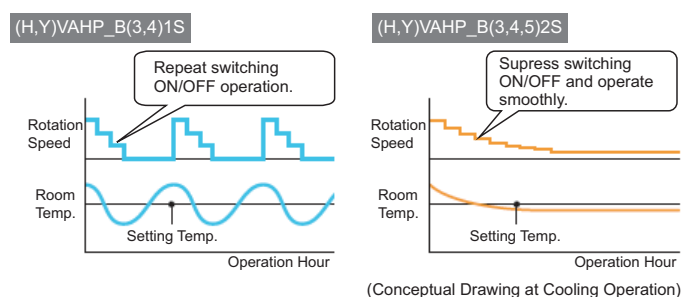
■ Smooth Drive Control System

Calculates the amount of refrigerant to charge the system according to the load information from the indoor units. Controls inverter compressor rotation speed and charges the proper amount of refrigerant to indoor unit per each load condition. Suppresses compressor switching ON/OFF at a low load operation for better energy efficiency with smooth operation.

■ Concept of Smooth Drive Control

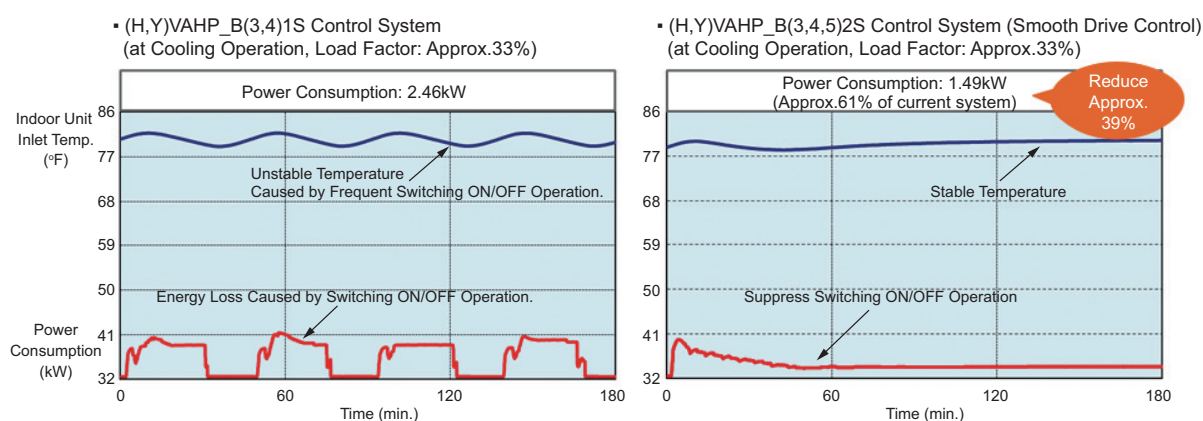


■ Comparison at Low Load Operation



● Verification Result of Energy Saving Effect from Smooth Drive Control

The verification result of energy saving effect at part load testing chamber is shown below. The “Smooth Drive Control System” suppresses the compressor switching ON/OFF operation and keeps room temperature stable. The reduction of power consumption has been verified.



The verification test has been implemented with the combination of current Japanese domestic model VRF outdoor unit (RAS-AP280DG3) and two Japanese domestic model VRF 4-way cassette indoor units (RCI-AP140K5)

Testing Condition

- Indoor Unit Inlet Temperature: 81°F (27°C) (Dry Bulb) / 66°F (19°C) (Wet Bulb)
- Ambient Temperature at Air Flow Volume “High”: 73°F (23°C) (Dry Bulb)
- Piping Length between Indoor Unit and Outdoor Unit: 49ft (15m)
- Testing Location: Environment Testing Facility at Kansai Denryoku (power supply company)

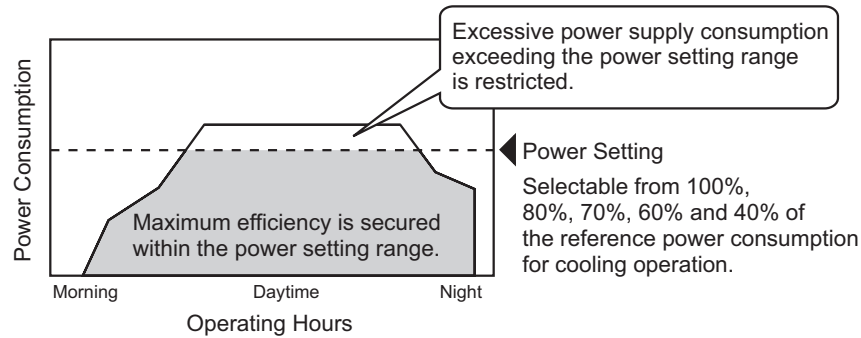
Energy-Saving Improvement through Schedule Setting of “Self-Demand Function”

“Self-Demand Function” saves capacity so as not to exceed demand current control based on the electric power data detected.

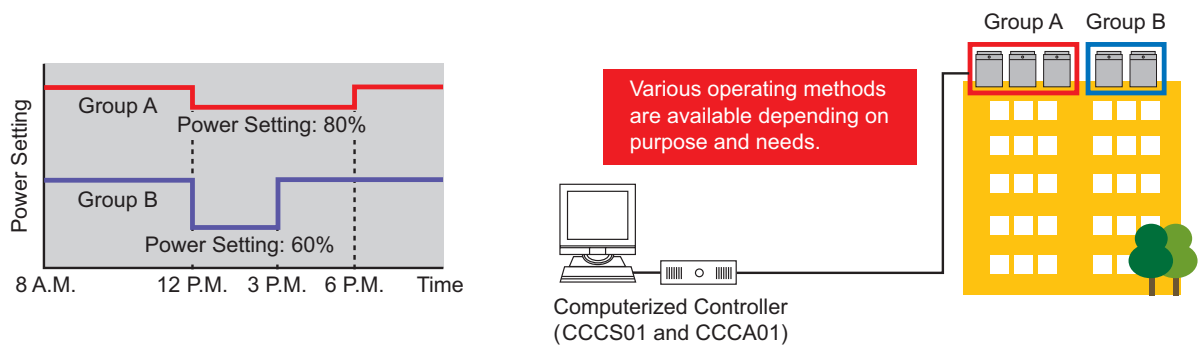
“Self-Demand Function” can be set for each outdoor unit from a Computerized Central Controller (CCCS01 and CCCA01) or Wired Controller (CIW01).

For small and medium buildings, it facilitates power saving. The energy-saving operation can be adjusted conforming to an operating environment and individual needs.

■ Self-Demand Function



Setting Example: Schedule Setting for Each Group by Computerized Controller

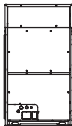
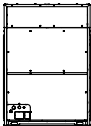
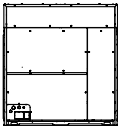
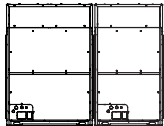
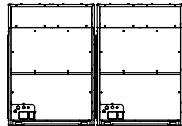
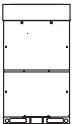
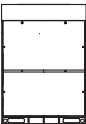
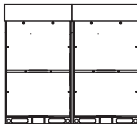
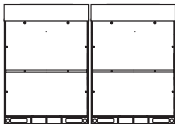
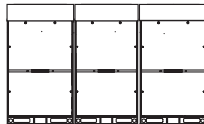
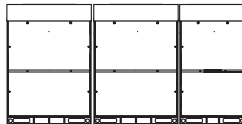


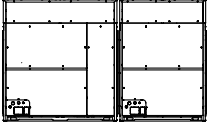
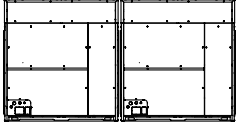
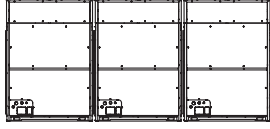
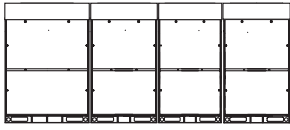
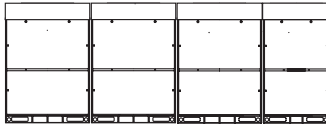
The specific outdoor unit and the period of time can be set from computerized controller.

Flexibility of Facility Design

■ Number of Module

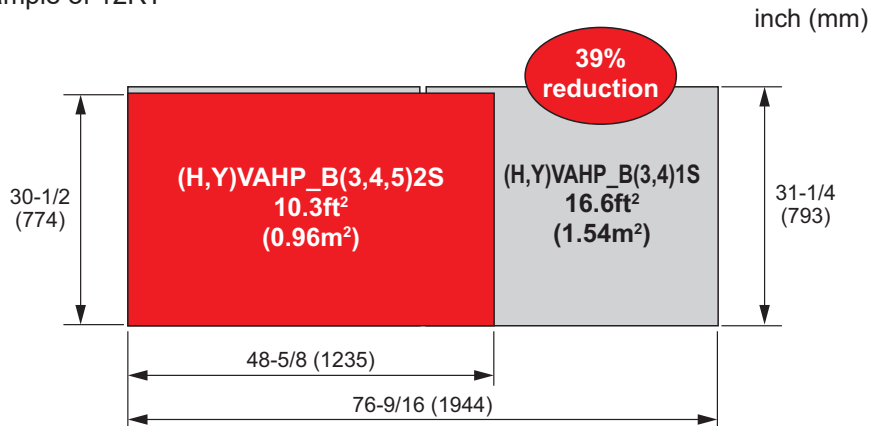
Referring to (H,Y)VAHP_B(3,4)1S, the number of outdoor unit is reduced.

RT	6	8 and 10	12	14 and 16	18	20 to 24
(H,Y)VAHP_ B(3,4,5)2S Model						
	1 Unit	1 Unit		1 Unit	2 Units	2 Units
(H,Y)VAHP_ B(3,4)1S Model						
	1 Unit	1 Unit	2 Units	2 Units	3 Units	3 Units

RT	26 and 28	30	32 to 36
(H,Y)VAHP_B(3,4,5)2S Model	 2 Units	 2 Units	 3 Units
(H,Y)VAHP_B(3,4)1S Model	 4 Units	 4 Units	

■ Installation Space Reduction

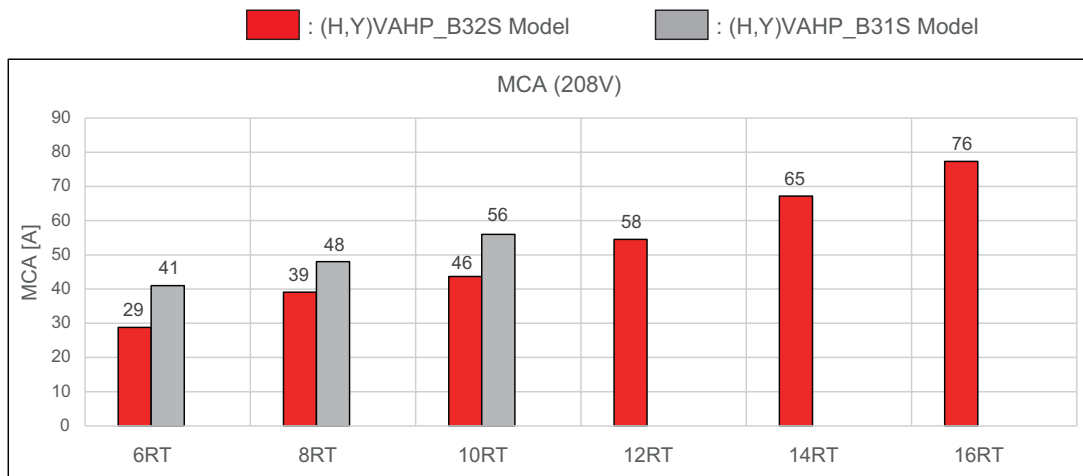
Example of 12RT



FEATURES

■ MCA Reduction

Large MCA (Minimum Circuit Ampacity) reduction enables the use of a smaller conductor for field installation.



■ Increased Height Difference

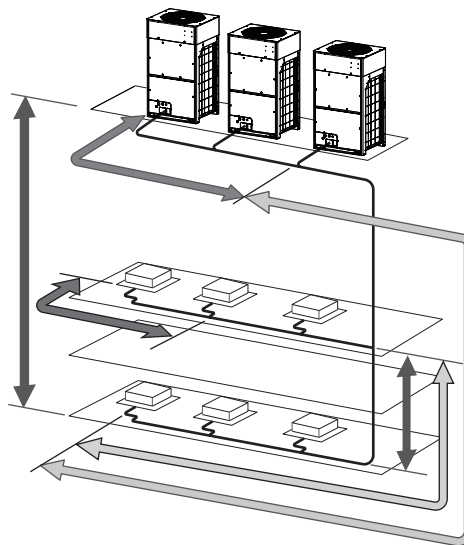
Height difference between outdoor unit and indoor unit is expanded up to 360 ft (110m).
(For outdoor unit installation that is higher or lower than the indoor unit.)

Example of the outdoor unit installed higher than the indoor units.

(H,Y)VAHP_B(3,4)1S Model
295ft (90m)



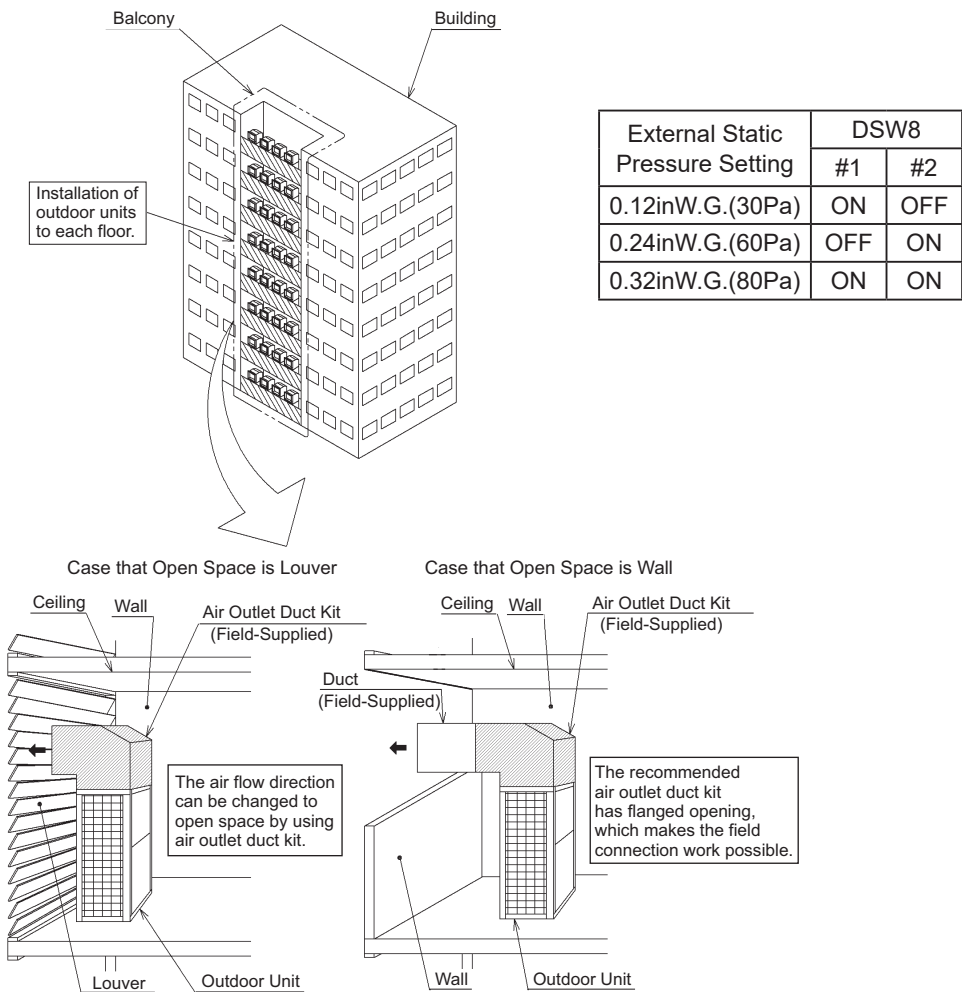
(H,Y)VAHP_B(3,4,5)2S Model
360ft (110m) ※



※ Contact your distributor or contractor if the height difference is over 164 ft (50m) when the outdoor unit is higher or over 131 ft (40m) when the outdoor unit is lower.
Refer to the page 2-119 "Piping Work Conditions" for detail of this restriction.

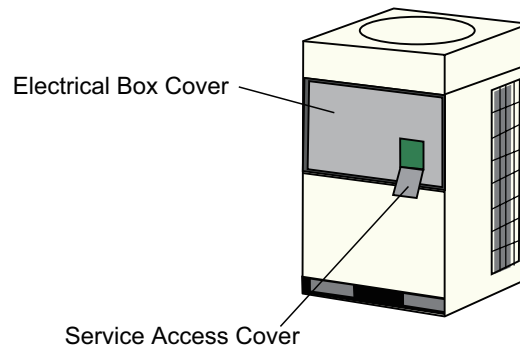
■ Adjustable External Static Pressure

Installation Example for Air Outlet Duct Kit (Field-Supplied)



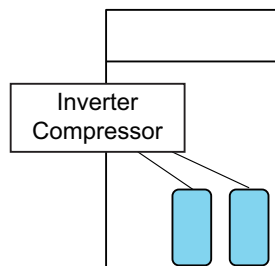
Improved Design

- Improvement of Servicing and Easy Maintenance
DIP switch setting and 7-Segment inspection is available without removing the electrical box cover.

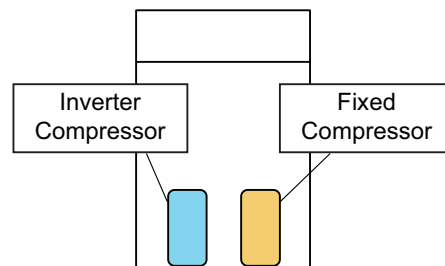


- All Inverter-Type Compressors
Inverter compressor is adopted for all new models to increase efficiency.

(H,Y)VAHP_B(3,4,5)2S Model

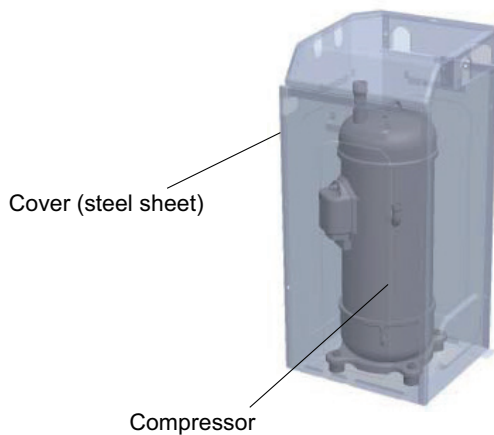


(H,Y)VAHP_B(3,4)1S Model

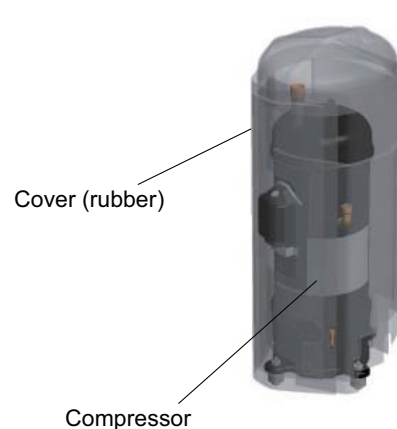


- Sound Noise Reduction
Sound noise is reduced by covering the compressor with metal sheet.

(H,Y)VAHP_B(3,4,5)2S Model



(H,Y)VAHP_B(3,4)1S Model

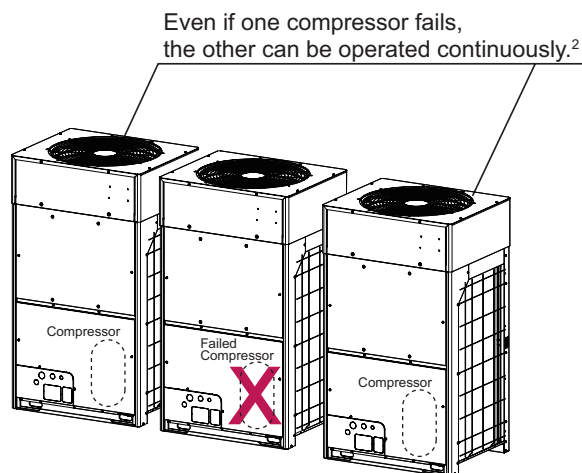


- Alarm Log Tracking
If an alarm occurs during the cooling or heating operation, a data log is stored in the control PCB. This data can be used for quick troubleshooting of these alarms.

Backup Operation Function for Emergency

The Backup Operation Function prevents the system from coming to a complete stop when a compressor failure occurs.¹

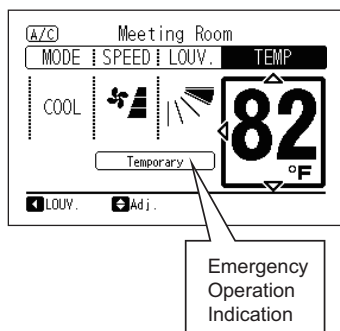
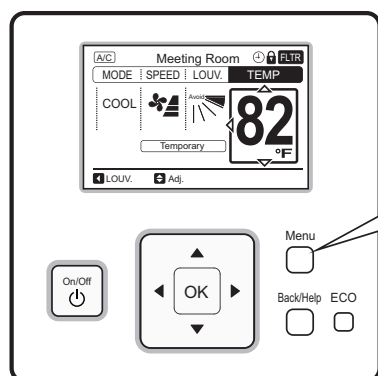
The wired controller starts an emergency operation after an alarm occurrence.³



NOTE:

- 1: At least two outdoor units or a unit with two compressors are required for this function.
- 2: Do not perform an emergency operation for more than eight hours. Doing so may damage the unit.
- 3: An emergency operation can be performed when a specified alarm code occurs. Refer to the following.
- 4: When Emergency Heating for the indoor unit is enabled, there are some restrictions to Emergency Operation from the wired controller. Refer to the Service Manual for details.

For CIW01



In these alarm code instances, emergency operation is possible.

Inverter Compressor Failure

- 06: Abnormality of Inverter Voltage
- 23: Abnormality of Discharge Gas Thermistor
- 48: Activation of Overcurrent Protection Device
- 51: Abnormality of Inverter Current Sensor
- 53: Inverter Error Signal Detection
- 54: Abnormality of Inverter Fin Temperature

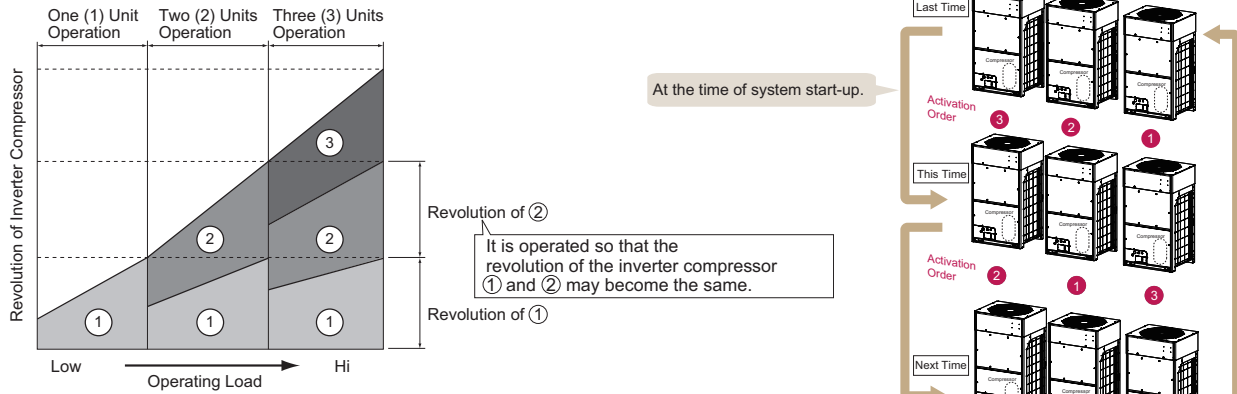
Compressor Rotation Operation for Outdoor Units

The compressor rotation operation time of each outdoor compressor leads to less wear of the compressor, extending the life of the outdoor unit.

During a multiple unit operation, the same rotation frequency of the inverter compressor results in an equivalent load on each compressor.

Therefore, the load reduction of each compressor improves efficiency and operation.

Inverter Compressor Rotation Frequency Control (Example)



NOTE:

- At least two outdoor units are required for this function.
- Comparison between rotation operation function and non-rotation operation function based on the same system.

Noise Reduction Preference Mode

■ Noise Reduction Preference Mode (Optional Function)

With the Noise Reduction Preference Mode, the sound pressure level for a particular time zone can be set based upon the usage environment. ¹

- Selecting from three Stages of Sound Pressure Level by setting from Outdoor Unit PCB External Input and Output Function

Control Function No.	Item	Sound Pressure Level (dB) (Approx. Value) ²
11	Noise Reduction Setting 1 (Standard Value -2dB)	58
12	Noise Reduction Setting 2 (Standard Value -5dB)	55
13	Noise Reduction Setting 3 (Standard Value -8dB)	52

Setting Example

Low-Sound Operation during Night Time only by Using Timer

	Day Time	← Input Signal * →	Day Time
Compressor Rotation Frequency		Night Time	
		55dB Equivalent Rotation	
O.U Fan Rotation Frequency	Day Time	Night Time	Day Time
		55dB Equivalent Rotation	

*: Perform the electrical wiring work on-site when setting input signal.

NOTE:

- 1: A range of performance and operation is restricted because the rotation frequency of the compressor and outdoor fan is forcibly decreased.

Target Capacity of Each Setting

Noise Reduction Setting 1: 80% of Standard Capacity

Noise Reduction Setting 2: 60% of Standard Capacity

Noise Reduction Setting 3: 40% of Standard Capacity

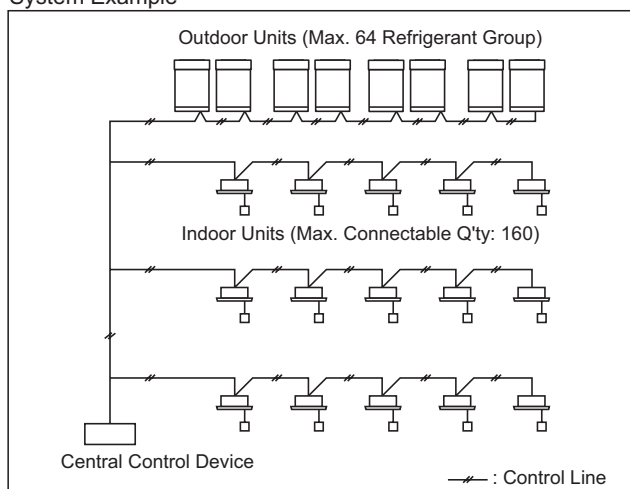
- 2: The table above shows an approximate value of 72 MBH model.

In some cases, the value may temporarily become higher than the approximate value on the table above because of an operating condition.

H-LINK II System

The VRF outdoor units are available for the H-LINK II transmission system. A maximum of 64 refrigerant groups and a maximum 160 indoor units can be controlled by only one central control device when the equipment (central control device, indoor units, wired controller) in the same transmission system all correspond to H-LINK II.

System Example



■ H-LINK II System

The H-LINK II wiring system requires only two communication cables to connect each indoor unit and outdoor unit for up to 64 refrigerant systems, and to connect wires for all indoor units and outdoor units.

Specifications

- Communication Cable: 2-Conductor, Stranded Copper
- Polarity of Communication Cable: Non-Polar Cable
- Maximum Outdoor Units to be Connected: 64 Units per System
- Maximum Indoor Units to be Connected: 160 Units per H-LINK II System
- Maximum Cable Length: Total 3,280 ft. (1,000m) (including central controller)
- Recommended Cable: Communication Cable with Shield, over AWG18 (Equivalent to KPEV-S)
- Voltage: DC5V

Priority Cooling Control NEW

■ Concept of Priority Cooling Control

This is a control feature that enables a system that is currently in heating operation to prioritize a demand for cooling from a connected IDU over the current heat demand by forcing the operation of the system to cooling. During this time heat demand is available by an auxiliary heater which is controlled from the associated IDU in heating operation (Thermo-OFF).

■ Applicable Conditions for Priority Cooling Control

- Priority Cooling is only applicable to Heat Pump Units
- "Priority Cooling Control is available" is set with function selection of ODU (see below table).
- The default setting is "Not Available".
- Priority Cooling Control is not applicable for test run or input fixing heating operation mode or input fixing cooling operation mode (external input function setting).
- All the indoor units in the system must be linked to Auxiliary Heater to secure heat.

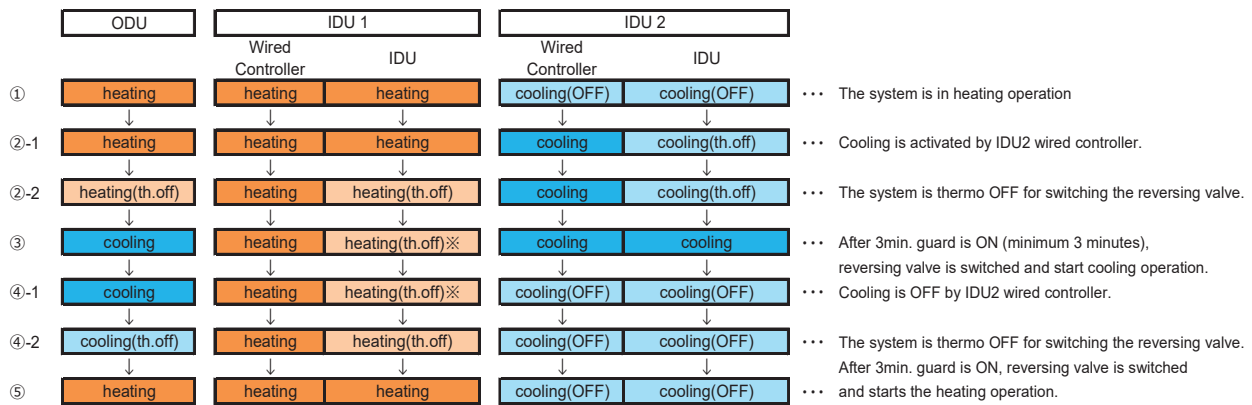
■ Applicable Units

Outdoor Unit Type	No.	Model Name	Priority Cooling
VRF Heat Pump	575V	1 (H,Y)VAHP**B52S	NEW
	460V	2 (H,Y)VAHP**B42S	NEW *
	208/230V	3 (H,Y)VAHP**B32S	NEW *

NEW : Adapt the new function

* Important notices about outdoor units produced in December 2019 or earlier.
Products produced during this period cannot use this control.
Contact your distributor or contractor for details.

■ Example of Priority Cooling Operation (Basic Operations)



Period of ②~③ is for Priority Cooling.

(Cooling mode and heating mode are mixed in the IDUs.)

The stoppage code 44 (newly added) is sent to IDU in heating mode and tells it that Priority Cooling Control is in operation with forced thermo-OFF.

■ Additional Supported Operations

The following operations are supported.

1. Cancellation of Priority Cooling at low ambient temperature:

When the unit is out of cooling operation range due to low ambient air temperature, Priority Cooling is canceled and heating operation is enabled.

Although the cooling operation range of the product is default setting, the cancellation temperature can be selected by ODU function selection so that it is adjustable in the field. (Function selection "FL".)

2. Cancellation of Priority Cooling during continuous Cooling Thermo-OFF

Since some IDUs are in cooling operation during cooling thermo-OFF, Priority Cooling continues. However, if Priority Cooling is continued for an extended period of time (45-90 min. Function Selection "Fi"), the system is set back to the heating operation because there is no cooling load.

- "Cancellation of Priority Cooling" is not applicable to units in automatic cooling/heating setting.
- The duration period of cooling, thermo-OFF can be selected from 45min./60min./90min. by ODU function selection. (Function selection "Fi".)
- If an IDU in Room Thermostat is connected to the same refrigerant system, select "4" of Function Selection "Fi" from ODU to invalidate "Cancellation of Priority Cooling" because "Cancellation of Priority Cooling" may not function in certain indoor conditions.

No	7-Segment Display	Setting Items	
1		0	Factory Setting: Priority Cooling control is invalid.
		1	Priority Cooling Control is Available.
		2	Duration of thermo-OFF at cancellation: 60min.
		3	Duration of thermo-OFF at cancellation: 45min.
		4	Duration of thermo-OFF at cancellation: 90min.
2		No cancellation due to continued thermo-OFF	
		0	Factory Setting
		1	Change ambient temperature range in cooling operation.
		2	-4°F (-20°C)
		3	5°F (-15°C)
		4	14°F (-10°C)
		5	23°F (-5°C)
		6	32°F (0°C)
		7	41°F (5°C)
		8	50°F (10°C)
		9	59°F (15°C)

NOTE:

For more information, please refer to the service manuals for the outdoor unit and indoor unit.

2. Outdoor Units

2.1 Unit Nomenclature

- Outdoor Units
Model Descriptions

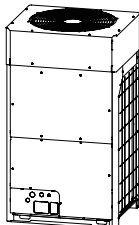
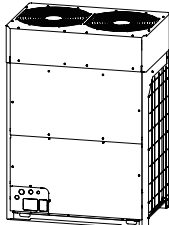
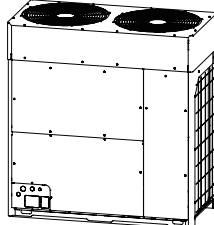
Example

Nomenclature Description		H	V	A	HP	072	B	4	2	S
H = Hitachi Brand Y = York Brand	H									
VRF	V									
A = Air Source	A									
HR = Heat Recovery HP = Heat Pump	HP									
072 = 72 MBH = 6 RT 096 = 96 MBH = 8 RT 120 = 120 MBH = 10 RT 144 = 144 MBH = 12 RT 168 = 168 MBH = 14 RT 192 = 192 MBH = 16 RT 216 = 216 MBH = 18 RT 240 = 240 MBH = 20 RT 264 = 264 MBH = 22 RT 288 = 288 MBH = 24 RT 312 = 312 MBH = 26 RT 336 = 336 MBH = 28 RT 360 = 360 MBH = 30 RT 384 = 384 MBH = 32 RT 408 = 408 MBH = 34 RT 432 = 432 MBH = 36 RT	072									
B = R410A	B									
3 = 208/230Volts - 3Phase - 60Hz 4 = 460Volts - 3Phase - 60Hz 5 = 575Volts - 3Phase - 60Hz	4									
1 = Model Type 1 2 = Model Type 2	2									
S = Standard (Factory Options) CW = Low Ambient	S									

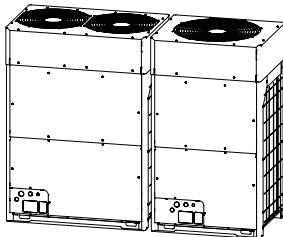
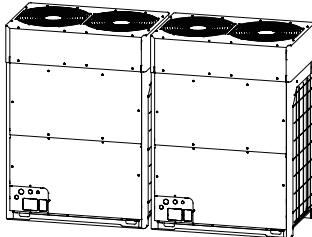
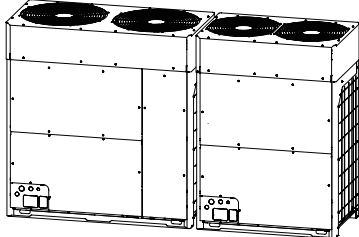
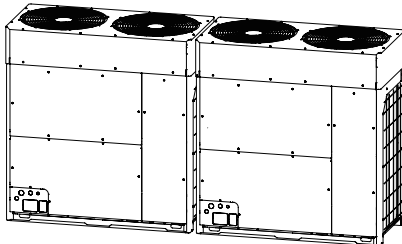
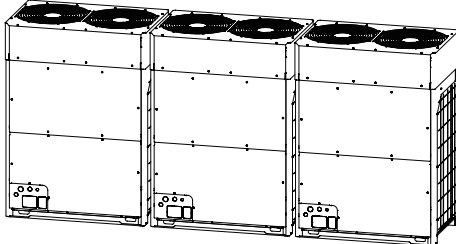
PRODUCT SPECIFICATION

Base Unit

Unit: inch (mm)

6RT	8, 10, 12RT	14, 16RT
<p>Outer Dimension: W38-3/8 x D30-1/2 x H66-1/4) (W975 x D774 x H1683)</p>  <p>(H,Y)VAHP072B32S (H,Y)VAHP072B42S (H,Y)VAHP072B52S</p>	<p>Outer Dimension: W48-5/8 x D30-1/2 x H66-1/4) (W1235 x D774 x H1683)</p>  <p>(H,Y)VAHP096, 120, 144B32S (H,Y)VAHP096, 120, 144B42S (H,Y)VAHP096, 120, 144B52S</p>	<p>Outer Dimension: W64 x D30-1/2 x H66-1/4) (W1625 x D774 x H1683)</p>  <p>(H,Y)VAHP168, 192B32S (H,Y)VAHP168, 192B42S (H,Y)VAHP168, 192B52S</p>

Combination of Base Units

18RT	20, 22, 24RT	26, 28RT
 <p>(H,Y)VAHP216B32S (H,Y)VAHP216B42S (H,Y)VAHP216B52S</p>	 <p>(H,Y)VAHP240, 264, 288B32S (H,Y)VAHP240, 264, 288B42S (H,Y)VAHP240, 264, 288B52S</p>	 <p>(H,Y)VAHP312, 336B32S (H,Y)VAHP312, 336B42S (H,Y)VAHP312, 336B52S</p>
30RT	32, 34, 36RT	
 <p>(H,Y)VAHP360B32S (H,Y)VAHP360B42S (H,Y)VAHP360B52S</p>	 <p>(H,Y)VAHP384, 408, 432B32S (H,Y)VAHP384, 408, 432B42S (H,Y)VAHP384, 408, 432B52S</p>	

2.2 Line-up

Voltage	Heat Pump System	Capacity (MBH)	Tonnage (RT)	Combination
208/230V	(H,Y)VAHP 072 B32S	72	6	72
	(H,Y)VAHP 096 B32S	96	8	96
	(H,Y)VAHP 120 B32S	120	10	120
	(H,Y)VAHP 144 B32S	144	12	144
	(H,Y)VAHP 168 B32S	168	14	168
	(H,Y)VAHP 192 B32S	192	16	192
	(H,Y)VAHP 216 B32S	216	18	144 + 72
	(H,Y)VAHP 240 B32S	240	20	120 + 120
	(H,Y)VAHP 264 B32S	264	22	144 + 120
	(H,Y)VAHP 288 B32S	288	24	144 + 144
	(H,Y)VAHP 312 B32S	312	26	168 + 144
	(H,Y)VAHP 336 B32S	336	28	192 + 144
	(H,Y)VAHP 360 B32S	360	30	192 + 168
	(H,Y)VAHP 384 B32S	384	32	144 + 120 + 120
	(H,Y)VAHP 408 B32S	408	34	144 + 144 + 120
	(H,Y)VAHP 432 B32S	432	36	144 + 144 + 144
460V	(H,Y)VAHP 072 B42S	72	6	72
	(H,Y)VAHP 096 B42S	96	8	96
	(H,Y)VAHP 120 B42S	120	10	120
	(H,Y)VAHP 144 B42S	144	12	144
	(H,Y)VAHP 168 B42S	168	14	168
	(H,Y)VAHP 192 B42S	192	16	192
	(H,Y)VAHP 216 B42S	216	18	144 + 72
	(H,Y)VAHP 240 B42S	240	20	120 + 120
	(H,Y)VAHP 264 B42S	264	22	144 + 120
	(H,Y)VAHP 288 B42S	288	24	144 + 144
	(H,Y)VAHP 312 B42S	312	26	168 + 144
	(H,Y)VAHP 336 B42S	336	28	192 + 144
	(H,Y)VAHP 360 B42S	360	30	192 + 168
	(H,Y)VAHP 384 B42S	384	32	144 + 120 + 120
	(H,Y)VAHP 408 B42S	408	34	144 + 144 + 120
	(H,Y)VAHP 432 B42S	432	36	144 + 144 + 144
575V	(H,Y)VAHP 072 B52S	72	6	72
	(H,Y)VAHP 096 B52S	96	8	96
	(H,Y)VAHP 120 B52S	120	10	120
	(H,Y)VAHP 144 B52S	144	12	144
	(H,Y)VAHP 168 B52S	168	14	168
	(H,Y)VAHP 192 B52S	192	16	192
	(H,Y)VAHP 216 B52S	216	18	144 + 72
	(H,Y)VAHP 240 B52S	240	20	120 + 120
	(H,Y)VAHP 264 B52S	264	22	144 + 120
	(H,Y)VAHP 288 B52S	288	24	144 + 144
	(H,Y)VAHP 312 B52S	312	26	168 + 144
	(H,Y)VAHP 336 B52S	336	28	192 + 144
	(H,Y)VAHP 360 B52S	360	30	192 + 168
	(H,Y)VAHP 384 B52S	384	32	144 + 120 + 120
	(H,Y)VAHP 408 B52S	408	34	144 + 144 + 120
	(H,Y)VAHP 432 B52S	432	36	144 + 144 + 144

PRODUCT SPECIFICATION

Combinations for Heat Pump Type

208/230V

Base Unit

Outdoor Unit Capacity (RT)	072MBH (6)	096MBH (8)	120MBH (10)
Model	(H,Y)VAHP072B32S	(H,Y)VAHP096B32S	(H,Y)VAHP120B32S

Outdoor Unit Capacity (RT)	144MBH (12)	168MBH (14)	192MBH (16)
Model	(H,Y)VAHP144B32S	(H,Y)VAHP168B32S	(H,Y)VAHP192B32S

Combination of Base Units

Outdoor Unit Capacity (RT)	216MBH (18)	240MBH (20)	264MBH (22)	288MBH (24)
Model	(H,Y)VAHP216B32S	(H,Y)VAHP240B32S	(H,Y)VAHP264B32S	(H,Y)VAHP288B32S
Combination	(H,Y)VAHP144B32S	(H,Y)VAHP120B32S	(H,Y)VAHP144B32S	(H,Y)VAHP144B32S
	(H,Y)VAHP072B32S	(H,Y)VAHP120B32S	(H,Y)VAHP120B32S	(H,Y)VAHP144B32S

Outdoor Unit Capacity (RT)	312MBH (26)	336MBH (28)	360MBH (30)
Model	(H,Y)VAHP312B32S	(H,Y)VAHP336B32S	(H,Y)VAHP360B32S
Combination	(H,Y)VAHP168B32S	(H,Y)VAHP192B32S	(H,Y)VAHP192B32S
	(H,Y)VAHP144B32S	(H,Y)VAHP144B32S	(H,Y)VAHP168B32S

Outdoor Unit Capacity (RT)	384MBH (32)	408MBH (34)	432MBH (36)
Model	(H,Y)VAHP384B32S	(H,Y)VAHP408B32S	(H,Y)VAHP432B32S
Combination	(H,Y)VAHP144B32S	(H,Y)VAHP144B32S	(H,Y)VAHP144B32S
	(H,Y)VAHP120B32S	(H,Y)VAHP144B32S	(H,Y)VAHP144B32S
	(H,Y)VAHP120B32S	(H,Y)VAHP120B32S	(H,Y)VAHP144B32S

The outdoor unit from 216 to 432MBH consists of the combination of 2 to 3 base units.
The combinations are only available as listed in the above table.

460V

Base Unit

Outdoor Unit Capacity (RT)	072MBH (6)	096MBH (8)	120MBH (10)
Model	(H,Y)VAHP072B42S	(H,Y)VAHP096B42S	(H,Y)VAHP120B42S

Outdoor Unit Capacity (RT)	144MBH (12)	168MBH (14)	192MBH (16)
Model	(H,Y)VAHP144B42S	(H,Y)VAHP168B42S	(H,Y)VAHP192B42S

Combination of Base Units

Outdoor Unit Capacity (RT)	216MBH (18)	240MBH (20)	264MBH (22)	288MBH (24)
Model	(H,Y)VAHP216B42S	(H,Y)VAHP240B42S	(H,Y)VAHP264B42S	(H,Y)VAHP288B42S
Combination	(H,Y)VAHP144B42S	(H,Y)VAHP120B42S	(H,Y)VAHP144B42S	(H,Y)VAHP144B42S
	(H,Y)VAHP072B42S	(H,Y)VAHP120B42S	(H,Y)VAHP120B42S	(H,Y)VAHP144B42S

Outdoor Unit Capacity (RT)	312MBH (26)	336MBH (28)	360MBH (30)
Model	(H,Y)VAHP312B42S	(H,Y)VAHP336B42S	(H,Y)VAHP360B42S
Combination	(H,Y)VAHP168B42S	(H,Y)VAHP192B42S	(H,Y)VAHP192B42S
	(H,Y)VAHP144B42S	(H,Y)VAHP144B42S	(H,Y)VAHP168B42S

Outdoor Unit Capacity (RT)	384MBH (32)	408MBH (34)	432MBH (36)
Model	(H,Y)VAHP384B42S	(H,Y)VAHP408B42S	(H,Y)VAHP432B42S
Combination	(H,Y)VAHP144B42S	(H,Y)VAHP144B42S	(H,Y)VAHP144B42S
	(H,Y)VAHP120B42S	(H,Y)VAHP144B42S	(H,Y)VAHP144B42S
	(H,Y)VAHP120B42S	(H,Y)VAHP120B42S	(H,Y)VAHP144B42S

The outdoor unit from 216 to 432MBH consists of the combination of 2 to 3 base units.
The combinations are only available as listed in the above table.

PRODUCT SPECIFICATION

575V

Base Unit

Outdoor Unit Capacity (RT)	072MBH (6)	096MBH (8)	120MBH (10)
Model	(H,Y)VAHP072B52S	(H,Y)VAHP096B52S	(H,Y)VAHP120B52S

Outdoor Unit Capacity (RT)	144MBH (12)	168MBH (14)	192MBH (16)
Model	(H,Y)VAHP144B52S	(H,Y)VAHP168B52S	(H,Y)VAHP192B52S

Combination of Base Units

Outdoor Unit Capacity (RT)	216MBH (18)	240MBH (20)	264MBH (22)	288MBH (24)
Model	(H,Y)VAHP216B52S	(H,Y)VAHP240B52S	(H,Y)VAHP264B52S	(H,Y)VAHP288B52S
Combination	(H,Y)VAHP144B52S	(H,Y)VAHP120B52S	(H,Y)VAHP144B52S	(H,Y)VAHP144B52S
	(H,Y)VAHP072B52S	(H,Y)VAHP120B52S	(H,Y)VAHP120B52S	(H,Y)VAHP144B52S

Outdoor Unit Capacity (RT)	312MBH (26)	336MBH (28)	360MBH (30)
Model	(H,Y)VAHP312B52S	(H,Y)VAHP336B52S	(H,Y)VAHP360B52S
Combination	(H,Y)VAHP168B52S	(H,Y)VAHP192B52S	(H,Y)VAHP192B52S
	(H,Y)VAHP144B52S	(H,Y)VAHP144B52S	(H,Y)VAHP168B52S

Outdoor Unit Capacity (RT)	384MBH (32)	408MBH (34)	432MBH (36)
Model	(H,Y)VAHP384B52S	(H,Y)VAHP408B52S	(H,Y)VAHP432B52S
Combination	(H,Y)VAHP144B52S	(H,Y)VAHP144B52S	(H,Y)VAHP144B52S
	(H,Y)VAHP120B52S	(H,Y)VAHP144B52S	(H,Y)VAHP144B52S
	(H,Y)VAHP120B52S	(H,Y)VAHP120B52S	(H,Y)VAHP144B52S

The outdoor unit from 216 to 432MBH consists of the combination of 2 to 3 base units.
The combinations are only available as listed in the above table.

2.3 General Data

(1) 208/230V Type

Category			Ton		6RT		8RT		10RT		12RT	
Model (Combination)					(H,Y)VAHP072B32S		(H,Y)VAHP096B32S		(H,Y)VAHP120B32S		(H,Y)VAHP144B32S	
Model (Individual)			Unit A		(H,Y)VAHP072B32S		(H,Y)VAHP096B32S		(H,Y)VAHP120B32S		(H,Y)VAHP144B32S	
			Unit B		-		-		-		-	
			Unit C		-		-		-		-	
Power Supply					208/230V/ 3PH 60Hz		208/230V/ 3PH 60Hz		208/230V/ 3PH 60Hz		208/230V/ 3PH 60Hz	
Capacity ¹	Cooling	Capacity (Nominal)	Btu/h	(kW)	72,000	(21.1)	96,000	(28.1)	120,000	(35.2)	144,000	(42.2)
	Heating	Capacity (Nominal)	Btu/h	(kW)	81,000	(23.7)	108,000	(31.7)	135,000	(39.6)	162,000	(47.5)
Efficiency Ratings ² (Ducted)	Cooling	Capacity (Rated)	Btu/h	(kW)	69,000	(20.2)	92,000	(27.0)	114,000	(33.4)	138,000	(40.4)
		EER	Btu/Wh	(W/W)	12.2	(3.58)	12.4	(3.63)	12.4	(3.63)	11.2	(3.28)
		IEER	Btu/Wh (Wh/Wh)	21.1	(6.18)	22.1	(6.48)	21.7	(6.36)	21.2	(6.21)	
	Heating	Capacity (Rated)	Btu/h	(kW)	77,000	(22.6)	103,000	(30.2)	129,000	(37.8)	154,000	(45.1)
		COP	W/W		3.54		3.65		3.55		3.40	
	High	COP	W/W		3.54		3.65		3.55		3.40	
	Heating	Capacity	Btu/h	(kW)	56,000	(16.4)	76,000	(22.3)	92,000	(27.0)	110,000	(32.2)
		Low	COP	W/W		2.38		2.36		2.30		2.15
	Efficiency Ratings ² (Non-Ducted)	Cooling	Capacity (Rated)	Btu/h	(kW)	69,000	(20.2)	92,000	(27.0)	114,000	(33.4)	138,000
EER			Btu/Wh	(W/W)	14.9	(4.37)	12.4	(3.63)	12.7	(3.73)	10.9	(3.18)
IEER			Btu/Wh (Wh/Wh)	26.5	(7.77)	23.9	(7.02)	24.4	(7.14)	23.9	(6.99)	
Heating		Capacity (Rated)	Btu/h	(kW)	77,000	(22.6)	103,000	(30.2)	129,000	(37.8)	154,000	(45.1)
		COP	W/W		4.25		3.77		3.84		3.42	
High		COP	W/W		4.25		3.77		3.84		3.42	
Heating		Capacity	Btu/h	(kW)	56,000	(16.4)	76,000	(22.3)	92,000	(27.0)	110,000	(32.2)
		Low	COP	W/W		2.60		2.40		2.37		2.12
Cooling Operating Range		Indoor	°F WB (°C WB)		59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)	
		Outdoor ³	°F DB (°C DB)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)	
		with Snow Protection Hood	°F DB (°C DB)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)	
		with Low Ambient Kit	°F DB (°C DB)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)	
Heating Operating Range		Indoor	°F DB (°C DB)		59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)	
		Outdoor ³	°F WB (°C WB)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)	
Cabinet Color (Munsell Code)			-		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)	
Outer Dimensions	Height		in	(mm)	66-1/4	(1683)	66-1/4	(1683)	66-1/4	(1683)	66-1/4	(1683)
	Width		in	(mm)	38-3/8	(975)	48-5/8	(1235)	48-5/8	(1235)	48-5/8	(1235)
	Depth		in	(mm)	30-1/2	(774)	30-1/2	(774)	30-1/2	(774)	30-1/2	(774)
Package Dimensions	Height		in	(mm)	71-5/8	(1820)	71-5/8	(1820)	71-5/8	(1820)	71-5/8	(1820)
	Width		in	(mm)	40-9/16	(1030)	50-13/16	(1290)	50-13/16	(1290)	50-13/16	(1290)
	Depth		in	(mm)	31-7/8	(810)	31-7/8	(810)	31-7/8	(810)	31-7/8	(810)
Weight	Net		lbs	(kg)	516	(234)	591	(268)	721	(327)	723	(328)
	Gross		lbs	(kg)	556	(252)	635	(288)	765	(347)	767	(348)
Connection Ratio	Standard (Extended) ⁴		%		130(150) - 70		130(150) - 65		130(150) - 60		130(150) - 55	
	Max. (Recommended) Indoor Units/System ⁵		Q'ty		15 (8)		20 (8)		26 (8)		26 (10)	
Heat Exchanger	Type		-		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube	
	Material		-		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)	
Compressor	Type	Inverter 1	-		DC80PHD×1		DC80PHD×1		AA50PHD×2		AA50PHD×2	
			Inverter 2	-		-		-		-		-
	Motor Output (Pole)			kW (Pole)		7.4(6)		9.5(6)		5.4(6)×2		6.4(6)×2
	Start Method		-		inverter		inverter		inverter		inverter	
	Operation Range		%		10 ~ 100		8 ~ 100		7 ~ 100		6 ~ 100	
Crank Case Heater	Refrigeration Oil Type		-		FVC68D		FVC68D		FVC68D		FVC68D	
	W×Q'ty		-		34.2 (230V) ×3		34.2 (230V) ×3		34.2 (230V) ×6		34.2 (230V) ×6	
Fan	Type	-		Propeller Fan		Propeller Fan		Propeller Fan		Propeller Fan		
	Motor Output (Pole)	kW (Pole)		0.42(8)		0.33(8)×2		0.39(8)×2		0.39(8)×2		
	Quantity	Q'ty		1		2		2		2		
	Airflow Rate	cfm	(m ³ /min)	6,707	(190)	8,437	(239)	9,037	(256)	9,037	(256)	
	External Static Pressure ⁶	in.W.G.	(Pa)	0-0.32	(0-80)	0-0.32	(0-80)	0-0.32	(0-80)	0-0.32	(0-80)	
Electrical	Drive	-		Direct-drive		Direct-drive		Direct-drive		Direct-drive		
	Min Circuit Amps	A		29/26		39/35		46/42		58/52		
	Maximum Overcurrent Protective Device	A		40		50		60		70		
	Maximum Fuse Size	A		40		50		60		70		
Sound Pressure Level ⁶	Cooling (Night Shift)	dB (A)		60	54	63	57	63	57	65	57	
	Heating	dB (A)		60	54	63	57	63	57	65	57	
Protection Devices	Cycle	-		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		
	Inverter	-		Over-current protector		Over-current protector		Over-current protector		Over-current protector		
	Compressor	-		Over-heat protection		Over-heat protection		Over-heat protection		Over-heat protection		
	PCB	-		Over-current protection		Over-current protection		Over-current protection		Over-current protection		
Refrigerant	Type	-		R410A		R410A		R410A		R410A		
	Factory Charge Amount	lbs	(kg)	15.9	(7.2)	19.6	(8.9)	21.8	(9.9)	23.6	(10.7)	
Refrigeration Oil	Factory Charge Amount	gal/Unit	(L/Unit)	1.6	(6.0)	1.8	(6.9)	2.1	(7.9)	2.1	(7.9)	
Defrost Method	-		-		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle	
Main Refrigerant Piping (Heat Pump)	Gas Line	in	(mm)	7/8	(22.2)	7/8	(22.2)	1-1/8	(28.58)	1-1/8	(28.58)	
	Liquid Line	in	(mm)	1/2	(12.7)	1/2	(12.7)	1/2	(12.7)	5/8	(15.88)	

NOTES:

1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C) DB

67°F (19.4°C) WB

Outdoor Air Inlet Temperature: 95°F (35.0°C) DB

Piping Length: 24ft. 7-3/16 in. (7.5m), Piping Lift: 0ft. (0m)

2 Efficiency ratings are based on the AHRI 1230 test standard.

3 There are some exceptions and notes for cooling and heating operation range. For details, refer to "2.12 Operation Temperature Range".

4 For details, refer to "2.13 Combination of Indoor Units and Outdoor Units".

5 External static pressure can be changed by DSW setting.

6 Measure Point: 3.3ft. (1m) from the service cover surface and 4.9ft. (1.5m) from floor level

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound on the air inlet side is 8dB higher than on the front side.

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C) DB

47°F (8.3°C) DB

Outdoor Air Inlet Temperature: 43°F (6.1°C) WB

PRODUCT SPECIFICATION

Category		Ton		14RT		16RT		18RT (12RT+6RT)		20RT (10RT+10RT)		
Model (Combination)				(H,Y)VAHP168B32S		(H,Y)VAHP192B32S		(H,Y)VAHP216B32S		(H,Y)VAHP240B32S		
Model (Individual)		Unit A		(H,Y)VAHP168B32S		(H,Y)VAHP192B32S		(H,Y)VAHP144B32S		(H,Y)VAHP120B32S		
		Unit B		-		-		(H,Y)VAHP072B32S		(H,Y)VAHP120B32S		
		Unit C		-		-		-				
Power Supply				208/230V/ 3PH 60Hz		208/230V/ 3PH 60Hz		208/230V/ 3PH 60Hz		208/230V/ 3PH 60Hz		
Capacity ¹	Cooling	Capacity (Nominal)	Btu/h	(kW)	168,000	(49.2)	192,000	(56.3)	216,000	(63.3)	240,000	(70.3)
	Heating	Capacity (Nominal)	Btu/h	(kW)	189,000	(55.4)	216,000	(63.3)	243,000	(71.2)	270,000	(79.1)
Efficiency Ratings ² (Ducted)	Cooling	Capacity (Rated)	Btu/h	(kW)	160,000	(46.9)	184,000	(53.9)	206,000	(60.4)	228,000	(66.8)
		EER	Btu/Wh	(W/W)	11.8	(3.46)	11.1	(3.25)	11.2	(3.28)	10.6	(3.11)
		IEER	Btu/Wh (Wh/Wh)	21.4	(6.27)	20.8	(6.10)	20.7	(6.07)	21.0	(6.15)	
	Heating	Capacity (Rated)	Btu/h	(kW)	180,000	(52.8)	206,000	(60.4)	232,000	(68.0)	258,000	(75.6)
		COP	W/W		3.56		3.38		3.51		3.51	
	High											
	Heating	Capacity	Btu/h	(kW)	124,000	(36.3)	140,000	(41.0)	164,000	(48.1)	178,000	(52.2)
		Low COP	W/W		2.40		2.15		2.29		2.27	
Efficiency Ratings ² (Non-Ducted)	Cooling	Capacity (Rated)	Btu/h	(kW)	160,000	(46.9)	184,000	(53.9)	206,000	(60.4)	228,000	(66.8)
		EER	Btu/Wh	(W/W)	11.6	(3.40)	10.6	(3.11)	10.9	(3.18)	11.1	(3.24)
		IEER	Btu/Wh (Wh/Wh)	23.4	(6.86)	21.4	(6.27)	20.9	(6.12)	20.8	(6.09)	
	Heating	Capacity (Rated)	Btu/h	(kW)	180,000	(52.8)	206,000	(60.4)	232,000	(68.0)	258,000	(75.6)
		COP	W/W		3.65		3.32		3.82		3.67	
	High											
	Heating	Capacity	Btu/h	(kW)	124,000	(36.3)	140,000	(41.0)	164,000	(48.1)	178,000	(52.2)
		Low COP	W/W		2.16		2.05		2.32		2.35	
Cooling Operating Range		Indoor	°F WB (°C WB)		59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)	
		Outdoor ³	°F DB (°C DB)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)	
		with Snow Protection Hood	°F DB (°C DB)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)	
		with Low Ambient Kit	°F DB (°C DB)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)	
Heating Operating Range		Indoor	°F DB (°C DB)		59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)	
		Outdoor ³	°F WB (°C WB)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)	
Cabinet Color (Munsell Code)				-		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		
Outer Dimensions	Height	in	(mm)	66-1/4	(1683)	66-1/4	(1683)	66-1/4	(1683)	66-1/4	(1683)	
	Width	in	(mm)	64	(1625)	64	(1625)	87-13/16	(2230)	98-1/16	(2490)	
	Depth	in	(mm)	30-1/2	(774)	30-1/2	(774)	30-1/2	(774)	30-1/2	(774)	
Package Dimensions	Height	in	(mm)	71-5/8	(1820)	71-5/8	(1820)	-	-	-	-	
	Width	in	(mm)	66-1/8	(1680)	66-1/8	(1680)	-	-	-	-	
	Depth	in	(mm)	31-7/8	(810)	31-7/8	(810)	-	-	-	-	
Weight	Net	lbs	(kg)	849	(385)	849	(385)	723+516	(328+234)	721×2	(327×2)	
	Gross	lbs	(kg)	900	(408)	900	(408)	767+556	(348+252)	765×2	(347×2)	
Connection Ratio	Standard (Extended) ⁴		%		130(150) - 55		130(150) - 55		130(150) - 60		130(150) - 60	
	Max. (Recommended) Indoor Units/System ⁵		Q'ty		36 (12)		40 (14)		46 (18)		52 (18)	
Heat Exchanger	Type		-		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube	
	Material		-		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)	
Compressor	Type	Inverter 1	-		DC80PHD×2		DC80PHD×2		DC80PHD×1		AA50PHD×4	
		Inverter 2	-		-		-		AA50PHD×2		-	
	Motor Output (Pole)		kW (Pole)		7.1(6)×2		9.1(6)×2		6.4(6)×2+7.4(6)		(5.4(6)×2)×2	
	Start Method		-		inverter		inverter		inverter			
	Operation Range		%		5 ~ 100		5 ~ 100		4 ~ 100		4 ~ 100	
	Refrigeration Oil Type		-		FVC68D		FVC68D		FVC68D		FVC68D	
Crank Case Heater		W×Q'ty		34.2 (230V) ×6		34.2 (230V) ×6		34.2 (230V) ×9		34.2 (230V) ×12		
Fan	Type		-		Propeller Fan		Propeller Fan		Propeller Fan		Propeller Fan	
	Motor Output (Pole)		kW (Pole)		0.48(8)×2		0.56(8)×2		(0.39(8)×2)+0.42(8)		(0.39(8)×2)×2	
	Quantity		Q'ty		2		2		3		4	
	Airflow Rate		cfm (m³/min)		11,614 (329)		12,284 (348)		9,037 +6,707 (256+190)		9,037×2 (256×2)	
	External Static Pressure ⁶		in.W.G. (Pa)		0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)	
Electrical	Drive		-		Direct-drive		Direct-drive		Direct-drive		Direct-drive	
	Min Circuit Amps		A		65/59		76/68		58+29/52+26		46×2/42×2	
	Maximum Overcurrent Protective Device		A		80		90		70+40		60×2	
	Maximum Fuse Size		A		80		90		70+40		60×2	
Sound Pressure Level ⁶	Cooling (Night Shift)		dB (A)		64 59		66 59		66 59		66 60	
	Heating		dB (A)		64		66		66		66	
Protection Devices	Cycle		-		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)	
	Inverter		-		Over-current protector		Over-current protector		Over-current protector		Over-current protector	
	Compressor		-		Over-heat protection		Over-heat protection		Over-heat protection		Over-heat protection	
	PCB		-		Over-current protection		Over-current protection		Over-current protection		Over-current protection	
Refrigerant	Type		-		R410A		R410A		R410A		R410A	
	Factory Charge Amount		lbs (kg)		24.9 (11.3)		25.6 (11.6)		23.6+15.9 (10.7+7.2)		21.8×2 (9.9×2)	
Refrigeration Oil	Factory Charge Amount		gal/Unit (L/Unit)		2.2 (8.4)		2.2 (8.4)		2.1+1.6 (7.9+6.0)		2.1×2 (7.9×2)	
Defrost Method				-		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		
Main Refrigerant	Gas Line	in	(mm)	1-1/8	(28.58)	1-1/8	(28.58)	1-1/8	(28.58)	1-3/8	(34.93)	
Piping (Heat Pump)	Liquid Line	in	(mm)	5/8	(15.88)	5/8	(15.88)	3/4	(19.05)	3/4	(19.05)	

NOTES:

1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C) DB

67°F (19.4°C) WB

Outdoor Air Inlet Temperature: 95°F (35.0°C) DB

Piping Length: 24ft. 7-3/16 in. (7.5m), Piping Lift: 0ft. (0m)

2 Efficiency ratings are based on the AHRI 1230 test standard.

3 There are some exceptions and notes for cooling and heating operation range. For details, refer to "2.12 Operation Temperature Range".

4 For details, refer to "2.13 Combination of Indoor Units and Outdoor Units".

5 External static pressure can be changed by DSW setting.

6 Measure Point: 3.3ft. (1m) from the service cover surface and 4.9ft. (1.5m) from floor level

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound on the air inlet side is 8dB higher than on the front side.

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C) DB

47°F (8.3°C) DB

43°F (6.1°C) WB

Category		Ton		22RT (12RT+10RT)		24RT (12RT+12RT)		26RT (14RT+12RT)		28RT (16RT+12RT)		
Model (Combination)				(H,Y)VAHP264B32S		(H,Y)VAHP288B32S		(H,Y)VAHP312B32S		(H,Y)VAHP336B32S		
Model (Individual)		Unit A		(H,Y)VAHP144B32S		(H,Y)VAHP144B32S		(H,Y)VAHP168B32S		(H,Y)VAHP192B32S		
		Unit B		(H,Y)VAHP120B32S		(H,Y)VAHP144B32S		(H,Y)VAHP144B32S		(H,Y)VAHP144B32S		
		Unit C										
Power Supply				208/230V/ 3PH 60Hz		208/230V/ 3PH 60Hz		208/230V/ 3PH 60Hz		208/230V/ 3PH 60Hz		
Capacity ¹	Cooling	Capacity (Nominal)	Btu/h (kW)	264,000 (77.4)		288,000 (84.4)		312,000 (91.4)		336,000 (98.5)		
	Heating	Capacity (Nominal)	Btu/h (kW)	297,000 (87.0)		324,000 (95.0)		351,000 (102.9)		378,000 (110.8)		
Efficiency Ratings ² (Ducted)	Cooling	Capacity (Rated)	Btu/h (kW)	252,000 (73.9)		276,000 (80.9)		298,000 (87.3)		320,000 (93.8)		
		EER	Btu/Wh (W/W)	10.5 (3.08)		9.9 (2.90)		10.0 (2.93)		9.8 (2.87)		
		IEER	Btu/Wh (Wh/Wh)	20.8 (6.10)		20.7 (6.07)		19.5 (5.71)		19.1 (5.60)		
		Capacity (Rated)	Btu/h (kW)	282,000 (82.6)		308,000 (90.3)		334,000 (97.9)		360,000 (105.5)		
	Heating	COP	W/W	3.56		3.42		3.31		3.32		
		Capacity	Btu/h (kW)	196,000 (57.4)		214,000 (62.7)		232,000 (68.0)		250,000 (73.3)		
	High	COP	W/W	2.26		2.24		2.12		2.25		
		Capacity	Btu/h (kW)	196,000 (57.4)		214,000 (62.7)		232,000 (68.0)		250,000 (73.3)		
Efficiency Ratings ² (Non-Ducted)	Cooling	Capacity (Rated)	Btu/h (kW)	252,000 (73.9)		276,000 (80.9)		298,000 (87.3)		320,000 (93.8)		
		EER	Btu/Wh (W/W)	10.0 (2.93)		9.5 (2.78)		9.7 (2.83)		9.5 (2.78)		
		IEER	Btu/Wh (Wh/Wh)	21.1 (6.18)		19.4 (5.69)		20.3 (5.96)		20.8 (6.09)		
		Capacity (Rated)	Btu/h (kW)	282,000 (82.6)		308,000 (90.3)		334,000 (97.9)		360,000 (105.5)		
	Heating	COP	W/W	3.70		3.42		3.37		3.27		
		Capacity	Btu/h (kW)	196,000 (57.4)		214,000 (62.7)		232,000 (68.0)		250,000 (73.3)		
	High	COP	W/W	2.26		2.21		2.05		2.31		
		Capacity	Btu/h (kW)	196,000 (57.4)		214,000 (62.7)		232,000 (68.0)		250,000 (73.3)		
Cooling Operating Range		Indoor	°F WB (°C WB)	59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)		
		Outdoor ³	°F DB (°C DB)	23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		
		with Snow Protection Hood	°F DB (°C DB)	14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		
		with Low Ambient Kit	°F DB (°C DB)	-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		
Heating Operating Range		Indoor	°F DB (°C DB)	59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)		
		Outdoor ³	°F WB (°C WB)	-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		
Cabinet Color (Munsell Code)				-		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		
Outer Dimensions	Height	in (mm)		66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)		
	Width	in (mm)		98-1/16 (2490)		98-1/16 (2490)		113-3/8 (2880)		113-3/8 (2880)		
	Depth	in (mm)		30-1/2 (774)		30-1/2 (774)		30-1/2 (774)		30-1/2 (774)		
Package Dimensions	Height	in (mm)		-		-		-		-		
	Width	in (mm)		-		-		-		-		
	Depth	in (mm)		-		-		-		-		
Weight	Net	lbs (kg)		723+721 (328+327)		723×2 (328×2)		849+723 (385+328)		849+723 (385+328)		
	Gross	lbs (kg)		767+765 (348+347)		767×2 (348×2)		900+767 (408+348)		900+767 (408+348)		
Connection Ratio	Standard (Extended) ⁴	%		130(150) - 55		130(150) - 55		130(150) - 55		130(150) - 55		
	Max. (Recommended) Indoor Units/System ⁵	Q'ty		56 (20)		59 (20)		64 (22)		64 (24)		
Heat Exchanger	Type	-		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		
	Material	-		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		
Compressor	Type	-		AA50PHD×4		AA50PHD×4		DC80PHD×2		DC80PHD×2		
	Inverter 1	-		-		-		AA50PHD×2		AA50PHD×2		
	Inverter 2	-		-		-		-		-		
	Motor Output (Pole)	kW (Pole)		(6.4(6)×2)+(5.4(6)×2)		(6.4(6)×2)×2		(7.1(6)×2)+(6.4(6)×2)		(9.1(6)×2)+(6.4(6)×2)		
	Start Method	-		inverter		inverter		inverter		inverter		
	Operation Range	%		3 ~ 100		3 ~ 100		3 ~ 100		3 ~ 100		
Crank Case Heater	Refrigeration Oil Type	-		FVC68D		FVC68D		FVC68D		FVC68D		
	W×Q'ty			34.2 (230V) ×12		34.2 (230V) ×12		34.2 (230V) ×12		34.2 (230V) ×12		
Fan	Type	-		Propeller Fan		Propeller Fan		Propeller Fan		Propeller Fan		
	Motor Output (Pole)	kW (Pole)		(0.39(8)×2)×2		(0.39(8)×2)×2		(0.48(8)×2)+(0.39(8)×2)		(0.56(8)×2)+(0.39(8)×2)		
	Quantity	Q'ty		4		4		4		4		
	Airflow Rate	cfm (m ³ /min)		9,037×2 (256×2)		9,037×2 (256×2)		11,614 +9,037 (329+256)		12,284 +9,037 (348+256)		
	External Static Pressure ⁶	in.W.G. (Pa)		0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)		
Electrical	Drive	-		Direct-drive		Direct-drive		Direct-drive		Direct-drive		
	Min Circuit Amps	A		58+46/52+42		58×2/52×2		65+58/59+52		76+58/68+52		
	Maximum Overcurrent Protective Device	A		70+60		70×2		80+70		90+70		
	Maximum Fuse Size	A		70+60		70×2		80+70		90+70		
Sound Pressure Level ⁶	Cooling (Night Shift)	dB (A)		67 60		68 60		68 61		69 61		
	Heating	dB (A)		67 68		68 68		68 68		69 69		
Protection Devices	Cycle	-		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		
	Inverter	-		Over-current protector		Over-current protector		Over-current protector		Over-current protector		
	Compressor	-		Over-heat protection		Over-heat protection		Over-heat protection		Over-heat protection		
	PCB	-		Over-current protection		Over-current protection		Over-current protection		Over-current protection		
	Type	-		R410A		R410A		R410A		R410A		
Refrigerant	Factory Charge Amount	lbs (kg)		23.6+21.8 (10.7+9.9)		23.6×2 (10.7×2)		24.9+23.6 (11.3+10.7)		25.6+23.6 (11.6+10.7)		
Refrigeration Oil	Factory Charge Amount	gal/Unit (L/Unit)		2.1×2 (7.9×2)		2.1×2 (7.9×2)		2.2+2.1 (8.4+7.9)		2.2+2.1 (8.4+7.9)		
Defrost Method			-		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle	
Main Refrigerant Piping (Heat Pump)	Gas Line	in (mm)		1-3/8 (34.93)		1-3/8 (34.93)		1-3/8 (34.93)		1-3/8 (34.93)		
	Liquid Line	in (mm)		3/4 (19.05)		3/4 (19.05)		3/4 (19.05)		3/4 (19.05)		

NOTES:

1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C) DB

67°F (19.4°C) WB

Outdoor Air Inlet Temperature: 95°F (35.0°C) DB

Piping Length: 24ft. 7-3/16 in. (7.5m), Piping Lift: 0ft. (0m)

2 Efficiency ratings are based on the AHRI 1230 test standard.

3 There are some exceptions and

PRODUCT SPECIFICATION

Category		Ton		30RT (16RT+14RT)		32RT (12RT+10RT+10RT)		34RT (12RT+12RT+10RT)		36RT (12RT+12RT+12RT)		
Model (Combination)				(H,Y)VAHP360B32S		(H,Y)VAHP384B32S		(H,Y)VAHP408B32S		(H,Y)VAHP432B32S		
Model (Individual)		Unit A		(H,Y)VAHP192B32S		(H,Y)VAHP144B32S		(H,Y)VAHP144B32S		(H,Y)VAHP144B32S		
		Unit B		(H,Y)VAHP168B32S		(H,Y)VAHP120B32S		(H,Y)VAHP144B32S		(H,Y)VAHP144B32S		
		Unit C		-		(H,Y)VAHP120B32S		(H,Y)VAHP120B32S		(H,Y)VAHP144B32S		
Power Supply				208/230V/ 3PH 60Hz		208/230V/ 3PH 60Hz		208/230V/ 3PH 60Hz		208/230V/ 3PH 60Hz		
Capacity ¹	Cooling	Capacity (Nominal)	Btu/h (kW)	360,000 (105.5)		384,000 (112.5)		408,000 (119.6)		432,000 (126.6)		
	Heating	Capacity (Nominal)	Btu/h (kW)	405,000 (118.7)		432,000 (126.6)		459,000 (134.5)		486,000 (142.4)		
Efficiency Ratings ² (Ducted)	Cooling	Capacity (Rated)	Btu/h (kW)	344,000 (100.8)		366,000 (107.3)		380,000 (111.4)		400,000 (117.2)		
		EER	Btu/Wh (W/W)	10.2 (2.99)		9.5 (2.78)		9.5 (2.78)		9.6 (2.81)		
		IEER	Btu/Wh (Wh/Wh)	19.5 (5.71)		18.6 (5.45)		19.2 (5.63)		19.0 (5.57)		
		Capacity (Rated)	Btu/h (kW)	382,000 (112.0)		410,000 (120.2)		435,000 (127.5)		460,000 (134.8)		
	Heating	COP	W/W		3.20		3.33		3.37		3.35	
		High	COP		3.20		3.33		3.37		3.35	
	Heating	Capacity	Btu/h (kW)	262,000 (76.8)		276,000 (80.9)		288,000 (84.4)		300,000 (87.9)		
		Low	COP	W/W		2.18		2.26		2.23		2.19
Efficiency Ratings ² (Non-Ducted)	Cooling	Capacity (Rated)	Btu/h (kW)	344,000 (100.8)		366,000 (107.3)		380,000 (111.4)		400,000 (117.2)		
		EER	Btu/Wh (W/W)	9.5 (2.78)		9.6 (2.81)		9.5 (2.78)		9.5 (2.78)		
		IEER	Btu/Wh (Wh/Wh)	19.8 (5.81)		19.6 (5.75)		19.3 (5.67)		19.5 (5.72)		
		Capacity (Rated)	Btu/h (kW)	386,000 (113.1)		410,000 (120.2)		435,000 (127.5)		460,000 (134.8)		
	Heating	COP	W/W		3.27		3.37		3.34		3.21	
		High	COP		3.27		3.37		3.34		3.21	
	Heating	Capacity	Btu/h (kW)	262,000 (76.8)		276,000 (80.9)		288,000 (84.4)		300,000 (87.9)		
		Low	COP	W/W		2.05		2.20		2.08		2.05
Cooling Operating Range		Indoor	°F WB (°C WB)	59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)		
		Outdoor ³	°F DB (°C DB)	23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		
		with Snow Protection Hood	°F DB (°C DB)	14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		
		with Low Ambient Kit	°F DB (°C DB)	-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		
Heating Operating Range		Indoor	°F DB (°C DB)	59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)		
		Outdoor ³	°F WB (°C WB)	-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		
Cabinet Color (Munsell Code)				-		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		
Outer Dimensions	Height	in (mm)	66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)			
	Width	in (mm)	128-3/4 (3270)		147-7/16 (3745)		147-7/16 (3745)		147-7/16 (3745)			
	Depth	in (mm)	30-1/2 (774)		30-1/2 (774)		30-1/2 (774)		30-1/2 (774)			
Package Dimensions	Height	in (mm)	-		-		-		-			
	Width	in (mm)	-		-		-		-			
	Depth	in (mm)	-		-		-		-			
Weight	Net	lbs (kg)	849×2 (385×2)		723×721×2 (328×327×2)		723×2+721 (328×2+327)		723×3 (328×3)			
	Gross	lbs (kg)	900×2 (408×2)		767×765×2 (348×347×2)		767×2+765 (348×2+347)		767×3 (348×3)			
Connection Ratio	Standard (Extended) ⁴		%		130(150) - 55		130(150) - 55		130(150) - 55			
	Max. (Recommended) Indoor Units/System ⁵		Q'ty		64 (28)		64 (30)		64 (30)			
Heat Exchanger	Type		-		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube			
	Material		-		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)			
Compressor	Type	Inverter 1	-		DC80PHD×4		AA50PHD×6		AA50PHD×6			
		Inverter 2	-		-		-		-			
	Motor Output (Pole)		kW (Pole)		(9.1(6)×2)+(7.1(6)×2)		(6.4(6)×2)+(5.4(6)×2)×2		(6.4(6)×2)×3			
	Start Method		-		inverter		inverter		inverter			
	Operation Range		%		3 ~ 100		2 ~ 100		2 ~ 100			
	Refrigeration Oil Type		-		FVC68D		FVC68D		FVC68D			
Crank Case Heater		W×Q'ty		34.2 (230V) ×12		34.2 (230V) ×18		34.2 (230V) ×18		34.2 (230V) ×18		
		Type		-		Propeller Fan		Propeller Fan		Propeller Fan		
Fan	Motor Output (Pole)		kW (Pole)		(0.56(8)×2)+(0.48(8)×2)		(0.39(8)×2)×3		(0.39(8)×2)×3			
	Quantity		Q'ty		4		6		6			
	Airflow Rate		cfm (m ³ /min)		12,284 +11,614	(348+329)	9,037×3	(256×3)	9,037×3	(256×3)		
	External Static Pressure ⁶		in.W.G. (Pa)		0-0.32	(0-80)	0-0.32	(0-80)	0-0.32	(0-80)		
Electrical	Drive		-		Direct-drive		Direct-drive		Direct-drive			
	Min Circuit Amps		A		76+65/68+59		58+46×2/52+42×2		58×3/52×3			
	Maximum Overcurrent Protective Device		A		90+80		70×60×2		70×3			
	Maximum Fuse Size		A		90+80		70×60×2		70×3			
Sound Pressure Level ⁶	Cooling (Night Shift)		dB (A)		68 62		69 62		69 62			
	Heating		dB (A)		68 62		69 62		70 62			
Protection Devices	Cycle		-		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)			
	Inverter		-		Over-current protector		Over-current protector		Over-current protector			
	Compressor		-		Over-heat protection		Over-heat protection		Over-heat protection			
	PCB		-		Over-current protection		Over-current protection		Over-current protection			
Refrigerant	Type		-		R410A		R410A		R410A			
	Factory Charge Amount		lbs (kg)		25.6+24.9 (11.6+11.3)		23.6×2 +21.8×2 (10.7 +9.9×2)		23.6×3 +21.8 (10.7×3 +9.9)			
Refrigeration Oil	Factory Charge Amount		gal/Unit (L/Unit)		2.2×2 (8.4×2)		2.1×3 (7.9×3)		2.1×3 (7.9×3)			
Defrost Method			-		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle			
Main Refrigerant Piping (Heat Pump)	Gas Line		in (mm)		1-3/8 (34.93)		1-5/8 (41.28)		1-5/8 (41.28)			
	Liquid Line		in (mm)		3/4 (19.05)		3/4 (19.05)		3/4 (19.05)			

NOTES:

1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C) DB

67°F (19.4°C) WB

Outdoor Air Inlet Temperature: 95°F (35.0°C) DB

Piping Length: 24ft. 7-3/16 in. (7.5m), Piping Lift: 0ft. (0m)

2 Efficiency ratings are based on the AHRI 1230 test standard.

3 There are some exceptions and notes for cooling and heating operation range. For details, refer to "2.12 Operation Temperature Range".

4 For details, refer to "2.13 Combination of Indoor Units and Outdoor Units".

5 External static pressure can be changed by DSW setting.

6 Measure Point: 3.3ft. (1m) from the service cover surface and 4.9ft. (1.5m) from floor level

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound on the air inlet side is 8dB higher than on the front side.

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C) DB

47°F (8.3°C) DB

Outdoor Air Inlet Temperature: 43°F (6.1°C) WB

(2) 460V Type

Category		Ton		6RT		8RT		10RT		12RT		
Model (Combination)				(H,Y)VAHP072B42S		(H,Y)VAHP096B42S		(H,Y)VAHP120B42S		(H,Y)VAHP144B42S		
Model (Individual)		Unit A		(H,Y)VAHP072B42S		(H,Y)VAHP096B42S		(H,Y)VAHP120B42S		(H,Y)VAHP144B42S		
		Unit B		-		-		-		-		
		Unit C		-		-		-		-		
Power Supply				460V/ 3PH 60Hz		460V/ 3PH 60Hz		460V/ 3PH 60Hz		460V/ 3PH 60Hz		
Capacity ¹	Cooling	Capacity (Nominal)	Btu/h (kW)	72,000 (21.1)		96,000 (28.1)		120,000 (35.2)		144,000 (42.2)		
	Heating	Capacity (Nominal)	Btu/h (kW)	81,000 (23.7)		108,000 (31.7)		135,000 (39.6)		162,000 (47.5)		
Efficiency Ratings ² (Ducted)	Cooling	Capacity (Rated)	Btu/h (kW)	69,000 (20.2)		92,000 (27.0)		114,000 (33.4)		138,000 (40.4)		
		EER	Btu/Wh (W/W)	12.2 (3.58)		12.4 (3.63)		12.4 (3.63)		11.2 (3.28)		
		IEER	Btu/Wh (Wh/Wh)	21.1 (6.18)		22.1 (6.48)		21.7 (6.36)		21.2 (6.21)		
		Capacity (Rated)	Btu/h (kW)	77,000 (22.6)		103,000 (30.2)		129,000 (37.8)		154,000 (45.1)		
	Heating	COP	W/W		3.54		3.65		3.55		3.40	
		High	W/W		3.54		3.65		3.55		3.40	
		Capacity	Btu/h (kW)	56,000 (16.4)		76,000 (22.3)		92,000 (27.0)		110,000 (32.2)		
		Low	COP	W/W		2.38		2.36		2.30		2.15
Efficiency Ratings ² (Non-Ducted)	Cooling	Capacity (Rated)	Btu/h (kW)	69,000 (20.2)		92,000 (27.0)		114,000 (33.4)		138,000 (40.4)		
		EER	Btu/Wh (W/W)	14.9 (4.37)		12.4 (3.63)		12.7 (3.73)		10.9 (3.18)		
		IEER	Btu/Wh (Wh/Wh)	26.5 (7.77)		23.9 (7.02)		24.4 (7.14)		23.9 (6.99)		
		Capacity (Rated)	Btu/h (kW)	77,000 (22.6)		103,000 (30.2)		129,000 (37.8)		154,000 (45.1)		
	Heating	COP	W/W		4.25		3.77		3.84		3.42	
		High	W/W		4.25		3.77		3.84		3.42	
		Capacity	Btu/h (kW)	56,000 (16.4)		76,000 (22.3)		92,000 (27.0)		110,000 (32.2)		
		Low	COP	W/W		2.60		2.40		2.37		2.12
Cooling Operating Range		Indoor	°F WB (°C WB)	59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)		
		Outdoor ³	°F DB (°C DB)	23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		
		with Snow Protection Hood	°F DB (°C DB)	14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		
		with Low Ambient Kit	°F DB (°C DB)	-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		
Heating Operating Range		Indoor	°F DB (°C DB)	59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)		
		Outdoor ³	°F WB (°C WB)	-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		
Cabinet Color (Munsell Code)				-		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		
Outer Dimensions	Height	in (mm)	66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)	
	Width	in (mm)	38-3/8 (975)		48-5/8 (1235)		48-5/8 (1235)		48-5/8 (1235)		48-5/8 (1235)	
	Depth	in (mm)	30-1/2 (774)		30-1/2 (774)		30-1/2 (774)		30-1/2 (774)		30-1/2 (774)	
Package Dimensions	Height	in (mm)	71-5/8 (1820)		71-5/8 (1820)		71-5/8 (1820)		71-5/8 (1820)		71-5/8 (1820)	
	Width	in (mm)	40-9/16 (1030)		50-13/16 (1290)		50-13/16 (1290)		50-13/16 (1290)		50-13/16 (1290)	
	Depth	in (mm)	31-7/8 (810)		31-7/8 (810)		31-7/8 (810)		31-7/8 (810)		31-7/8 (810)	
Weight	Net	lbs (kg)	523 (237)		604 (274)		725 (329)		728 (330)		728 (330)	
	Gross	lbs (kg)	562 (255)		648 (294)		770 (349)		772 (350)		772 (350)	
Connection Ratio	Standard (Extended) ⁴		%		130(150) - 70 15 (8)		130(150) - 65 20 (8)		130(150) - 60 26 (8)		130(150) - 55 26 (10)	
	Max. (Recommended) Indoor Units/System ⁵		Q'ty		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube	
Heat Exchanger	Type		-		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)	
	Material		-		DC80PHD×1		DC80PHD×1		AA50PHD×2		AA50PHD×2	
Compressor	Type	Inverter 1	-		DC80PHD×1		DC80PHD×1		AA50PHD×2		AA50PHD×2	
		Inverter 2	-		-		-		-		-	
	Motor Output (Pole)		kW (Pole)		7.4(6)		9.5(6)		5.4(6)×2		6.4(6)×2	
	Start Method		-		inverter		inverter		inverter		inverter	
	Operation Range		%		10 ~ 100		8 ~ 100		7 ~ 100		6 ~ 100	
Crank Case Heater	Refrigeration Oil Type		-		FVC68D		FVC68D		FVC68D		FVC68D	
	W×Q'ty		34.2 (230V) ×3		34.2 (230V) ×3		34.2 (230V) ×3		34.2 (230V) ×6		34.2 (230V) ×6	
Fan	Type		-		Propeller Fan		Propeller Fan		Propeller Fan		Propeller Fan	
	Motor Output (Pole)		kW (Pole)		0.42(8)		0.33(8)×2		0.39(8)×2		0.39(8)×2	
	Quantity		Q'ty		1		2		2		2	
	Airflow Rate		cfm (m³/min)	6,707 (190)		8,437 (239)		9,037 (256)		9,037 (256)		9,037 (256)
	External Static Pressure ⁶		in.W.G. (Pa)	0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)
Electrical	Drive		-		Direct-drive		Direct-drive		Direct-drive		Direct-drive	
	Min Circuit Amps		A		15		22		24		30	
	Maximum Overcurrent Protective Device		A		20		30		30		35	
	Maximum Fuse Size		A		20		25		30		35	
Sound Pressure Level ⁶	Cooling (Night Shift)		dB (A)		60 54		63 57		63 57		65 57	
	Heating		dB (A)		60		63		63		65	
Protection Devices	Cycle		-		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)	
	Inverter		-		Over-current protector		Over-current protector		Over-current protector		Over-current protector	
	Compressor		-		Over-heat protection		Over-heat protection		Over-heat protection		Over-heat protection	
	PCB		-		Over-current protection		Over-current protection		Over-current protection		Over-current protection	
Refrigerant	Type		-		R410A		R410A		R410A		R410A	
	Factory Charge Amount		lbs (kg)	15.9 (7.2)		19.6 (8.9)		21.8 (9.9)		23.6 (10.7)		23.6 (10.7)
Refrigeration Oil	Factory Charge Amount		gal/Unit (L/Unit)	1.6 (6.0)		1.8 (6.9)		2.1 (7.9)		2.1 (7.9)		2.1 (7.9)
Defrost Method			-		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle	
Main Refrigerant Piping (Heat Pump)	Gas Line		in (mm)	7/8 (22.2)		7/8 (22.2)		1-1/8 (28.58)		1-1/8 (28.58)		1-1/8 (28.58)
	Liquid Line		in (mm)	1/2 (12.7)		1/2 (12.7)		1/2 (12.7)		5/8 (15.88)		5/8 (15.88)

NOTES:

1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C) DB

67°F (19.4°C) WB

Outdoor Air Inlet Temperature: 95°F (35.0°C) DB

Piping Length: 24ft. 7-3/16 in. (7.5m), Piping Lift: 0ft. (0m)

2 Efficiency ratings are based on the AHRI 1230 test standard.

3 There are some exceptions and notes for cooling and heating operation range. For details, refer to "2.12 Operation Temperature Range".

4 For details, refer to "2.13 Combination of Indoor Units and Outdoor Units".

5 External static pressure can be changed by DSW setting.

6 Measure Point: 3.3ft. (1m) from the service cover surface and 4.9ft. (1.5m) from floor level

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound on the air inlet side is 8dB higher than on the front side.

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C) DB

47°F (8.3°C) DB

Outdoor Air Inlet Temperature: 43°F (6.1°C) WB

PRODUCT SPECIFICATION

Category		Ton		14RT		16RT		18RT (12RT+6RT)		20RT (10RT+10RT)	
Model (Combination)				(H,Y)VAHP168B42S		(H,Y)VAHP192B42S		(H,Y)VAHP216B42S		(H,Y)VAHP240B42S	
Model (Individual)		Unit A		(H,Y)VAHP168B42S		(H,Y)VAHP192B42S		(H,Y)VAHP144B42S		(H,Y)VAHP120B42S	
		Unit B		-		-		(H,Y)VAHP072B42S		(H,Y)VAHP120B42S	
		Unit C		-		-		-		-	
Power Supply				460V/ 3PH 60Hz		460V/ 3PH 60Hz		460V/ 3PH 60Hz		460V/ 3PH 60Hz	
Capacity ¹	Cooling	Capacity (Nominal)	Btu/h (kW)	168,000 (49.2)		192,000 (56.3)		216,000 (63.3)		240,000 (70.3)	
	Heating	Capacity (Nominal)	Btu/h (kW)	189,000 (55.4)		216,000 (63.3)		243,000 (71.2)		270,000 (79.1)	
Efficiency Ratings ² (Ducted)	Cooling	Capacity (Rated)	Btu/h (kW)	160,000 (46.9)		184,000 (53.9)		206,000 (60.4)		228,000 (66.8)	
		EER	Btu/Wh (W/W)	11.8 (3.46)		11.1 (3.25)		11.2 (3.28)		10.6 (3.11)	
		IEER	Btu/Wh (Wh/Wh)	21.4 (6.27)		20.8 (6.10)		20.7 (6.07)		21.0 (6.15)	
		Capacity (Rated)	Btu/h (kW)	180,000 (52.8)		206,000 (60.4)		232,000 (68.0)		258,000 (75.6)	
	Heating	COP	W/W	3.56		3.38		3.51		3.51	
		High									
		Capacity	Btu/h (kW)	124,000 (36.3)		140,000 (41.0)		164,000 (48.1)		178,000 (52.2)	
		Low	COP	W/W	2.40		2.15		2.29		2.27
Efficiency Ratings ² (Non-Ducted)	Cooling	Capacity (Rated)	Btu/h (kW)	160,000 (46.9)		184,000 (53.9)		206,000 (60.4)		228,000 (66.8)	
		EER	Btu/Wh (W/W)	11.6 (3.40)		10.6 (3.11)		10.9 (3.18)		11.1 (3.24)	
		IEER	Btu/Wh (Wh/Wh)	23.4 (6.86)		21.4 (6.27)		20.9 (6.12)		20.8 (6.09)	
		Capacity (Rated)	Btu/h (kW)	180,000 (52.8)		206,000 (60.4)		232,000 (68.0)		258,000 (75.6)	
	Heating	COP	W/W	3.65		3.32		3.82		3.67	
		High									
		Capacity	Btu/h (kW)	124,000 (36.3)		140,000 (41.0)		164,000 (48.1)		178,000 (52.2)	
		Low	COP	W/W	2.16		2.05		2.32		2.35
Cooling Operating Range		Indoor	°F WB (°C WB)	59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)	
		Outdoor ³	°F DB (°C DB)	23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)	
		with Snow Protection Hood	°F DB (°C DB)	14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)	
		with Low Ambient Kit	°F DB (°C DB)	-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)	
Heating Operating Range		Indoor	°F DB (°C DB)	59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)	
		Outdoor ³	°F WB (°C WB)	-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)	
Cabinet Color (Munsell Code)				-		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)	
Outer Dimensions	Height	in (mm)	66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)		
	Width	in (mm)	64 (1625)		64 (1625)		87-13/16 (2230)		98-1/16 (2490)		
	Depth	in (mm)	30-1/2 (774)		30-1/2 (774)		30-1/2 (774)		30-1/2 (774)		
Package Dimensions	Height	in (mm)	71-5/8 (1820)		71-5/8 (1820)		-		-		
	Width	in (mm)	66-1/8 (1680)		66-1/8 (1680)		-		-		
	Depth	in (mm)	31-7/8 (810)		31-7/8 (810)		-		-		
Weight	Net	lbs (kg)	849 (385)		849 (385)		728+523 (330+237)		725*2 (329*2)		
	Gross	lbs (kg)	900 (408)		900 (408)		772+562 (350+255)		770*2 (349*2)		
Connection Ratio	Standard (Extended) ⁴	%	130(150) - 55		130(150) - 55		130(150) - 60		130(150) - 60		
	Max. (Recommended) Indoor Units/System ⁵	Q'ty	36 (12)		40 (14)		46 (18)		52 (18)		
Heat Exchanger	Type	-	Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		
	Material	-	Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		
Compressor	Type	Inverter 1	-		DC80PHD×2		DC80PHD×1		AA50PHD×4		
		Inverter 2	-		-		AA50PHD×2		-		
	Motor Output (Pole)	kW (Pole)	7.1(6)×2		9.1(6)×2		6.4(6)×2+7.4(6)		(5.4(6)×2)×2		
	Start Method	-	inverter		inverter		inverter		inverter		
	Operation Range	%	5 ~ 100		5 ~ 100		4 ~ 100		4 ~ 100		
	Refrigeration Oil Type	-	FVC68D		FVC68D		FVC68D		FVC68D		
Crank Case Heater			W×Q'ty		34.2 (230V) ×6		34.2 (230V) ×6		34.2 (230V) ×9		
Fan	Type	-	Propeller Fan		Propeller Fan		Propeller Fan		Propeller Fan		
	Motor Output (Pole)	kW (Pole)	0.48(8)×2		0.56(8)×2		(0.39(8)×2)+0.42(8)		(0.39(8)×2)×2		
	Quantity	Q'ty	2		2		3		4		
	Airflow Rate	cfm (m³/min)	11,614 (329)		12,284 (348)		9,037 +6,707 (256+190)		9,037×2 (256×2)		
	External Static Pressure ⁶	in.W.G. (Pa)	0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)		
Electrical	Drive	-	Direct-drive		Direct-drive		Direct-drive		Direct-drive		
	Min Circuit Amps	A	34		39		30+15		24×2		
	Maximum Overcurrent Protective Device	A	40		50		35+20		30×2		
	Maximum Fuse Size	A	40		50		35+20		30×2		
Sound Pressure Level ⁶	Cooling (Night Shift)	dB (A)	64 59		66 59		66 59		66 60		
	Heating	dB (A)	64		66		66		66		
Protection Devices	Cycle	-	High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		
	Inverter	-	Over-current protector		Over-current protector		Over-current protector		Over-current protector		
	Compressor	-	Over-heat protection		Over-heat protection		Over-heat protection		Over-heat protection		
	PCB	-	Over-current protection		Over-current protection		Over-current protection		Over-current protection		
Refrigerant	Type	-	R410A		R410A		R410A		R410A		
	Factory Charge Amount	lbs (kg)	24.9 (11.3)		25.6 (11.6)		23.6+15.9 (10.7+7.2)		21.8×2 (9.9×2)		
Refrigeration Oil	Factory Charge Amount	gal/Unit (L/Unit)	2.2 (8.4)		2.2 (8.4)		2.1+1.6 (7.9+6.0)		2.1×2 (7.9×2)		
Defrost Method				-		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle	
Main Refrigerant Piping (Heat Pump)	Gas Line	in (mm)	1-1/8 (28.58)		1-1/8 (28.58)		1-1/8 (28.58)		1-3/8 (34.93)		
	Liquid Line	in (mm)	5/8 (15.88)		5/8 (15.88)		3/4 (19.05)		3/4 (19.05)		

NOTES:

1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C) DB

67°F (19.4°C) WB

Outdoor Air Inlet Temperature: 95°F (35.0°C) DB

Piping Length: 24ft. 7-3/16 in. (7.5m), Piping Lift: 0ft. (0m)

2 Efficiency ratings are based on the AHRI 1230 test standard.

3 There are some exceptions and notes for cooling and heating operation range. For details, refer to "2.12 Operation Temperature Range".

4 For details, refer to "2.13 Combination of Indoor Units and Outdoor Units".

5 External static pressure can be changed by DSW setting.

6 Measure Point: 3.3ft. (1m) from the service cover surface and 4.9ft. (1.5m) from floor level

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound on the air inlet side is 8dB higher than on the front side.

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C) DB

47°F (8.3°C) DB

Outdoor Air Inlet Temperature: 43°F (6.1°C) WB

Category		Ton		22RT (12RT+10RT)		24RT (12RT+12RT)		26RT (14RT+12RT)		28RT (16RT+12RT)	
Model (Combination)				(H,Y)VAHP264B42S		(H,Y)VAHP288B42S		(H,Y)VAHP312B42S		(H,Y)VAHP336B42S	
Model (Individual)		Unit A		(H,Y)VAHP144B42S		(H,Y)VAHP144B42S		(H,Y)VAHP168B42S		(H,Y)VAHP192B42S	
		Unit B		(H,Y)VAHP120B42S		(H,Y)VAHP144B42S		(H,Y)VAHP144B42S		(H,Y)VAHP144B42S	
		Unit C									
Power Supply				460V/ 3PH 60Hz		460V/ 3PH 60Hz		460V/ 3PH 60Hz		460V/ 3PH 60Hz	
Capacity ¹	Cooling	Capacity (Nominal)	Btu/h (kW)	264,000 (77.4)		288,000 (84.4)		312,000 (91.4)		336,000 (98.5)	
	Heating	Capacity (Nominal)	Btu/h (kW)	297,000 (87.0)		324,000 (95.0)		351,000 (102.9)		378,000 (110.8)	
Efficiency Ratings ² (Ducted)	Cooling	Capacity (Rated)	Btu/h (kW)	252,000 (73.9)		276,000 (80.9)		298,000 (87.3)		320,000 (93.8)	
		EER	Btu/Wh (W/W)	10.5 (3.08)		9.9 (2.90)		10.0 (2.93)		9.8 (2.87)	
		IEER	Btu/Wh (Wh/Wh)	20.8 (6.10)		20.7 (6.07)		19.5 (5.71)		19.1 (5.60)	
	Heating	Capacity (Rated)	Btu/h (kW)	282,000 (82.6)		308,000 (90.3)		334,000 (97.9)		360,000 (105.5)	
		COP	W/W	3.56		3.42		3.31		3.32	
	High	Capacity	Btu/h (kW)	196,000 (57.4)		214,000 (62.7)		232,000 (68.0)		250,000 (73.3)	
Low	COP	W/W	2.26		2.24		2.12		2.25		
Efficiency Ratings ² (Non-Ducted)	Cooling	Capacity (Rated)	Btu/h (kW)	252,000 (73.9)		276,000 (80.9)		298,000 (87.3)		320,000 (93.8)	
		EER	Btu/Wh (W/W)	10.0 (2.93)		9.5 (2.78)		9.7 (2.83)		9.5 (2.78)	
		IEER	Btu/Wh (Wh/Wh)	21.1 (6.18)		19.4 (5.69)		20.3 (5.96)		20.8 (6.09)	
	Heating	Capacity (Rated)	Btu/h (kW)	282,000 (82.6)		308,000 (90.3)		334,000 (97.9)		360,000 (105.5)	
		COP	W/W	3.70		3.42		3.37		3.27	
	High	Capacity	Btu/h (kW)	196,000 (57.4)		214,000 (62.7)		232,000 (68.0)		250,000 (73.3)	
Low	COP	W/W	2.26		2.21		2.05		2.31		
Cooling Operating Range		Indoor	°F WB (°C WB)	59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)	
		Outdoor ³	°F DB (°C DB)	23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)	
		with Snow Protection Hood	°F DB (°C DB)	14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)	
		with Low Ambient Kit	°F DB (°C DB)	-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)	
Heating Operating Range		Indoor	°F DB (°C DB)	59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)	
		Outdoor ³	°F WB (°C WB)	-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)	
Cabinet Color (Munsell Code)				Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)	
Outer Dimensions	Height	in (mm)	66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)		
	Width	in (mm)	98-1/16 (2490)		98-1/16 (2490)		113-3/8 (2880)		113-3/8 (2880)		
	Depth	in (mm)	30-1/2 (774)		30-1/2 (774)		30-1/2 (774)		30-1/2 (774)		
Package Dimensions	Height	in (mm)	-		-		-		-		
	Width	in (mm)	-		-		-		-		
	Depth	in (mm)	-		-		-		-		
Weight	Net	lbs (kg)	728+725 (330+329)		728×2 (330×2)		849+728 (385+330)		849+728 (385+330)		
	Gross	lbs (kg)	772+770 (350+349)		772×2 (350×2)		900+772 (408+350)		900+772 (408+350)		
Connection Ratio	Standard (Extended) ⁴	%	130(150) - 55		130(150) - 55		130(150) - 55		130(150) - 55		
	Max. (Recommended) Indoor Units/System ⁵	Q'ty	56 (20)		59 (20)		64 (22)		64 (24)		
Heat Exchanger	Type	-	Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		
	Material	-	Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		
Compressor	Type	Inverter 1	AA50PHD×4		AA50PHD×4		DC80PHD×2		DC80PHD×2		
		Inverter 2	-		-		AA50PHD×2		AA50PHD×2		
	Motor Output (Pole)	kW (Pole)	(6.4(6)×2)+(5.4(6)×2)		(6.4(6)×2)×2		(7.1(6)×2)+(6.4(6)×2)		(9.1(6)×2)+(6.4(6)×2)		
	Start Method	-	inverter		inverter		inverter		inverter		
	Operation Range	%	3 ~ 100		3 ~ 100		3 ~ 100		3 ~ 100		
	Refrigeration Oil Type	-	FVC68D		FVC68D		FVC68D		FVC68D		
Crank Case Heater		W×Q'ty	34.2 (230V) ×12		34.2 (230V) ×12		34.2 (230V) ×12		34.2 (230V) ×12		
Fan	Type	-	Propeller Fan		Propeller Fan		Propeller Fan		Propeller Fan		
	Motor Output (Pole)	kW (Pole)	(0.39(8)×2)×2		(0.39(8)×2)×2		(0.48(8)×2)+(0.39(8)×2)		(0.56(8)×2)+(0.39(8)×2)		
	Quantity	Q'ty	4		4		4		4		
	Airflow Rate	cfm (m³/min)	9,037×2 (256×2)		9,037×2 (256×2)		11,614+9,037 (329+256)		12,284+9,037 (348+256)		
Electrical	External Static Pressure ⁶	in.W.G. (Pa)	0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)		
	Drive	-	Direct-drive		Direct-drive		Direct-drive		Direct-drive		
	Min Circuit Amps	A	30×24		30×2		34×30		39×30		
	Maximum Overcurrent Protective Device	A	35×30		35×2		40×35		50×35		
Sound Pressure Level ⁶	Maximum Fuse Size	A	35×30		35×2		40×35		50×35		
	Cooling (Night Shift)	dB (A)	67 60		68 60		68 61		69 61		
	Heating	dB (A)	67		68		68		69		
	Cycle	-	High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		
Protection Devices	Inverter	-	Over-current protector		Over-current protector		Over-current protector		Over-current protector		
	Compressor	-	Over-heat protection		Over-heat protection		Over-heat protection		Over-heat protection		
	PCB	-	Over-current protection		Over-current protection		Over-current protection		Over-current protection		
	Type	-	R410A		R410A		R410A		R410A		
Refrigerant	Factory Charge Amount	lbs (kg)	23.6+21.8 (10.7+9.9)		23.6×2 (10.7×2)		24.9+23.6 (11.3+10.7)		25.6+23.6 (11.6+10.7)		
Refrigeration Oil	Factory Charge Amount	gal/Unit (L/Unit)	2.1×2 (7.9×2)		2.1×2 (7.9×2)		2.2+2.1 (8.4+7.9)		2.2+2.1 (8.4+7.9)		
Defrost Method		-	Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		
Main Refrigerant	Gas Line	in (mm)	1-3/8 (34.93)		1-3/8 (34.93)		1-3/8 (34.93)		1-3/8 (34.93)		
Piping (Heat Pump)	Liquid Line	in (mm)	3/4 (19.05)		3/4 (19.05)		3/4 (19.05)		3/4 (19.05)		

NOTES:

1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C) DB

67°F (19.4°C) WB

Outdoor Air Inlet Temperature: 95°F (35.0°C) DB

Piping Length: 24ft. 7-3/16 in. (7.5m), Piping Lift: 0ft. (0m)

2 Efficiency ratings are based on the AHRI 1230 test standard.

3 There are some exceptions and notes for cooling and heating operation range. For details, refer to "2.12 Operation Temperature Range".

4 For details, refer to "2.13 Combination of Indoor Units and Outdoor Units".

5 External static pressure can be changed by DSW setting.

6 Measure Point: 3.3ft. (1m) from the service cover surface and 4.9ft. (1.5m) from floor level

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound on the air inlet side is 8dB higher than on the front side.

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C) DB

47°F (8.3°C) DB

Outdoor Air Inlet Temperature: 43°F (6.1°C) WB

PRODUCT SPECIFICATION

Category		Ton		30RT (16RT+14RT)		32RT (12RT+10RT+10RT)		34RT (12RT+12RT+10RT)		36RT (12RT+12RT+12RT)	
Model (Combination)				(H,Y)VAHP360B42S		(H,Y)VAHP384B42S		(H,Y)VAHP408B42S		(H,Y)VAHP432B42S	
Model (Individual)		Unit A		(H,Y)VAHP192B42S		(H,Y)VAHP144B42S		(H,Y)VAHP144B42S		(H,Y)VAHP144B42S	
		Unit B		(H,Y)VAHP168B42S		(H,Y)VAHP120B42S		(H,Y)VAHP144B42S		(H,Y)VAHP144B42S	
		Unit C				(H,Y)VAHP120B42S		(H,Y)VAHP120B42S		(H,Y)VAHP144B42S	
Power Supply				460V/ 3PH 60Hz		460V/ 3PH 60Hz		460V/ 3PH 60Hz		460V/ 3PH 60Hz	
Capacity ¹	Cooling	Capacity (Nominal)	Btu/h (kW)	360,000 (105.5)		384,000 (112.5)		408,000 (119.6)		432,000 (126.6)	
	Heating	Capacity (Nominal)	Btu/h (kW)	405,000 (118.7)		432,000 (126.6)		459,000 (134.5)		486,000 (142.4)	
Efficiency Ratings ² (Ducted)	Cooling	Capacity (Rated)	Btu/h (kW)	344,000 (100.8)		366,000 (107.3)		380,000 (111.4)		400,000 (117.2)	
		EER	Btu/Wh (W/W)	10.2 (2.99)		9.5 (2.78)		9.5 (2.78)		9.6 (2.81)	
		IEER	Btu/Wh (Wh/Wh)	19.5 (5.71)		18.6 (5.45)		19.2 (5.63)		19.0 (5.57)	
	Heating	Capacity (Rated)	Btu/h (kW)	382,000 (112.0)		410,000 (120.2)		435,000 (127.5)		460,000 (134.8)	
		COP	W/W	3.20		3.33		3.37		3.35	
		Low	Capacity	Btu/h (kW)	262,000 (76.8)		276,000 (80.9)		288,000 (84.4)		300,000 (87.9)
		COP	W/W	2.18		2.26		2.23		2.19	
Efficiency Ratings ² (Non-Ducted)	Cooling	Capacity (Rated)	Btu/h (kW)	344,000 (100.8)		366,000 (107.3)		380,000 (111.4)		400,000 (117.2)	
		EER	Btu/Wh (W/W)	9.5 (2.78)		9.6 (2.81)		9.5 (2.78)		9.5 (2.78)	
		IEER	Btu/Wh (Wh/Wh)	19.8 (5.81)		19.6 (5.75)		19.3 (5.67)		19.5 (5.72)	
	Heating	Capacity (Rated)	Btu/h (kW)	386,000 (113.1)		410,000 (120.2)		435,000 (127.5)		460,000 (134.8)	
		COP	W/W	3.27		3.37		3.34		3.21	
		Low	Capacity	Btu/h (kW)	262,000 (76.8)		276,000 (80.9)		288,000 (84.4)		300,000 (87.9)
		COP	W/W	2.05		2.20		2.08		2.05	
Cooling Operating Range		Indoor	°F WB (°C WB)	59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)	
		Outdoor ³	°F DB (°C DB)	23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)	
		with Snow Protection Hood	°F DB (°C DB)	14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)	
		with Low Ambient Kit	°F DB (°C DB)	-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)	
Heating Operating Range		Indoor	°F DB (°C DB)	59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)	
		Outdoor ³	°F WB (°C WB)	-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)	
Cabinet Color (Munsell Code)				-		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)	
Outer Dimensions	Height	in (mm)		66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)	
	Width	in (mm)		128-3/4 (3270)		147-7/16 (3745)		147-7/16 (3745)		147-7/16 (3745)	
	Depth	in (mm)		30-1/2 (774)		30-1/2 (774)		30-1/2 (774)		30-1/2 (774)	
Package Dimensions	Height	in (mm)		-		-		-		-	
	Width	in (mm)		-		-		-		-	
	Depth	in (mm)		-		-		-		-	
Weight	Net	lbs (kg)		849×2 (385×2)		728+725×2 (330+329×2)		728×2+725 (330×2+329)		728×3 (330×3)	
	Gross	lbs (kg)		900×2 (408×2)		772+770×2 (350+349×2)		772×2+770 (350×2+349)		772×3 (350×3)	
Connection Ratio	Standard (Extended) ⁴	%		130(150) - 55		130(150) - 55		130(150) - 55		130(150) - 55	
	Max. (Recommended) Indoor Units/System ⁵	Q'ty		64 (28)		64 (30)		64 (30)		64 (30)	
Heat Exchanger	Type	-		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube	
	Material	-		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)	
Compressor	Type	Inverter 1	-	DC80PHD×4		AA50PHD×6		AA50PHD×6		AA50PHD×6	
		Inverter 2	-	-		-		-		-	
	Motor Output (Pole)	kW (Pole)		(9.1(6)×2)+(7.1(6)×2)		(6.4(6)×2)+(5.4(6)×2)×2		(6.4(6)×2)×2+(5.4(6)×2)		(6.4(6)×2)×3	
	Start Method	-		inverter		inverter		inverter		inverter	
	Operation Range	%		3 ~ 100		2 ~ 100		2 ~ 100		2 ~ 100	
	Refrigeration Oil Type	-		FVC68D		FVC68D		FVC68D		FVC68D	
Crank Case Heater		W×Q'ty		34.2 (230V) ×12		34.2 (230V) ×18		34.2 (230V) ×18		34.2 (230V) ×18	
Fan	Type	-		Propeller Fan		Propeller Fan		Propeller Fan		Propeller Fan	
	Motor Output (Pole)	kW (Pole)		(0.56(8)×2)+(0.48(8)×2)		(0.39(8)×2)×3		(0.39(8)×2)×3		(0.39(8)×2)×3	
	Quantity	Q'ty		4		6		6		6	
	Airflow Rate	cfm (m ³ /min)		12,284 +11,614 (348+329)		9,037×3 (256×3)		9,037×3 (256×3)		9,037×3 (256×3)	
	External Static Pressure ⁶	in.W.G. (Pa)		0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)	
Electrical	Drive	-		Direct-drive		Direct-drive		Direct-drive		Direct-drive	
	Min Circuit Amps	A		39+34		30+24×2		30×2+24		30×3	
	Maximum Overcurrent Protective Device	A		50+40		35+30×2		35×2+30		35×3	
	Maximum Fuse Size	A		50+40		35+30×2		35×2+30		35×3	
Sound Pressure Level ⁶	Cooling (Night Shift)	dB (A)		68 62		69 62		69 62		70 62	
	Heating	dB (A)		68 62		69 62		69 62		70 62	
Protection Devices	Cycle	-		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)	
	Inverter	-		Over-current protector		Over-current protector		Over-current protector		Over-current protector	
	Compressor	-		Over-heat protection		Over-heat protection		Over-heat protection		Over-heat protection	
	PCB	-		Over-current protection		Over-current protection		Over-current protection		Over-current protection	
Refrigerant	Type	-		R410A		R410A		R410A		R410A	
	Factory Charge Amount	lbs (kg)		25.6+24.9 (11.6+11.3)		23.6 +21.8×2 (10.7 +9.9×2)		23.6×2 +21.8 (10.7×2 +9.9)		23.6×3 (10.7×3)	
Refrigeration Oil		gal/Unit (L/Unit)		2.2×2 (8.4×2)		2.1×3 (7.9×3)		2.1×3 (7.9×3)		2.1×3 (7.9×3)	
Defrost Method		-		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle	
Main Refrigerant Piping (Heat Pump)	Gas Line	in (mm)		1-3/8 (34.93)		1-5/8 (41.28)		1-5/8 (41.28)		1-5/8 (41.28)	
	Liquid Line	in (mm)		3/4 (19.05)		3/4 (19.05)		3/4 (19.05)		3/4 (19.05)	

NOTES:

1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C) DB

67°F (19.4°C) WB

Outdoor Air Inlet Temperature: 95°F (35.0°C) DB

Piping Length: 24ft. 7-3/16 in. (7.5m), Piping Lift: 0ft. (0m)

2 Efficiency ratings are based on the AHRI 1230 test standard.

3 There are some exceptions and notes for cooling and heating operation range. For details, refer to "2.12 Operation Temperature Range".

4 For details, refer to "2.13 Combination of Indoor Units and Outdoor Units".

5 External static pressure can be changed by DSW setting.

6 Measure Point: 3.3ft. (1m) from the service cover surface and 4.9ft. (1.5m) from floor level

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound on the air inlet side is 8dB higher than on the front side.

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C) DB

47°F (8.3°C) DB

Outdoor Air Inlet Temperature: 43°F (6.1°C) WB

(3) 575V Type

Category			Ton		6RT		8RT		10RT		12RT	
Model (Combination)					(H,Y)VAHP072B52S		(H,Y)VAHP096B52S		(H,Y)VAHP120B52S		(H,Y)VAHP144B52S	
Model (Individual)			Unit A		(H,Y)VAHP072B52S		(H,Y)VAHP096B52S		(H,Y)VAHP120B52S		(H,Y)VAHP144B52S	
			Unit B		-		-		-		-	
			Unit C		-		-		-		-	
Power Supply (Wiring Type)					575V 3PH 60Hz (3 Wires and 1 GND)		575V 3PH 60Hz (3 Wires and 1 GND)		575V 3PH 60Hz (3 Wires and 1 GND)		575V 3PH 60Hz (3 Wires and 1 GND)	
Capacity1	Cooling	Capacity (Nominal)	Btu/h	(kW)	72,000	(21.1)	96,000	(28.1)	120,000	(35.2)	144,000	(42.2)
	Heating	Capacity (Nominal)	Btu/h	(kW)	81,000	(23.7)	108,000	(31.7)	135,000	(39.6)	162,000	(47.5)
Efficiency Ratings2 (Ducted)	Cooling	Capacity (Rated)	Btu/h	(kW)	69,000	(20.2)	92,000	(27.0)	114,000	(33.4)	138,000	(40.4)
		EER	Btu/Wh	(W/W)	12.2	(3.58)	12.4	(3.63)	12.4	(3.63)	11.2	(3.28)
		IEER	Btu/Wh	(Wh/Wh)	21.1	(6.18)	22.1	(6.48)	21.7	(6.36)	21.2	(6.21)
	Heating	Capacity (Rated)	Btu/h	(kW)	77,000	(22.6)	103,000	(30.2)	129,000	(37.8)	154,000	(45.1)
		COP		W/W	3.54		3.65		3.55		3.40	
	Heating	Capacity	Btu/h	(kW)	56,000	(16.4)	76,000	(22.3)	92,000	(27.0)	110,000	(32.2)
		COP		W/W	2.38		2.36		2.30		2.15	
	Efficiency Ratings2 (Non-Ducted)	Cooling	Capacity (Rated)	Btu/h	(kW)	69,000	(20.2)	92,000	(27.0)	114,000	(33.4)	138,000
EER			Btu/Wh	(W/W)	14.9	(4.37)	12.4	(3.63)	12.7	(3.73)	10.9	(3.18)
IEER			Btu/Wh	(Wh/Wh)	26.5	(7.77)	23.9	(7.02)	24.4	(7.14)	23.9	(6.99)
Heating		Capacity (Rated)	Btu/h	(kW)	77,000	(22.6)	103,000	(30.2)	129,000	(37.8)	154,000	(45.1)
		COP		W/W	4.25		3.77		3.84		3.42	
Heating		Capacity	Btu/h	(kW)	56,000	(16.4)	76,000	(22.3)	92,000	(27.0)	110,000	(32.2)
		COP		W/W	2.60		2.40		2.37		2.12	
Cooling Operating Range		Indoor	°F WB (°C WB)		59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)	
	Outdoor3	°F DB (°C DB)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		
	with Snow Protection Hood	°F DB (°C DB)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		
	with Low Ambient Kit	°F DB (°C DB)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		
Heating Operating Range	Indoor	°F DB (°C DB)		59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)		
	Outdoor3	°F WB (°C WB)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		
Cabinet Color (Munsell Code)			-		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)	
Outer Dimensions	Height	in	(mm)	66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)		
	Width	in	(mm)	38-3/8 (975)		48-5/8 (1235)		48-5/8 (1235)		48-5/8 (1235)		
	Depth	in	(mm)	30-1/2 (774)		30-1/2 (774)		30-1/2 (774)		30-1/2 (774)		
Package Dimensions	Height	in	(mm)	71-5/8 (1820)		71-5/8 (1820)		71-5/8 (1820)		71-5/8 (1820)		
	Width	in	(mm)	40-9/16 (1030)		50-13/16 (1290)		50-13/16 (1290)		50-13/16 (1290)		
	Depth	in	(mm)	31-7/8 (810)		31-7/8 (810)		31-7/8 (810)		31-7/8 (810)		
Weight	Net	lbs	(kg)	523 (237)		604 (274)		725 (329)		728 (330)		
	Gross	lbs	(kg)	562 (255)		648 (294)		770 (349)		772 (350)		
Connection Ratio	Standard (Extended)4		%		130(150) - 70		130(150) - 65		130(150) - 60		130(150) - 55	
	Max. (Recommended) Indoor Units/System5		Q'ty		15 (8)		20 (8)		26 (8)		26 (10)	
Heat Exchanger	Type		-		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube	
	Material		-		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)	
Compressor	Type	Inverter 1	-		DC80PHD×1		DC80PHD×1		AA50PHD×2		AA50PHD×2	
		Inverter 2	-		-		-		-		-	
	Motor Output (Pole)		kW (Pole)		7.4(6)		9.5(6)		5.4(6)×2		6.4(6)×2	
	Start Method		-		inverter		inverter		inverter		inverter	
	Operation Range		%		10 ~ 100		8 ~ 100		7 ~ 100		6 ~ 100	
	Refrigeration Oil Type		-		FVC68D		FVC68D		FVC68D		FVC68D	
Crank Case Heater			W×Q'ty		34.2 (230V) ×3		34.2 (230V) ×3		34.2 (230V) ×6		34.2 (230V) ×6	
Fan	Type	-		Propeller Fan		Propeller Fan		Propeller Fan		Propeller Fan		
	Motor Output (Pole)		kW (Pole)		0.42(8)		0.33(8)×2		0.39(8)×2		0.39(8)×2	
	Quantity		Q'ty		1		2		2		2	
	Airflow Rate		cfm (m3/min)		6,707 (190)		8,437 (239)		9,037 (256)		9,037 (256)	
	External Static Pressure5		in.W.G. (Pa)		0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)	
Drive			-		Direct-drive		Direct-drive		Direct-drive		Direct-drive	
Electrical	Min Circuit Amps		A		12		16		19		24	
	Maximum Overcurrent Protective Device		A		15		25		25		30	
	Maximum Fuse Size		A		15		25		25		30	
Sound Pressure Level6	Cooling (Night Shift)		dB (A)		60 54		63 57		63 57		65 57	
	Heating		dB (A)		60		63		63		65	
Protection Devices	Cycle		-		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)	
	Inverter		-		Over-current protection Over-heat protection		Over-current protection Over-heat protection		Over-current protection Over-heat protection		Over-current protection Over-heat protection	
	Compressor		-		Over-heat protection		Over-heat protection		Over-heat protection		Over-heat protection	
	PCB		-		Over-current protection		Over-current protection		Over-current protection		Over-current protection	
Refrigerant	Type		-		R410A		R410A		R410A		R410A	
	Factory Charge Amount		lbs (kg)		15.9 (7.2)		19.6 (8.9)		21.8 (9.9)		23.6 (10.7)	
Refrigeration Oil			Factory Charge Amount		gal/Unit (L/Unit)		1.6 (6.0)		1.8 (6.9)		2.1 (7.9)	
Defrost Method			-		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle	
Main Refrigerant Piping (Heat Pump)	Gas Line	in	(mm)	7/8 (22.2)		7/8 (22.2)		1-1/8 (28.58)		1-1/8 (28.58)		
	Liquid Line	in	(mm)	1/2 (12.7)		1/2 (12.7)		1/2 (12.7)		5/8 (15.88)		

PRODUCT SPECIFICATION

Category		Ton		14RT		16RT		18RT (12RT+6RT)		20RT (10RT+10RT)		
Model (Combination)				(H,Y)VAHP168B52S		(H,Y)VAHP192B52S		(H,Y)VAHP216B52S		(H,Y)VAHP240B52S		
Model (Individual)		Unit A	(H,Y)VAHP168B52S		(H,Y)VAHP192B52S		(H,Y)VAHP144B52S		(H,Y)VAHP120B52S			
		Unit B	-		-		(H,Y)VAHP072B52S		(H,Y)VAHP120B52S			
		Unit C										
Power Supply (Wiring Type)				575V 3PH 60Hz (3 Wires and 1 GND)		575V 3PH 60Hz (3 Wires and 1 GND)		575V 3PH 60Hz (3 Wires and 1 GND)		575V 3PH 60Hz (3 Wires and 1 GND)		
Capacity ¹	Cooling	Capacity (Nominal)	Btu/h	(kW)	168,000	(49.2)	192,000	(56.3)	216,000	(63.3)	240,000	(70.3)
	Heating	Capacity (Nominal)	Btu/h	(kW)	189,000	(55.4)	216,000	(63.3)	243,000	(71.2)	270,000	(79.1)
Efficiency Ratings ² (Ducted)	Cooling	Capacity (Rated)	Btu/h	(kW)	160,000	(46.9)	184,000	(53.9)	206,000	(60.4)	228,000	(66.8)
		EER	Btu/Wh	(W/W)	11.8	(3.46)	11.1	(3.25)	11.2	(3.28)	10.6	(3.11)
		IEER	Btu/Wh	(Wh/Wh)	21.4	(6.27)	20.8	(6.10)	20.7	(6.07)	21.0	(6.15)
	Heating	Capacity (Rated)	Btu/h	(kW)	180,000	(52.8)	206,000	(60.4)	232,000	(68.0)	258,000	(75.6)
		COP		W/W	3.56		3.38		3.51		3.51	
	Heating	Capacity	Btu/h	(kW)	124,000	(36.3)	140,000	(41.0)	164,000	(48.1)	178,000	(52.2)
		COP		W/W	2.40		2.15		2.29		2.27	
	Efficiency Ratings ² (Non-Ducted)	Cooling	Capacity (Rated)	Btu/h	(kW)	160,000	(46.9)	184,000	(53.9)	206,000	(60.4)	228,000
EER			Btu/Wh	(W/W)	11.6	(3.40)	10.6	(3.11)	10.9	(3.18)	11.1	(3.24)
IEER			Btu/Wh	(Wh/Wh)	23.4	(6.86)	21.4	(6.27)	20.9	(6.12)	20.8	(6.09)
Heating		Capacity (Rated)	Btu/h	(kW)	180,000	(52.8)	206,000	(60.4)	232,000	(68.0)	258,000	(75.6)
		COP		W/W	3.65		3.32		3.82		3.67	
Heating		Capacity	Btu/h	(kW)	124,000	(36.3)	140,000	(41.0)	164,000	(48.1)	178,000	(52.2)
		COP		W/W	2.16		2.05		2.32		2.35	
Cooling Operating Range		Indoor		°F WB (°C WB)	59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)	
	Outdoor ³		°F DB (°C DB)	23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		
	with Snow Protection Hood with Low Ambient Kit		°F DB (°C DB)	14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		
			°F DB (°C DB)	-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		
Indoor		°F DB (°C DB)	59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)			
Heating Operating Range		Outdoor ³	°F WB (°C WB)	-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		
Cabinet Color (Munsell Code)				-		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		
Outer Dimensions	Height	in	(mm)	66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)		
	Width	in	(mm)	64 (1625)		64 (1625)		87-13/16 (2230)		98-1/16 (2490)		
	Depth	in	(mm)	30-1/2 (774)		30-1/2 (774)		30-1/2 (774)		30-1/2 (774)		
Package Dimensions	Height	in	(mm)	71-5/8 (1820)		71-5/8 (1820)		-		-		
	Width	in	(mm)	66-1/8 (1680)		66-1/8 (1680)		-		-		
	Depth	in	(mm)	31-7/8 (810)		31-7/8 (810)		-		-		
Weight	Net	lbs	(kg)	849 (385)		849 (385)		728+523 (330+237)		725×2 (329×2)		
	Gross	lbs	(kg)	900 (408)		900 (408)		772+562 (350+255)		770×2 (349×2)		
Connection Ratio	Standard (Extended) ⁴		%	130(150) - 55		130(150) - 55		130(150) - 60		130(150) - 60		
	Max. (Recommended) Indoor Units/System ⁵		Q'ty	36 (12)		40 (14)		46 (18)		52 (18)		
Heat Exchanger	Type		-	Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		
	Material		-	Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		
Compressor	Type	Inverter 1	-	DC80PHD×2		DC80PHD×2		DC80PHD×1		AA50PHD×4		
		Inverter 2	-	-		-		AA50PHD×2		-		
	Motor Output (Pole)		kW (Pole)	7.1(6)×2		9.1(6)×2		6.4(6)×2+7.4(6)		(5.4(6)×2)×2		
	Start Method		-	inverter		inverter		inverter		inverter		
	Operation Range		%	5 ~ 100		5 ~ 100		4 ~ 100		4 ~ 100		
	Refrigeration Oil Type		-	FVC68D		FVC68D		FVC68D		FVC68D		
Crank Case Heater			W×Q'ty	34.2 (230V) ×6		34.2 (230V) ×6		34.2 (230V) ×9		34.2 (230V) ×12		
Fan	Type	-	Propeller Fan		Propeller Fan		Propeller Fan		Propeller Fan			
	Motor Output (Pole)		kW (Pole)	0.48(8)×2		0.56(8)×2		(0.39(8)×2)+0.42(8)		(0.39(8)×2)×2		
	Quantity		Q'ty	2		2		3		4		
	Airflow Rate		cfm (m3/min)	11,614 (329)		12,284 (348)		9,037 +6,707 (256+190)		9,037×2 (256×2)		
	External Static Pressure ⁵		in.W.G. (Pa)	0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)		
	Drive		-	Direct-drive		Direct-drive		Direct-drive		Direct-drive		
Electrical	Min Circuit Amps		A	27		32		24+12		19×2		
	Maximum Overcurrent Protective Device		A	35		40		30+15		25×2		
	Maximum Fuse Size		A	35		40		30+15		25×2		
Sound Pressure Level ⁶	Cooling (Night Shift)		dB (A)	64 59		66 59		66 59		66 60		
	Heating		dB (A)	64		66		66		66		
Protection Devices	Cycle	-	High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)			
	Inverter	-	Over-current protection		Over-current protection		Over-current protection		Over-current protection			
	Compressor	-	Over-heat protection		Over-heat protection		Over-heat protection		Over-heat protection			
	PCB	-	Over-heat protection		Over-heat protection		Over-heat protection		Over-heat protection			
Refrigerant	Type	-	R410A		R410A		R410A		R410A			
	Factory Charge Amount		lbs (kg)	24.9 (11.3)		25.6 (11.6)		23.6+15.9 (10.7+7.2)		21.8×2 (9.9×2)		
Refrigeration Oil	Factory Charge Amount		gal/Unit (L/Unit)	2.2 (8.4)		2.2 (8.4)		2.1+1.6 (7.9+6.0)		2.1×2 (7.9×2)		
Defrost Method				-		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		
Main Refrigerant Piping (Heat Pump)	Gas Line	in (mm)	1-1/8 (28.58)		1-1/8 (28.58)		1-1/8 (28.58)		1-3/8 (34.93)			
	Liquid Line	in (mm)	5/8 (15.88)		5/8 (15.88)		3/4 (19.05)		3/4 (19.05)			

NOTES:

1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C) DB

67°F (19.4°C) WB

Outdoor Air Inlet Temperature: 95°F (35.0°C) DB

Piping Length: 24ft. 7-3/16 in. (7.5m), Piping Lift: 0ft. (0m)

2 Efficiency ratings are based on the AHRI 1230 test standard.

3 There are some exceptions and notes for cooling and heating operation range. For details, refer to "2.12 Operation Temperature Range".

4 For details, refer to "2.13 Combination of Indoor Units and Outdoor Units".

5 External static pressure can be changed by DSW setting.

6 Measure Point: 3.3ft. (1m) from the service cover surface and 4.9ft. (1.5m) from floor level

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound on the air inlet side is 8dB higher than on the front side.

Category		Ton		22RT (12RT+10RT)		24RT (12RT+12RT)		26RT (14RT+12RT)		28RT (16RT+12RT)	
Model (Combination)				(H,Y)VAHP264B52S		(H,Y)VAHP288B52S		(H,Y)VAHP312B52S		(H,Y)VAHP336B52S	
Model (Individual)	Unit A			(H,Y)VAHP144B52S		(H,Y)VAHP144B52S		(H,Y)VAHP168B52S		(H,Y)VAHP192B52S	
	Unit B			(H,Y)VAHP120B52S		(H,Y)VAHP144B52S		(H,Y)VAHP144B52S		(H,Y)VAHP144B52S	
	Unit C										
Power Supply (Wiring Type)				575V 3PH 60Hz (3 Wires and 1 GND)		575V 3PH 60Hz (3 Wires and 1 GND)		575V 3PH 60Hz (3 Wires and 1 GND)		575V 3PH 60Hz (3 Wires and 1 GND)	
Capacity ¹	Cooling	Capacity (Nominal)	Btu/h (kW)	264,000 (77.4)	288,000 (84.4)	312,000 (91.4)	336,000 (98.5)				
	Heating	Capacity (Nominal)	Btu/h (kW)	297,000 (87.0)	324,000 (95.0)	351,000 (102.9)	378,000 (110.8)				
Efficiency Ratings ² (Ducted)	Cooling	Capacity (Rated)	Btu/h (kW)	252,000 (73.9)	276,000 (80.9)	298,000 (87.3)	320,000 (93.8)				
		EER	Btu/Wh (W/W)	10.5 (3.08)	9.9 (2.90)	10.0 (2.93)	9.8 (2.87)				
		IEER	Btu/Wh (Wh/Wh)	20.8 (6.10)	20.7 (6.07)	19.5 (5.71)	19.1 (5.60)				
		Capacity (Rated)	Btu/h (kW)	282,000 (82.6)	308,000 (90.3)	334,000 (97.9)	360,000 (105.5)				
	Heating High	COP	W/W	3.56	3.42	3.31	3.32				
		Capacity	Btu/h (kW)	196,000 (57.4)	214,000 (62.7)	232,000 (68.0)	250,000 (73.3)				
	Heating Low	COP	W/W	2.26	2.24	2.12	2.25				
		Capacity	Btu/h (kW)	196,000 (57.4)	214,000 (62.7)	232,000 (68.0)	250,000 (73.3)				
Efficiency Ratings ² (Non-Ducted)	Cooling	Capacity (Rated)	Btu/h (kW)	252,000 (73.9)	276,000 (80.9)	298,000 (87.3)	320,000 (93.8)				
		EER	Btu/Wh (W/W)	10.0 (2.93)	9.5 (2.78)	9.7 (2.83)	9.5 (2.78)				
		IEER	Btu/Wh (Wh/Wh)	21.1 (6.18)	19.4 (5.69)	20.3 (5.96)	20.8 (6.09)				
		Capacity (Rated)	Btu/h (kW)	282,000 (82.6)	308,000 (90.3)	334,000 (97.9)	360,000 (105.5)				
	Heating High	COP	W/W	3.70	3.42	3.37	3.27				
		Capacity	Btu/h (kW)	196,000 (57.4)	214,000 (62.7)	232,000 (68.0)	250,000 (73.3)				
	Heating Low	COP	W/W	2.26	2.21	2.05	2.31				
		Capacity	Btu/h (kW)	196,000 (57.4)	214,000 (62.7)	232,000 (68.0)	250,000 (73.3)				
Cooling Operating Range	Indoor	°F WB (°C WB)		59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)	
		°F DB (°C DB)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)	
	Outdoor ³ with Snow Protection Hood with Low Ambient Kit	°F DB (°C DB)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)	
		°F DB (°C DB)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)	
Heating Operating Range	Indoor	°F DB (°C DB)		59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)	
	Outdoor ³	°F WB (°C WB)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)	
Cabinet Color (Munsell Code)				Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)	
Outer Dimensions	Height	in (mm)		66-1/4 (1683)	66-1/4 (1683)	66-1/4 (1683)	66-1/4 (1683)				
	Width	in (mm)		98-1/16 (2490)	98-1/16 (2490)	113-3/8 (2880)	113-3/8 (2880)				
	Depth	in (mm)		30-1/2 (774)	30-1/2 (774)	30-1/2 (774)	30-1/2 (774)				
Package Dimensions	Height	in (mm)		-	-	-	-				
	Width	in (mm)		-	-	-	-				
	Depth	in (mm)		-	-	-	-				
Weight	Net	lbs (kg)		728+725 (330+329)	728×2 (330×2)	849+728 (385+330)	849+728 (385+330)				
	Gross	lbs (kg)		772+770 (350+349)	772×2 (350×2)	900+772 (408+350)	900+772 (408+350)				
Connection Ratio	Standard (Extended) ⁴	%		130(150) - 55		130(150) - 55		130(150) - 55		130(150) - 55	
	Max. (Recommended) Indoor Units/System ⁵	Q'ty		56 (20)		59 (20)		64 (22)		64 (24)	
Heat Exchanger	Type			Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube	
	Material			Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)	
Compressor	Type	Inverter 1		AA50PHD×4		AA50PHD×4		DC80PHD×2		DC80PHD×2	
		Inverter 2						AA50PHD×2		AA50PHD×2	
	Motor Output (Pole)	kW (Pole)		(6.4(6)×2)+(5.4(6)×2)		(6.4(6)×2)×2		(7.1(6)×2)+(6.4(6)×2)		(9.1(6)×2)+(6.4(6)×2)	
	Start Method			inverter		inverter		inverter		inverter	
	Operation Range	%		3 ~ 100		3 ~ 100		3 ~ 100		3 ~ 100	
Refrigeration Oil Type				FVC68D		FVC68D		FVC68D		FVC68D	
Crank Case Heater		W×Q'ty		34.2 (230V) ×12		34.2 (230V) ×12		34.2 (230V) ×12		34.2 (230V) ×12	
Fan	Type			Propeller Fan		Propeller Fan		Propeller Fan		Propeller Fan	
	Motor Output (Pole)	kW (Pole)		(0.39(8)×2)×2		(0.39(8)×2)×2		(0.48(8)×2)+(0.39(8)×2)		(0.56(8)×2)+(0.39(8)×2)	
	Quantity	Q'ty		4		4		4		4	
	Airflow Rate	cfm (m3/min)		9,037×2 (256×2)	9,037×2 (256×2)	11,614+9,037 (329+256)	12,284+9,037 (348+256)				
	External Static Pressure ⁵	in.W.G. (Pa)		0-0.32 (0-80)	0-0.32 (0-80)	0-0.32 (0-80)	0-0.32 (0-80)				
Electrical	Drive			Direct-drive		Direct-drive		Direct-drive		Direct-drive	
	Min Circuit Amps	A		24+19		24×2		27+24		32+24	
	Maximum Overcurrent Protective Device	A		30+25		30×2		35+30		40+30	
	Maximum Fuse Size	A		30+25		30×2		35+30		40+30	
Sound Pressure Level ⁶	Cooling (Night Shift)	dB (A)		67	60	68	60	68	61	69	61
	Heating	dB (A)		67	68	68	68	68	69	69	69
Protection Devices	Cycle			High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)	
	Inverter			Over-current protection		Over-current protection		Over-current protection		Over-current protection	
	Compressor			Over-heat protection		Over-heat protection		Over-heat protection		Over-heat protection	
	PCB			Over-heat protection		Over-heat protection		Over-heat protection		Over-heat protection	
Refrigerant	Type			R410A		R410A		R410A		R410A	
	Factory Charge Amount	lbs (kg)		23.6+21.8 (10.7+9.9)	23.6×2 (10.7×2)	24.9+23.6 (11.3+10.7)	25.6+23.6 (11.6+10.7)				
Refrigeration Oil	Factory Charge Amount	gal/Unit (L/Unit)		2.1×2 (7.9×2)	2.1×2 (7.9×2)	2.2+2.1 (8.4+7.9)	2.2+2.1 (8.4+7.9)				
Defrost Method				Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle	
Main Refrigerant Piping (Heat Pump)	Gas Line	in (mm)		1-3/8 (34.93)	1-3/8 (34.93)	1-3/8 (34.93)	1-3/8 (34.93)				
	Liquid Line	in (mm)		3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)				

NOTES:

1 Rating Conditions:

Cooling

 Indoor Air Inlet Temperature: 80°F (26.7°C) DB
 67°F (19.4°C) WB

Outdoor Air Inlet Temperature: 95°F (35.0°C) DB

Piping Length: 24ft. 7-3/16 in. (7.5m), Piping Lift: 0ft. (0m)

2 Efficiency ratings are based on the AHRI 1230 test standard.

3 There are some exceptions and notes for cooling and heating operation range. For details, refer to "2.12 Operation Temperature Range".

4 For details, refer to "2.13 Combination of Indoor Units and Outdoor Units".

5 External static pressure can be changed by DSW setting.

6 Measure Point: 3.3ft. (1m) from the service cover surface and 4.9ft. (1.5m) from floor level

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound on the air inlet side is 8dB higher than on the front side.

Heating

 Indoor Air Inlet Temperature: 70°F (21.1°C) DB
 47°F (8.3°C) DB

Outdoor Air Inlet Temperature: 43°F (6.1°C) WB

PRODUCT SPECIFICATION

Category		Ton		30RT (16RT+14RT)		32RT (12RT+10RT+10RT)		34RT (12RT+12RT+10RT)		36RT (12RT+12RT+12RT)	
Model (Combination)				(H,Y)VAHP360B52S		(H,Y)VAHP384B52S		(H,Y)VAHP408B52S		(H,Y)VAHP432B52S	
Model (Individual)	Unit A			(H,Y)VAHP192B52S		(H,Y)VAHP144B52S		(H,Y)VAHP144B52S		(H,Y)VAHP144B52S	
	Unit B			(H,Y)VAHP168B52S		(H,Y)VAHP120B52S		(H,Y)VAHP144B52S		(H,Y)VAHP144B52S	
	Unit C			-		(H,Y)VAHP120B52S		(H,Y)VAHP120B52S		(H,Y)VAHP144B52S	
Power Supply (Wiring Type)				575V 3PH 60Hz (3 Wires and 1 GND)		575V 3PH 60Hz (3 Wires and 1 GND)		575V 3PH 60Hz (3 Wires and 1 GND)		575V 3PH 60Hz (3 Wires and 1 GND)	
Capacity1	Cooling	Capacity (Nominal)	Btu/h (kW)	360,000 (105.5)		384,000 (112.5)		408,000 (119.6)		432,000 (126.6)	
	Heating	Capacity (Nominal)	Btu/h (kW)	405,000 (118.7)		432,000 (126.6)		459,000 (134.5)		486,000 (142.4)	
Efficiency Ratings2 (Ducted)	Cooling	Capacity (Rated)	Btu/h (kW)	344,000 (100.8)		366,000 (107.3)		380,000 (111.4)		400,000 (117.2)	
		EER	Btu/Wh (W/W)	10.2 (2.99)		9.5 (2.78)		9.5 (2.78)		9.6 (2.81)	
		IEER	Btu/Wh (Wh/Wh)	19.5 (5.71)		18.6 (5.45)		19.2 (5.63)		19.0 (5.57)	
		Capacity (Rated)	Btu/h (kW)	382,000 (112.0)		410,000 (120.2)		434,000 (127.2)		460,000 (134.8)	
	Heating High	COP	W/W	3.20		3.33		3.37		3.35	
		Capacity	Btu/h (kW)	262,000 (76.8)		276,000 (80.9)		288,000 (84.4)		300,000 (87.9)	
	Heating Low	COP	W/W	2.18		2.26		2.23		2.19	
		Capacity	Btu/h (kW)	262,000 (76.8)		276,000 (80.9)		288,000 (84.4)		300,000 (87.9)	
Efficiency Ratings2 (Non-Ducted)	Cooling	Capacity (Rated)	Btu/h (kW)	344,000 (100.8)		366,000 (107.3)		380,000 (111.4)		400,000 (117.2)	
		EER	Btu/Wh (W/W)	9.5 (2.78)		9.6 (2.81)		9.5 (2.78)		9.5 (2.78)	
		IEER	Btu/Wh (Wh/Wh)	19.8 (5.81)		19.6 (5.75)		19.3 (5.67)		19.5 (5.72)	
		Capacity (Rated)	Btu/h (kW)	386,000 (113.1)		410,000 (120.2)		434,000 (127.2)		460,000 (134.8)	
	Heating High	COP	W/W	3.27		3.37		3.34		3.21	
		Capacity	Btu/h (kW)	262,000 (76.8)		276,000 (80.9)		288,000 (84.4)		300,000 (87.9)	
	Heating Low	COP	W/W	2.05		2.20		2.08		2.05	
		Capacity	Btu/h (kW)	262,000 (76.8)		276,000 (80.9)		288,000 (84.4)		300,000 (87.9)	
Cooling Operating Range	Indoor	°F WB (°C WB)		59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)		59(15) ~ 73(23)	
		°F DB (°C DB)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)		23(-5) ~ 122(50)	
	Outdoor3	°F DB (°C DB)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)		14(-10) ~ 109(43)	
		°F DB (°C DB)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)		-10(-23) ~ 109(43)	
Heating Operating Range	Indoor	°F DB (°C DB)		59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)		59(15) ~ 80(27)	
	Outdoor3	°F WB (°C WB)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)		-13(-25) ~ 59(15)	
Cabinet Color (Munsell Code)		-		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)		Natural Gray (1.0Y8.5/0.5)	
Outer Dimensions	Height	in (mm)		66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)		66-1/4 (1683)	
	Width	in (mm)		128-3/4 (3270)		147-7/16 (3745)		147-7/16 (3745)		147-7/16 (3745)	
	Depth	in (mm)		30-1/2 (774)		30-1/2 (774)		30-1/2 (774)		30-1/2 (774)	
Package Dimensions	Height	in (mm)		-		-		-		-	
	Width	in (mm)		-		-		-		-	
	Depth	in (mm)		-		-		-		-	
Weight	Net	lbs (kg)		849×2 (385×2)		728×725×2 (330×329×2)		728×2+725 (330×2+329)		728×3 (330×3)	
	Gross	lbs (kg)		900×2 (408×2)		772×770×2 (350×349×2)		772×2+770 (350×2+349)		772×3 (350×3)	
Connection Ratio	Standard (Extended)4	%		130(150) - 55		130(150) - 55		130(150) - 55		130(150) - 55	
	Max. (Recommended) Indoor Units/System5	Q'ty		64 (28)		64 (30)		64 (30)		64 (30)	
Heat Exchanger	Type	-		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube		Multi-Pass Cross-Finned Tube	
	Material	-		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)		Cu-Al (Anti-corrosion)	
Compressor	Type	Inverter 1	-	DC80PHD×4		AA50PHD×6		AA50PHD×6		AA50PHD×6	
		Inverter 2	-	-		-		-		-	
	Motor Output (Pole)	kW (Pole)		(9.1(6)×2)+(7.1(6)×2)		(6.4(6)×2)+(5.4(6)×2)×2		(6.4(6)×2)×2+(5.4(6)×2)		(6.4(6)×2)×3	
	Start Method	-		inverter		inverter		inverter		inverter	
	Operation Range	%		3 ~ 100		2 ~ 100		2 ~ 100		2 ~ 100	
	Refrigeration Oil Type	-		FVC68D		FVC68D		FVC68D		FVC68D	
Crank Case Heater		W×Q'ty		34.2 (230V) ×12		34.2 (230V) ×18		34.2 (230V) ×18		34.2 (230V) ×18	
Fan	Type	-		Propeller Fan		Propeller Fan		Propeller Fan		Propeller Fan	
	Motor Output (Pole)	kW (Pole)		(0.56(8)×2)+(0.48(8)×2)		(0.39(8)×2)×3		(0.39(8)×2)×3		(0.39(8)×2)×3	
	Quantity	Q'ty		4		6		6		6	
	Airflow Rate	cfm (m3/min)		12,284 +11,614 (348+329)		9,037×3 (256×3)		9,037×3 (256×3)		9,037×3 (256×3)	
	External Static Pressure5	in.W.G. (Pa)		0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)		0-0.32 (0-80)	
	Drive	-		Direct-drive		Direct-drive		Direct-drive		Direct-drive	
Electrical	Min Circuit Amps	A		32+27		24+19×2		24×2+19		24×3	
	Maximum Overcurrent Protective Device	A		40+35		30+25×2		30×2+25		30×3	
	Maximum Fuse Size	A		40+35		30+25×2		30×2+25		30×3	
Sound Pressure Level6	Cooling (Night Shift)	dB (A)		68	62	69	62	69	62	70	62
	Heating	dB (A)		68		69		69		70	
Protection Devices	Cycle	-		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)		High pressure switch at 601psi (4.15MPa)	
	Inverter	-		Over-current protection		Over-current protection		Over-current protection		Over-current protection	
	Compressor	-		Over-heat protection		Over-heat protection		Over-heat protection		Over-heat protection	
	PCB	-		Over-heat protection		Over-heat protection		Over-heat protection		Over-heat protection	
Refrigerant	Type	-		R410A		R410A		R410A		R410A	
	Factory Charge Amount	lbs (kg)		25.6+24.9 (11.6+11.3)		23.6 +21.8×2 (10.7 +9.9×2)		23.6×2 +21.8 (10.7×2 +9.9)		23.6×3 (10.7×3)	
Refrigeration Oil	Factory Charge Amount	gal/Unit (L/Unit)		2.2×2 (8.4×2)		2.1×3 (7.9×3)		2.1×3 (7.9×3)		2.1×3 (7.9×3)	
Defrost Method		-		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle		Reversed Refrigerant Cycle	
Main Refrigerant Piping (Heat Pump)	Gas Line	in (mm)		1-3/8 (34.93)		1-5/8 (41.28)		1-5/8 (41.28)		1-5/8 (41.28)	
	Liquid Line	in (mm)		3/4 (19.05)		3/4 (19.05)		3/4 (19.05)		3/4 (19.05)	

NOTES:

1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C) DB

67°F (19.4°C) WB

Outdoor Air Inlet Temperature: 95°F (35.0°C) DB

Piping Length: 24ft. 7-3/16 in. (7.5m), Piping Lift: 0ft. (0m)

2 Efficiency ratings are based on the AHRI 1230 test standard.

3 There are some exceptions and notes for cooling and heating operation range. For details, refer to "2.12 Operation Temperature Range".

4 For details, refer to "2.13 Combination of Indoor Units and Outdoor Units".

5 External static pressure can be changed by DSW setting.

6 Measure Point: 3.3ft. (1m) from the service cover surface and 4.9ft. (1.5m) from floor level

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound on the air inlet side is 8dB higher than on the front side.

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C) DB

Outdoor Air Inlet Temperature: 47°F (8.3°C) DB

43°F (6.1°C) WB

2.4 Dimensional Data and Weights

2.4.1 Overall Dimensional and Weight Data

208V/230V

Model	Height [in (mm)]	Width* [in (mm)]	Depth [in (mm)]	Weight [lbs (kg)]
(H,Y)VAHP072B32S	66-1/4 (1683)	38-3/8 (975)	30-1/2 (774)	516 (234)
(H,Y)VAHP096B32S	66-1/4 (1683)	48-5/8 (1235)	30-1/2 (774)	591 (268)
(H,Y)VAHP120B32S	66-1/4 (1683)	48-5/8 (1235)	30-1/2 (774)	721 (327)
(H,Y)VAHP144B32S	66-1/4 (1683)	48-5/8 (1235)	30-1/2 (774)	723 (328)
(H,Y)VAHP168B32S	66-1/4 (1683)	64 (1625)	30-1/2 (774)	849 (385)
(H,Y)VAHP192B32S	66-1/4 (1683)	64 (1625)	30-1/2 (774)	849 (385)
(H,Y)VAHP216B32S	66-1/4 (1683)	87-13/16 (2230)	30-1/2 (774)	1239 (562)
(H,Y)VAHP240B32S	66-1/4 (1683)	98-1/16 (2490)	30-1/2 (774)	1442 (654)
(H,Y)VAHP264B32S	66-1/4 (1683)	98-1/16 (2490)	30-1/2 (774)	1444 (655)
(H,Y)VAHP288B32S	66-1/4 (1683)	98-1/16 (2490)	30-1/2 (774)	1446 (656)
(H,Y)VAHP312B32S	66-1/4 (1683)	113-3/8 (2880)	30-1/2 (774)	1572 (723)
(H,Y)VAHP336B32S	66-1/4 (1683)	113-3/8 (2880)	30-1/2 (774)	1572 (723)
(H,Y)VAHP360B32S	66-1/4 (1683)	128-3/4 (3270)	30-1/2 (774)	1698 (770)
(H,Y)VAHP384B32S	66-1/4 (1683)	147-7/16 (3745)	30-1/2 (774)	2165 (982)
(H,Y)VAHP408B32S	66-1/4 (1683)	147-7/16 (3745)	30-1/2 (774)	2167 (983)
(H,Y)VAHP432B32S	66-1/4 (1683)	147-7/16 (3745)	30-1/2 (774)	2169 (984)

460V, 575V

Model	Height [in (mm)]	Width* [in (mm)]	Depth [in (mm)]	Weight [lbs (kg)]
(H,Y)VAHP072B42S (H,Y)VAHP072B52S	66-1/4 (1683)	38-3/8 (975)	30-1/2 (774)	523 (237)
(H,Y)VAHP096B42S (H,Y)VAHP096B52S	66-1/4 (1683)	48-5/8 (1235)	30-1/2 (774)	604 (274)
(H,Y)VAHP120B42S (H,Y)VAHP120B52S	66-1/4 (1683)	48-5/8 (1235)	30-1/2 (774)	725 (329)
(H,Y)VAHP144B42S (H,Y)VAHP144B52S	66-1/4 (1683)	48-5/8 (1235)	30-1/2 (774)	728 (330)
(H,Y)VAHP168B42S (H,Y)VAHP168B52S	66-1/4 (1683)	64 (1625)	30-1/2 (774)	849 (385)
(H,Y)VAHP192B42S (H,Y)VAHP192B52S	66-1/4 (1683)	64 (1625)	30-1/2 (774)	849 (385)
(H,Y)VAHP216B42S (H,Y)VAHP216B52S	66-1/4 (1683)	87-13/16 (2230)	30-1/2 (774)	1251 (567)
(H,Y)VAHP240B42S (H,Y)VAHP240B52S	66-1/4 (1683)	98-1/16 (2490)	30-1/2 (774)	1450 (658)
(H,Y)VAHP264B42S (H,Y)VAHP264B52S	66-1/4 (1683)	98-1/16 (2490)	30-1/2 (774)	1453 (659)
(H,Y)VAHP288B42S (H,Y)VAHP288B52S	66-1/4 (1683)	98-1/16 (2490)	30-1/2 (774)	1456 (660)
(H,Y)VAHP312B42S (H,Y)VAHP312B52S	66-1/4 (1683)	113-3/8 (2880)	30-1/2 (774)	1577 (715)
(H,Y)VAHP336B42S (H,Y)VAHP336B52S	66-1/4 (1683)	113-3/8 (2880)	30-1/2 (774)	1577 (715)
(H,Y)VAHP360B42S (H,Y)VAHP360B52S	66-1/4 (1683)	128-3/4 (3270)	30-1/2 (774)	1698 (770)
(H,Y)VAHP384B42S (H,Y)VAHP384B52S	66-1/4 (1683)	147-7/16 (3745)	30-1/2 (774)	2178 (988)
(H,Y)VAHP408B42S (H,Y)VAHP408B52S	66-1/4 (1683)	147-7/16 (3745)	30-1/2 (774)	2181 (989)
(H,Y)VAHP432B42S (H,Y)VAHP432B52S	66-1/4 (1683)	147-7/16 (3745)	30-1/2 (774)	2184 (990)

* : With a combination model, the above tables show an example width that has a 3/4 in. (20mm) clearance between the base units.

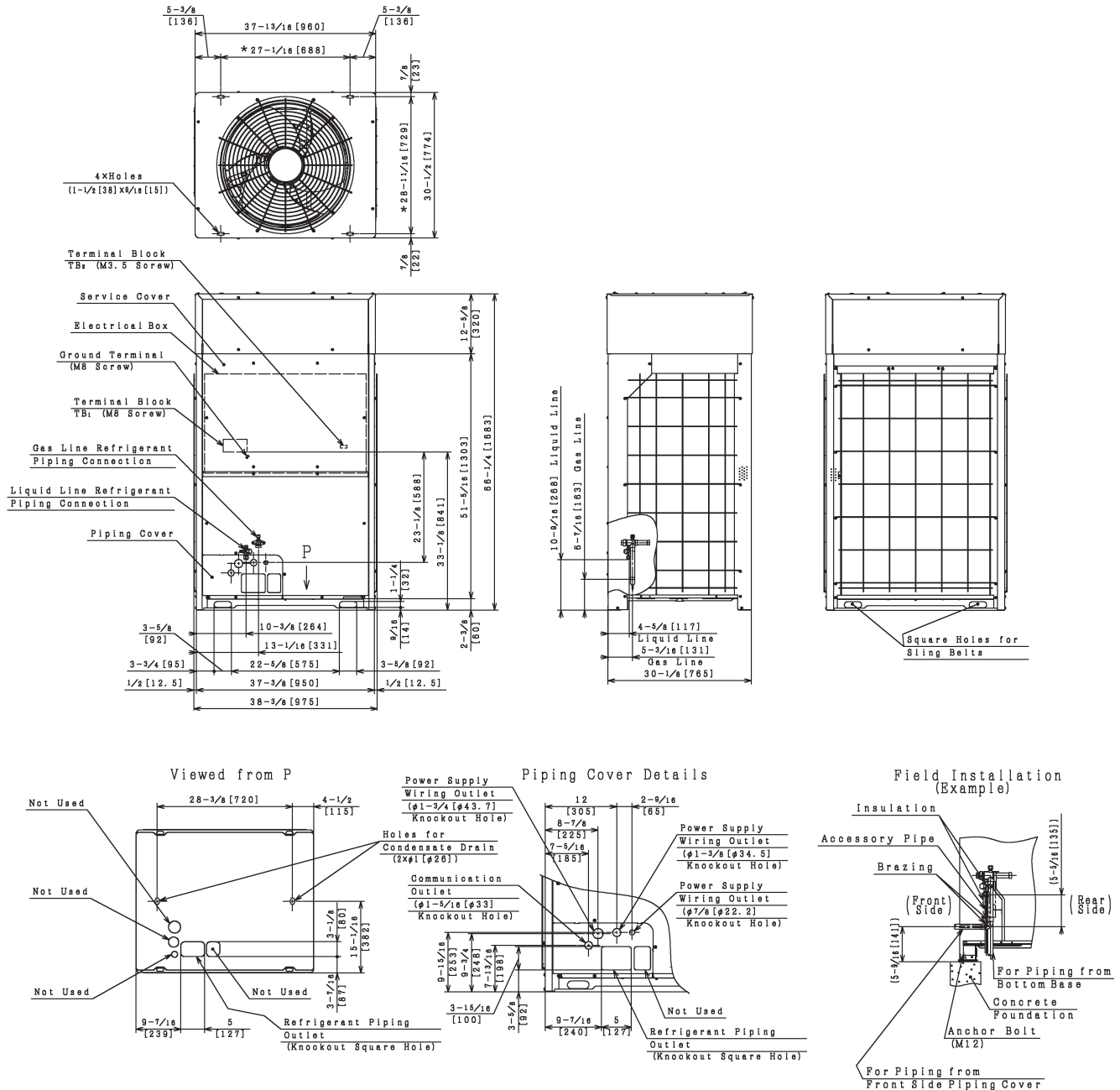
Additional clearances between the base units may be required for specific applications. Refer to the installation manual for required clearances between outdoor units.

2.4.2 Outdoor Units

(1) 208/230V

Model: (H,Y)VAHP072B32S

inch (mm)

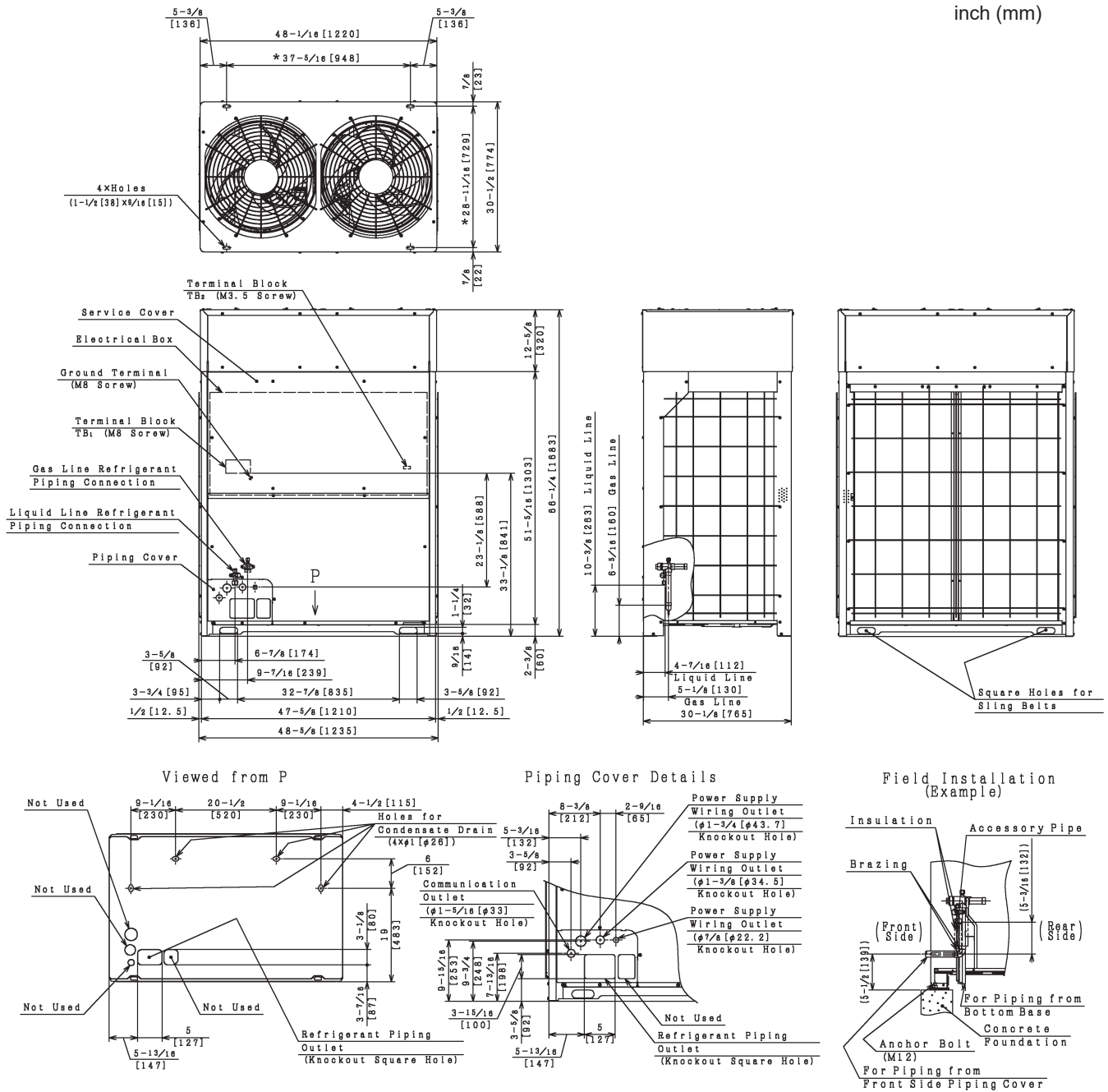


NOTES:

- Condensation is produced by the outdoor coil during heating and defrost operation.
 - Locate the unit where the system can be properly drained.
 - Condensate pipe must be installed in accordance with local and national codes.
 - Ensure the drain is sloped downward away from the outdoor for proper drainage.
 - When the outdoor unit is installed indoors, it may be necessary to provide a secondary condensate pan, condensate pump or optional drain adapter for condensate management.
 - Do not use the drain adapter (optional) in locations where the condensate line may freeze.
- The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.

Model: (H,Y)VAHP096B32S, (H,Y)VAHP120B32S and (H,Y)VAHP144B32S

inch (mm)



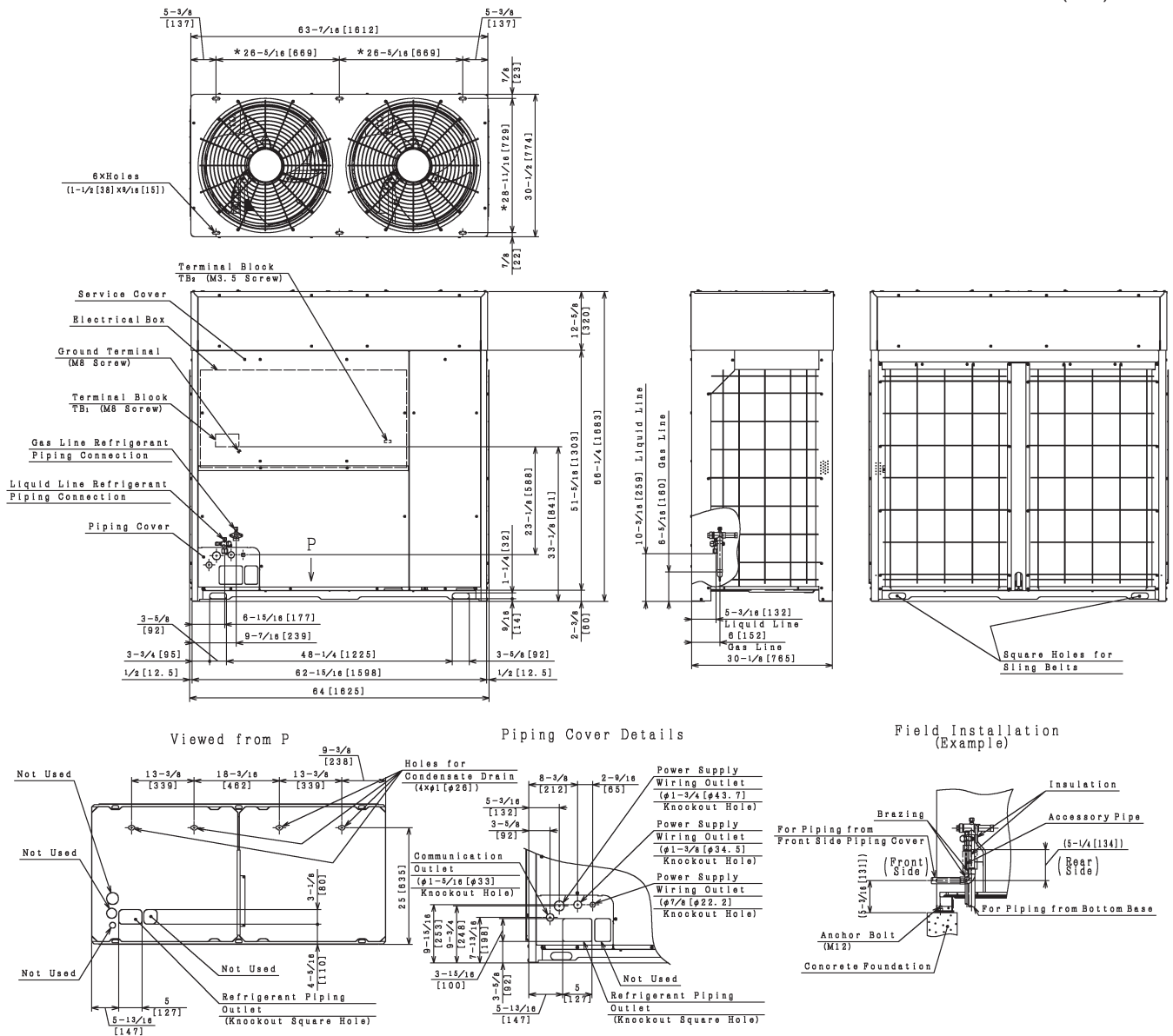
NOTES:

- Condensation is produced by the outdoor coil during heating and defrost operation.
 - Locate the unit where the system can be properly drained.
 - Condensate pipe must be installed in accordance with local and national codes.
 - Ensure the drain is sloped downward away from the outdoor for proper drainage.
 - When the outdoor unit is installed indoors, it may be necessary to provide a secondary condensate pan, condensate pump or optional drain adapter for condensate management.
 - Do not use the drain adapter (optional) in locations where the condensate line may freeze.
- The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.

PRODUCT SPECIFICATION

Model: (H,Y)VAHP168B32S and (H,Y)VAHP192B32S

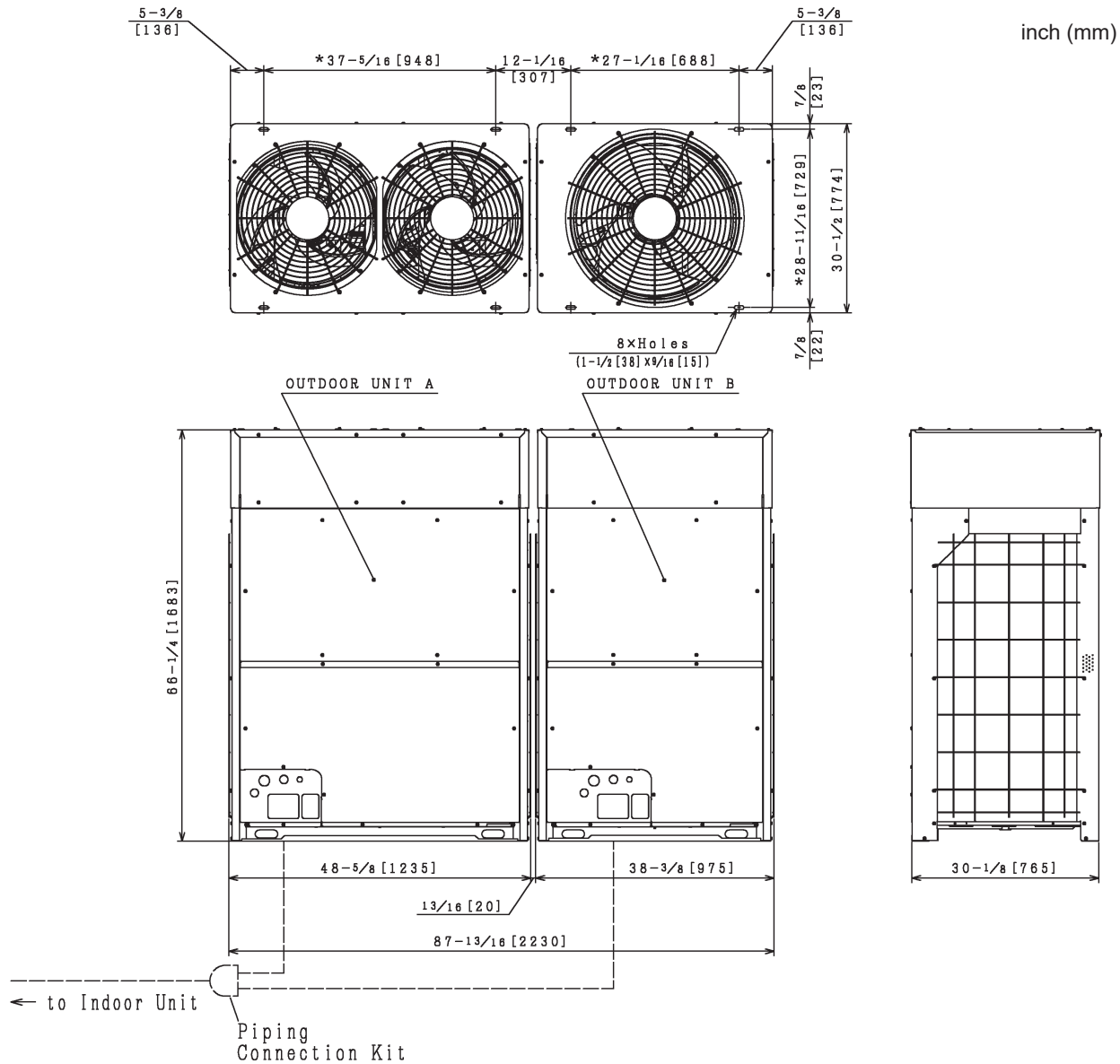
inch (mm)



NOTES:

- Condensation is produced by the outdoor coil during heating and defrost operation.
 - Locate the unit where the system can be properly drained.
 - Condensate pipe must be installed in accordance with local and national codes.
 - Ensure the drain is sloped downward away from the outdoor for proper drainage.
 - When the outdoor unit is installed indoors, it may be necessary to provide a secondary condensate pan, condensate pump or optional drain adapter for condensate management.
 - Do not use the drain adapter (optional) in locations where the condensate line may freeze.
- The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.

Model: (H,Y)VAHP216B32S



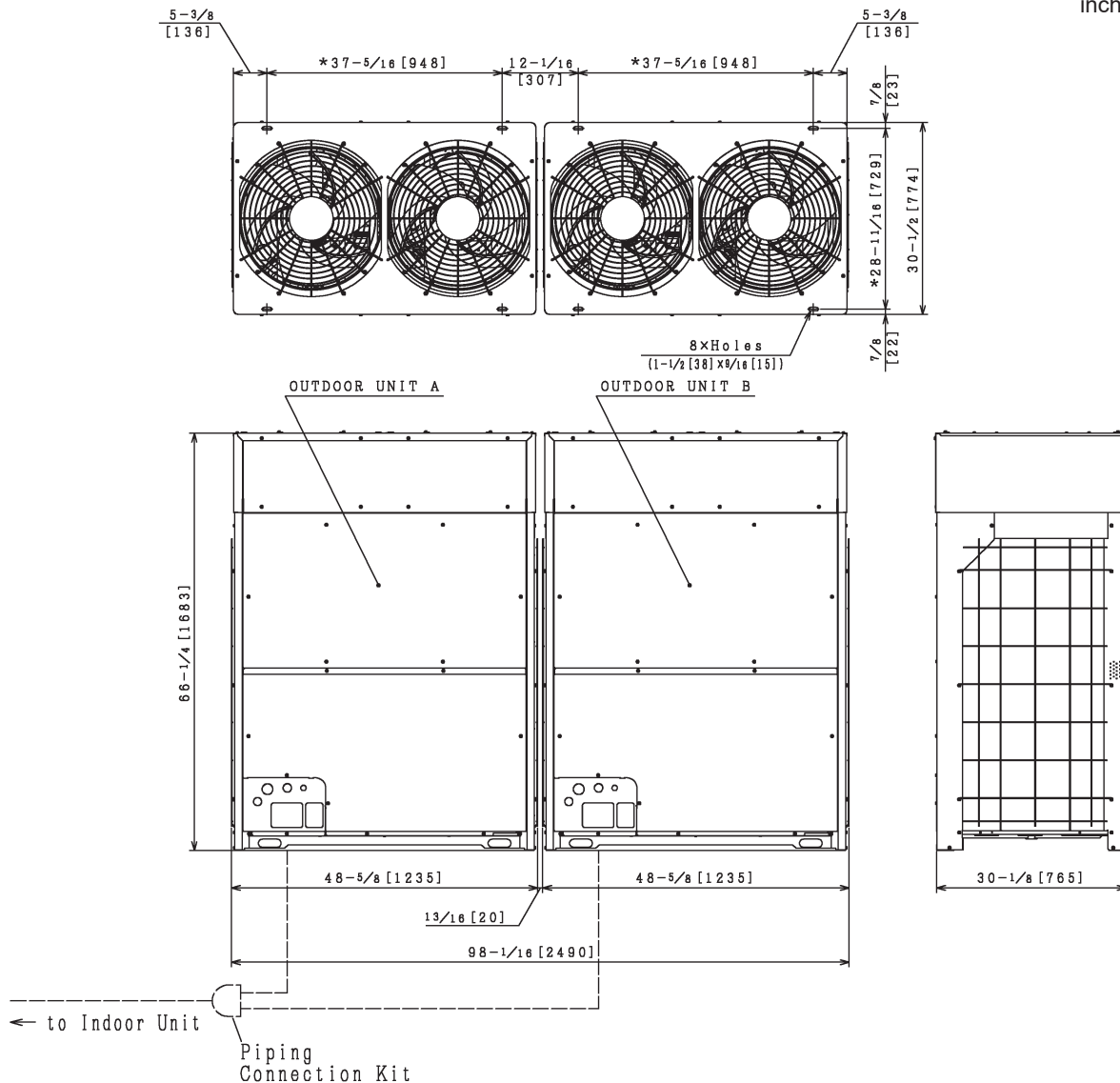
Outdoor Unit Model	Combination of Base Unit Models	
	OUTDOOR UNIT A	OUTDOOR UNIT B
(H,Y)VAHP216B32S	(H,Y)VAHP144B32S	(H,Y)VAHP072B32S

- NOTES:
- 1. Outdoor unit A is the Main unit and outdoor unit B is the Sub unit. The Main unit is closest in piping to the indoor unit
 - 2. If outdoor modules have different capacities, the largest capacity unit will be outdoor unit A (Main) and outdoor unit B (Sub) will be the smallest capacity. A ≥ B.
 - 3. Piping connection kits and piping sizes are identified in the "Installation Manual".
 - 4. The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.
 - 5. This drawing shows that there is 13/16 inch [20mm] clearance between the outdoor units. If Snow Protection Hoods are installed on the outdoor units, a 2 inches [50mm] minimum clearance is required.
 - 6. Modifications to the anchoring locations for the outdoor units are required for applications with clearances greater than 13/16 inch [20mm] between outdoor modules.
 - 7. "Dimensional Drawing of Base Unit" is used for dimensions of the piping and wiring outlets.

PRODUCT SPECIFICATION

Model: (H,Y)VAHP240B32S, (H,Y)VAHP264B32S and (H,Y)VAHP288B32S

inch (mm)

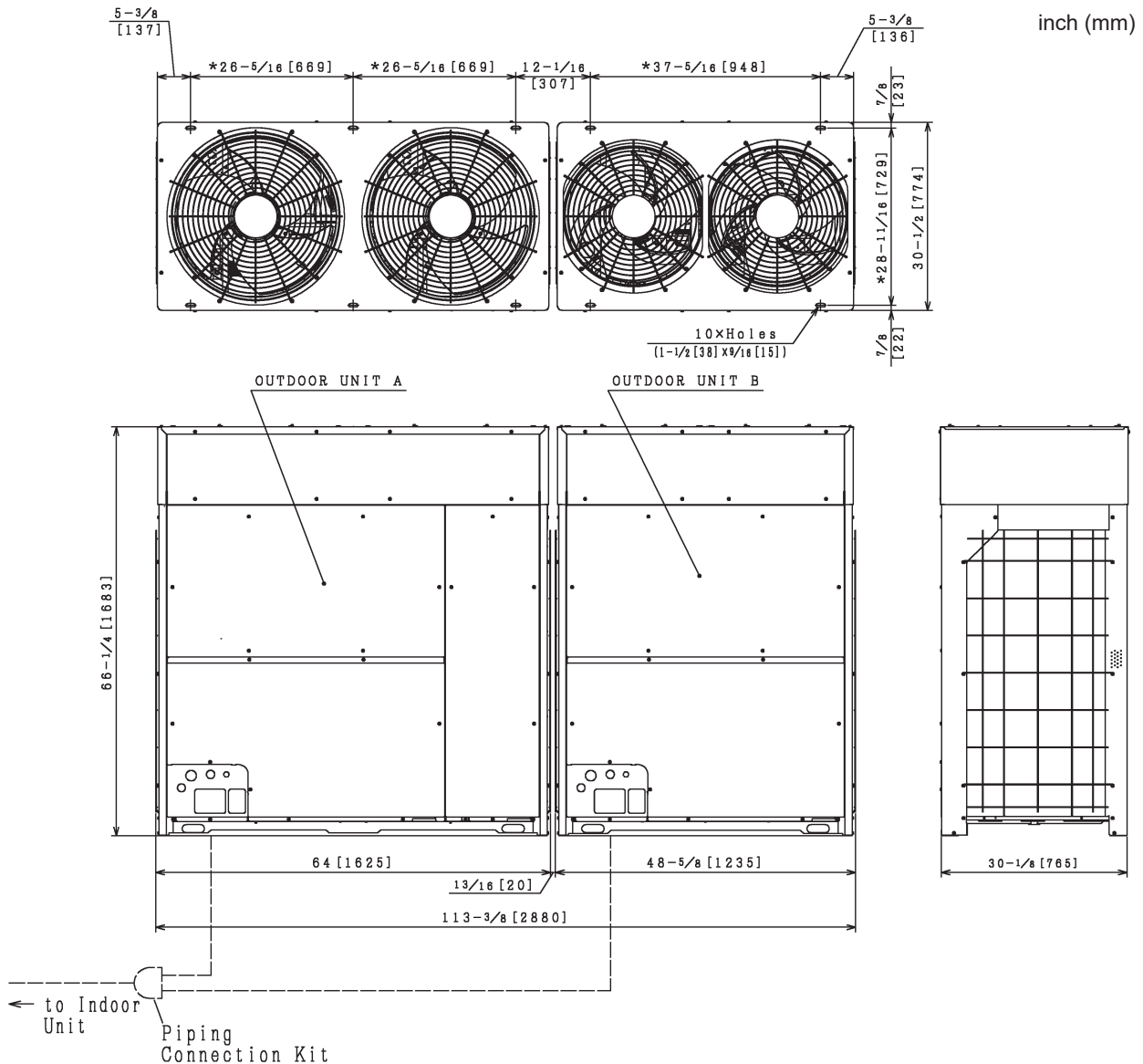


Outdoor Unit Model	Combination of Base Unit Models	
	OUTDOOR UNIT A	OUTDOOR UNIT B
(H,Y)VAHP240B32S	(H,Y)VAHP120B32S	(H,Y)VAHP120B32S
(H,Y)VAHP264B32S	(H,Y)VAHP144B32S	(H,Y)VAHP120B32S
(H,Y)VAHP288B32S	(H,Y)VAHP144B32S	(H,Y)VAHP144B32S

NOTES:

- Outdoor unit A is the Main unit and outdoor unit B is the Sub unit. The Main unit is closest in piping to the indoor unit.
- If outdoor modules have different capacities, the largest capacity unit will be outdoor unit A (Main) and outdoor unit B (Sub) will be the smallest capacity. $A \geq B$.
- Piping connection kits and piping sizes are identified in the "Installation Manual".
- The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.
- This drawing shows that there is $13/16$ inch [20mm] clearance between the outdoor units. If Snow Protection Hoods are installed on the outdoor units, a 2 inches [50mm] minimum clearance is required.
- Modifications to the anchoring locations for the outdoor units are required for applications with clearances greater than $13/16$ inch [20mm] between outdoor modules.
- "Dimensional Drawing of Base Unit" is used for dimensions of the piping and wiring outlets.

Model: (H,Y)VAHP312B32S and (H,Y)VAHP336B32S



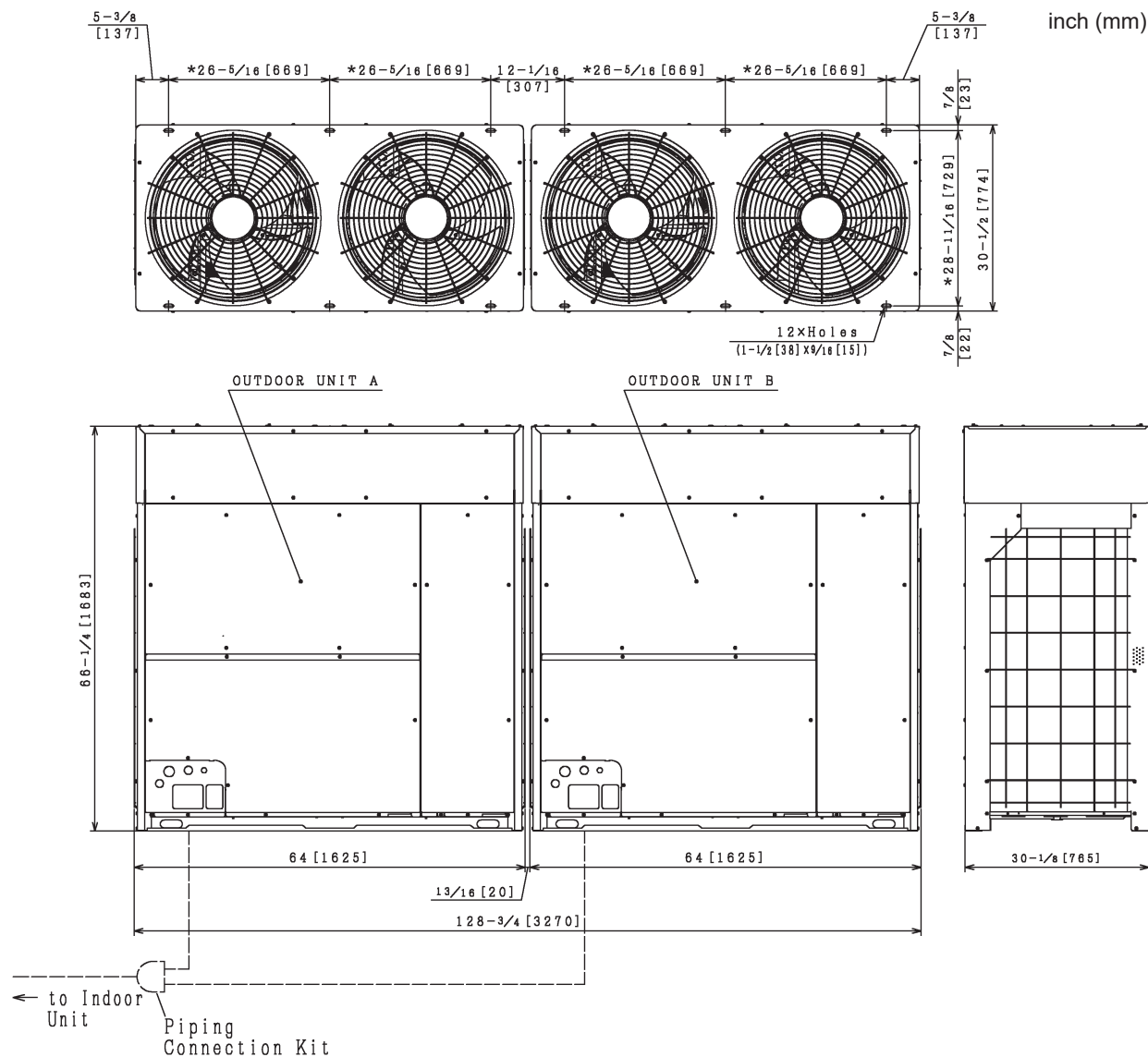
Outdoor Unit Model	Combination of Base Unit Models	
	OUTDOOR UNIT A	OUTDOOR UNIT B
(H,Y)VAHP312B32S	(H,Y)VAHP168B32S	(H,Y)VAHP144B32S
(H,Y)VAHP336B32S	(H,Y)VAHP192B32S	(H,Y)VAHP144B32S

NOTES:

- Outdoor unit A is the Main unit and outdoor unit B is the Sub unit. The Main unit is closest in piping to the indoor unit.
- If outdoor modules have different capacities, the largest capacity unit will be outdoor unit A (Main) and outdoor unit B (Sub) will be the smallest capacity. $A \geq B$.
- Piping connection kits and piping sizes are identified in the "Installation Manual".
- The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.
- This drawing shows that there is 13/16 inch [20mm] clearance between the outdoor units. If Snow Protection Hoods are installed on the outdoor units, a 2 inches [50mm] minimum clearance is required.
- Modifications to the anchoring locations for the outdoor units are required for applications with clearances greater than 13/16 inch [20mm] between outdoor modules.
- "Dimensional Drawing of Base Unit" is used for dimensions of the piping and wiring outlets.

PRODUCT SPECIFICATION

Model: (H,Y)VAHP360B32S

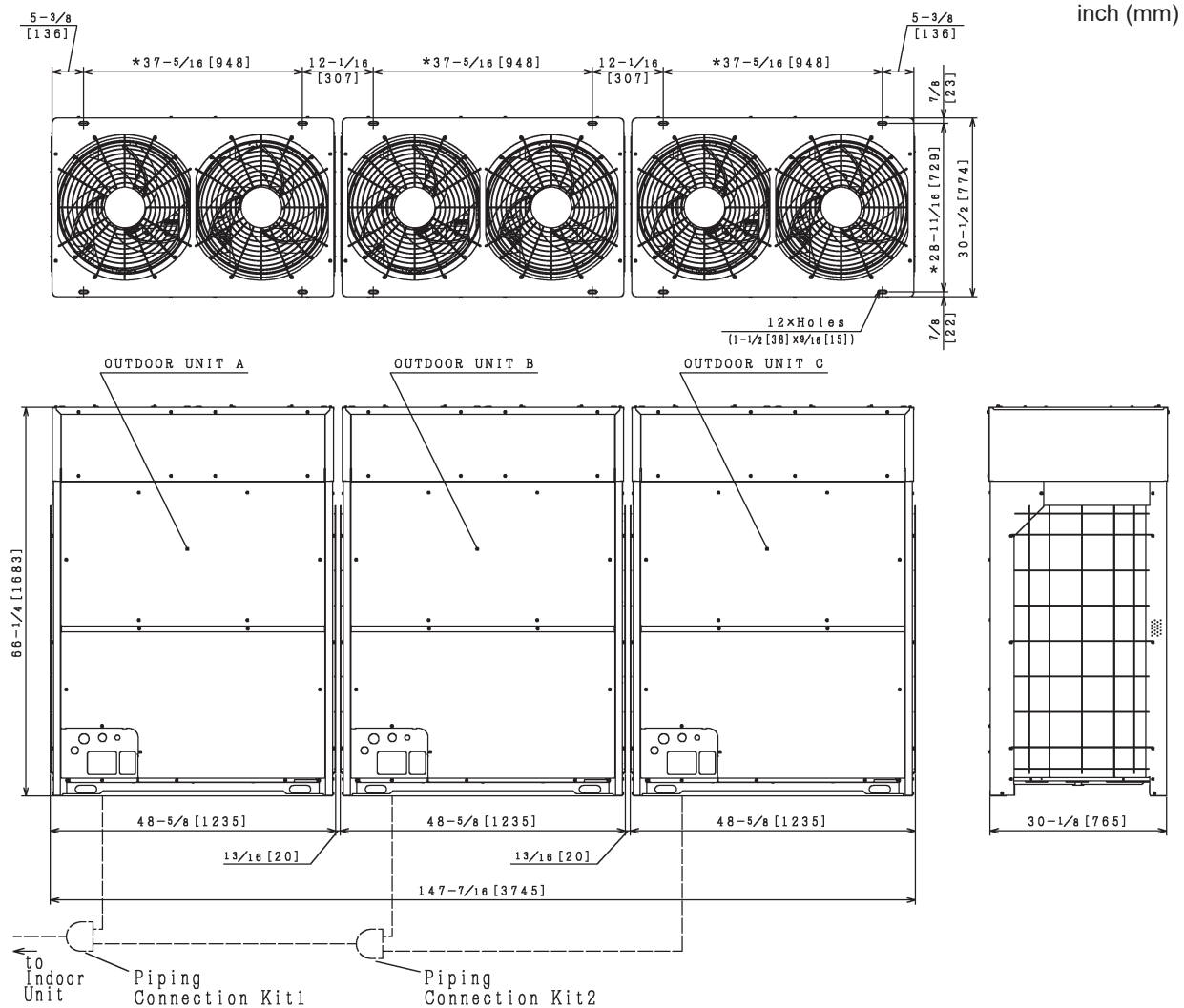


Outdoor Unit Model	Combination of Base Unit Models	
	OUTDOOR UNIT A	OUTDOOR UNIT B
(H,Y)VAHP360B32S	(H,Y)VAHP192B32S	(H,Y)VAHP168B32S

NOTES:

1. Outdoor unit A is the Main unit and outdoor unit B is the Sub unit. The Main unit is closest in piping to the indoor unit.
2. If outdoor modules have different capacities, the largest capacity unit will be outdoor unit A (Main) and outdoor unit B (Sub) will be the smallest capacity. $A \geq B$.
3. Piping connection kits and piping sizes are identified in the "Installation Manual".
4. The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.
5. This drawing shows that there is 13/16 inch [20mm] clearance between the outdoor units. If Snow Protection Hoods are installed on the outdoor units, a 2 inches [50mm] minimum clearance is required.
6. Modifications to the anchoring locations for the outdoor units are required for applications with clearances greater than 13/16 inch [20mm] between outdoor modules.
7. "Dimensional Drawing of Base Unit" is used for dimensions of the piping and wiring outlets.

Model: (H,Y)VAHP384B32S, (H,Y)VAHP408B32S and (H,Y)VAHP432B32S



Outdoor Unit Model	Combination of Base Unit Models		
	OUTDOOR UNIT A	OUTDOOR UNIT B	OUTDOOR UNIT C
(H,Y)VAHP384B32S	(H,Y)VAHP144B32S	(H,Y)VAHP120B32S	(H,Y)VAHP120B32S
(H,Y)VAHP408B32S	(H,Y)VAHP144B32S	(H,Y)VAHP144B32S	(H,Y)VAHP120B32S
(H,Y)VAHP432B32S	(H,Y)VAHP144B32S	(H,Y)VAHP144B32S	(H,Y)VAHP144B32S

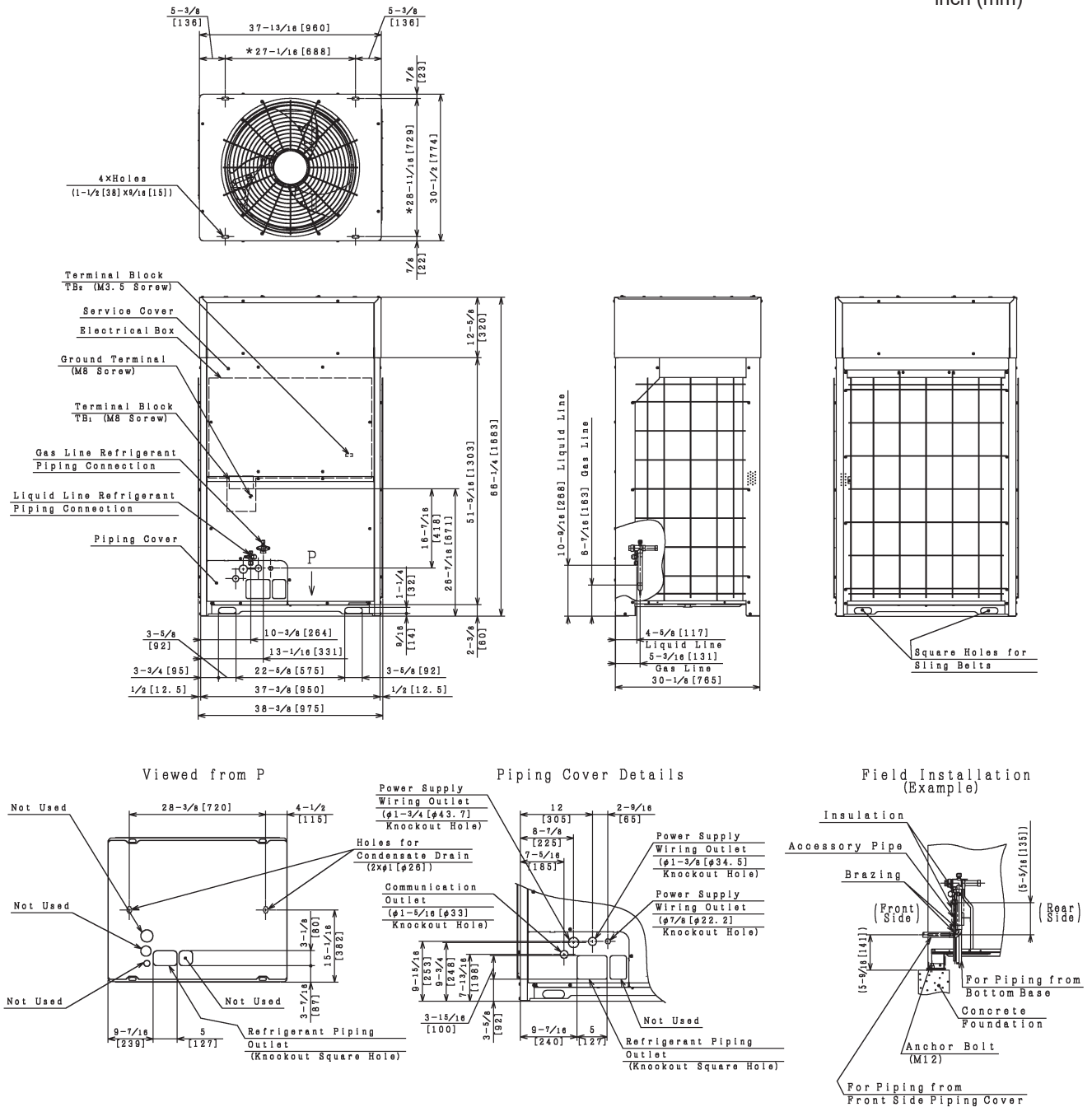
NOTES:

1. Outdoor unit A is the Main unit and outdoor unit B is the Sub unit. The Main unit is closest in piping to the indoor unit.
2. If outdoor modules have different capacities, the largest capacity unit is outdoor unit A (Main), outdoor unit B (Sub) is the next smallest capacity and outdoor unit C (Sub) is the smallest capacity. $A \geq B \geq C$.
3. Piping connection kits and piping sizes are identified in the "Installation Manual".
4. The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.
5. This drawing shows that there is 13/16 inch [20mm] clearance between the outdoor units. If Snow Protection Hoods are installed on the outdoor units, a 2 inches [50mm] minimum clearance is required.
6. Modifications to the anchoring locations for the outdoor units are required for applications with clearances greater than 13/16 inch [20mm] between outdoor modules.
7. "Dimensional Drawing of Base Unit" is used for dimensions of the piping and wiring outlets.

(2) 460V

Model: (H,Y)VAHP072B42S

inch (mm)

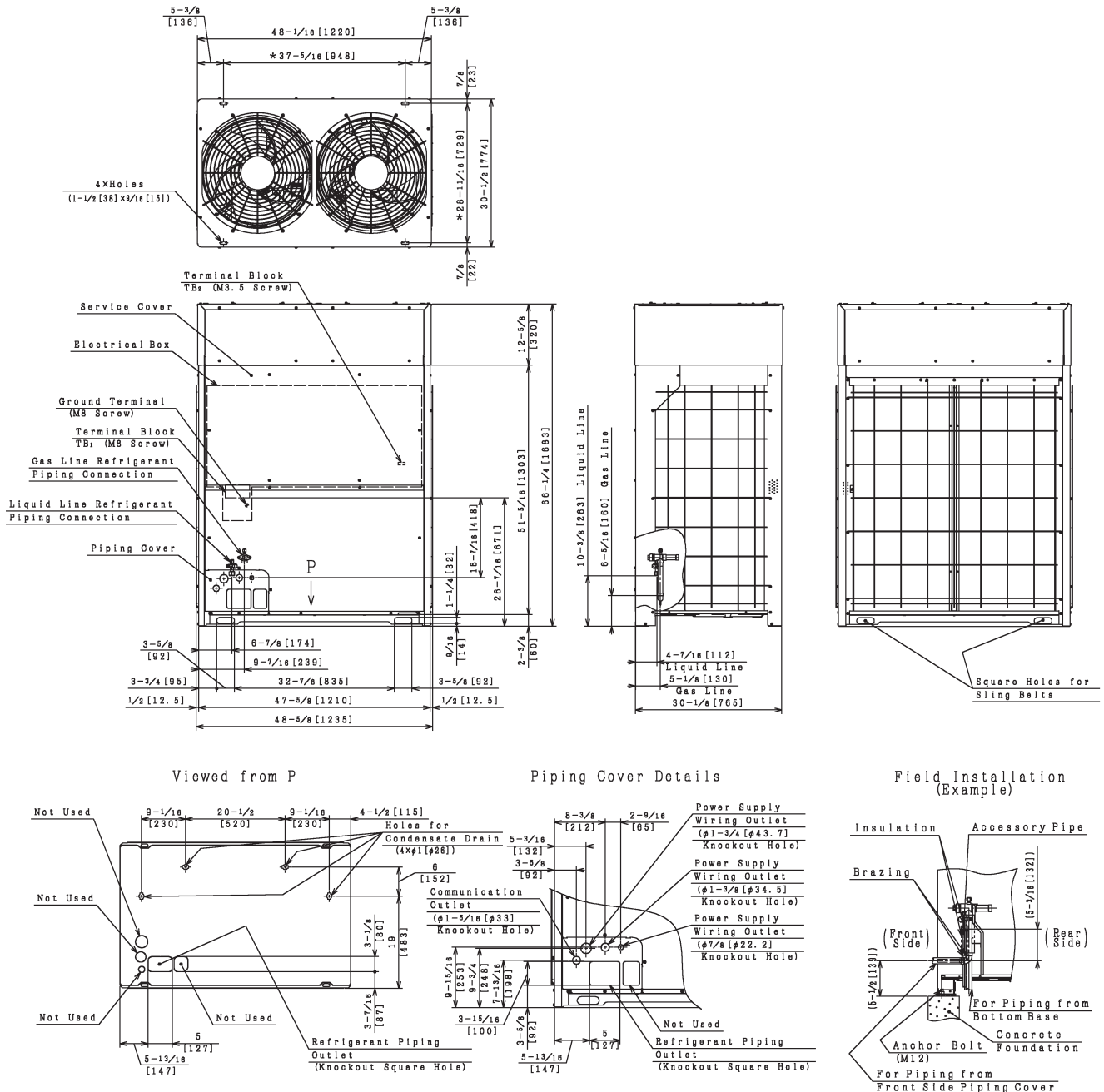


NOTES:

- Condensation is produced by the outdoor coil during heating and defrost operation.
 - 1) Locate the unit where the system can be properly drained.
 - 2) Condensate pipe must be installed in accordance with local and national codes.
 - 3) Ensure the drain is sloped downward away from the outdoor for proper drainage.
 - 4) When the outdoor unit is installed indoors, it may be necessary to provide a secondary condensate pan, condensate pump or optional drain adapter for condensate management.
 - 5) Do not use the drain adapter (optional) in locations where the condensate line may freeze.
- The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.

Model: (H,Y)VAHP096B42S, (H,Y)VAHP120B42S and (H,Y)VAHP144B42S

inch (mm)

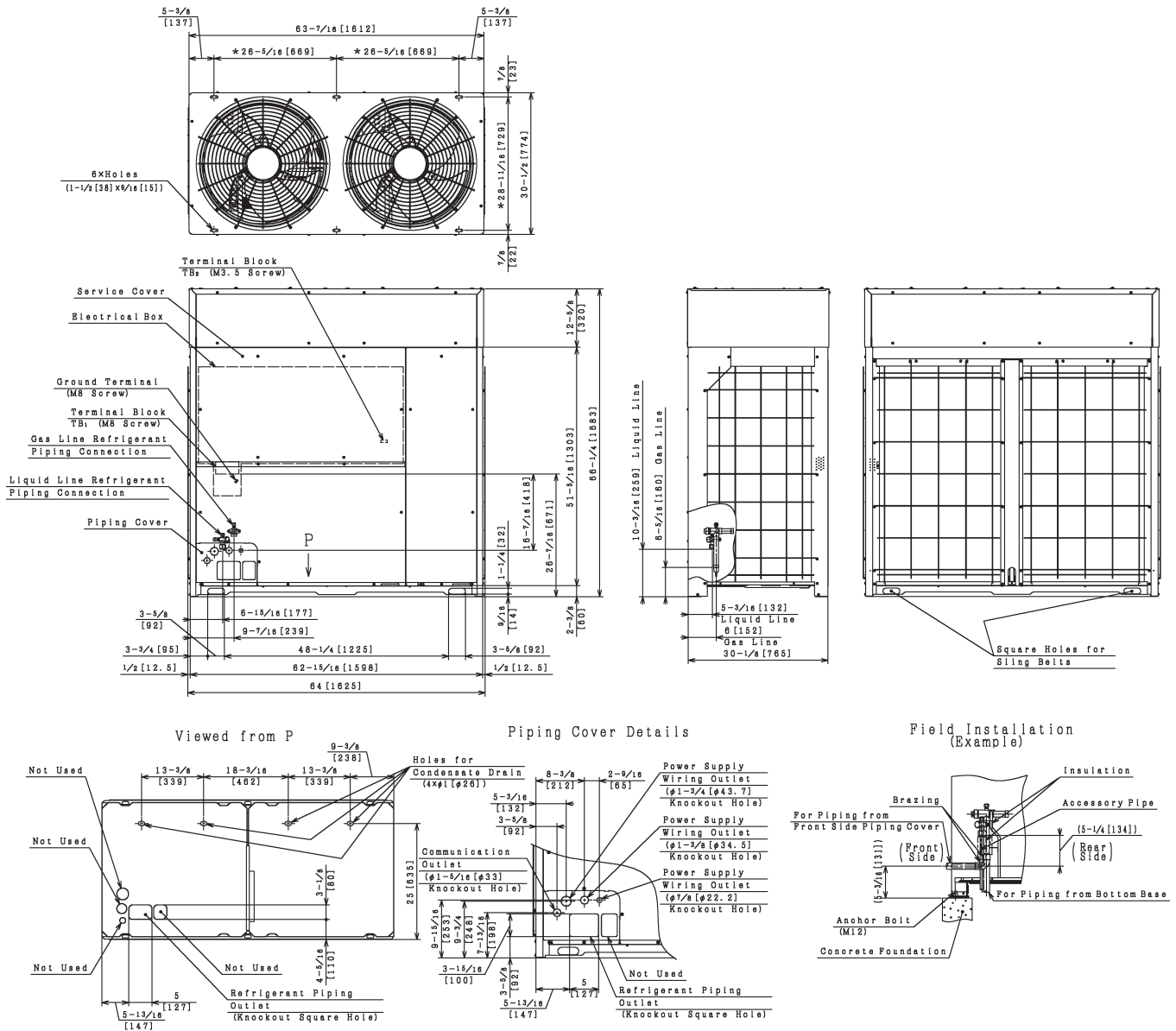


NOTES:

1. Condensation is produced by the outdoor coil during heating and defrost operation.
 - 1) Locate the unit where the system can be properly drained.
 - 2) Condensate pipe must be installed in accordance with local and national codes.
 - 3) Ensure the drain is sloped downward away from the outdoor for proper drainage.
 - 4) When the outdoor unit is installed indoors, it may be necessary to provide a secondary condensate pan, condensate pump or optional drain adapter for condensate management.
 - 5) Do not use the drain adapter (optional) in locations where the condensate line may freeze.
2. The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.

Model: (H,Y)VAHP168B42S and (H,Y)VAHP192B42S

inch (mm)

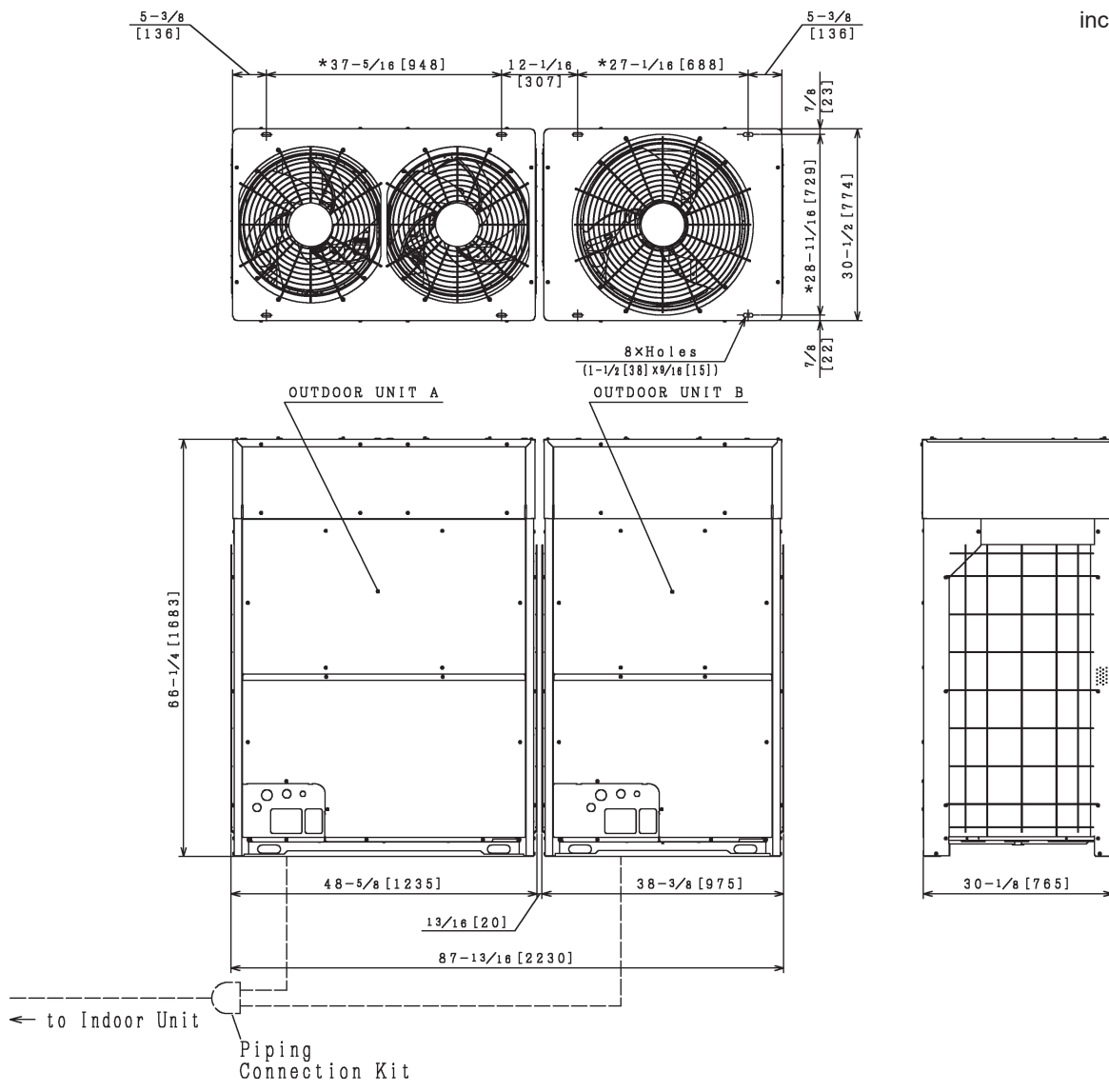


NOTES:

- Condensation is produced by the outdoor coil during heating and defrost operation.
 - 1) Locate the unit where the system can be properly drained.
 - 2) Condensate pipe must be installed in accordance with local and national codes.
 - 3) Ensure the drain is sloped downward away from the outdoor for proper drainage.
 - 4) When the outdoor unit is installed indoors, it may be necessary to provide a secondary condensate pan, condensate pump or optional drain adapter for condensate management.
 - 5) Do not use the drain adapter (optional) in locations where the condensate line may freeze.
- The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.

Model: (H,Y)VAHP216B42S

inch (mm)



Outdoor Unit Model	Combination of Base Unit Models	
	OUTDOOR UNIT A	OUTDOOR UNIT B
(H,Y)VAHP216B42S	(H,Y)VAHP144B42S	(H,Y)VAHP072B42S

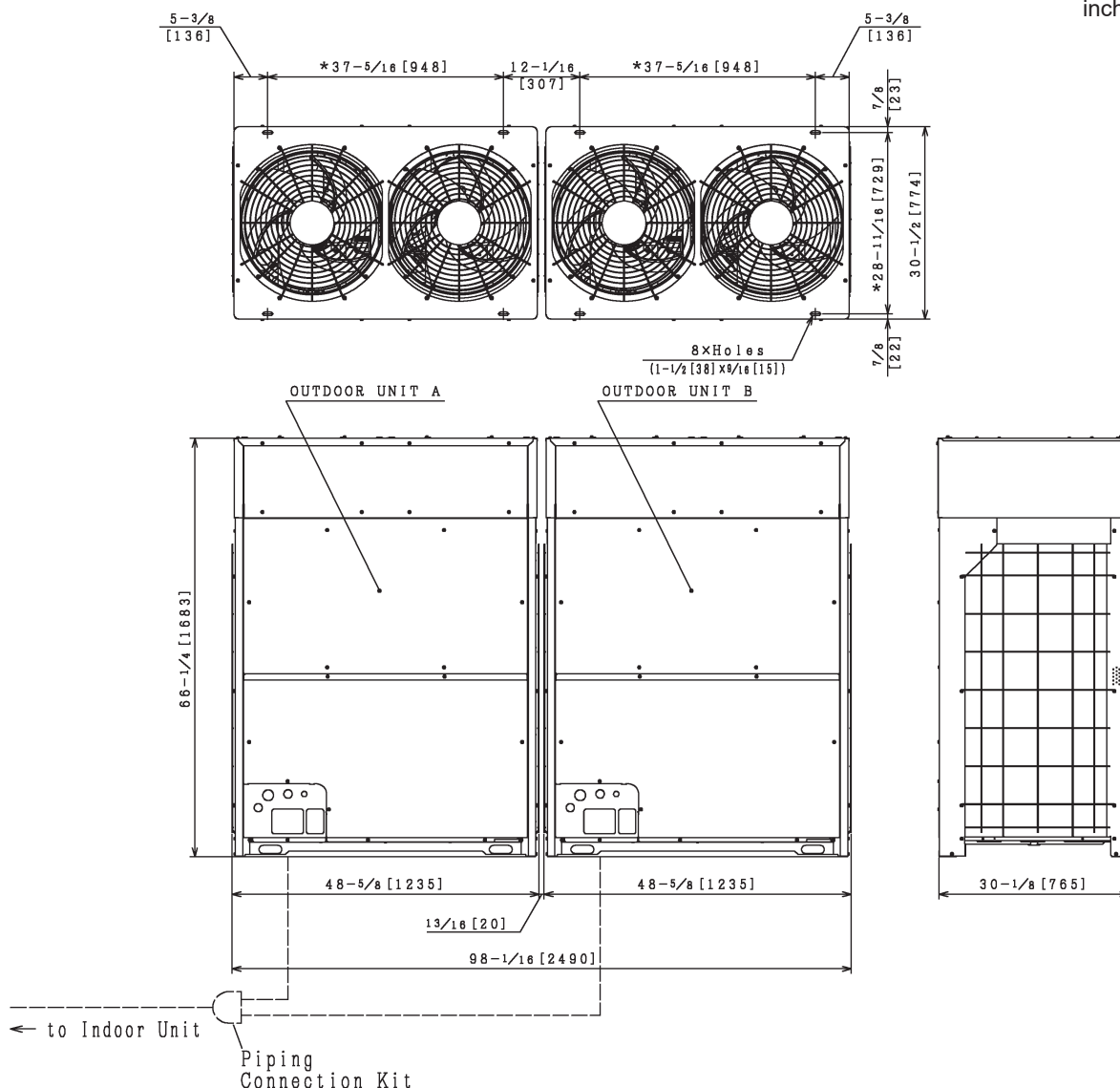
NOTES:

- Outdoor unit A is the Main unit and outdoor unit B is the Sub unit. The Main unit is closest in piping to the indoor unit.
- If outdoor modules have different capacities, the largest capacity unit will be outdoor unit A (Main) and outdoor unit B (Sub) will be the smallest capacity. $A \geq B$.
- Piping connection kits and piping sizes are identified in the "Installation Manual".
- The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.
- This drawing shows that there is $13\frac{1}{16}$ inch [20mm] clearance between the outdoor units. If Snow Protection Hoods are installed on the outdoor units, a 2 inches [50mm] minimum clearance is required.
- Modifications to the anchoring locations for the outdoor units are required for applications with clearances greater than $13\frac{1}{16}$ inch [20mm] between outdoor modules.
- "Dimensional Drawing of Base Unit" is used for dimensions of the piping and wiring outlets.

PRODUCT SPECIFICATION

Model: (H,Y)VAHP240B42S, (H,Y)VAHP264B42S and (H,Y)VAHP288B42S

inch (mm)

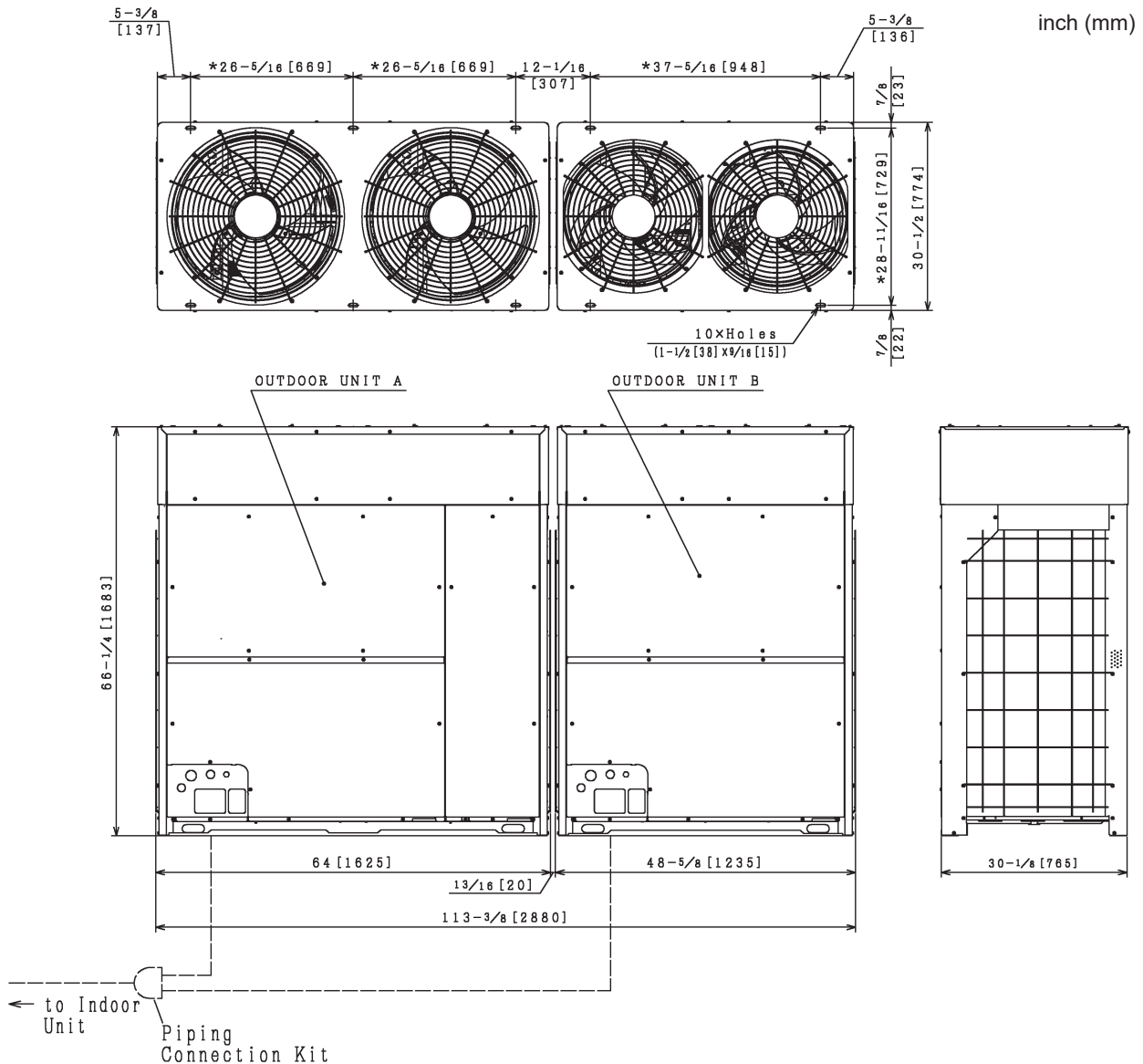


Outdoor Unit Model	Combination of Base Unit Models	
	OUTDOOR UNIT A	OUTDOOR UNIT B
(H,Y)VAHP240B42S	(H,Y)VAHP120B42S	(H,Y)VAHP120B42S
(H,Y)VAHP264B42S	(H,Y)VAHP144B42S	(H,Y)VAHP120B42S
(H,Y)VAHP288B42S	(H,Y)VAHP144B42S	(H,Y)VAHP144B42S

NOTES:

- Outdoor unit A is the Main unit and outdoor unit B is the Sub unit. The Main unit is closest in piping to the indoor unit.
- If outdoor modules have different capacities, the largest capacity unit will be outdoor unit A (Main) and outdoor unit B (Sub) will be the smallest capacity. $A \geq B$.
- Piping connection kits and piping sizes are identified in the "Installation Manual".
- The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.
- This drawing shows that there is 13/16 inch [20mm] clearance between the outdoor units. If Snow Protection Hoods are installed on the outdoor units, a 2 inches [50mm] minimum clearance is required.
- Modifications to the anchoring locations for the outdoor units are required for applications with clearances greater than 13/16 inch [20mm] between outdoor modules.
- "Dimensional Drawing of Base Unit" is used for dimensions of the piping and wiring outlets.

Model: (H,Y)VAHP312B42S and (H,Y)VAHP336B42S



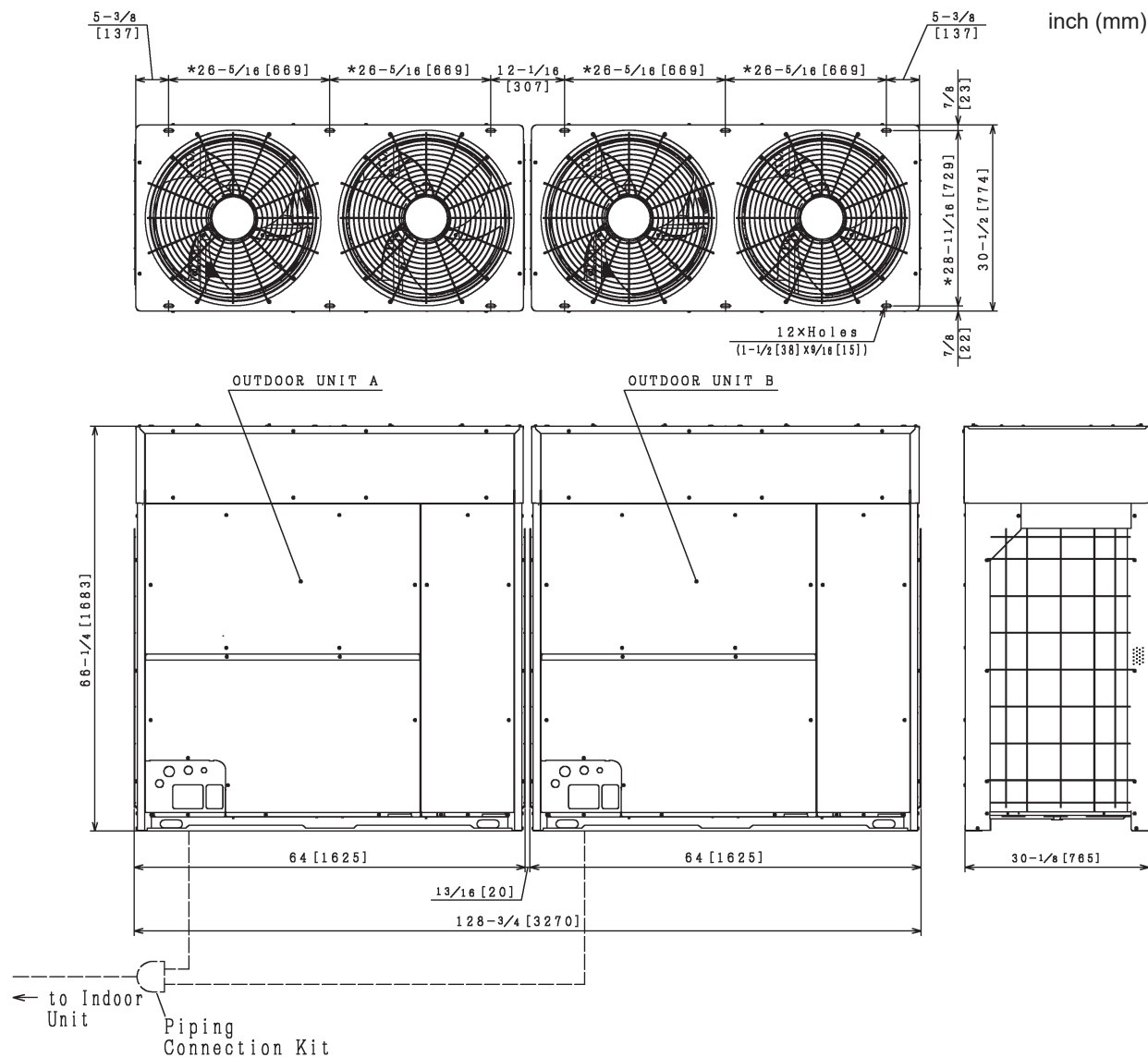
Outdoor Unit Model	Combination of Base Unit Models	
	OUTDOOR UNIT A	OUTDOOR UNIT B
(H,Y)VAHP312B42S	(H,Y)VAHP168B42S	(H,Y)VAHP144B42S
(H,Y)VAHP336B42S	(H,Y)VAHP192B42S	(H,Y)VAHP144B42S

NOTES:

- Outdoor unit A is the Main unit and outdoor unit B is the Sub unit. The Main unit is closest in piping to the indoor unit.
- If outdoor modules have different capacities, the largest capacity unit will be outdoor unit A (Main) and outdoor unit B (Sub) will be the smallest capacity. $A \geq B$.
- Piping connection kits and piping sizes are identified in the "Installation Manual".
- The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.
- This drawing shows that there is $\frac{13}{16}$ inch [20mm] clearance between the outdoor units. If Snow Protection Hoods are installed on the outdoor units, a 2 inches [50mm] minimum clearance is required.
- Modifications to the anchoring locations for the outdoor units are required for applications with clearances greater than $\frac{13}{16}$ inch [20mm] between outdoor modules.
- "Dimensional Drawing of Base Unit" is used for dimensions of the piping and wiring outlets.

PRODUCT SPECIFICATION

Model: (H,Y)VAHP360B42S

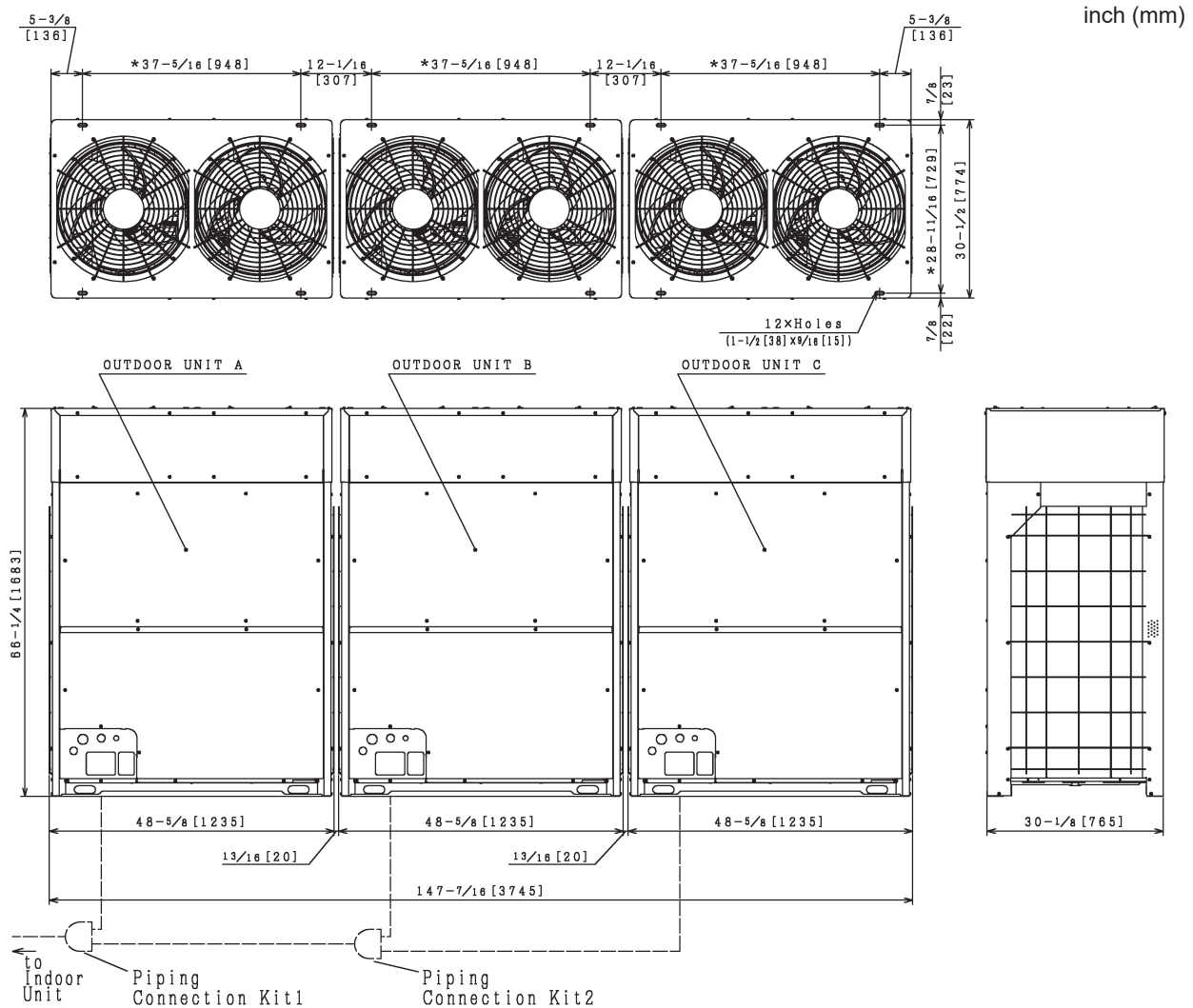


Outdoor Unit Model	Combination of Base Unit Models	
	OUTDOOR UNIT A	OUTDOOR UNIT B
(H,Y)VAHP360B42S	(H,Y)VAHP192B42S	(H,Y)VAHP168B42S

NOTES:

- Outdoor unit A is the Main unit and outdoor unit B is the Sub unit. The Main unit is closest in piping to the indoor unit.
- If outdoor modules have different capacities, the largest capacity unit will be outdoor unit A (Main) and outdoor unit B (Sub) will be the smallest capacity. $A \geq B$.
- Piping connection kits and piping sizes are identified in the "Installation Manual".
- The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.
- This drawing shows that there is 13/16 inch [20mm] clearance between the outdoor units. If Snow Protection Hoods are installed on the outdoor units, a 2 inches [50mm] minimum clearance is required.
- Modifications to the anchoring locations for the outdoor units are required for applications with clearances greater than 13/16 inch [20mm] between outdoor modules.
- "Dimensional Drawing of Base Unit" is used for dimensions of the piping and wiring outlets.

Model: (H,Y)VAHP384B42S, (H,Y)VAHP408B42S and (H,Y)VAHP432B42S



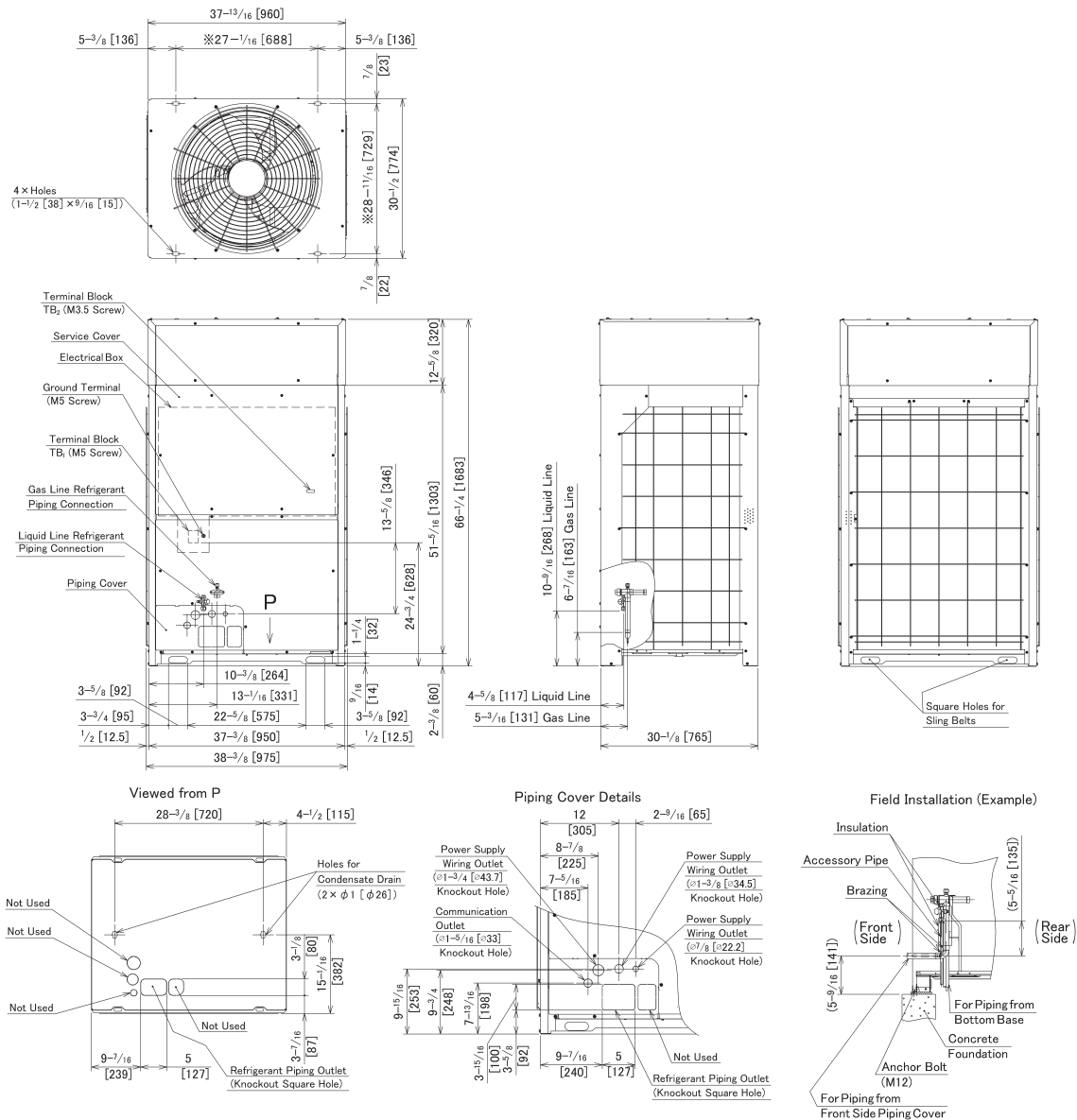
Outdoor Unit Model	Combination of Base Unit Models		
	OUTDOOR UNIT A	OUTDOOR UNIT B	OUTDOOR UNIT C
(H,Y)VAHP384B42S	(H,Y)VAHP144B42S	(H,Y)VAHP120B42S	(H,Y)VAHP120B42S
(H,Y)VAHP408B42S	(H,Y)VAHP144B42S	(H,Y)VAHP144B42S	(H,Y)VAHP120B42S
(H,Y)VAHP432B42S	(H,Y)VAHP144B42S	(H,Y)VAHP144B42S	(H,Y)VAHP144B42S

NOTES:

- Outdoor unit A is the Main unit and outdoor unit B is the Sub unit. The Main unit is closest in piping to the indoor unit.
- If outdoor modules have different capacities, the largest capacity unit is outdoor unit A (Main), outdoor unit B (Sub) is the next smallest capacity and outdoor unit C (Sub) is the smallest capacity. $A \geq B \geq C$.
- Piping connection kits and piping sizes are identified in the "Installation Manual".
- The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.
- This drawing shows that there is $13/16$ inch [20mm] clearance between the outdoor units. If Snow Protection Hoods are installed on the outdoor units, a 2 inches [50mm] minimum clearance is required.
- Modifications to the anchoring locations for the outdoor units are required for applications with clearances greater than $13/16$ inch [20mm] between outdoor modules.
- "Dimensional Drawing of Base Unit" is used for dimensions of the piping and wiring outlets.

(3) 575V

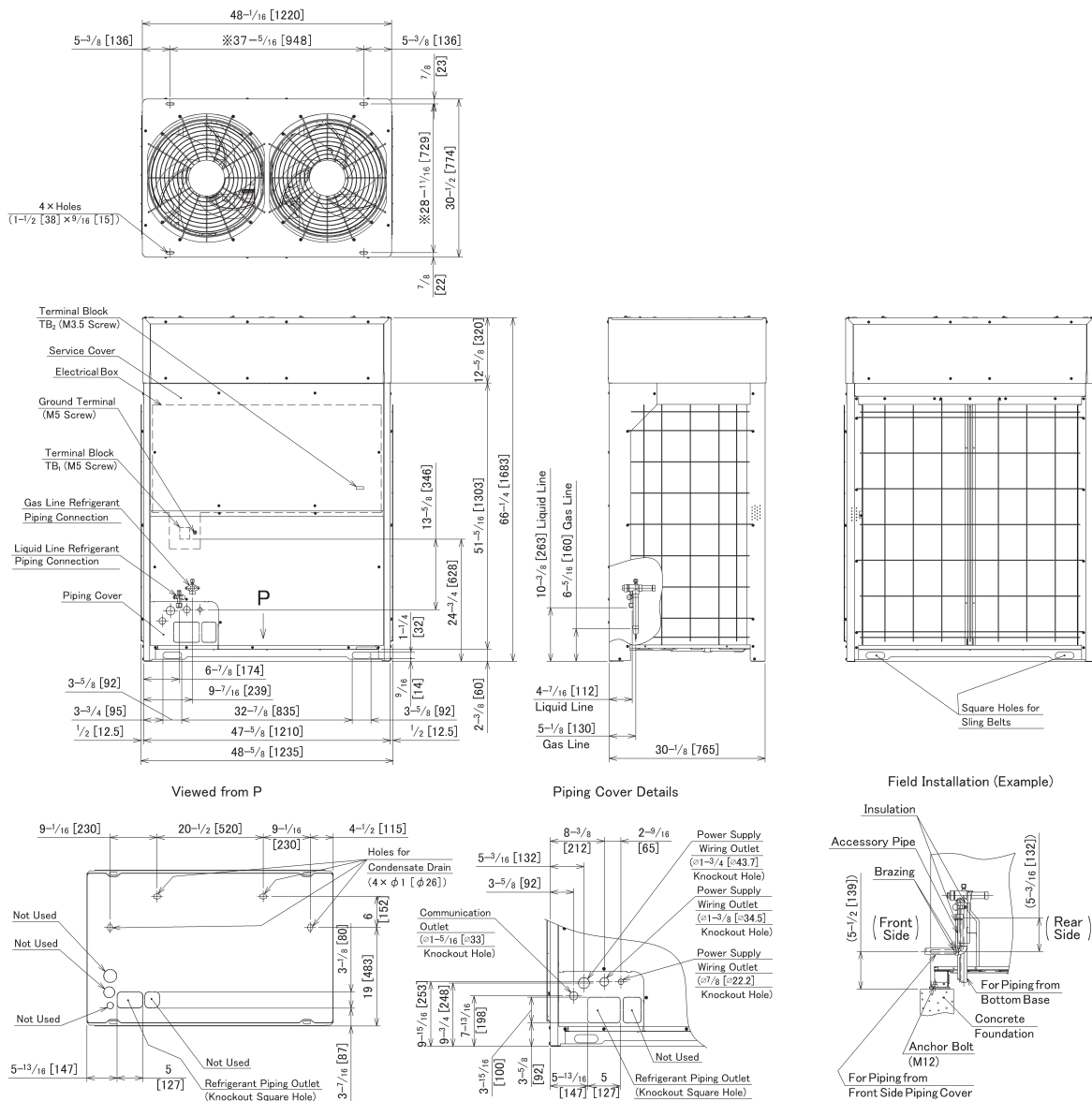
Model: (H,Y)VAHP072B52S



NOTES:

- Condensation is produced by the outdoor coil during heating and defrost operation.
 - Locate the unit where the system can be properly drained.
 - Condensate pipe must be installed in accordance with local and national codes.
 - Ensure the drain is sloped downward away from the outdoor for proper drainage.
 - When the outdoor unit is installed indoors, it may be necessary to provide a secondary condensate pan, condensate pump or optional drain adapter for condensate management.
 - Do not use the drain adapter (optional) in locations where the condensate line may freeze.
- The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.

Model: (H,Y)VAHP096B52S, (H,Y)VAHP120B52S and (H,Y)VAHP144B52S

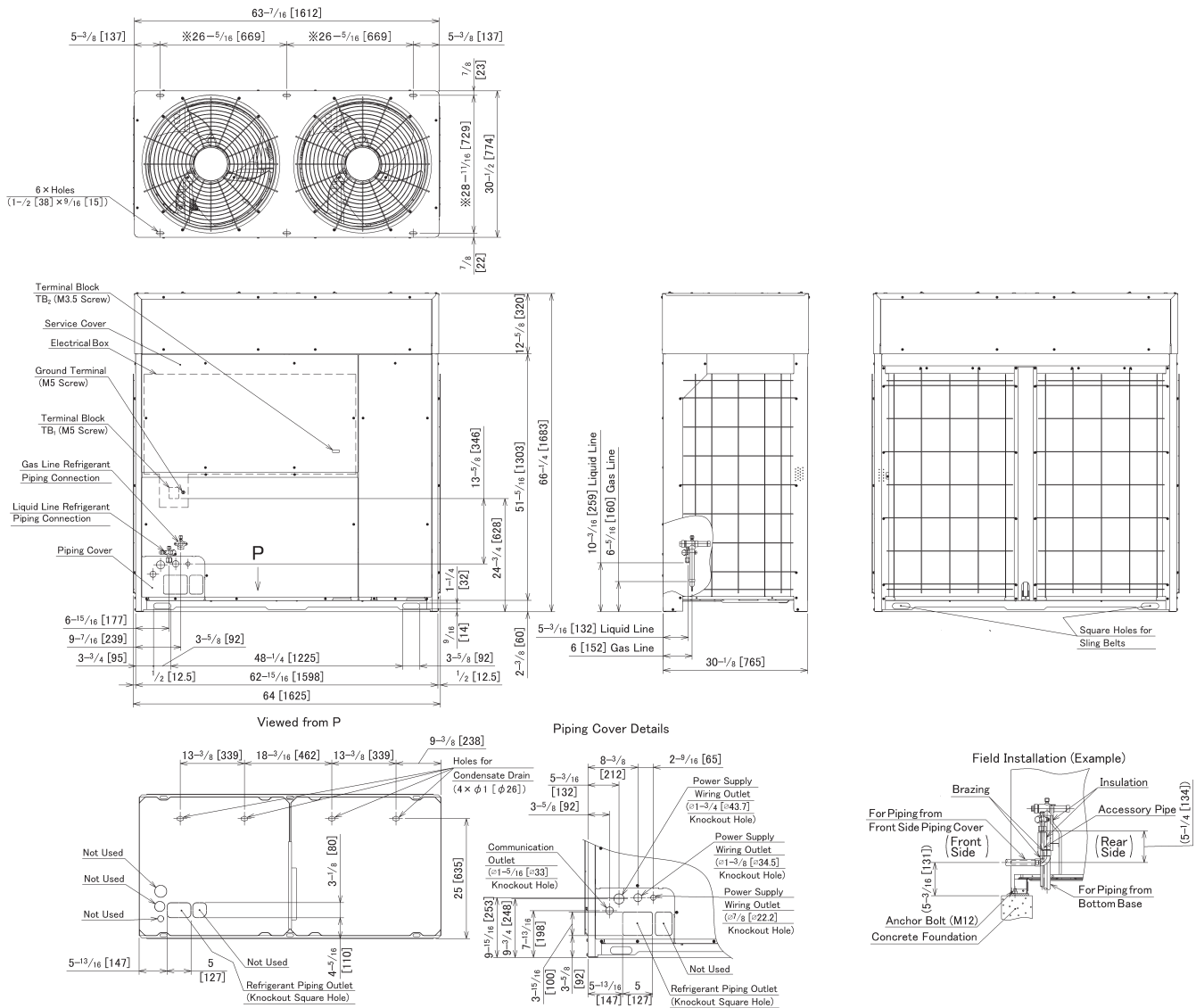


NOTES:

1. Condensation is produced by the outdoor coil during heating and defrost operation.
 - 1) Locate the unit where the system can be properly drained.
 - 2) Condensate pipe must be installed in accordance with local and national codes.
 - 3) Ensure the drain is sloped downward away from the outdoor for proper drainage.
 - 4) When the outdoor unit is installed indoors, it may be necessary to provide a secondary condensate pan, condensate pump or optional drain adapter for condensate management.
 - 5) Do not use the drain adapter (optional) in locations where the condensate line may freeze.
2. The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.

PRODUCT SPECIFICATION

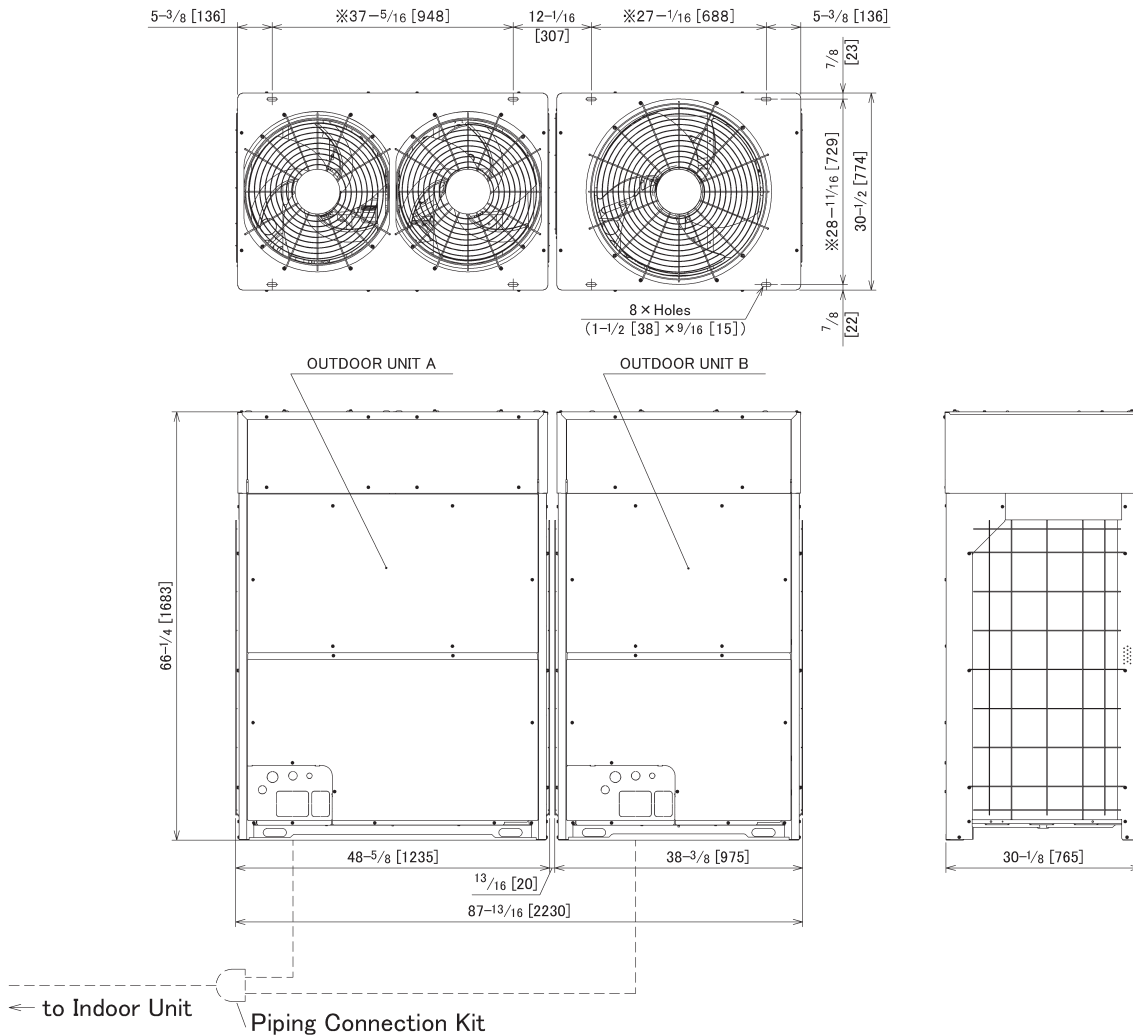
Model: (H,Y)VAHP168B52S and (H,Y)VAHP192B52S



NOTES:

1. Condensation is produced by the outdoor coil during heating and defrost operation.
 - 1) Locate the unit where the system can be properly drained.
 - 2) Condensate pipe must be installed in accordance with local and national codes.
 - 3) Ensure the drain is sloped downward away from the outdoor for proper drainage.
 - 4) When the outdoor unit is installed indoors, it may be necessary to provide a secondary condensate pan, condensate pump or optional drain adapter for condensate management.
 - 5) Do not use the drain adapter (optional) in locations where the condensate line may freeze.
2. The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.

Model: (H,Y)VAHP216B52S



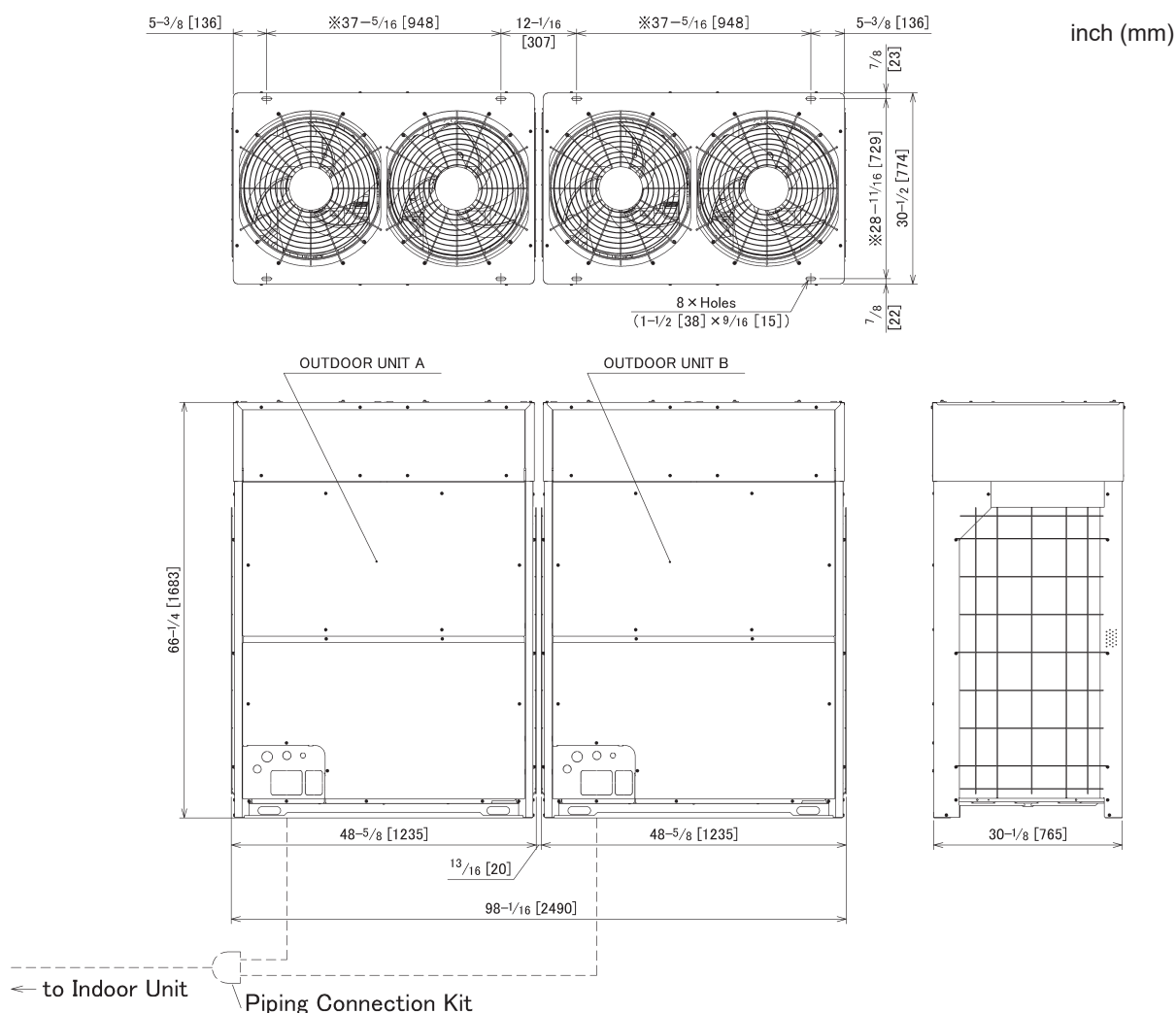
Outdoor Unit Model	Combination of Base Unit Models	
	OUTDOOR UNIT A	OUTDOOR UNIT B
(H,Y)VAHP216B52S	(H,Y)VAHP144B52S	(H,Y)VAHP072B52S

NOTES:

1. Outdoor unit A is the Main unit and outdoor unit B is the Sub unit. The Main unit is closest in piping to the indoor unit.
2. If outdoor modules have different capacities, the largest capacity unit will be outdoor unit A (Main) and outdoor unit B (Sub) will be the smallest capacity. A ≥ B.
3. Piping connection kits and piping sizes are identified in the "Installation Manual".
4. The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.
5. This drawing shows that there is 13/16 inch [20mm] clearance between the outdoor units. If Snow Protection Hoods are installed on the outdoor units, a 2 inches [50mm] minimum clearance is required.
6. Modifications to the anchoring locations for the outdoor units are required for applications with clearances greater than 13/16 inch [20mm] between outdoor modules.
7. "Dimensional Drawing of Base Unit" is used for dimensions of the piping and wiring outlets.

PRODUCT SPECIFICATION

Model: (H,Y)VAHP240B52S, (H,Y)VAHP264B52S and (H,Y)VAHP288B52S

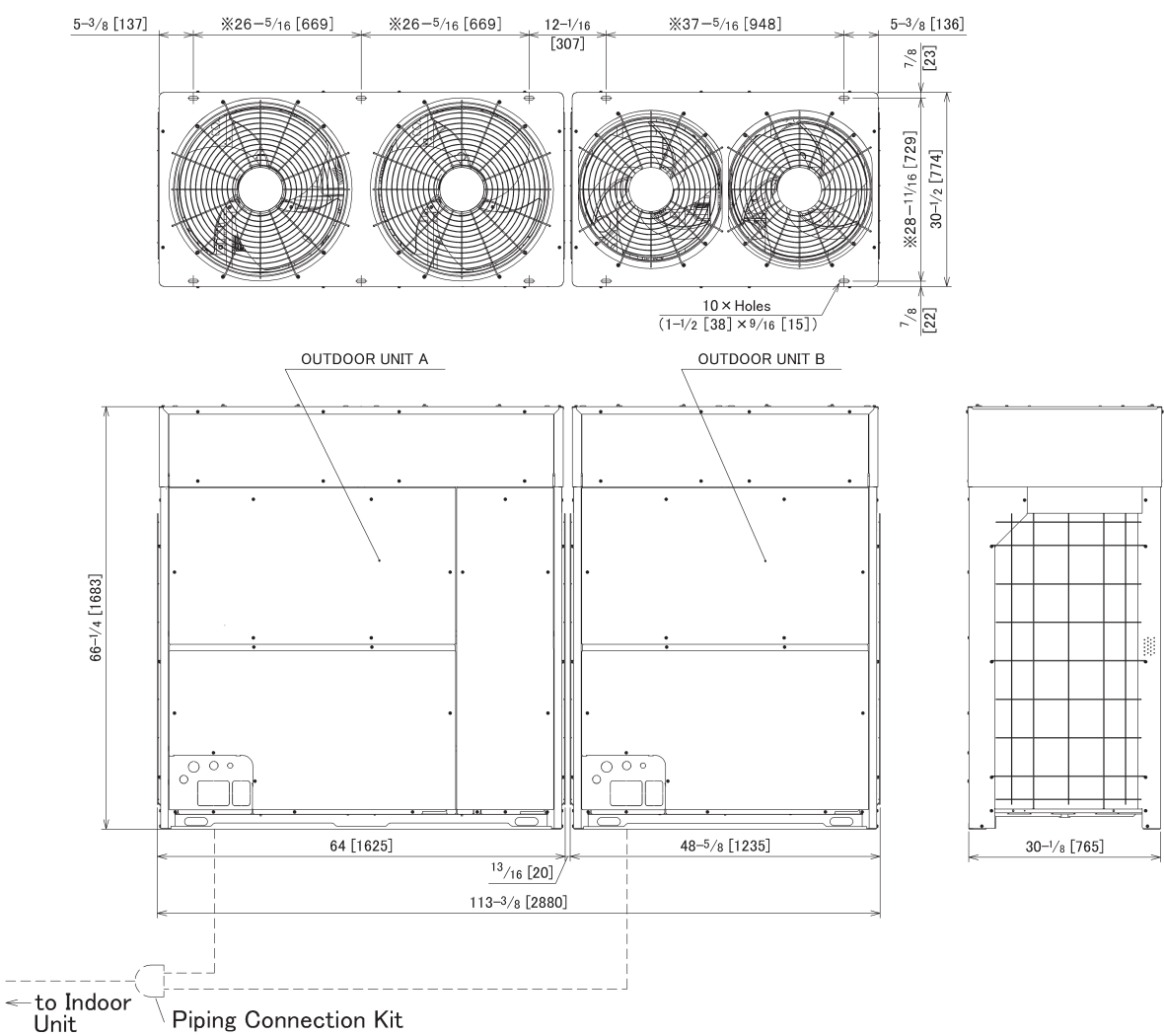


Outdoor Unit Model	Combination of Base Unit Models	
	OUTDOOR UNIT A	OUTDOOR UNIT B
(H,Y)VAHP240B52S	(H,Y)VAHP120B52S	(H,Y)VAHP120B52S
(H,Y)VAHP264B52S	(H,Y)VAHP144B52S	(H,Y)VAHP120B52S
(H,Y)VAHP288B52S	(H,Y)VAHP144B52S	(H,Y)VAHP144B52S

NOTES:

- Outdoor unit A is the Main unit and outdoor unit B is the Sub unit. The Main unit is closest in piping to the indoor unit.
- If outdoor modules have different capacities, the largest capacity unit will be outdoor unit A (Main) and outdoor unit B (Sub) will be the smallest capacity. $A \geq B$.
- Piping connection kits and piping sizes are identified in the "Installation Manual".
- The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.
- This drawing shows that there is $13/16$ inch [20mm] clearance between the outdoor units. If Snow Protection Hoods are installed on the outdoor units, a 2 inches [50mm] minimum clearance is required.
- Modifications to the anchoring locations for the outdoor units are required for applications with clearances greater than $13/16$ inch [20mm] between outdoor modules.
- "Dimensional Drawing of Base Unit" is used for dimensions of the piping and wiring outlets.

Model: (H,Y)VAHP312B52S and (H,Y)VAHP336B52S

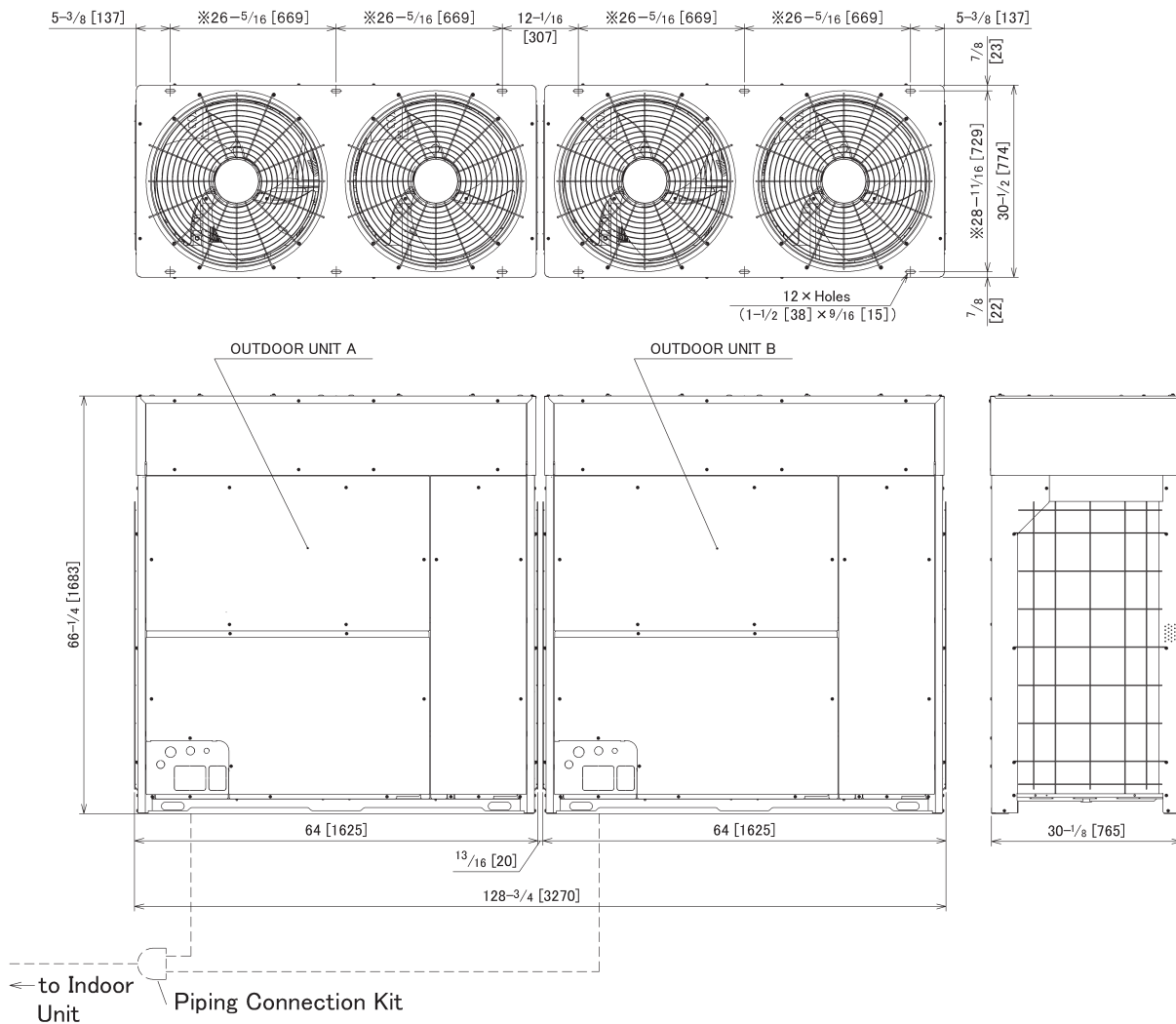


Outdoor Unit Model	Combination of Base Unit Models	
	OUTDOOR UNIT A	OUTDOOR UNIT B
(H,Y)VAHP312B52S	(H,Y)VAHP168B52S	(H,Y)VAHP144B52S
(H,Y)VAHP336B52S	(H,Y)VAHP192B52S	(H,Y)VAHP144B52S

- NOTES:**
- Outdoor unit A is the Main unit and outdoor unit B is the Sub unit. The Main unit is closest in piping to the indoor unit.
 - If outdoor modules have different capacities, the largest capacity unit will be outdoor unit A (Main) and outdoor unit B (Sub) will be the smallest capacity. A ≥ B.
 - Piping connection kits and piping sizes are identified in the "Installation Manual".
 - The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.
 - This drawing shows that there is 13/16 inch [20mm] clearance between the outdoor units. If Snow Protection Hoods are installed on the outdoor units, a 2 inches [50mm] minimum clearance is required.
 - Modifications to the anchoring locations for the outdoor units are required for applications with clearances greater than 13/16 inch [20mm] between outdoor modules.
 - "Dimensional Drawing of Base Unit" is used for dimensions of the piping and wiring outlets.

PRODUCT SPECIFICATION

Model: (H,Y)VAHP360B52S

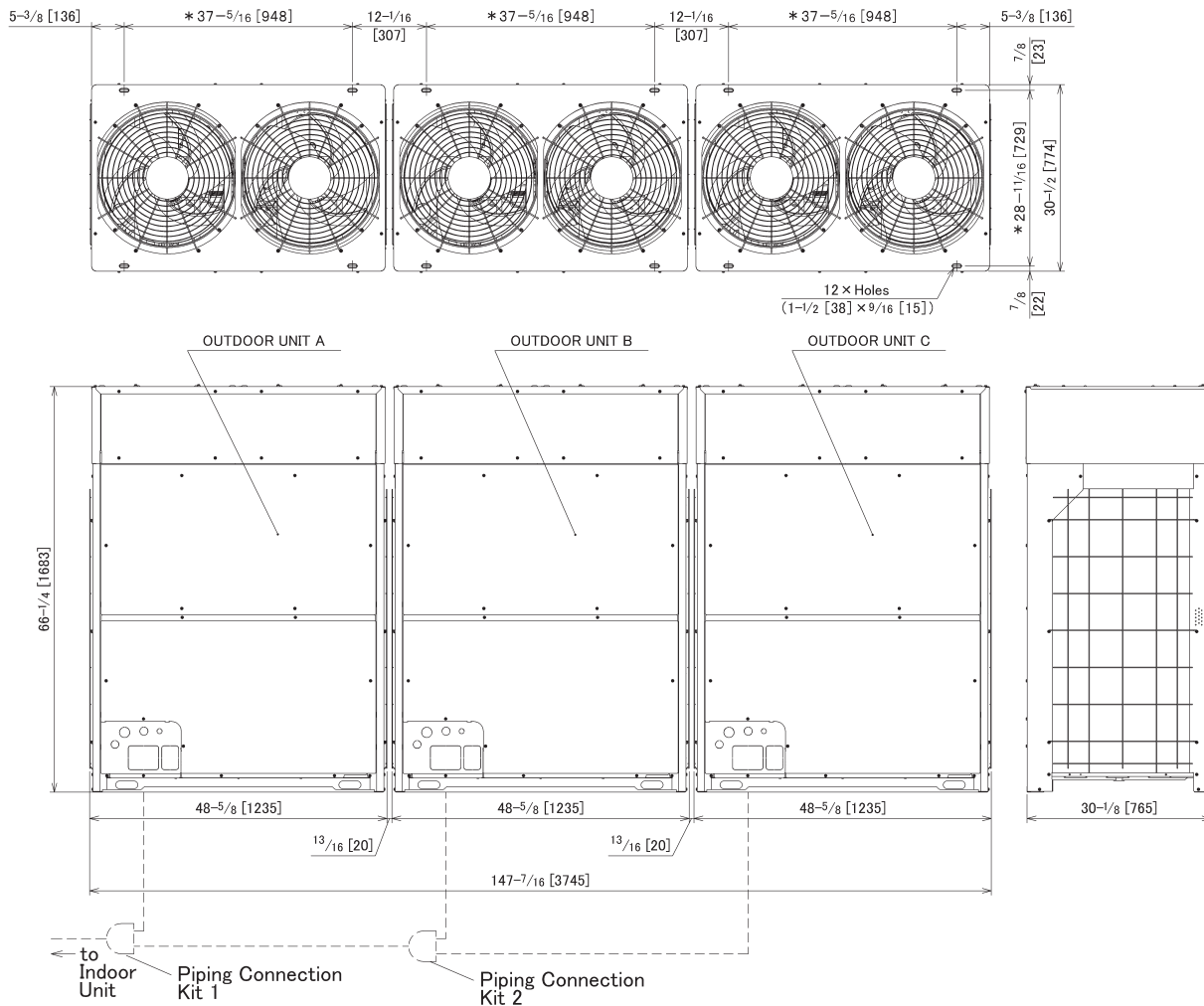


Outdoor Unit Model	Combination of Base Unit Models	
	OUTDOOR UNIT A	OUTDOOR UNIT B
(H,Y)VAHP360B52S	(H,Y)VAHP192B52S	(H,Y)VAHP168B52S

NOTES:

- Outdoor unit A is the Main unit and outdoor unit B is the Sub unit. The Main unit is closest in piping to the indoor unit.
- If outdoor modules have different capacities, the largest capacity unit will be outdoor unit A (Main) and outdoor unit B (Sub) will be the smallest capacity. $A \geq B$.
- Piping connection kits and piping sizes are identified in the "Installation Manual".
- The dimensions marked with an asterisk (*) indicate the mounting pitch dimensions for anchor bolts.
- This drawing shows that there is 13/16 inch [20mm] clearance between the outdoor units. If Snow Protection Hoods are installed on the outdoor units, a 2 inches [50mm] minimum clearance is required.
- Modifications to the anchoring locations for the outdoor units are required for applications with clearances greater than 13/16 inch [20mm] between outdoor modules.
- "Dimensional Drawing of Base Unit" is used for dimensions of the piping and wiring outlets.

Model: (H,Y)VAHP384B52S, (H,Y)VAHP408B52S and (H,Y)VAHP432B52S



Outdoor Unit Model	Combination of Base Unit Models		
	OUTDOOR UNIT A	OUTDOOR UNIT B	OUTDOOR UNIT C
(H,Y)VAHP384B52S	(H,Y)VAHP144B52S	(H,Y)VAHP120B52S	(H,Y)VAHP120B52S
(H,Y)VAHP408B52S	(H,Y)VAHP144B52S	(H,Y)VAHP144B52S	(H,Y)VAHP120B52S
(H,Y)VAHP432B52S	(H,Y)VAHP144B52S	(H,Y)VAHP144B52S	(H,Y)VAHP144B52S

NOTES:

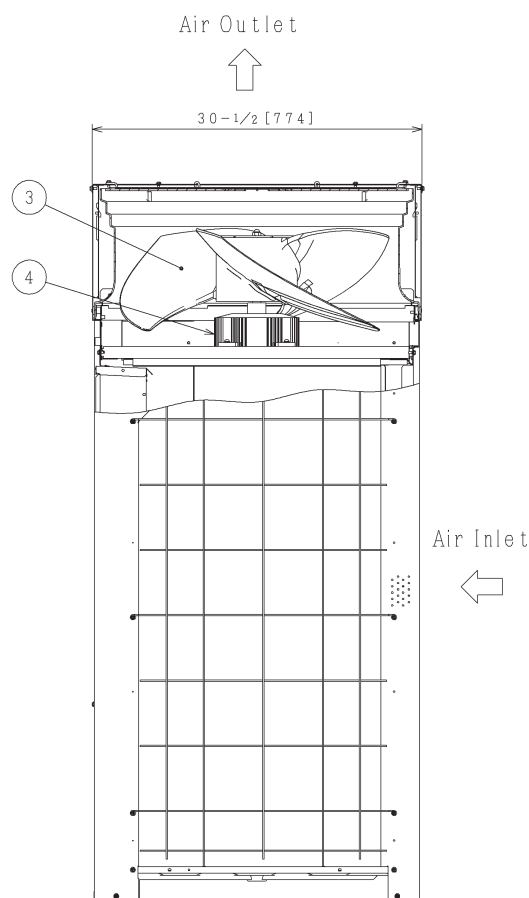
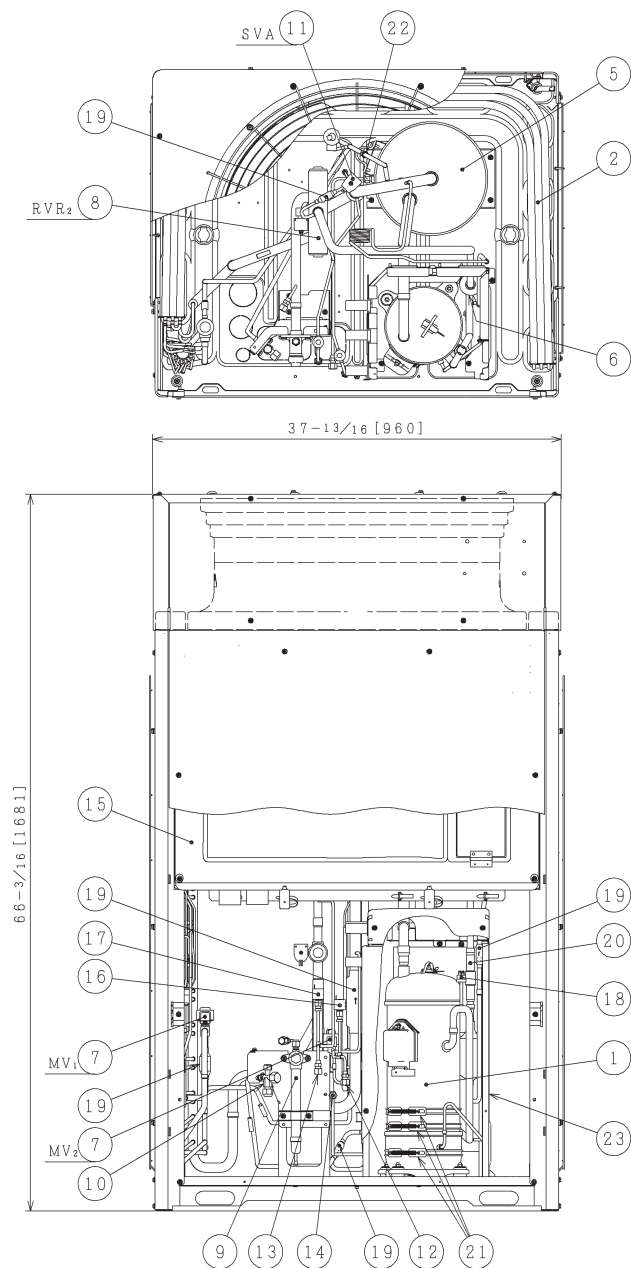
- Outdoor unit A is the Main unit and outdoor unit B and C are the Sub unit. The Main unit is closest in piping to the indoor unit.
- If outdoor modules have different capacities, the largest capacity unit is outdoor unit A (Main), outdoor unit B (Sub) is the next smallest capacity and outdoor unit C (Sub) is the smallest capacity. $A \geq B \geq C$.
- Piping connection kits and piping sizes are identified in the "Installation Manual".
- The dimensions marked with "*" indicate the mounting pitch dimensions for anchor bolts.
- This drawing shows that there is 13/16 inch [20mm] clearance between the outdoor units. If Snow Protection Hoods are installed on the outdoor units, 2 inch [50mm] minimum clearance is required.
- Modifications to the anchoring locations for the outdoor units are required for applications with clearances greater than 13/16 inch [20mm] between outdoor modules.
- "Dimensional Drawing of Base Unit" are used for dimensions of piping and wiring outlets.

2.5 Structure

(1) 208 / 230V Type

Model: (H,Y)VAHP072B32S

inch (mm)

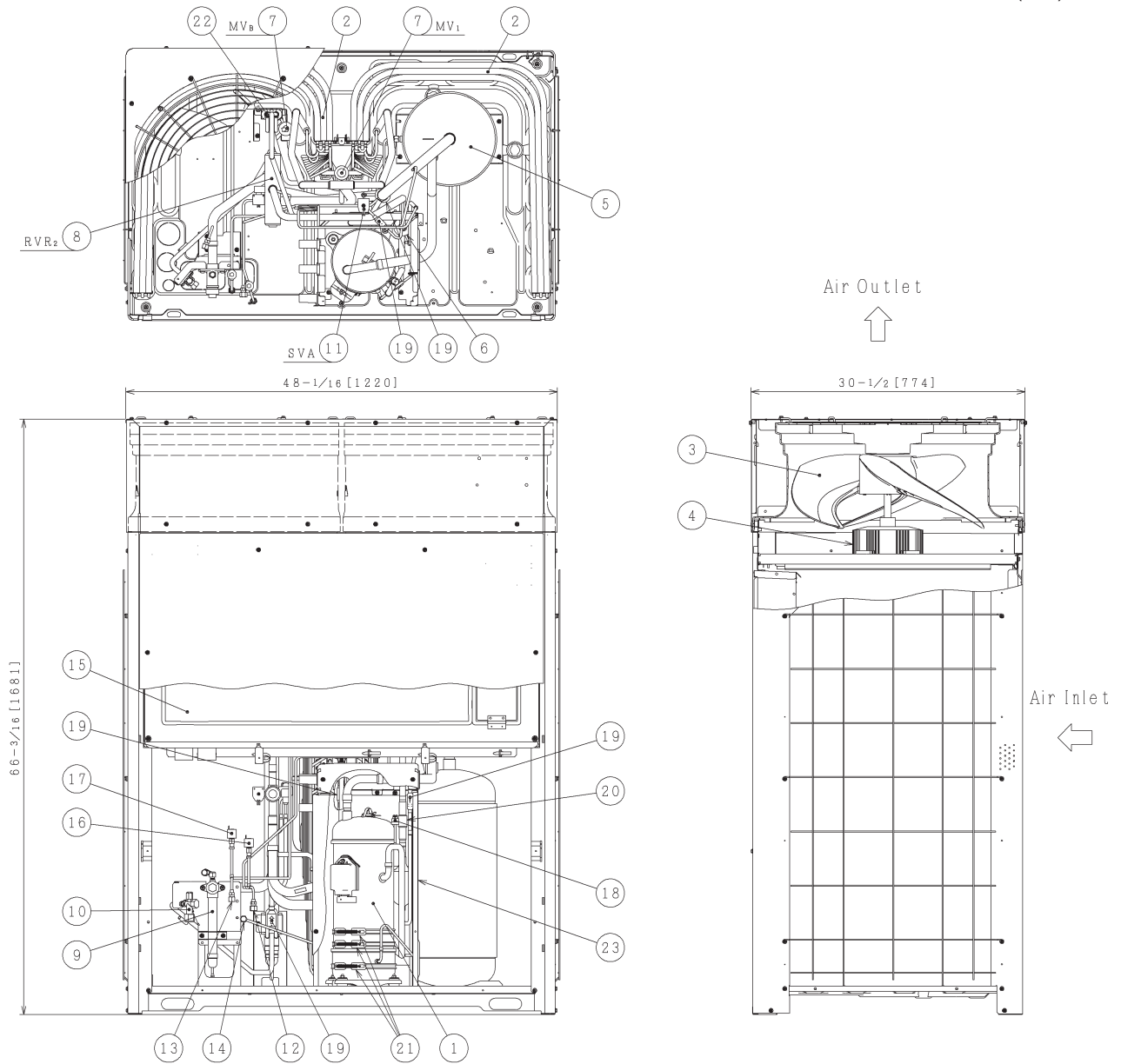


No.	Part Name
1	Compressor (Inverter)
2	Heat Exchanger
3	Propeller Fan
4	Fan Motor
5	Accumulator
6	Oil Separator
7	Electronic Expansion Valve (2pcs.)
8	Reversing Valve
9	Stop Valve (Gas)
10	Stop Valve (Liquid)
11	Solenoid Valve
12	Access Port (Low)

No.	Part Name
13	Access Port (High)
14	Access Port (for Oil)
15	Electrical Control Box
16	Low Pressure Sensor
17	High Pressure Sensor
18	High Pressure Switch for Protection
19	Strainer (5pcs.)
20	Check Valve
21	Crankcase Heater (3pcs.)
22	Double Tube Type Heat Exchanger
23	Compressor Cover

Model: (H,Y)VAHP096B32S

inch (mm)

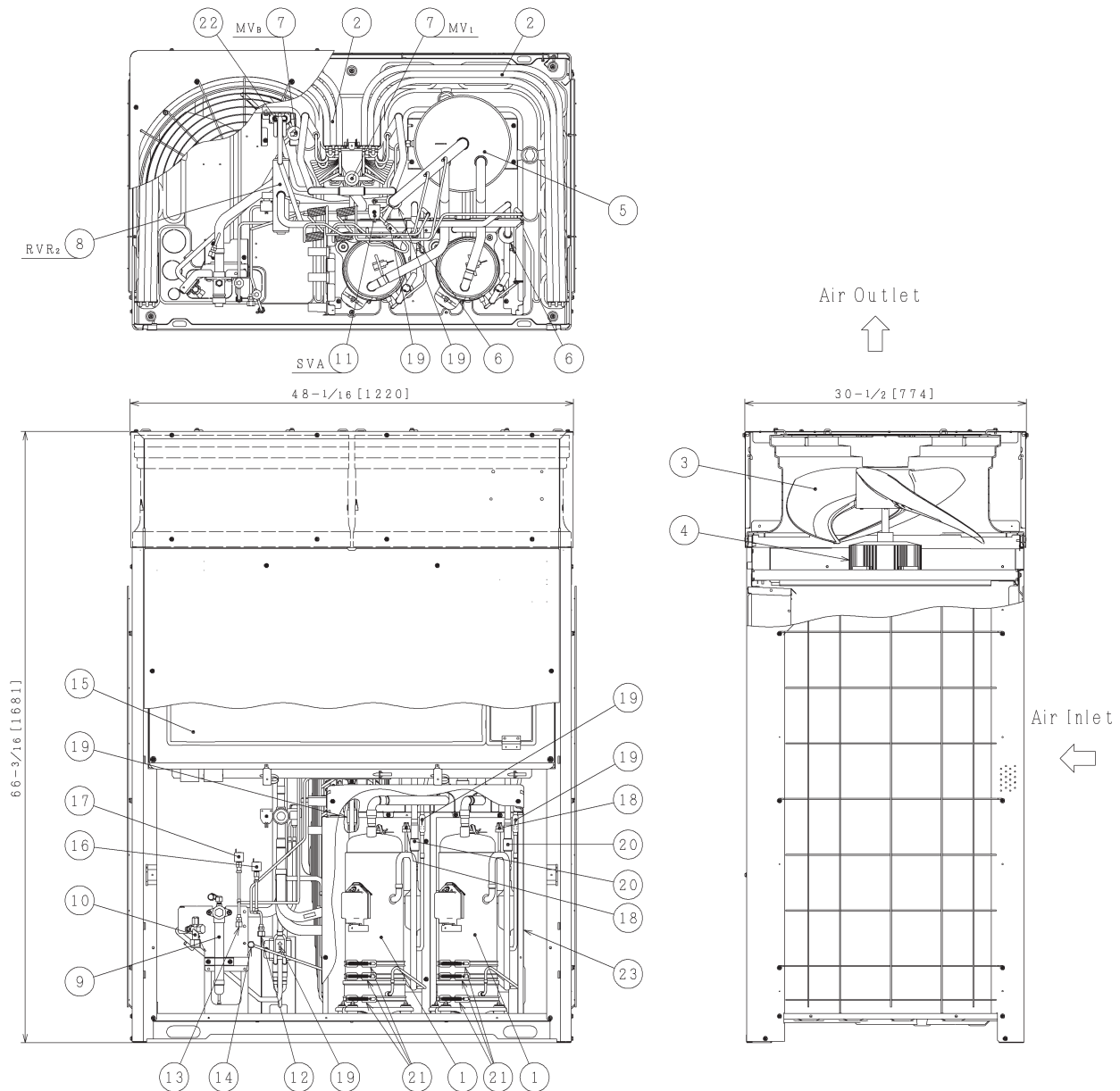


No.	Part Name
1	Compressor (Inverter)
2	Heat Exchanger
3	Propeller Fan
4	Fan Motor
5	Accumulator
6	Oil Separator
7	Electronic Expansion Valve (2pcs.)
8	Reversing Valve
9	Stop Valve (Gas)
10	Stop Valve (Liquid)
11	Solenoid Valve
12	Access Port (Low)

No.	Part Name
13	Access Port (High)
14	Access Port (for Oil)
15	Electrical Control Box
16	Low Pressure Sensor
17	High Pressure Sensor
18	High Pressure Switch for Protection
19	Strainer (5pcs.)
20	Check Valve
21	Crankcase Heater (3pcs.)
22	Double Tube Type Heat Exchanger
23	Compressor Cover

Model: (H,Y)VAHP120B32S and (H,Y)VAHP144B32S

inch (mm)

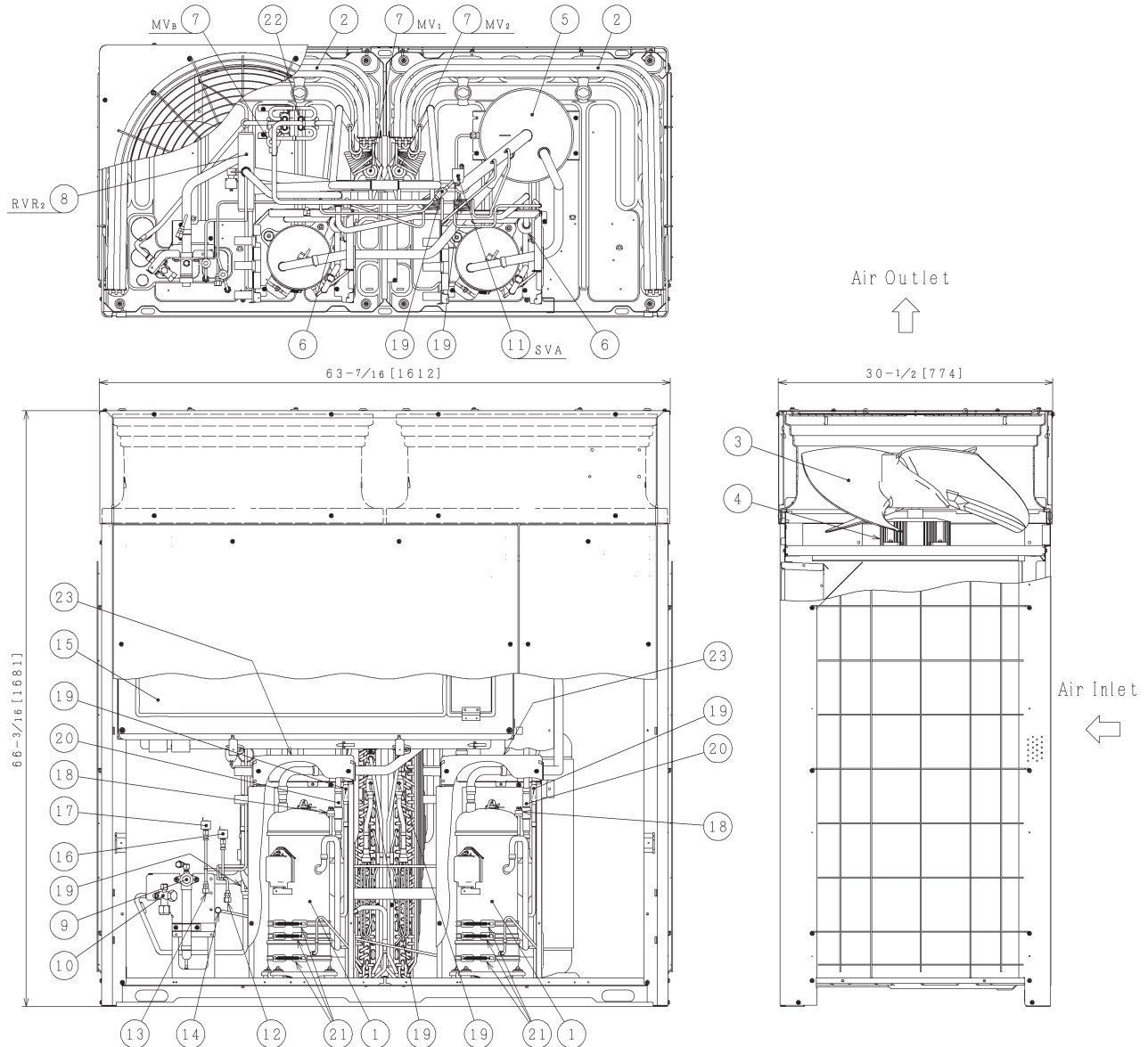


No.	Part Name
1	Compressor (Inverter) (2pcs.)
2	Heat Exchanger
3	Propeller Fan
4	Fan Motor
5	Accumulator
6	Oil Separator
7	Electronic Expansion Valve (2pcs.)
8	Reversing Valve
9	Stop Valve (Gas)
10	Stop Valve (Liquid)
11	Solenoid Valve
12	Access Port (Low)

No.	Part Name
13	Access Port (High)
14	Access Port (for Oil)
15	Electrical Control Box
16	Low Pressure Sensor
17	High Pressure Sensor
18	High Pressure Switch for Protection (2pcs.)
19	Strainer (6pcs.)
20	Check Valve (2pcs.)
21	Crankcase Heater (6pcs.)
22	Double Tube Type Heat Exchanger
23	Compressor Cover

Model: (H,Y)VAHP168B32S and (H,Y)VAHP192B32S

inch (mm)



No.	Part Name
1	Compressor (Inverter) (2pcs.)
2	Heat Exchanger
3	Propeller Fan
4	Fan Motor
5	Accumulator
6	Oil Separator
7	Electronic Expansion Valve (3pcs.)
8	Reversing Valve
9	Stop Valve (Gas)
10	Stop Valve (Liquid)
11	Solenoid Valve
12	Access Port (Low)

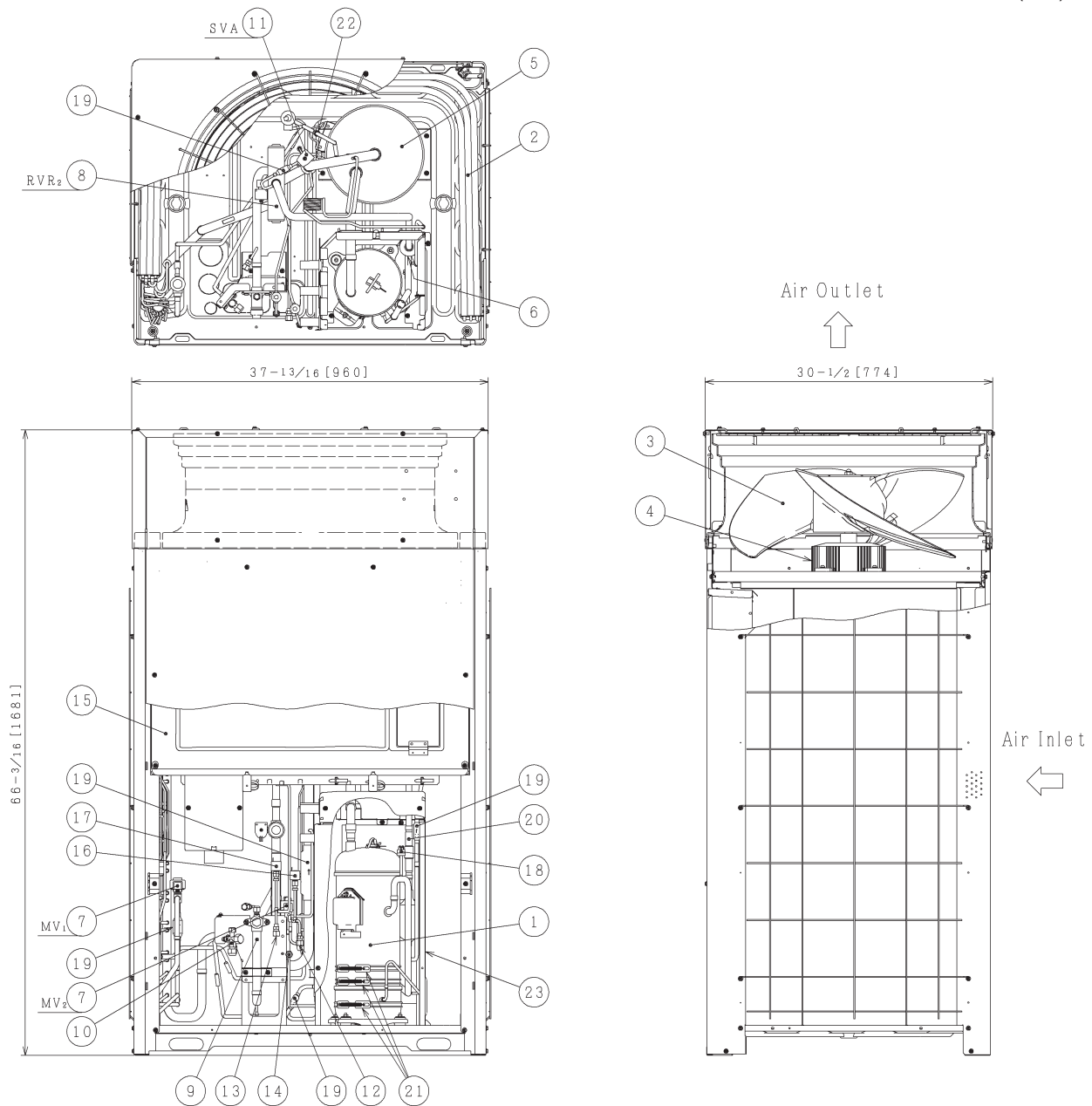
No.	Part Name
13	Access Port (High)
14	Access Port (for Oil)
15	Electrical Control Box
16	Low Pressure Sensor
17	High Pressure Sensor
18	High Pressure Switch for Protection (2pcs.)
19	Strainer (7pcs.)
20	Check Valve (2pcs.)
21	Crankcase Heater (6pcs.)
22	Double Tube Type Heat Exchanger
23	Compressor Cover

PRODUCT SPECIFICATION

(2) 460V Type, 575V Type

Model: (H,Y)VAHP072B42S, (H,Y)VAHP072B52S

inch (mm)

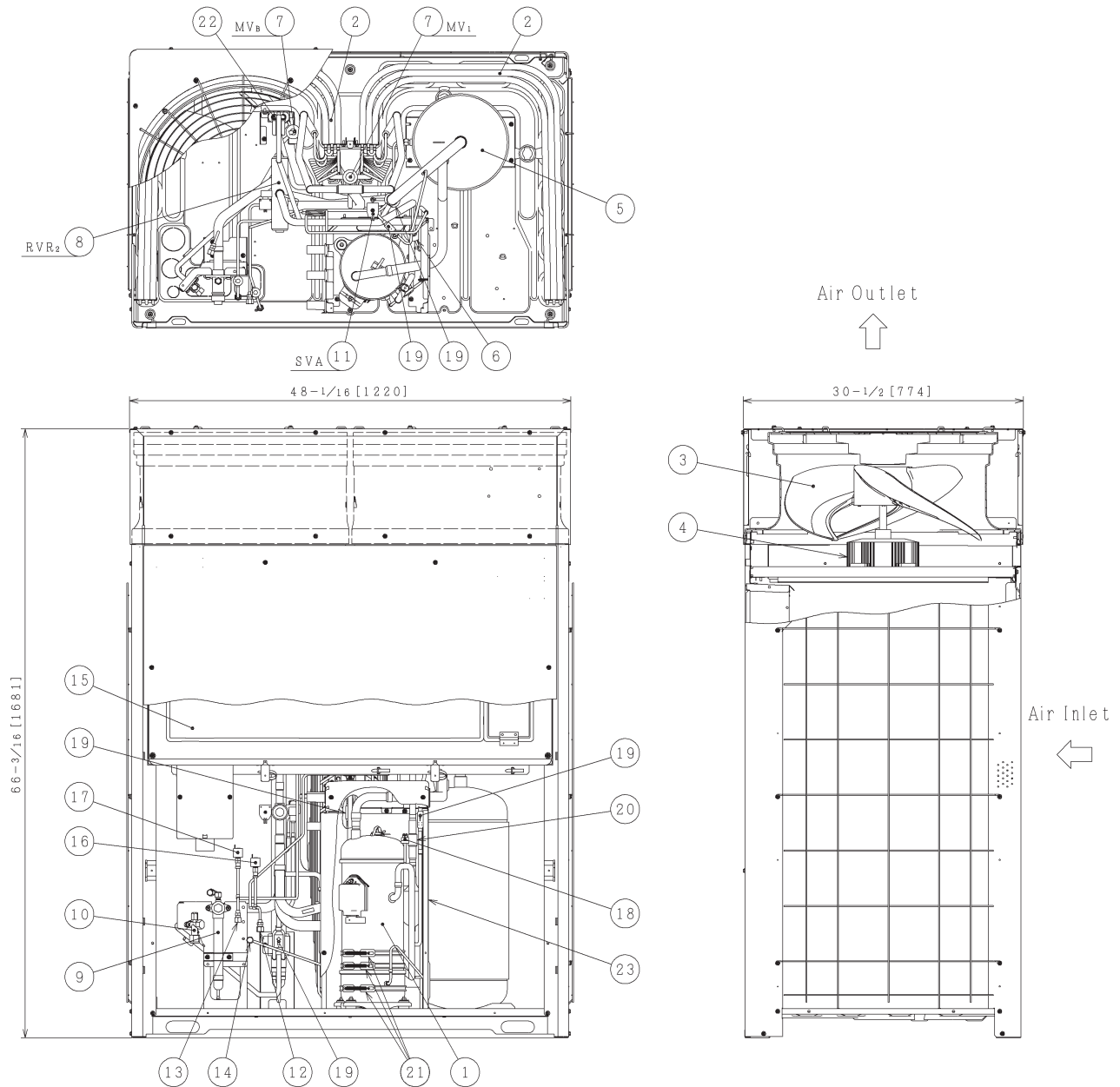


No.	Part Name
1	Compressor (Inverter)
2	Heat Exchanger
3	Propeller Fan
4	Fan Motor
5	Accumulator
6	Oil Separator
7	Electronic Expansion Valve (2pcs.)
8	Reversing Valve
9	Stop Valve (Gas)
10	Stop Valve (Liquid)
11	Solenoid Valve
12	Access Port (Low)

No.	Part Name
13	Access Port (High)
14	Access Port (for Oil)
15	Electrical Control Box
16	Low Pressure Sensor
17	High Pressure Sensor
18	High Pressure Switch for Protection
19	Strainer (5pcs.)
20	Check Valve
21	Crankcase Heater (3pcs.)
22	Double Tube Type Heat Exchanger
23	Compressor Cover

Model: (H,Y)VAHP096B42S, (H,Y)VAHP096B52S

inch (mm)



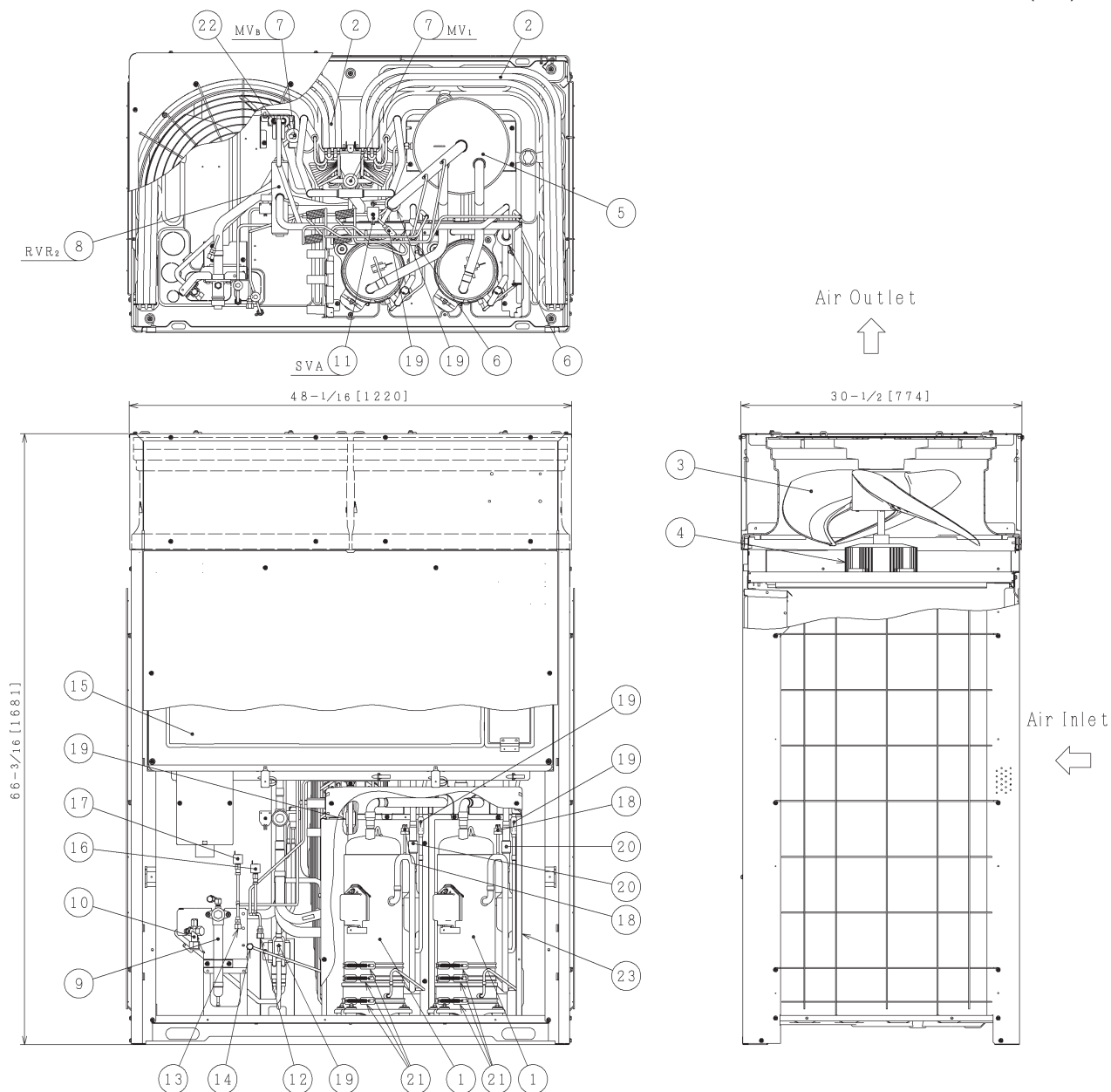
No.	Part Name
1	Compressor (Inverter)
2	Heat Exchanger
3	Propeller Fan
4	Fan Motor
5	Accumulator
6	Oil Separator
7	Electronic Expansion Valve (2pcs.)
8	Reversing Valve
9	Stop Valve (Gas)
10	Stop Valve (Liquid)
11	Solenoid Valve
12	Access Port (Low)

No.	Part Name
13	Access Port (High)
14	Access Port (for Oil)
15	Electrical Control Box
16	Low Pressure Sensor
17	High Pressure Sensor
18	High Pressure Switch for Protection
19	Strainer (5pcs.)
20	Check Valve
21	Crankcase Heater (3pcs.)
22	Double Tube Type Heat Exchanger
23	Compressor Cover

PRODUCT SPECIFICATION

Model: (H,Y)VAHP120B42S, (H,Y)VAHP144B42S, (H,Y)VAHP120B52S and (H,Y)VAHP144B52S

inch (mm)

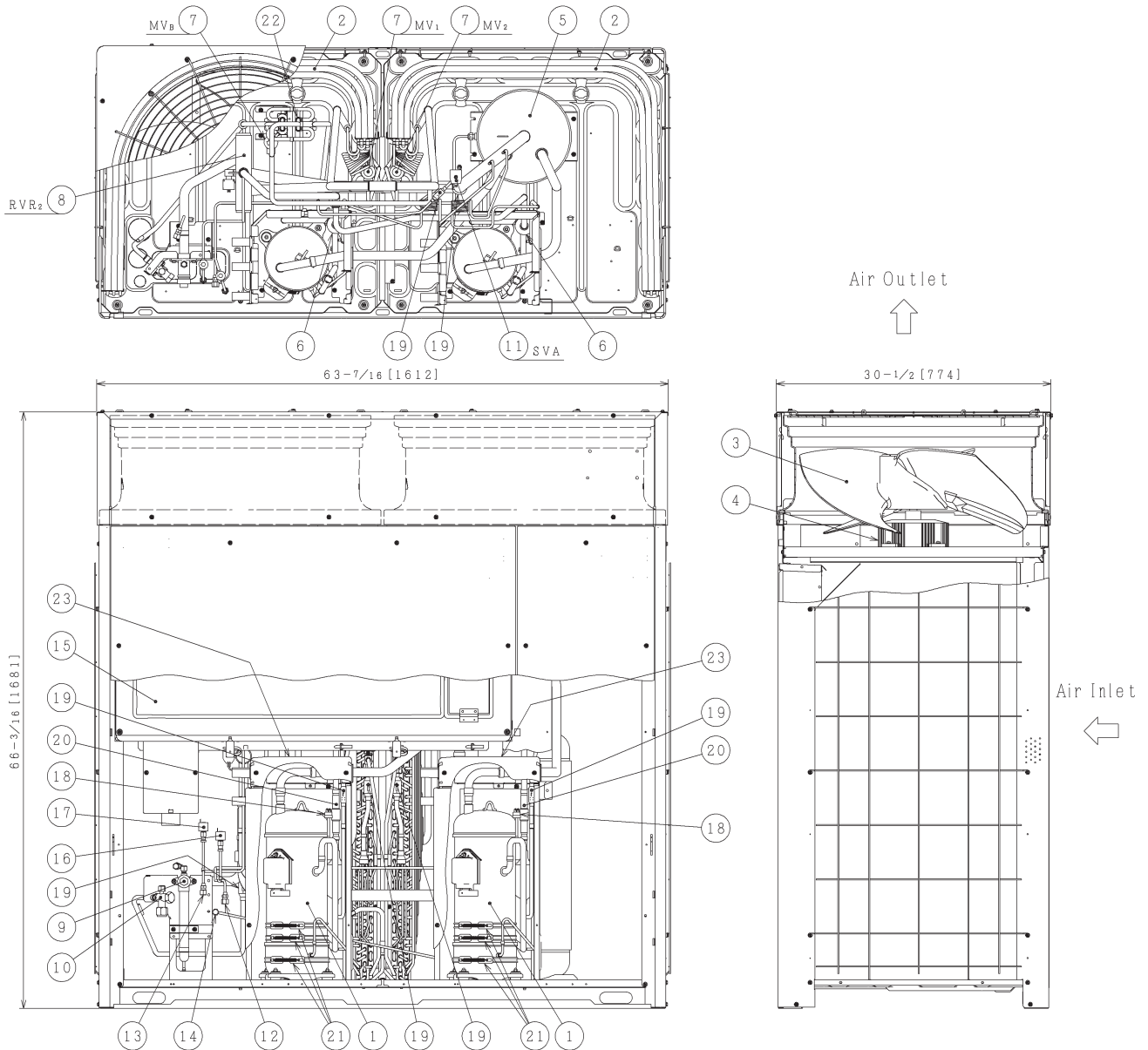


No.	Part Name
1	Compressor (Inverter)
2	Heat Exchanger
3	Propeller Fan
4	Fan Motor
5	Accumulator
6	Oil Separator
7	Electronic Expansion Valve (2pcs.)
8	Reversing Valve
9	Stop Valve (Gas)
10	Stop Valve (Liquid)
11	Solenoid Valve
12	Access Port (Low)

No.	Part Name
13	Access Port (High)
14	Access Port (for Oil)
15	Electrical Control Box
16	Low Pressure Sensor
17	High Pressure Sensor
18	High Pressure Switch for Protection (2pcs.)
19	Strainer (6pcs.)
20	Check Valve (2pcs.)
21	Crankcase Heater (6pcs.)
22	Double Tube Type Heat Exchanger
23	Compressor Cover

Model: (H,Y)VAHP168B42S, (H,Y)VAHP192B42S, (H,Y)VAHP168B52S and (H,Y)VAHP192B52S

inch (mm)



No.	Part Name
1	Compressor (Inverter) (2pcs.)
2	Heat Exchanger
3	Propeller Fan
4	Fan Motor
5	Accumulator
6	Oil Separator
7	Electronic Expansion Valve (3pcs.)
8	Reversing Valve
9	Stop Valve (Gas)
10	Stop Valve (Liquid)
11	Solenoid Valve
12	Access Port (Low)

No.	Part Name
13	Access Port (High)
14	Access Port (for Oil)
15	Electrical Control Box
16	Low Pressure Sensor
17	High Pressure Sensor
18	High Pressure Switch for Protection (2pcs.)
19	Strainer (7pcs.)
20	Check Valve (2pcs.)
21	Crankcase Heater (6pcs.)
22	Double Tube Type Heat Exchanger
23	Compressor Cover

2.6 Component Data

Outdoor Heat Exchanger and Fan

Model		(H,Y)VAHP072B(3,4,5)2S	(H,Y)VAHP096B(3,4,5)2S	(H,Y)VAHP120B(3,4,5)2S
Heat Exchanger Type		Multi-Pass Cross Finned Tube		
Tube	Material	Copper Tube		
Outer Diameter	φin (mm)	1/4 (7.0)	1/4 (7.0)	1/4 (7.0)
Rows		3	3	3
Number of Tube/Coil		174	174	174
Fin	Material	Aluminum		
Pitch	in (mm)	1/16 (1.7)	1/16 (1.7)	1/16 (1.7)
Maximum Operating Pressure	psi (MPa)	601 (4.15)	601 (4.15)	601 (4.15)
Total Face Area	ft ² (m ²)	25.40 (2.36)	33.58 (3.12)	33.58 (3.12)
Number of Coil/Unit		1	2	2
Outdoor Fan		Large Diameter Fan (Propeller Fan)		
Number/Unit		1	2	2
Outer Diameter	φin (mm)	25-3/8 (644)	21-7/16 + 21-7/16 (544 + 544)	21-7/16 + 21-7/16 (544 + 544)
Nominal Airflow	cfm (m ³ /min)	6787 (180)	8437 (238)	9037 (256)
Outdoor Fan Motor		Drip-Proof Type Enclosure		
Starting Method		Inverter		
Nominal Output	W	420	330 + 330	390 + 390
Quantity		1	2	2
Insulation Class		E	E	E

Model		(H,Y)VAHP144B(3,4,5)2S	(H,Y)VAHP168B(3,4,5)2S	(H,Y)VAHP192B(3,4,5)2S
Heat Exchanger Type		Multi-Pass Cross Finned Tube		
Tube	Material	Copper Tube		
Outer Diameter	φin (mm)	1/4 (7.0)	1/4 (7.0)	1/4 (7.0)
Rows		3	3	3
Number of Tube/Coil		174	174	174
Fin	Material	Aluminum		
Pitch	in (mm)	1/16 (1.7)	1/16 (1.7)	1/16 (1.7)
Maximum Operating Pressure	psi (MPa)	601 (4.15)	601 (4.15)	601 (4.15)
Total Face Area	ft ² (m ²)	33.58 (3.12)	38.53 (3.58)	38.53 (3.58)
Number of Coil/Unit		2	2	2
Outdoor Fan		Large Diameter Fan (Propeller Fan)		
Number/Unit		2	2	2
Outer Diameter	φin (mm)	21-7/16 + 21-7/16 (544 + 544)	25-3/8 + 25-3/8 (644 + 644)	
Nominal Airflow	cfm (m ³ /min)	9037 (256)	11614 (329)	12284 (348)
Outdoor Fan Motor		Drip-Proof Type Enclosure		
Starting Method		Inverter		
Nominal Output	W	390 + 390	480 + 480	560 + 560
Quantity		2	2	2
Insulation Class		E	E	E

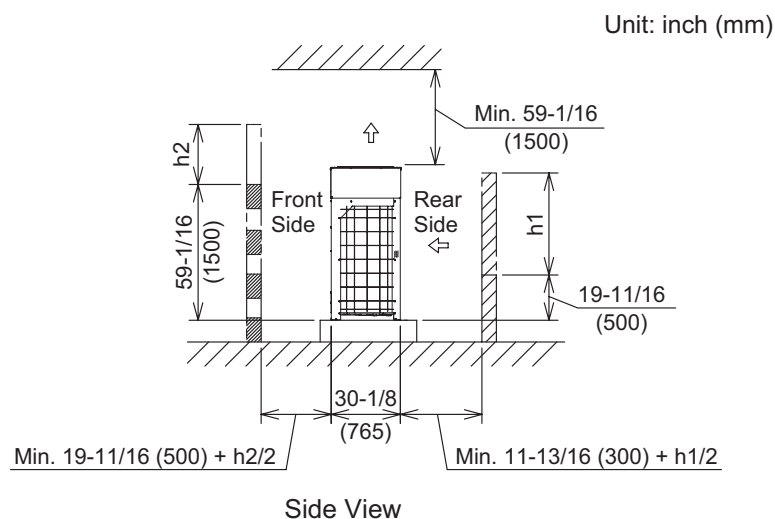
Outdoor Heat Exchanger and Fan

Model		(H,Y)VAHP216B(3,4,5)2S	(H,Y)VAHP240B(3,4,5)2S	(H,Y)VAHP264B(3,4,5)2S	(H,Y)VAHP288B(3,4,5)2S	(H,Y)VAHP312B(3,4,5)2S
Heat Exchanger Type		Multi-Pass Cross Finned Tube				
Tube Material		Copper Tube				
Outer Diameter	φin (mm)	1/4 (7.0)	1/4 (7.0)	1/4 (7.0)	1/4 (7.0)	1/4 (7.0)
Rows		3+3	3+3	3+3	3+3	3+3
Number of Tube/Coil		174+174	174+174	174+174	174+174	174+174
Fin Material		Aluminum				
Pitch	in (mm)	1/16 (1.7)	1/16 (1.7)	1/16 (1.7)	1/16 (1.7)	1/16 (1.7)
Maximum Operating Pressure	psi (MPa)	601 (4.15)	601 (4.15)	601 (4.15)	601 (4.15)	601 (4.15)
Total Face Area	ft ² (m ²)	33.58+25.40 (3.12+2.36)	33.58+33.58 (3.12+3.12)	33.58+33.58 (3.12+3.12)	33.58+33.58 (3.12+3.12)	38.53+33.58 (3.58+3.12)
Number of Coil/Unit		3	4	4	4	4
Outdoor Fan		Large Diameter Fan (Propeller Fan)				
Number/Unit		3	4	4	4	4
Outer Diameter	φin (mm)	21-7/16 + 21-7/16 + 25-3/8 (544+544+644)	21-7/16 + 21-7/16 + 21-7/16 + 21-7/16 (544+544+544+544)			25-3/8 + 25-3/8 + 21-7/16 + 21-7/16 (644+644+544+544)
Nominal Airflow	cfm (m ³ /min)	9037+6787 (256+180)	9037+9037 (256+256)	9037+9037 (256+256)	9037+9037 (256+256)	11614+9037 (329+256)
Outdoor Fan Motor		Drip-Proof Type Enclosure				
Starting Method		Inverter				
Nominal Output	W	390+390+420	390+390+390+390	390+390+390+390	390+390+390+390	480+480+390+390
Quantity		3	4	4	4	4
Insulation Class		E	E	E	E	E

Model		(H,Y)VAHP336B(3,4,5)2S	(H,Y)VAHP360B(3,4,5)2S	(H,Y)VAHP384B(3,4,5)2S	(H,Y)VAHP408B(3,4,5)2S	(H,Y)VAHP432B(3,4,5)2S
Heat Exchanger Type		Multi-Pass Cross Finned Tube				
Tube Material		Copper Tube				
Outer Diameter	φin (mm)	1/4 (7.0)	1/4 (7.0)	1/4 (7.0)	1/4 (7.0)	1/4 (7.0)
Rows		3+3	3+3	3+3+3	3+3+3	3+3+3
Number of Tube/Coil		174+174	174+174	174+174+174	174+174+174	174+174+174
Fin Material		Aluminum				
Pitch	in (mm)	1/16 (1.7)	1/16 (1.7)	1/16 (1.7)	1/16 (1.7)	1/16 (1.7)
Maximum Operating Pressure	psi (MPa)	601 (4.15)	601 (4.15)	601 (4.15)	601 (4.15)	601 (4.15)
Total Face Area	ft ² (m ²)	38.53+33.58 (3.58+3.12)	38.53+38.53 (3.58+3.58)	33.58+33.58+33.58 (3.12+3.12+3.12)	33.58+33.58+33.58 (3.12+3.12+3.12)	33.58+33.58+33.58 (3.12+3.12+3.12)
Number of Coil/Unit		4	4	6	6	6
Outdoor Fan		Large Diameter Fan (Propeller Fan)				
Number/Unit		4	4	6	6	6
Outer Diameter	φin (mm)	25-3/8 + 25-3/8 + 21-7/16 + 21-7/16 (644+644+544+544)	25-3/8 + 25-3/8 + 25-3/8 + 25-3/8 (644+644+644+644)	21-7/16 + 21-7/16 + 21-7/16 + 21-7/16 + 21-7/16 + 21-7/16 (544+544+544+544+544+544)		
Nominal Airflow	cfm (m ³ /min)	12284+9037 (348+256)	11614+11614 (329+329)	9037+9037+9037 (256+256+256)	9037+9037+9037 (256+256+256)	9037+9037+9037 (256+256+256)
Outdoor Fan Motor		Drip-Proof Type Enclosure				
Starting Method		Inverter				
Nominal Output	W	560+560+390+390	560+560+480+480	390+390+390+390+390+390		
Quantity		4	4	6	6	6
Insulation Class		E	E	E	E	E

2.7 Service Space

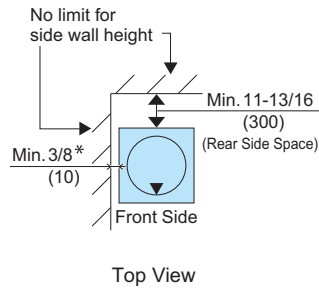
The outdoor unit needs to have a service space as follows.



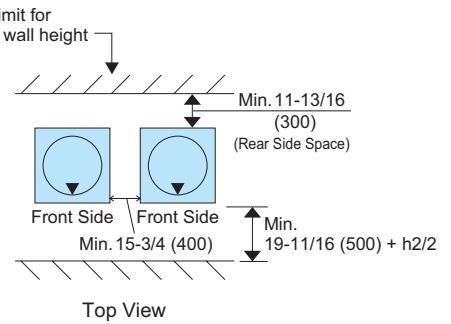
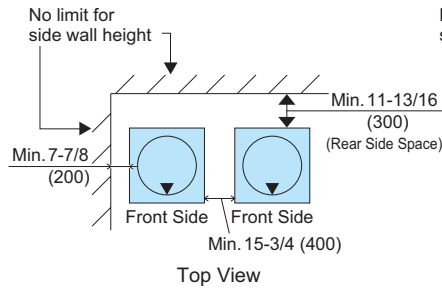
- If there are no walls on the front and rear sides, clearance for service access is required as follows:
 Front Side: Minimum 19-11/16 inches (500mm)
 Rear Side: Minimum 11-13/16 inches (300mm)
 Right and Left Sides: Minimum 3/8 inch (10mm)
 (when the snow protection hood (optional part) or the air outlet duct (field supplied) is mounted to the unit, a minimum gap of 1-15/16 inches (50mm) is required.)
- If the wall on the front side is over 59-1/16 inches (1,500mm) high, a clearance of (19-11/16 inches (500mm) + h2/2) is required for the front side.
- If the wall on the rear side is over 19-11/16 inches (500mm) high, a clearance of (11-13/16 inches (300mm) + h1/2) is required for the rear side.
- When the units are surrounded by walls on more than two sides, observe the necessary clearance as shown in the following illustrations.
- For walls on more than two sides, secure adequate clearance for service access space as shown in the following illustrations.
- If the space between the unit and an obstacle above the unit is less than 59-1/16 inches (1,500mm) or the space above the unit is closed, set up the duct at the air outlet side in order to prevent a short circuit.
- Make sure there is enough space to service the unit, if any of the four sides might need to be opened or removed.

2.7.1 Walls on Two Sides

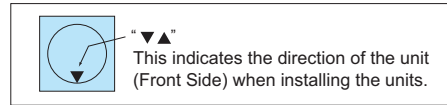
• Single Installation



• Multiple / Serial Installation

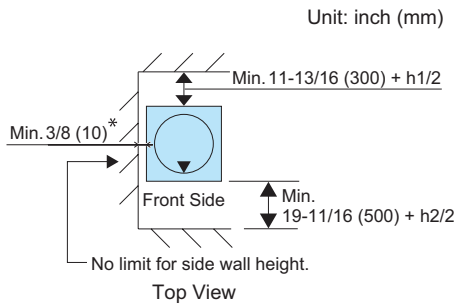


*If using the snow protection hood (optional part) or the air outlet duct (field supplied) is adopted, a minimum clearance of 2 inches (50mm) is required.



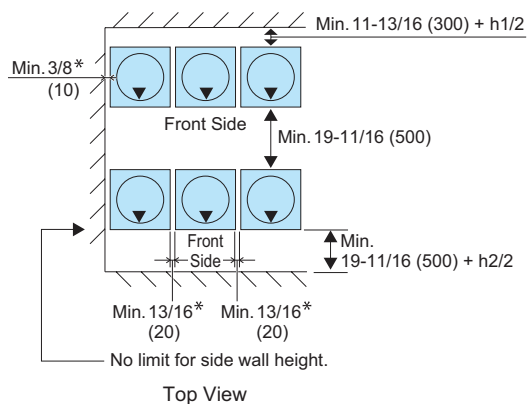
2.7.2 Walls on Three Sides

• Single Installation

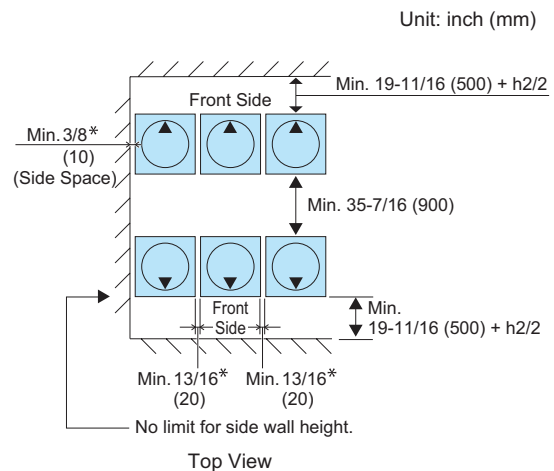


• Multiple / Serial Installation

Installation in the Same Direction



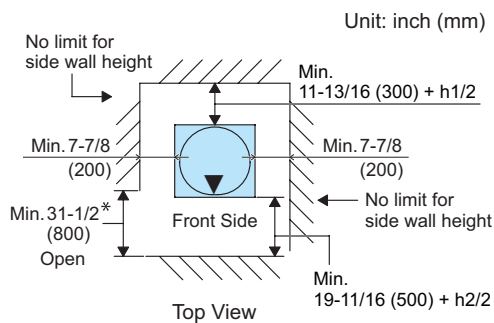
Rear to Rear Installation



* If the snow protection hood (optional part) or the air outlet duct (field supplied) is adopted, a minimum clearance of 2 inches (50mm) is required.

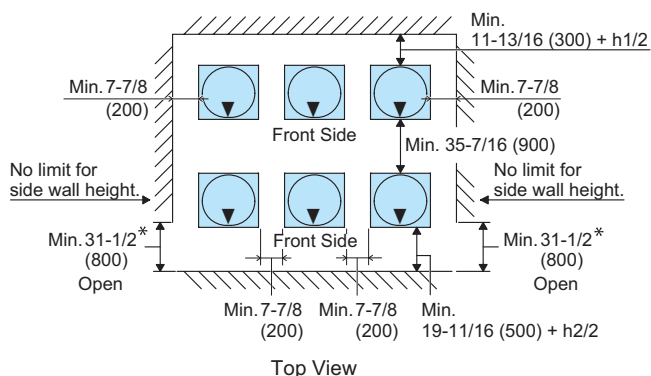
2.7.3 Walls on Four Sides

• Single Installation

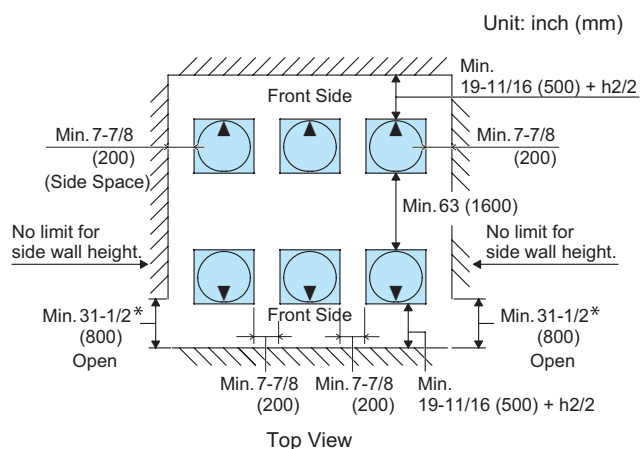


• Multiple / Serial Installation

Installation in the Same Direction



Rear to Rear Installation



* Partly open a wall if the unit is surrounded by walls on four sides.

NOTICE:

Keep the upper side open to prevent mutual interference between the inlet and outlet air of each outdoor unit.

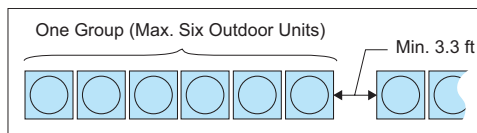
The figure indicates sufficient clearance around the outdoor units for operation and maintenance at typical installation conditions as follows.

[Operation Mode: Cooling Operation, Outside Temp.: 95°F (35°C)]

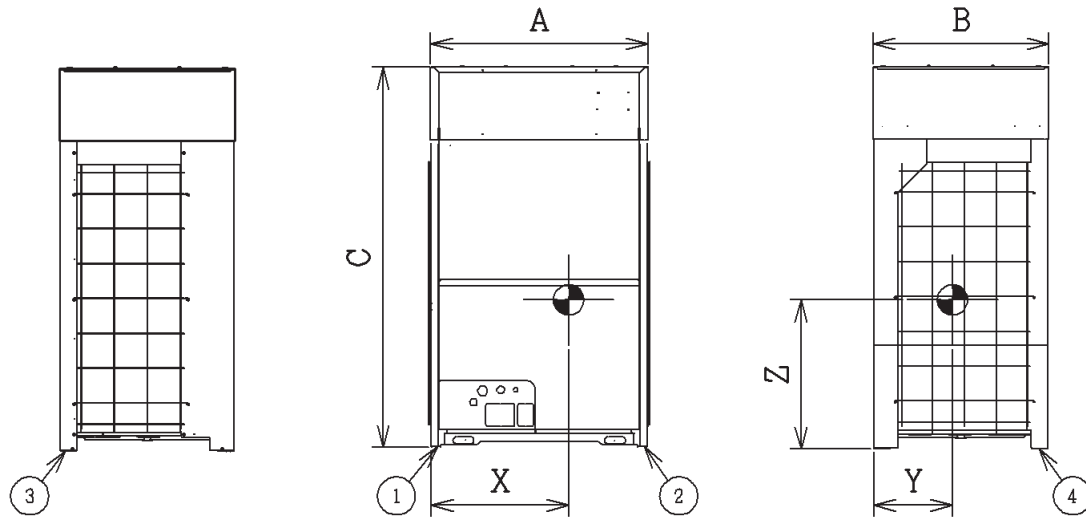
In the following situations when compared to the installation condition, an appropriate clearance dimension is required by calculating air flow current when

- the outdoor unit ambient temperature is higher
- a short circuit is likely to occur

For the multiple installation of units, one group will consist of a maximum of six outdoor units. Maintain a distance of 3.3 ft (1m) between each unit group.



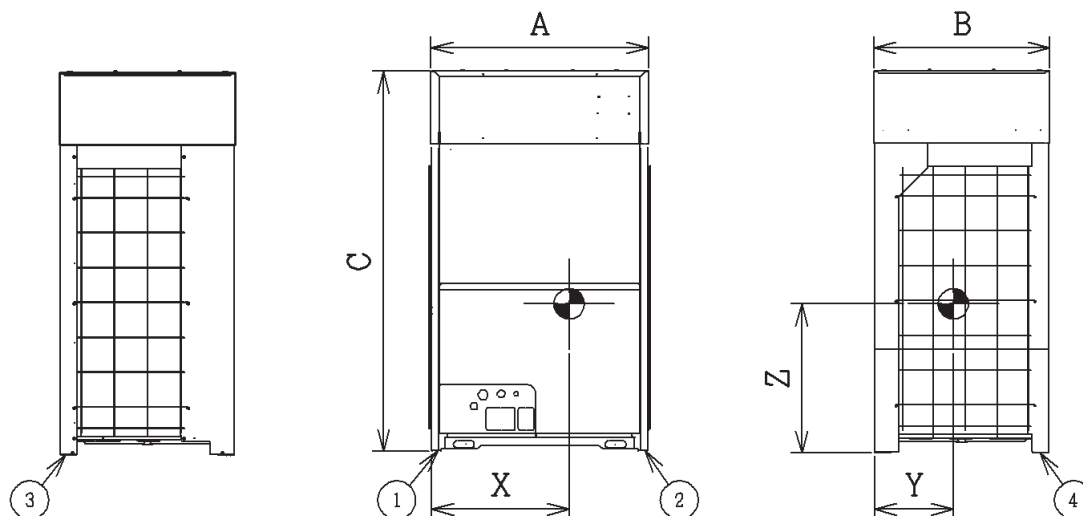
2.8 Center of Gravity



208 / 230V

Model	Voltage Type	Net Weight (lbs[kg])	Center of Gravity (inch[mm])			Outer Dimensions (inch[mm])			
			X	Y	Z	A	B	C	
(H,Y)VAHP072B32S	208/230V	516 [234]	21-1/4 [540]	13 [330]	24-5/8 [625]	38-3/8 [975]	30-1/2 [774]	66-1/4 [1683]	
(H,Y)VAHP096B32S		591 [268]	25-13/16 [655]	13-3/8 [340]	26-9/16 [675]	48-5/8 [1235]			
(H,Y)VAHP120B32S		721 [327]	27-3/8 [695]	12-13/16 [325]	25 [635]				64 [1625]
(H,Y)VAHP144B32S		723 [328]							
(H,Y)VAHP168B32S		849 [385]	32-7/8 [835]		24-3/16 [615]				
(H,Y)VAHP192B32S									

Model	Voltage Type	Amplitude Value ($\times 10^{-3}$ inch [μm])				Outer Dimensions (inch [mm])			
		①	②	③	④	①	②	③	④
(H,Y)VAHP072B32S	208/230V	0.12 [3]	0.24 [6]	0.47 [12]	0.12 [3]	79.0	85.0	91.1	79.0
(H,Y)VAHP096B32S		0.20 [5]	0.35 [9]	0.59 [15]	0.24 [6]	86.7	91.8	96.3	88.3
(H,Y)VAHP120B32S		0.20 [5]	0.35 [9]	0.59 [15]	0.24 [6]	87.9	93.0	97.5	89.5
(H,Y)VAHP144B32S		0.20 [5]	0.35 [9]	0.59 [15]	0.24 [6]	87.9	93.0	97.5	89.5
(H,Y)VAHP168B32S		0.43 [11]	0.20 [5]	0.71 [18]	0.31 [8]	89.6	82.8	93.9	86.9
(H,Y)VAHP192B32S		0.43 [11]	0.20 [5]	0.71 [18]	0.31 [8]	90.5	83.7	94.8	87.8



460V, 575V

Model	Voltage Type	Net Weight (lbs[kg])	Center of Gravity (inch[mm])			Outer Dimensions (inch[mm])		
			X	Y	Z	A	B	C
(H,Y)VAHP072B42S (H,Y)VAHP072B52S	460V, 575V	523 [237]	21-7/16 [545]	13 [330]	25 [635]	38-3/8 [975]	30-1/2 [774]	66-1/4 [1683]
(H,Y)VAHP096B42S (H,Y)VAHP096B52S		604 [274]	26 [660]	13-3/8 [340]	26-15/16 [685]	48-5/8 [1235]		
(H,Y)VAHP120B42S (H,Y)VAHP120B52S		725 [329]	27-3/8 [695]	12-13/16 [325]	25-3/8 [645]			
(H,Y)VAHP144B42S (H,Y)VAHP144B52S		728 [330]						
(H,Y)VAHP168B42S (H,Y)VAHP168B52S		849 [385]	33-1/16 [840]		24-5/8 [625]	64 [1625]		
(H,Y)VAHP192B42S (H,Y)VAHP192B52S								

Model	Voltage Type	Amplitude Value ($\times 10^{-3}$ inch [μm])				Outer Dimensions (inch [mm])			
		①	②	③	④	①	②	③	④
(H,Y)VAHP072B42S (H,Y)VAHP072B52S	460V, 575V	0.35 [9]	0.28 [7]	0.20 [5]	0.35 [9]	88.5	86.4	83.4	88.5
(H,Y)VAHP096B42S (H,Y)VAHP096B52S		0.35 [9]	0.08 [2]	0.12 [3]	0.08 [2]	91.8	78.7	82.3	78.7
(H,Y)VAHP120B42S (H,Y)VAHP120B52S		0.51 [13]	0.16 [4]	0.35 [9]	0.16 [4]	97.0	86.7	93.8	86.7
(H,Y)VAHP144B42S (H,Y)VAHP144B52S		0.51 [13]	0.16 [4]	0.35 [9]	0.16 [4]	97.0	86.7	93.8	86.7
(H,Y)VAHP168B42S (H,Y)VAHP168B52S		0.12 [3]	0.31 [8]	1.06 [27]	0.24 [6]	79.2	87.7	98.3	85.2
(H,Y)VAHP192B42S (H,Y)VAHP168B52S		0.12 [3]	0.31 [8]	1.06 [27]	0.24 [6]	79.2	87.7	98.3	85.2

2.9 Electrical Data

208/230V 60Hz

Model	Unit Main Power			Applicable Voltage		Power Supply		Compressor		Fan Motor
	VOL	PH	Hz	Max.	Min.	MCA [A]	MOP [A]	MOC [A]	LRA [A]	OPT [kW]
(H,Y)VAHP072B32S	208/230	3	60	253	188	29/26	40/40	22.6	50	0.75
(H,Y)VAHP096B32S						39/35	50/50	30.7	50	0.75+0.75
(H,Y)VAHP120B32S						46/42	60/50	20.2+20.2	54+54	0.75+0.75
(H,Y)VAHP144B32S						58/52	70/70	25.5+25.5	54+54	0.75+0.75
(H,Y)VAHP168B32S						65/59	80/80	28.6+28.6	50+50	0.75+0.75
(H,Y)VAHP192B32S						76/68	90/90	33.4+33.4	50+50	0.75+0.75
(H,Y)VAHP216B32S						58+29 /52+26	70+40 /70+40	25.5+25.5+22.6	54+54+50	0.75+0.75+0.75
(H,Y)VAHP240B32S						46+46 /42+42	60+60 /50+50	20.2+20.2+20.2+20.2	54+54+ 54+54	0.75+0.75+0.75+0.75
(H,Y)VAHP264B32S						58+46 /52+42	70+60 /70+50	25.5+25.5+20.2+20.2	54+54+ 54+54	0.75+0.75+0.75+0.75
(H,Y)VAHP288B32S						58+58 /52+52	70+70 /70+70	25.5+25.5+25.5+25.5	54+54+ 54+54	0.75+0.75+0.75+0.75
(H,Y)VAHP312B32S						65+58 /59+52	80+70 /80+70	28.6+28.6+25.5+25.5	50+50 +54+54	0.75+0.75+0.75+0.75
(H,Y)VAHP336B32S						76+58 /68+52	90+70 /90+70	33.4+33.4+25.5+25.5	50+50 +54+54	0.75+0.75+0.75+0.75
(H,Y)VAHP360B32S						76+65 /68+59	90+80 /90+80	33.4+33.4+28.6+28.6	50+50 +50+50	0.75+0.75+0.75+0.75
(H,Y)VAHP384B32S						58+46+46 /52+42+42	70+60+60 /70+50+50	25.5+25.5+20.2+20.2+20.2+20.2	54+54+54+ 54+54+54	0.75+0.75+0.75+0.75+0.75+0.75
(H,Y)VAHP408B32S						58+58+46 /52+52+42	70+70+60 /70+70+50	25.5+25.5+25.5+25.5+20.2+20.2	54+54+54+ 54+54+54	0.75+0.75+0.75+0.75+0.75+0.75
(H,Y)VAHP432B32S						58+58+58 /52+52+52	70+70+70 /70+70+70	25.5+25.5+25.5+25.5+25.5+25.5	54+54+54+ 54+54+54	0.75+0.75+0.75+0.75+0.75+0.75

460V 60Hz

Model	Unit Main Power			Applicable Voltage		Power Supply		Compressor		Fan Motor
	VOL	PH	Hz	Max.	Min.	MCA [A]	MOP [A]	MOC [A]	LRA [A]	OPT [kW]
(H,Y)VAHP072B42S	460	3	60	506	414	15	20	11.5	47	0.75
(H,Y)VAHP096B42S						22	30	17.1	47	0.75+0.75
(H,Y)VAHP120B42S						24	30	10.4+10.4	32+32	0.75+0.75
(H,Y)VAHP144B42S						30	35	13.2+13.2	32+32	0.75+0.75
(H,Y)VAHP168B42S						34	40	14.8+14.8	47+47	0.75+0.75
(H,Y)VAHP192B42S						39	50	17.3+17.3	47+47	0.75+0.75
(H,Y)VAHP216B42S						30+15	35+20	13.2+13.2+11.5	32+32+47	0.75+0.75+0.75
(H,Y)VAHP240B42S						24+24	30+30	10.4+10.4+10.4+10.4	32+32+ 32+32	0.75+0.75+0.75+0.75
(H,Y)VAHP264B42S						30+24	35+30	13.2+13.2+10.4+10.4	32+32+ 32+32	0.75+0.75+0.75+0.75
(H,Y)VAHP288B42S						30+30	35+35	13.2+13.2+13.2+13.2	32+32+ 32+32	0.75+0.75+0.75+0.75
(H,Y)VAHP312B42S						34+30	40+35	14.8+14.8+13.2+13.2	47+47+ 32+32	0.75+0.75+0.75+0.75
(H,Y)VAHP336B42S						39+30	50+35	17.3+17.3+13.2+13.2	47+47+ 32+32	0.75+0.75+0.75+0.75
(H,Y)VAHP360B42S						39+34	50+40	17.3+17.3+14.8+14.8	47+47+ 47+47	0.75+0.75+0.75+0.75
(H,Y)VAHP384B42S						30+24+24	35+30+30	13.2+13.2+10.4+10.4+10.4+10.4	32+32+32+ 32+32+32	0.75+0.75+0.75+0.75+0.75+0.75
(H,Y)VAHP408B42S						30+30+24	35+35+30	13.2+13.2+13.2+13.2+10.4+10.4	32+32+32+ 32+32+32	0.75+0.75+0.75+0.75+0.75+0.75
(H,Y)VAHP432B42S						30+30+30	35+35+35	13.2+13.2+13.2+13.2+13.2+13.2	32+32+32+ 32+32+32	0.75+0.75+0.75+0.75+0.75+0.75

VOL: Rated Unit Power Supply Voltage (V)
 PH: Phase (φ)
 HZ: Frequency (Hz)
 MCA: Minimum Circuit Ampacity (A)
 MOP: Maximum Overcurrent Protection (A)

MOC: Maximum Operating Current (A)
 LRA: Locked Rotor Ampacity (A)
 OPT: Rated Motor Output (kW)

NOTES:

- Power supply voltage must be satisfied with the following.
 Supply Voltage: Rated Voltage within ±10%
 Starting Voltage: Rated Voltage within -15%
 Operating Voltage: Rated Voltage within ±10%
 Imbalance between Phases: Within 3%
- The compressor is started by an inverter, resulting in extremely low starting current.

PRODUCT SPECIFICATION

575V 60Hz

Model	Unit Main Power			Applicable Voltage		Power Supply		Compressor		Fan Motor
	VOL	PH	Hz	Max.	Min.	MCA [A]	MOP [A]	MOC [A]	LRA [A]	OPT [kW]
(H,Y)VAHP072B52S	575	3	60	660	518	12	15	9.1	24.0	0.75
(H,Y)VAHP096B52S						16	25	12.5	24.0	0.75
(H,Y)VAHP120B52S						19	25	8.3+8.3	19.5+19.5	0.75+0.75
(H,Y)VAHP144B52S						24	30	10.5+10.5	19.5+19.5	0.75+0.75
(H,Y)VAHP168B52S						27	35	11.8+11.8	24.0+24.0	0.75+0.75
(H,Y)VAHP192B52S						32	40	13.8+13.8	24.0+24.0	0.75+0.75
(H,Y)VAHP216B52S						24+12	30+15	10.5+9.1	19.5+19.5+24.0	0.75+0.75+0.75
(H,Y)VAHP240B52S						19+19	25+25	8.3+8.3+8.3+8.3	19.5+19.5+19.5+19.5	0.75+0.75+0.75+0.75
(H,Y)VAHP264B52S						24+19	30+25	10.5+10.5+8.3+8.3	19.5+19.5+19.5+19.5	0.75+0.75+0.75+0.75
(H,Y)VAHP288B52S						24+24	30+30	10.5+10.5+10.5+10.5	19.5+19.5+19.5+19.5	0.75+0.75+0.75+0.75
(H,Y)VAHP312B52S						27+24	35+30	11.8+11.8+10.5+10.5	24.0+24.0+19.5+19.5	0.75+0.75+0.75+0.75
(H,Y)VAHP336B52S						32+24	40+30	13.8+13.8+10.5+10.5	24.0+24.0+19.5+19.5	0.75+0.75+0.75+0.75
(H,Y)VAHP360B52S						32+27	40+35	13.8+13.8+11.8+11.8	24.0+24.0+24.0+24.0	0.75+0.75+0.75+0.75
(H,Y)VAHP384B52S						24+19+19	30+25+25	10.5+10.5+8.3+8.3+8.3+8.3	19.5+19.5+19.5+19.5+19.5+19.5	0.75+0.75+0.75+0.75+0.75+0.75
(H,Y)VAHP408B52S						24+24+19	30+30+25	10.5+10.5+10.5+10.5+8.3+8.3	19.5+19.5+19.5+19.5+19.5+19.5	0.75+0.75+0.75+0.75+0.75+0.75
(H,Y)VAHP432B52S						24+24+24	30+30+30	10.5+10.5+10.5+10.5+10.5+10.5	19.5+19.5+19.5+19.5+19.5+19.5	0.75+0.75+0.75+0.75+0.75+0.75

VOL: Rated Unit Power Supply Voltage (V)
 PH: Phase (~)
 HZ: Frequency (Hz)
 MCA: Minimum Circuit Ampacity (A)
 MOP: Maximum Overcurrent Protection (A)

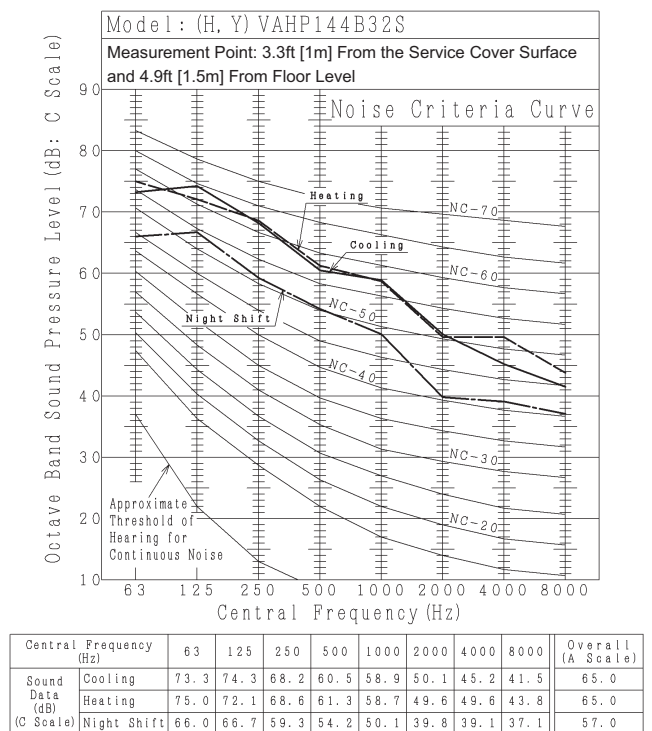
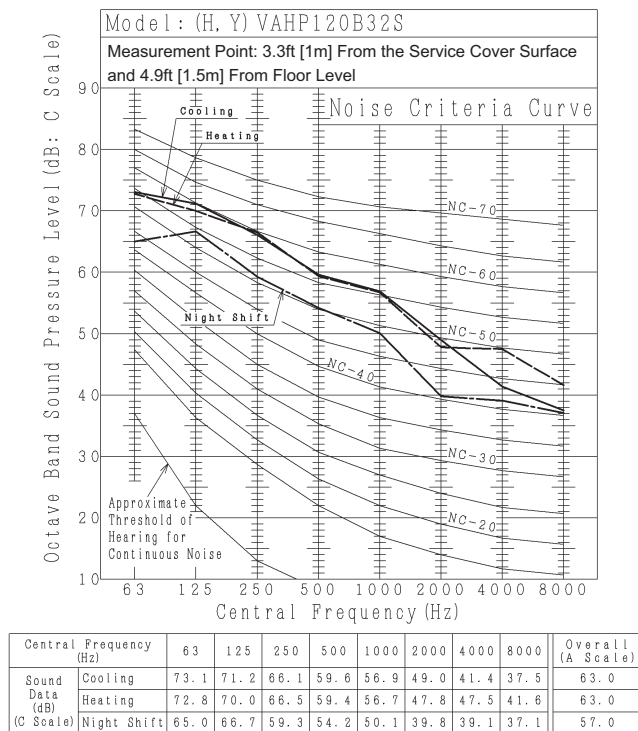
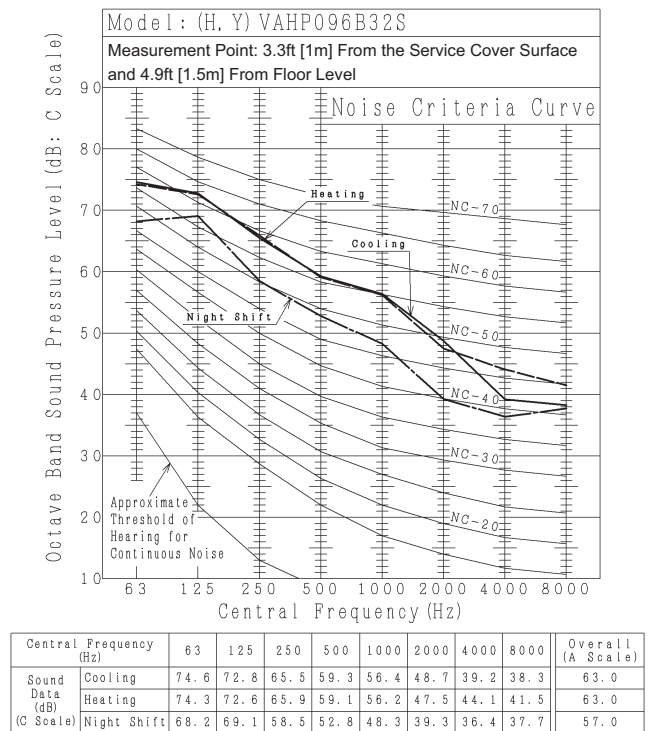
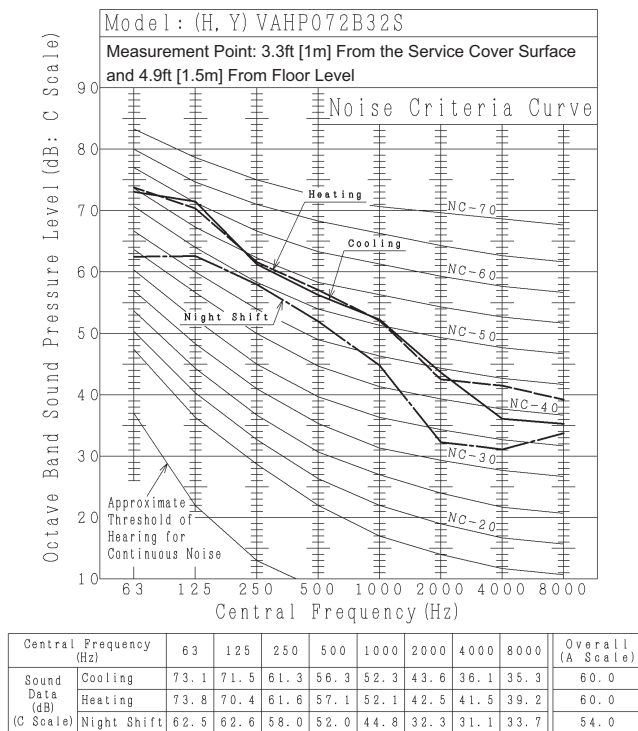
MOC: Maximum Operating Current (A)
 LRA: Locked Rotor Ampacity (A)
 OPT: Rated Motor Output (kW)

NOTES:

- Power supply voltage must be satisfied with the following.
 Supply Voltage: 575V -10%, 600V +10%
 Starting Voltage: Rated Voltage within -15%
 Operating Voltage: Rated Voltage within ±10%
 Imbalance between Phases: Within 3%
- The compressor is started by an inverter, resulting in extremely low starting current.

2.10 Sound Data

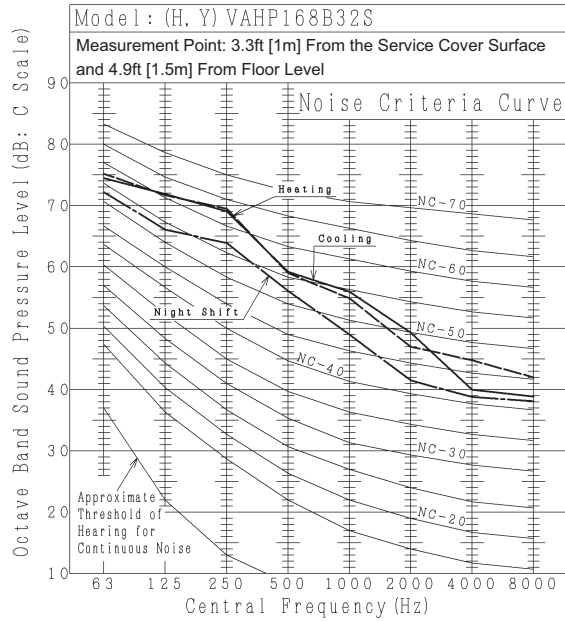
(1) 208/230V Type



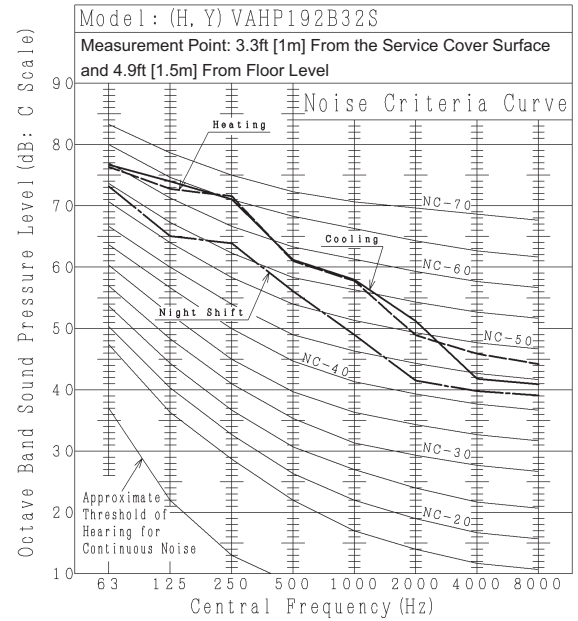
NOTICE:

The sound data is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side may be 8dB higher than that of the front side.

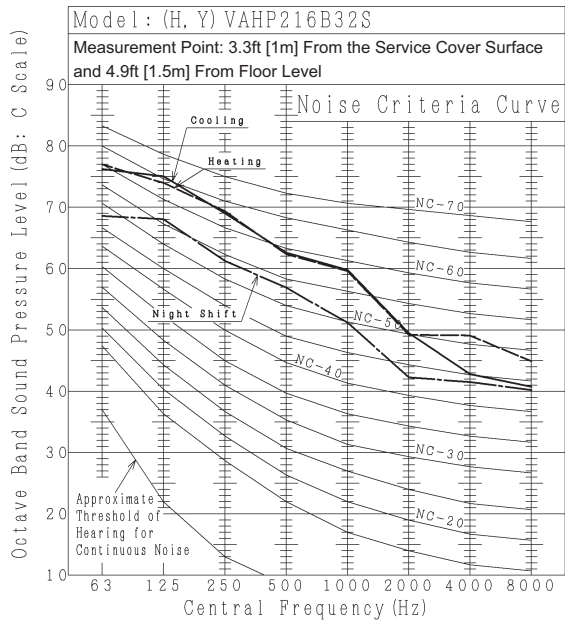
PRODUCT SPECIFICATION



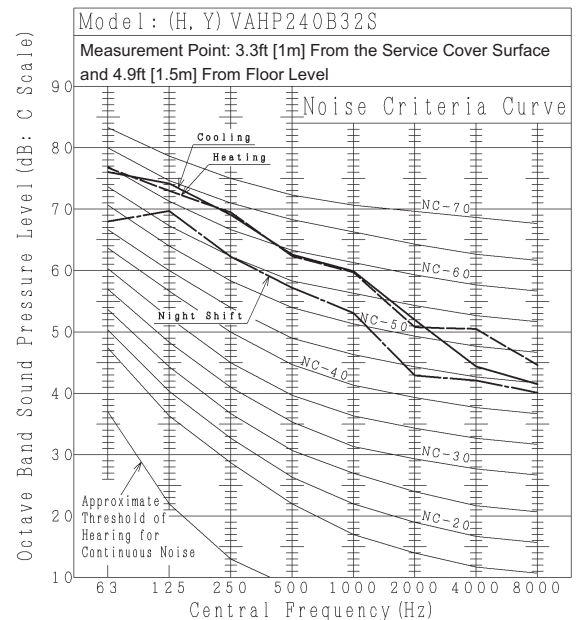
Central Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Overall (A Scale)
Sound Data (dB)									
Cooling	74.5	71.9	69.1	59.2	56.0	49.3	40.0	38.9	64.0
Heating	75.2	71.7	69.5	59.0	54.9	47.0	44.8	42.0	64.0
Night Shift	72.2	66.1	63.9	56.1	49.0	41.5	38.8	38.1	59.0



Central Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Overall (A Scale)
Sound Data (dB)									
Cooling	76.7	74.0	71.1	61.2	58.0	51.2	41.8	40.9	66.0
Heating	76.4	72.8	71.6	61.0	57.8	48.9	45.9	44.2	66.0
Night Shift	73.2	65.1	63.9	56.1	49.0	41.5	39.8	39.1	59.0



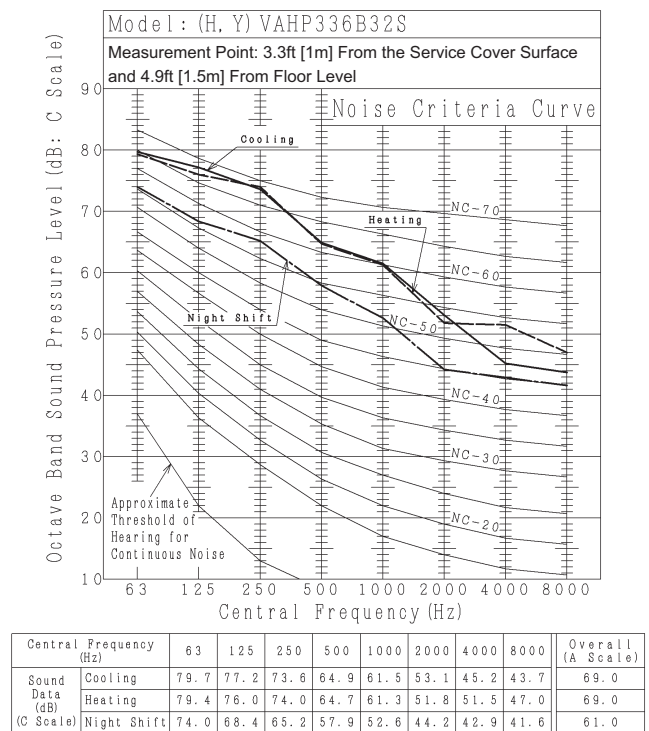
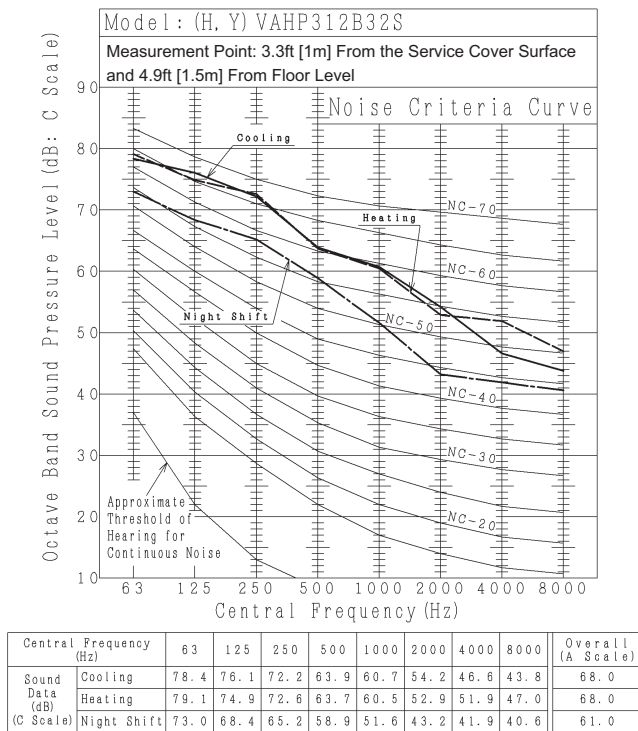
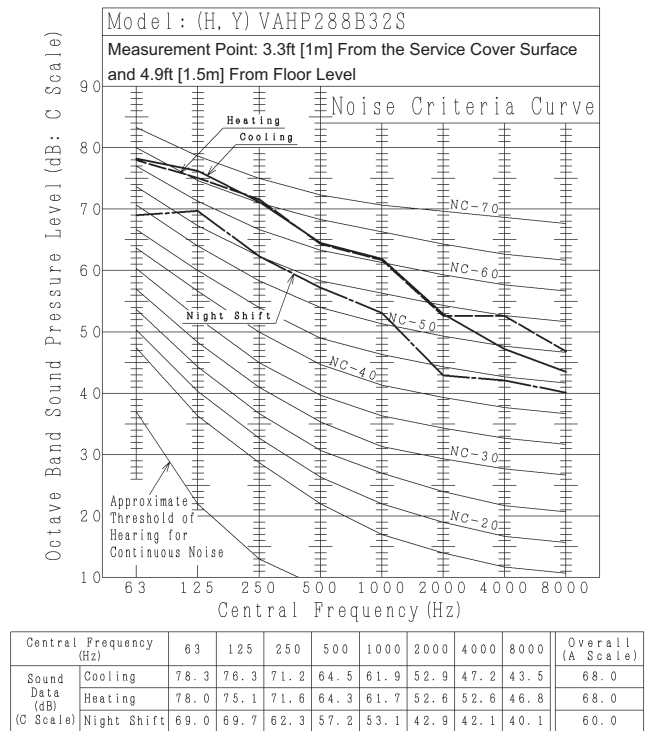
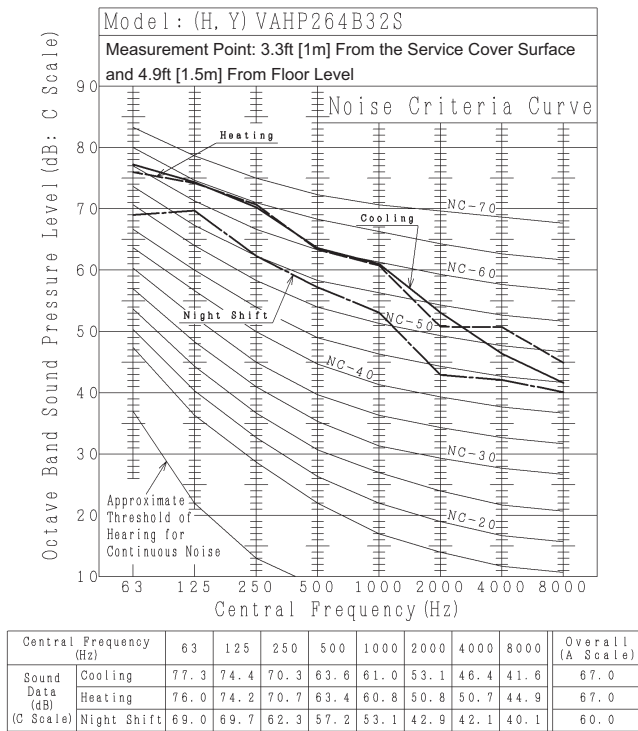
Central Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Overall (A Scale)
Sound Data (dB)									
Cooling	76.3	75.1	69.0	62.6	59.8	49.5	42.8	40.7	66.0
Heating	77.0	74.0	69.4	62.4	59.6	49.2	49.1	44.9	66.0
Night Shift	68.6	68.1	61.3	56.9	51.2	42.3	41.5	40.2	59.0



Central Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Overall (A Scale)
Sound Data (dB)									
Cooling	76.1	74.2	69.1	62.6	59.9	52.0	44.4	41.5	66.0
Heating	76.8	73.0	69.5	62.4	59.7	50.8	50.5	44.6	66.0
Night Shift	68.0	69.7	62.3	57.2	53.1	42.9	42.1	40.1	60.0

NOTICE:

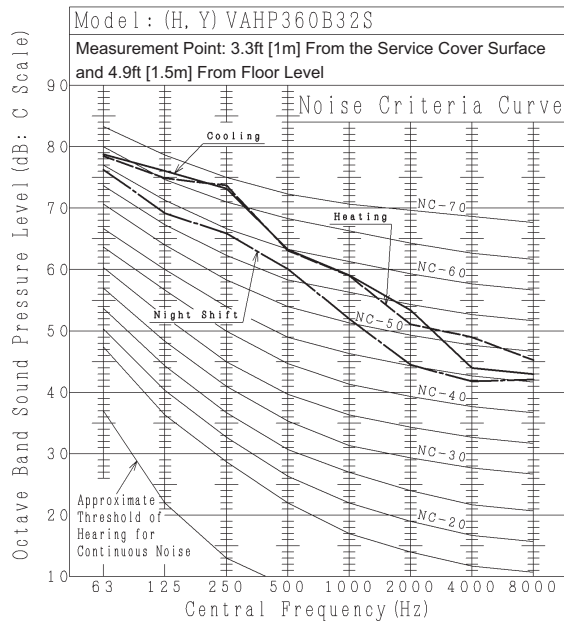
The sound data is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side may be 8dB higher than that of the front side.



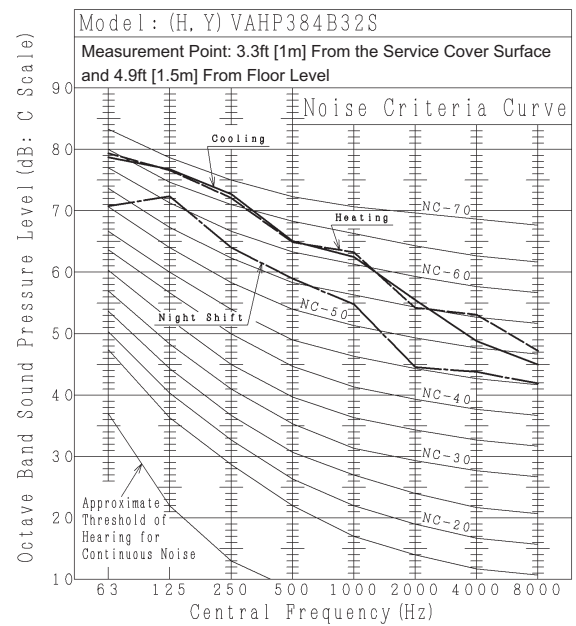
NOTICE:

The sound data is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side may be 8dB higher than that of the front side.

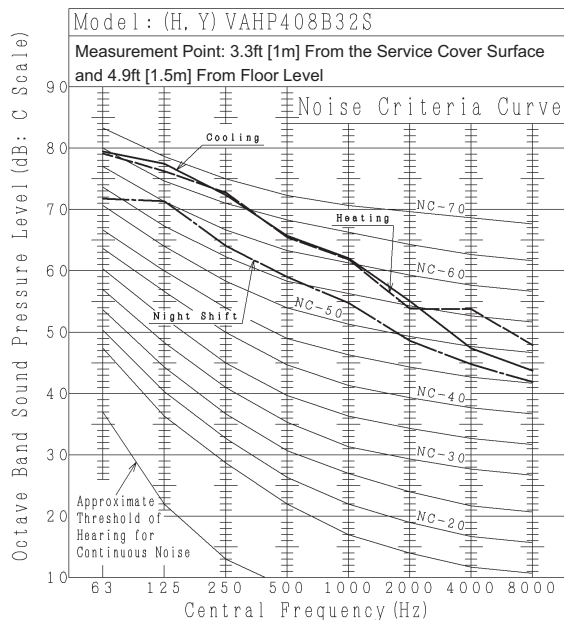
PRODUCT SPECIFICATION



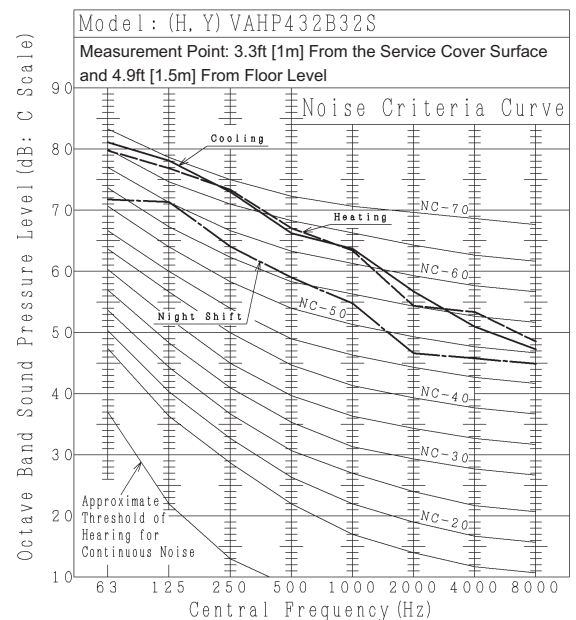
Central Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Overall (A Scale)
Sound Data (dB)									
Cooling	78.8	76.1	73.2	63.3	59.1	53.4	44.0	43.0	68.0
Heating	78.5	74.9	73.7	63.1	59.0	51.1	49.0	45.3	68.0
Night Shift	76.3	69.2	65.9	60.1	52.0	44.5	41.8	42.1	62.0



Central Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Overall (A Scale)
Sound Data (dB)									
Cooling	78.7	76.8	72.7	65.1	62.5	55.5	48.8	45.0	69.0
Heating	79.4	76.6	72.1	64.9	63.3	54.2	53.1	47.2	69.0
Night Shift	70.8	72.4	64.1	59.0	54.8	44.6	43.8	41.9	62.0



Central Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Overall (A Scale)
Sound Data (dB)									
Cooling	79.5	77.5	72.4	65.7	62.1	55.1	47.4	43.7	69.0
Heating	79.2	76.3	72.8	65.5	61.9	53.8	53.8	48.0	69.0
Night Shift	71.8	71.4	64.1	59.0	54.8	48.6	44.8	41.9	62.0

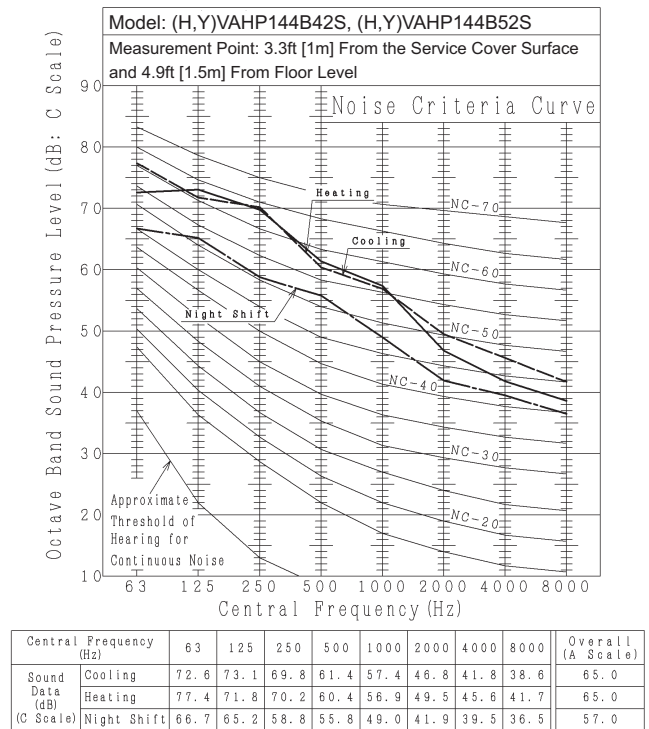
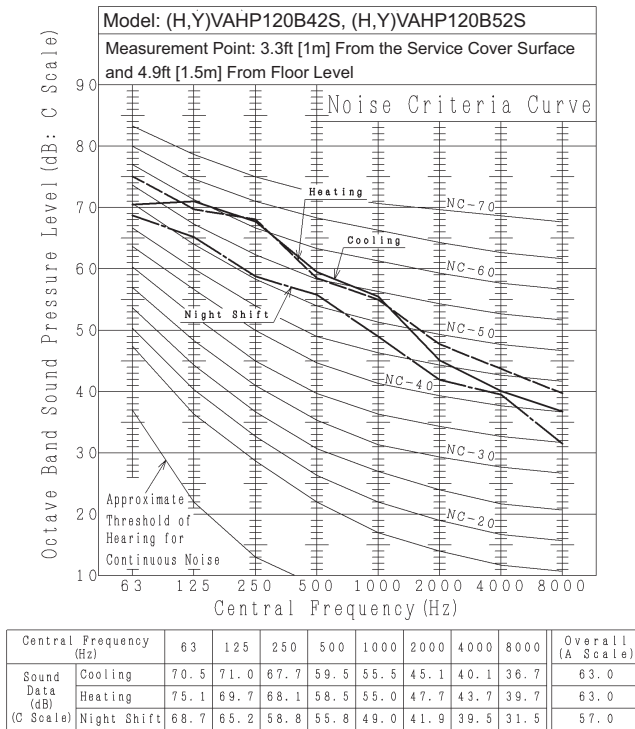
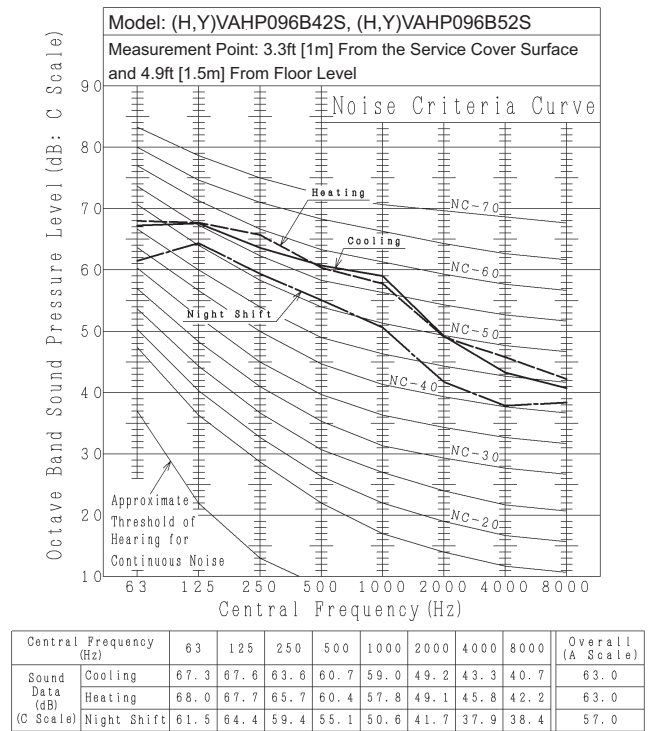
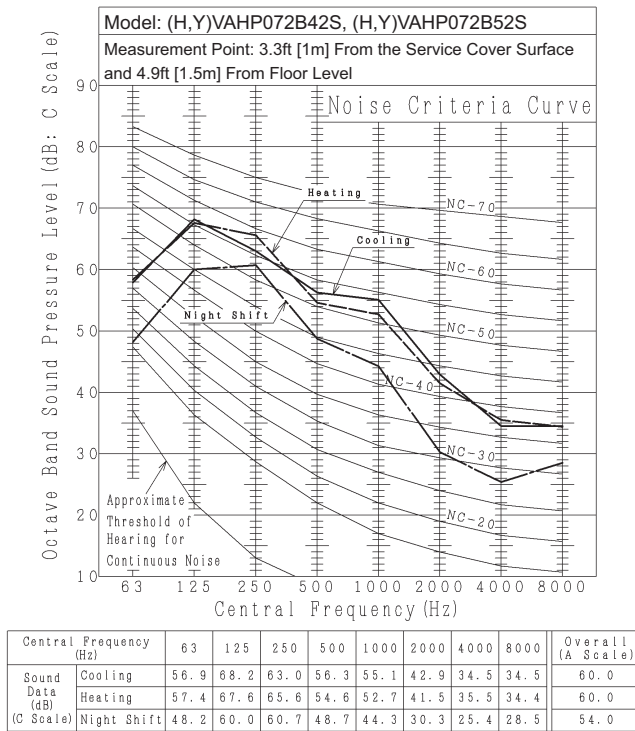


Central Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Overall (A Scale)
Sound Data (dB)									
Cooling	81.1	78.1	73.0	66.3	63.7	56.7	51.0	47.3	70.0
Heating	79.8	76.9	73.4	67.1	63.5	54.4	53.4	48.6	70.0
Night Shift	71.8	71.4	64.1	59.0	54.8	46.6	45.8	44.9	62.0

NOTICE:

The sound data is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side may be 8dB higher than that of the front side.

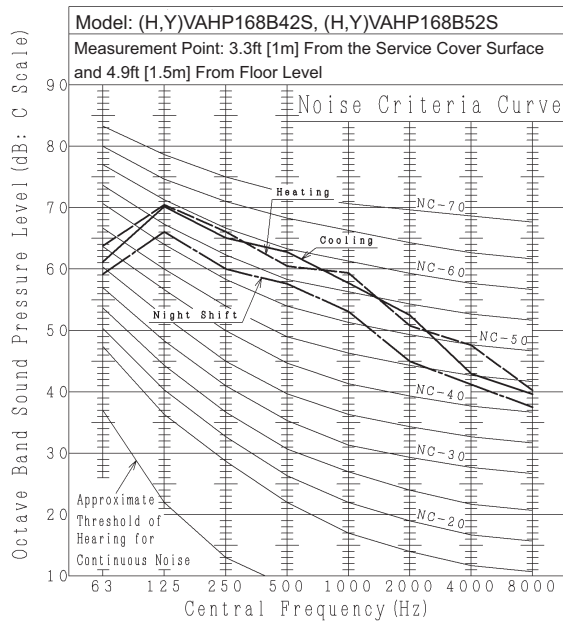
(2) 460V Type, 575V Type



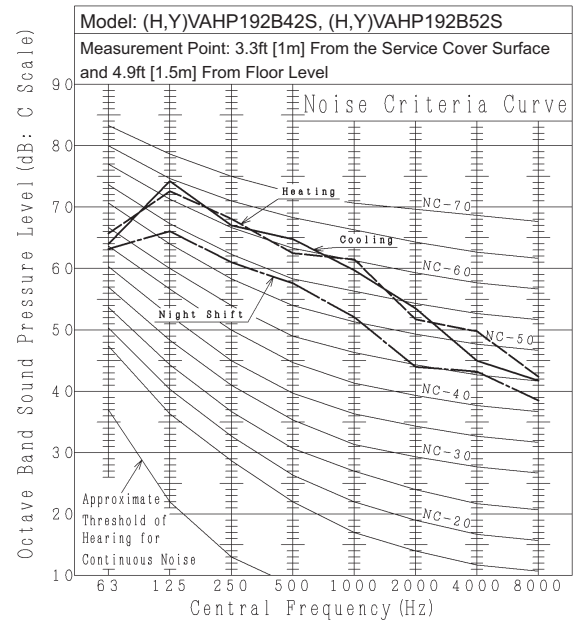
NOTICE:

The sound data is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side may be 8dB higher than that of the front side.

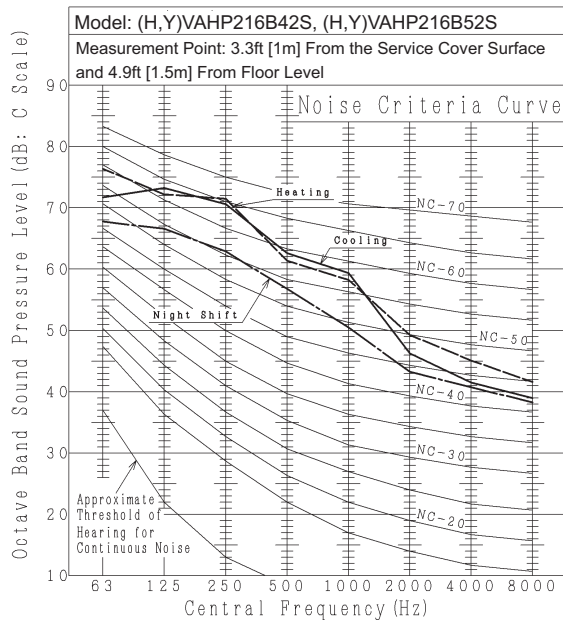
PRODUCT SPECIFICATION



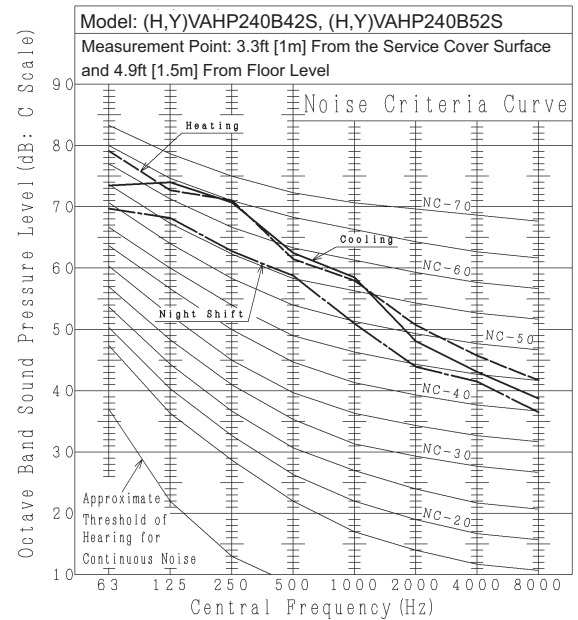
Central Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Overall (A Scale)
Sound Data (dB)									
Cooling	61.2	70.2	65.1	62.8	57.7	52.5	43.0	39.6	64.0
Heating	63.8	70.5	66.1	60.5	59.4	50.8	47.6	40.3	64.0
Night Shift	59.2	66.1	60.0	57.6	53.1	45.0	41.2	37.5	59.0



Central Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Overall (A Scale)
Sound Data (dB)									
Cooling	64.0	73.3	67.0	64.8	59.7	53.5	45.0	41.7	66.0
Heating	65.7	72.6	68.1	62.5	61.5	51.7	49.8	42.4	66.0
Night Shift	63.2	66.1	61.0	57.6	52.1	44.0	43.2	38.5	59.0



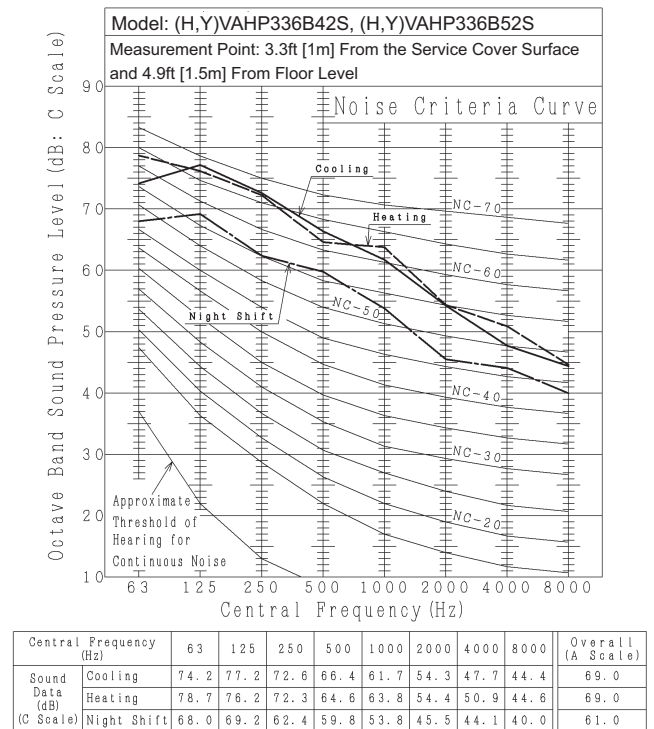
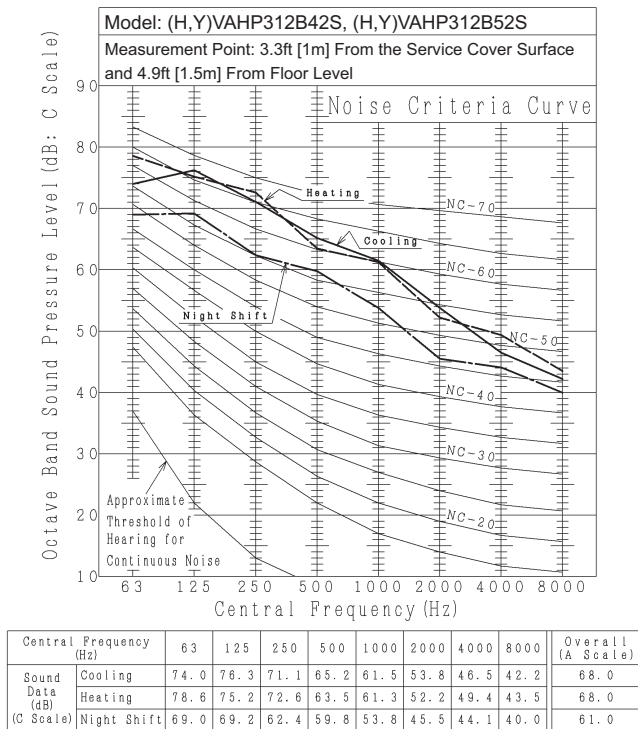
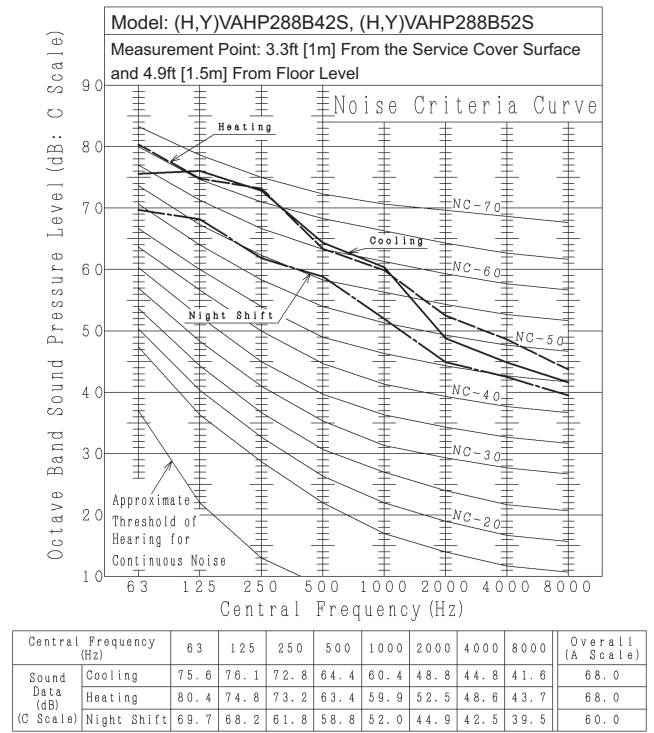
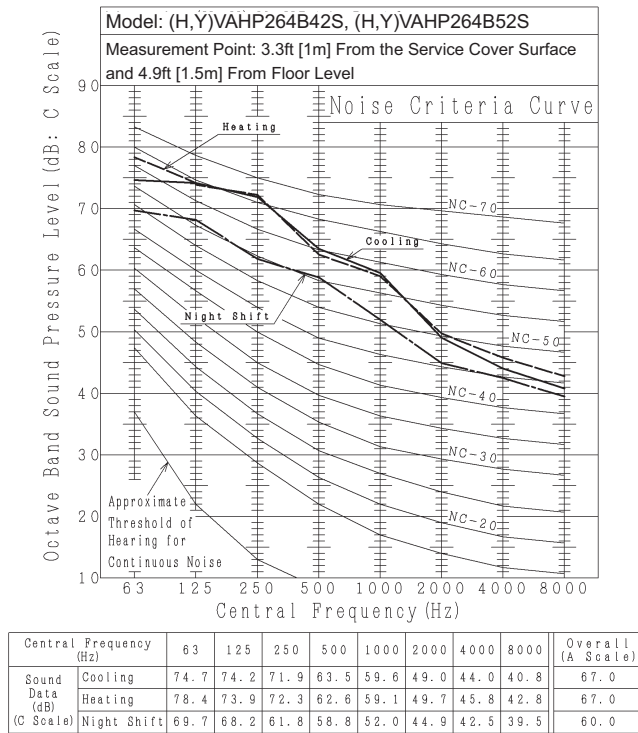
Central Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Overall (A Scale)
Sound Data (dB)									
Cooling	71.7	73.3	70.8	62.6	59.4	46.3	41.5	39.0	66.0
Heating	76.4	72.2	71.5	61.4	58.3	49.3	45.1	41.6	66.0
Night Shift	67.8	66.6	62.9	56.8	50.5	43.3	40.7	38.3	59.0



Central Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Overall (A Scale)
Sound Data (dB)									
Cooling	73.5	74.0	70.7	62.5	58.5	48.1	43.1	38.7	66.0
Heating	79.1	72.7	71.1	61.5	58.0	50.7	45.7	41.7	66.0
Night Shift	69.7	68.2	62.8	58.8	51.0	43.9	41.5	36.5	60.0

NOTICE:

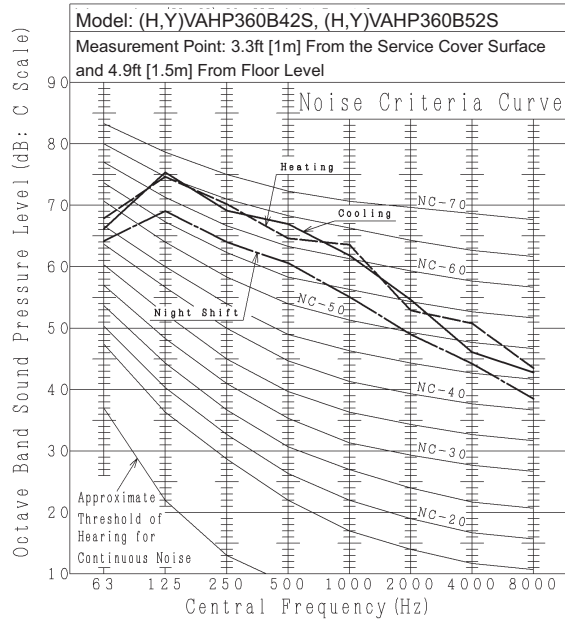
The sound data is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side may be 8dB higher than that of the front side.



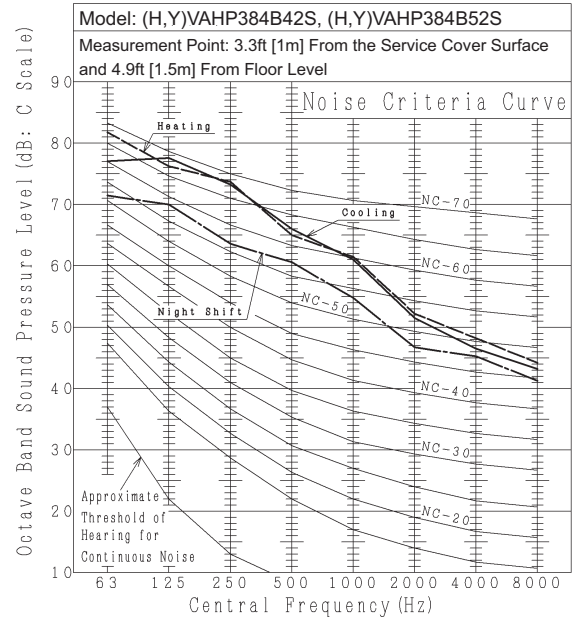
NOTICE:

The sound data is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side may be 8dB higher than that of the front side.

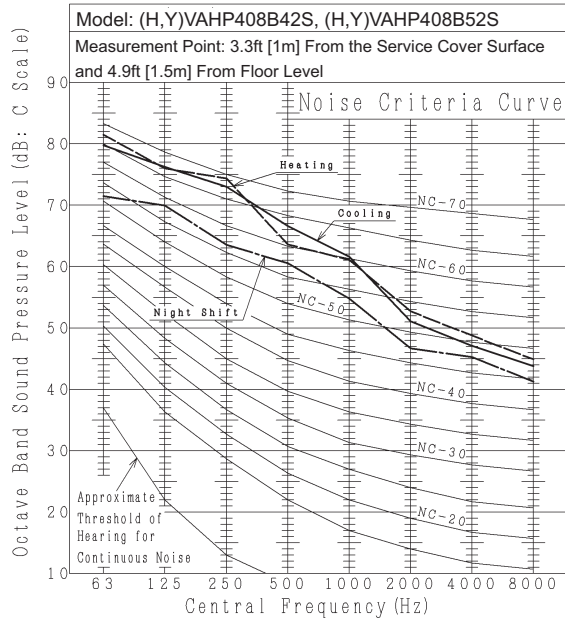
PRODUCT SPECIFICATION



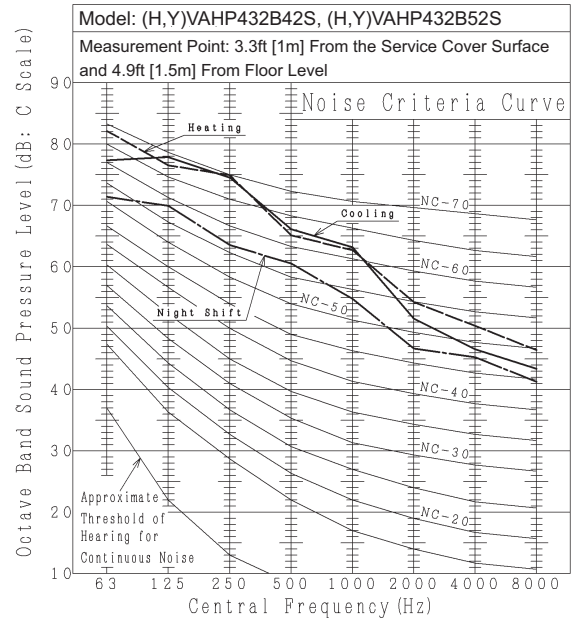
Central Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Overall (A Scale)
Sound Data (dB) (C Scale)									
Cooling	66.2	75.4	69.2	66.9	61.8	54.6	46.1	42.8	68.0
Heating	67.9	74.7	70.2	64.6	63.6	52.9	50.8	43.5	68.0
Night Shift	64.2	69.1	64.0	60.6	55.1	49.0	44.2	38.5	62.0



Central Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Overall (A Scale)
Sound Data (dB) (C Scale)									
Cooling	77.1	77.6	73.3	68.0	61.0	51.5	46.5	43.2	69.0
Heating	81.8	76.3	73.7	65.0	61.5	52.2	48.2	44.2	69.0
Night Shift	71.5	70.0	63.6	60.6	54.8	46.7	45.3	41.3	62.0



Central Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Overall (A Scale)
Sound Data (dB) (C Scale)									
Cooling	79.8	76.3	73.0	66.6	61.6	51.1	47.1	43.8	69.0
Heating	81.5	76.0	74.4	63.6	61.1	52.7	48.8	44.9	69.0
Night Shift	71.5	70.0	63.6	60.6	54.8	46.7	45.3	41.3	62.0



Central Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Overall (A Scale)
Sound Data (dB) (C Scale)									
Cooling	77.4	77.9	74.6	66.2	63.2	51.6	46.6	43.4	70.0
Heating	82.2	76.6	75.0	65.2	62.7	54.3	50.4	46.5	70.0
Night Shift	71.5	70.0	63.6	60.6	54.8	46.7	45.3	41.3	62.0

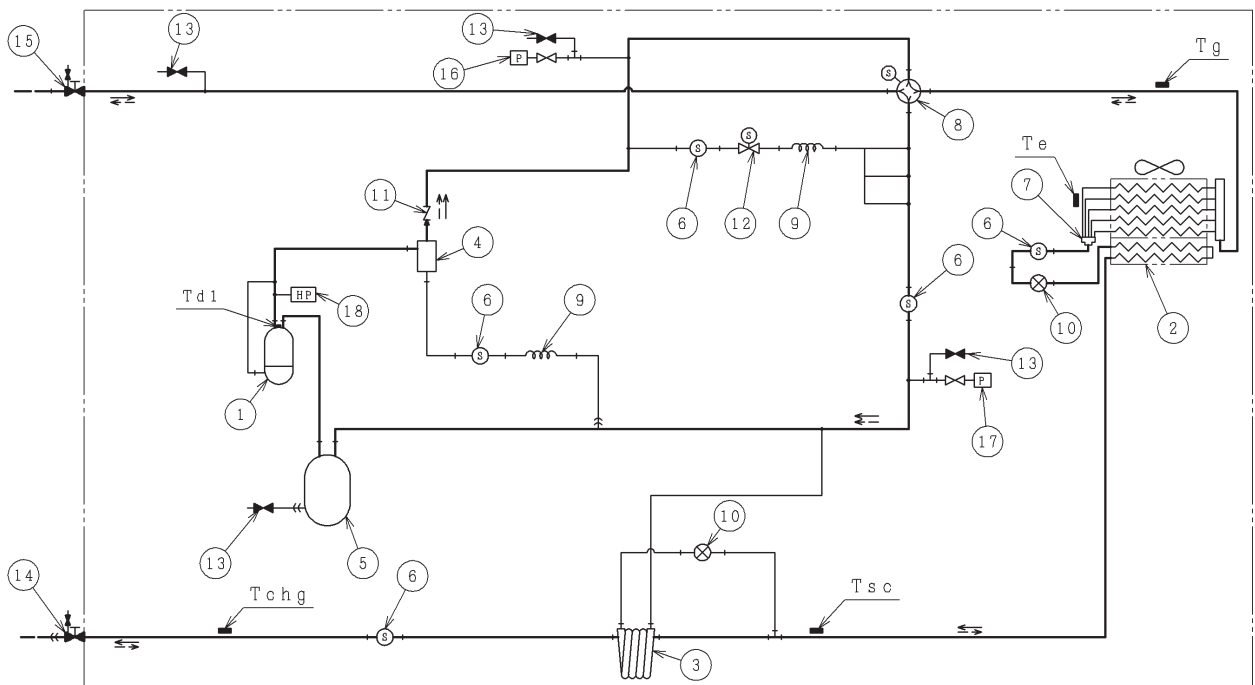
NOTICE:

The sound data is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side may be 8dB higher than that of the front side.

2.11 Control System

2.11.1 Refrigerant Cycle

Model: (H,Y)VAHP072B32S, (H,Y)VAHP072B42S and (H,Y)VAHP072B52S

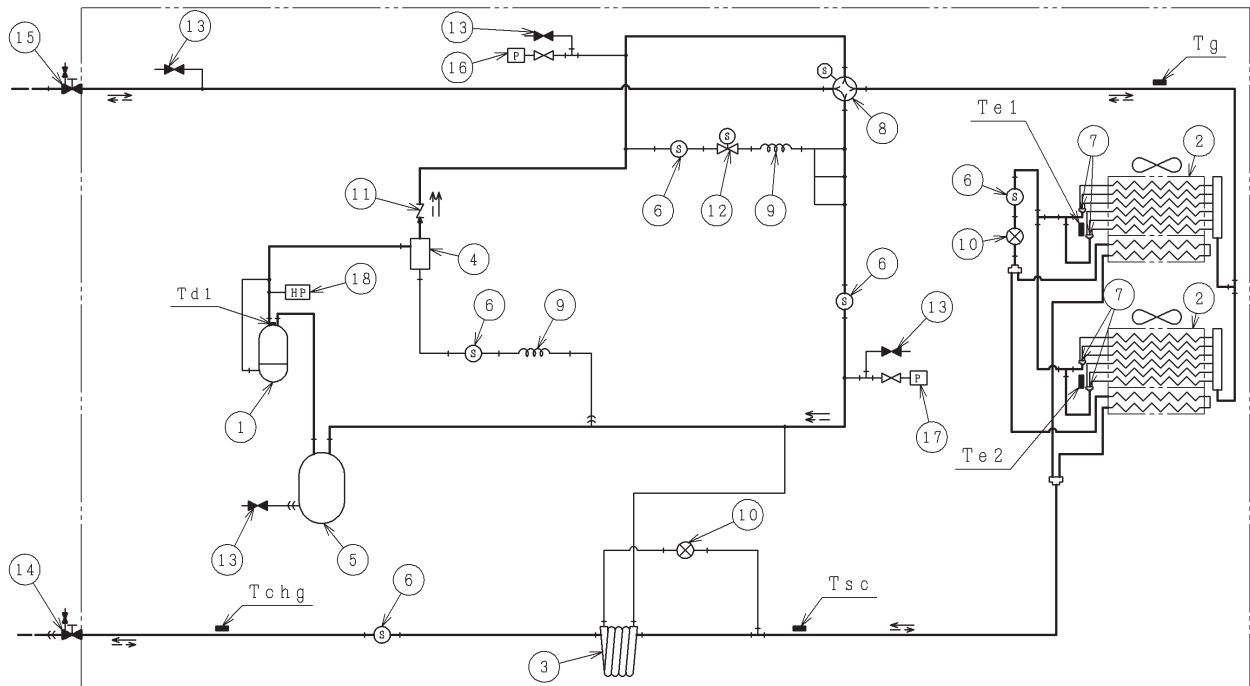


- ← :Refrigerant Flow Direction (Cooling)
- ←- :Refrigerant Flow Direction (Heating)
- :Field Refrigerant Piping
- ⋈ :Flare Connection
- |— :Brazing Connection
- :Thermistor

Mark	Part Name
①	Compressor
②	Heat Exchanger
③	Double Tube Type Heat Exchanger
④	Oil Separator
⑤	Accumulator
⑥	Strainer
⑦	Distributor
⑧	Reversing Valve
⑨	Capillary Tube
⑩	Electronic Expansion Valve
⑪	Check Valve
⑫	Solenoid Valve
⑬	Access Port
⑭	Stop Valve for Liquid Line
⑮	Stop Valve for Gas Line
⑯	Sensor for Refrigerant Pressure (High Pressure Sensor)
⑰	Sensor for Refrigerant Pressure (Low Pressure Sensor)
⑱	High Pressure Switch for Protection

Mark	Name
Td1	Thermistor for Upper Side of Compressor 1
Tg	Thermistor for Heat Exchanger Gas Side
Te	Thermistor for Heat Exchanger Liquid Side
Tsc	Thermistor for Subcooler
Tchg	Thermistor for Liquid Stop Valve

Model: (H,Y)VAHP096B32S, (H,Y)VAHP096B42S and (H,Y)VAHP096B52S

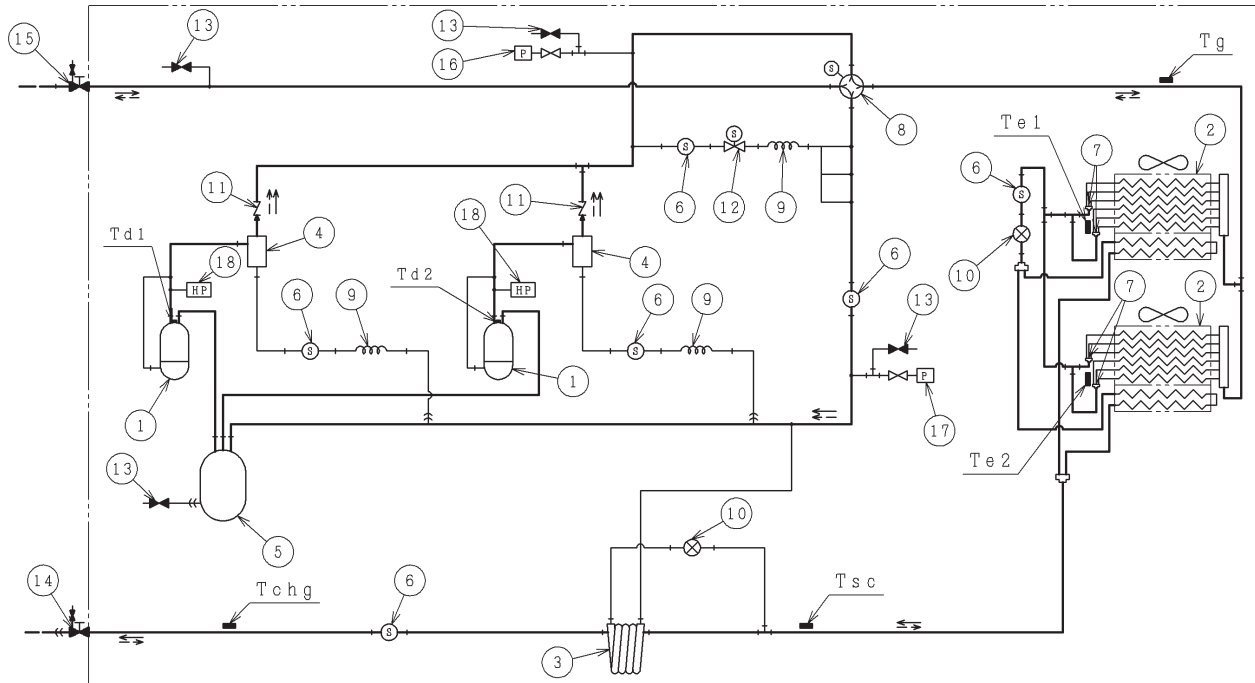


- ← :Refrigerant Flow Direction (Cooling)
- ← :Refrigerant Flow Direction (Heating)
- :Field Refrigerant Piping
- :Flare Connection
- :Brazing Connection
- :Thermistor

Mark	Part Name
①	Compressor
②	Heat Exchanger
③	Double Tube Type Heat Exchanger
④	Oil Separator
⑤	Accumulator
⑥	Strainer
⑦	Distributor
⑧	Reversing Valve
⑨	Capillary Tube
⑩	Electronic Expansion Valve
⑪	Check Valve
⑫	Solenoid Valve
⑬	Access Port
⑭	Stop Valve for Liquid Line
⑮	Stop Valve for Gas Line
⑯	Sensor for Refrigerant Pressure (High Pressure Sensor)
⑰	Sensor for Refrigerant Pressure (Low Pressure Sensor)
⑱	High Pressure Switch for Protection

Mark	Name
Td1	Thermistor for Upper Side of Compressor 1
Tg	Thermistor for Heat Exchanger Gas Side
Te1	Thermistor for Heat Exchanger 1 Liquid Side
Te2	Thermistor for Heat Exchanger 2 Liquid Side
Tsc	Thermistor for Subcooler
Tchg	Thermistor for Liquid Stop Valve

Model: (H,Y)VAHP120B32S, (H,Y)VAHP144B32S, (H,Y)VAHP120B42S, (H,Y)VAHP144B42S,
(H,Y)VAHP120B52S and (H,Y)VAHP144B52S

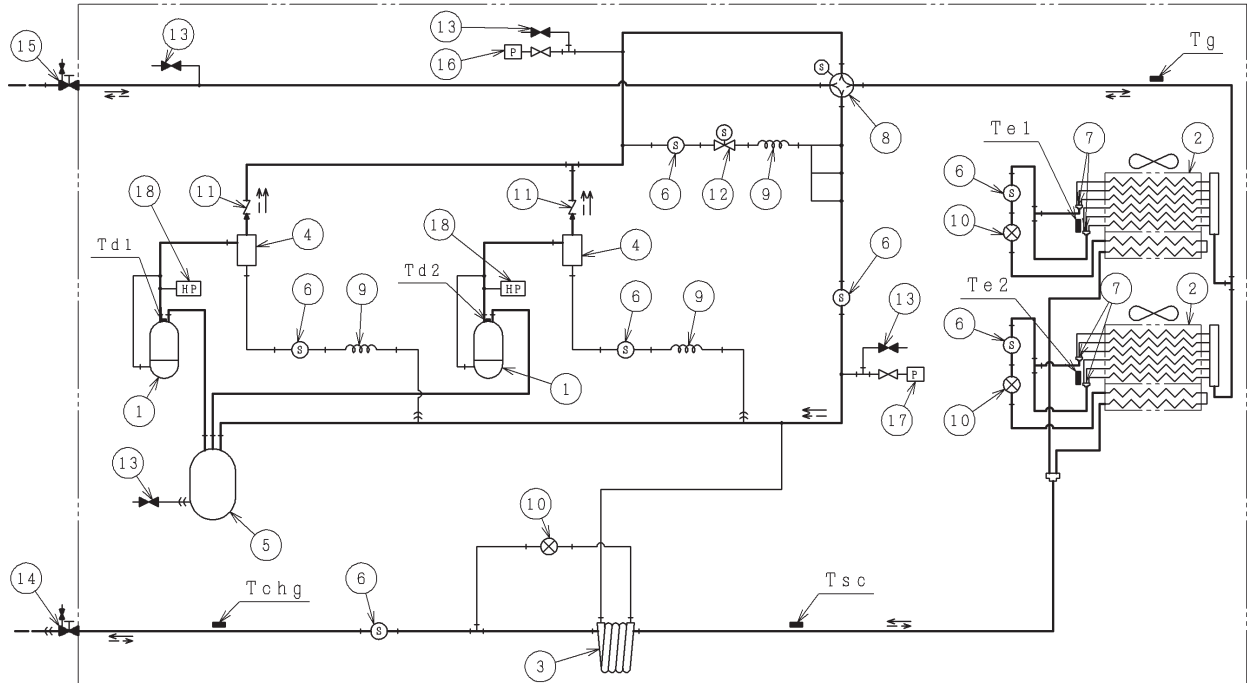


- ← :Refrigerant Flow Direction (Cooling)
- ← :Refrigerant Flow Direction (Heating)
- :Field Refrigerant Piping
- :Flare Connection
- :Brazing Connection
- :Thermistor

Mark	Part Name
①	Compressor
②	Heat Exchanger
③	Double Tube Type Heat Exchanger
④	Oil Separator
⑤	Accumulator
⑥	Strainer
⑦	Distributor
⑧	Reversing Valve
⑨	Capillary Tube
⑩	Electronic Expansion Valve
⑪	Check Valve
⑫	Solenoid Valve
⑬	Access Port
⑭	Stop Valve for Liquid Line
⑮	Stop Valve for Gas Line
⑯	Sensor for Refrigerant Pressure (High Pressure Sensor)
⑰	Sensor for Refrigerant Pressure (Low Pressure Sensor)
⑱	High Pressure Switch for Protection

Mark	Name
Td1	Thermistor for Upper Side of Compressor 1
Td2	Thermistor for Upper Side of Compressor 2
Tg	Thermistor for Heat Exchanger Gas Side
Te1	Thermistor for Heat Exchanger 1 Liquid Side
Te2	Thermistor for Heat Exchanger 2 Liquid Side
Tsc	Thermistor for Subcooler
Tchg	Thermistor for Liquid Stop Valve

Model: (H,Y)VAHP168B32S, (H,Y)VAHP192B32S, (H,Y)VAHP0168B42S and (H,Y)VAHP192B42S,
(H,Y)VAHP0168B52S and (H,Y)VAHP192B52S



- ← :Refrigerant Flow Direction (Cooling)
- ←- :Refrigerant Flow Direction (Heating)
- :Field Refrigerant Piping
- » :Flare Connection
- + :Brazing Connection
- :Thermistor

Mark	Part Name
①	Compressor
②	Heat Exchanger
③	Double Tube Type Heat Exchanger
④	Oil Separator
⑤	Accumulator
⑥	Strainer
⑦	Distributor
⑧	Reversing Valve
⑨	Capillary Tube
⑩	Electronic Expansion Valve
⑪	Check Valve
⑫	Solenoid Valve
⑬	Access Port
⑭	Stop Valve for Liquid Line
⑮	Stop Valve for Gas Line
⑯	Sensor for Refrigerant Pressure (High Pressure Sensor)
⑰	Sensor for Refrigerant Pressure (Low Pressure Sensor)
⑱	High Pressure Switch for Protection

Mark	Name
Td1	Thermistor for Upper Side of Compressor 1
Td2	Thermistor for Upper Side of Compressor 2
Tg	Thermistor for Heat Exchanger Gas Side
Te1	Thermistor for Heat Exchanger 1 Liquid Side
Te2	Thermistor for Heat Exchanger 2 Liquid Side
Tsc	Thermistor for Subcooler
Tchg	Thermistor for Liquid Stop Valve

2.11.2 Control System

Cycle Control

Control Device	Control				
	Cooling Operation *		Heating Operation, Heat Recovery System		Defrosting
	Control Category	Purpose of Control	Control Category	Purpose of Control	Condition
Inverter Frequency of Compressor	Total I.U. Operating Capacity	Inverter Frequency Control is carried out to bring the I.U. air inlet temperature to temperature setpoint.	Total I.U. Operating Capacity	Inverter Frequency Control is carried out to bring the I.U. air inlet temperature to temperature setpoint.	All of the compressors: ON
Electronic Expansion Valve for O.U. Heat Exchanger	Capacity Control	Fully open	O.U. Heat Exchanger SH	PI control is carried out to achieve the targeted value of O.U. heat exchanger SH.	Fully open
Electronic Expansion Valve for Supercooling Heat Exchanger	Tsc - Tchg	PI Control is carried out to achieve the target value of Tsc - Tchg.	Tchg - Tsc	PI Control is carried out to achieve the target value of Tchg - Tsc.	Tsc - Tchg
Electronic Expansion Valve for I.U. Heat Exchanger	I.U. Heat Exchanger SH	PI control is carried out to achieve the targeted value of I.U. heat exchanger SH.	I.U. Heat Exchanger SC	Controls supercooling of I.U. liquid thermistor to achieve the targeted value.	I.U. Heat Exchanger SH Control
Outdoor Fan	Pd Control	PI control is carried out to achieve the targeted value of Pd.	Ps Control	PI control is carried out to achieve the targeted value of Ps.	Stop
Gas Bypass Valve (SVA)	1. Pd Increase Protection 2. Ps Decrease Protection	1. Pd>522psi (3.6MPa): Open 2. Ps<29psi (0.20MPa): Open	1. Pd Increase Protection 2. Ps Decrease Protection	1. Pd>508psi (3.5MPa): Open 2. Ps<14psi (0.1MPa): Open	Closed

(*): Dry operation is included in the cooling operation.

Pd: Discharge Pressure
 Ps: Suction Pressure
 SH: Superheat
 Tsc: Subcooler Temperature
 Tchg: Liquid Stop Valve Temperature
 I.U.: Indoor Unit
 O.U.: Outdoor Unit

Compressor Operation Control

(1) Compressor Rotation Control

This compressor rotation control is performed in order to make the compressor operating time equal for each outdoor unit.

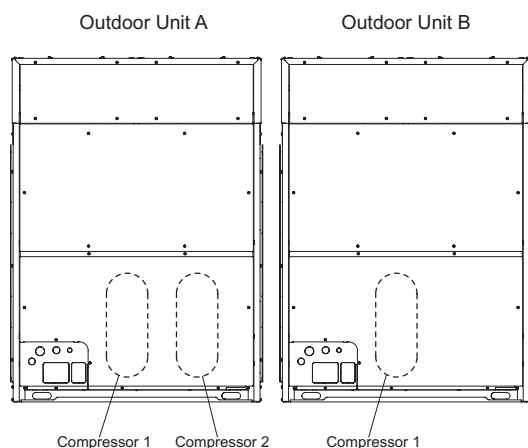
This control is performed during the outdoor unit thermo-OFF or switch OFF.

When turning ON the outdoor unit, the inverter compressor with the shortest operating time (average operating time for the outdoor unit with two inverter compressors) will operate first.

At least 2 outdoor units are required for this function.

The operating sequence of compressor rotation control is as follows.

(H,Y)VAHP216B(3,4,5)2S



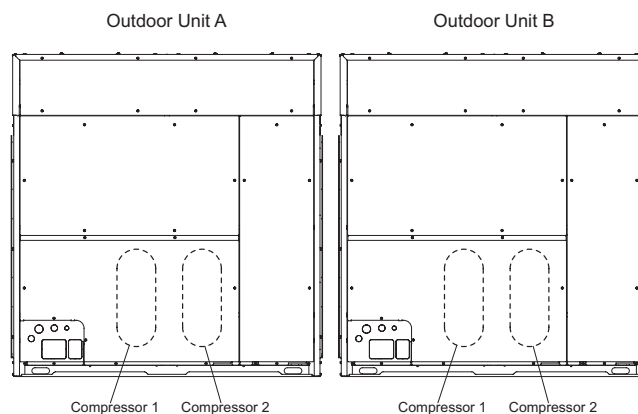
Compressor Operating Sequence

	Outdoor Unit A		Outdoor Unit B
	Compressor 1	Compressor 2	Compressor 1
Last Time	1	3	2
This Time	2	3	1
Next Time	1	3	2

NOTE:

When turning ON the outdoor unit A, the inverter compressor 1 or 2 with the shortest operating time will operate first.

(H,Y)VAHP240B(3,4,5)2S / (H,Y)VAHP264B(3,4,5)2S / (H,Y)VAHP288B(3,4,5)2S / (H,Y)VAHP312B(3,4,5)2S
(H,Y)VAHP336B(3,4,5)2S / (H,Y)VAHP360B(3,4,5)2S



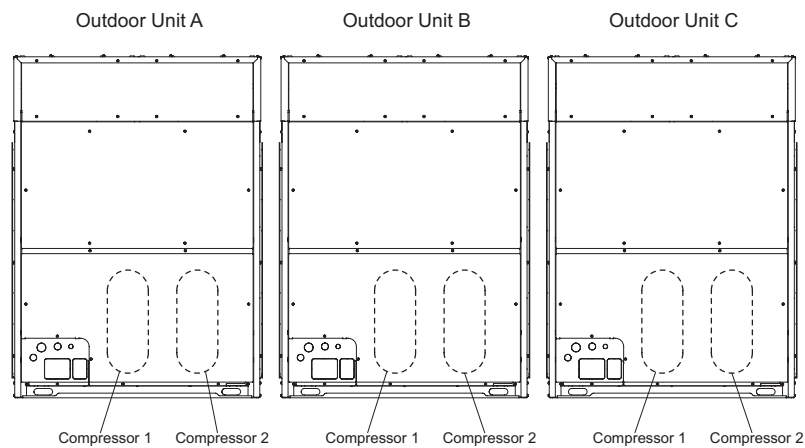
Compressor Operating Sequence

	Outdoor Unit A		Outdoor Unit B	
	Compressor 1	Compressor 2	Compressor 1	Compressor 2
Last Time	1	3	2	3
This Time	2	3	1	3
Next Time	1	3	2	3

NOTE:

When turning ON the outdoor units, the inverter compressor of each outdoor unit with the shortest operating time will operate first.

(H,Y)VAHP384B(3,4,5)2S / (H,Y)VAHP408B(3,4,5)2S / (H,Y)VAHP432B(3,4,5)2S



Compressor Operating Sequence

	Outdoor Unit A		Outdoor Unit B		Outdoor Unit C	
	Compressor 1	Compressor 2	Compressor 1	Compressor 2	Compressor 1	Compressor 2
Last Time	1	4	2	4	3	4
This Time	3	4	1	4	2	4
Next Time	2	4	3	4	1	4

NOTE:

When turning ON the outdoor units, the inverter compressor of the outdoor unit A and B with the shortest operating time will operate first.

(2) Compressor Frequency Control

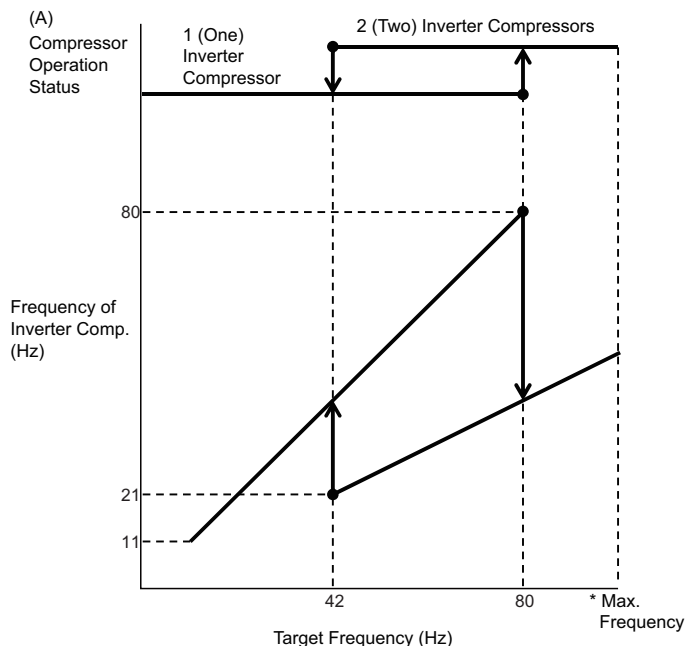
Compressor Operation Control is to adjust the output frequency of an Inverter Compressor according to Target Frequency.

(Target Frequency is determined by capacity control according to cooling and heating loads.)

Therefore, when the load is smaller, all compressors may not operate.

■ Single outdoor unit with two inverter compressors installed

(H,Y)VAHP120B(3,4,5)2S / (H,Y)VAHP144B(3,4,5)2S

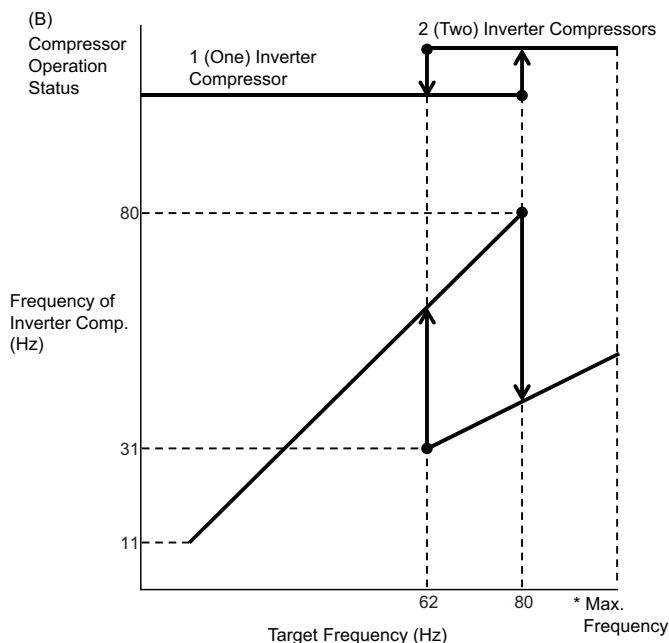


Target Frequency [Hz]	Each Compressor Frequency [Hz]					
	Increase Direction			Decrease Direction		
	Comp. Operation Status	No.1 Comp.	No.2 Comp.	Comp. Operation Status	No.1 Comp.	No.2 Comp.
11.0	1	11.0	—	1	11.0	—
41.0	1	41.0	—	1	41.0	—
42.0	1	42.0	—	2	21.0	21.0
80.0	1	80.0	—	2	40.0	40.0
81.0	2	40.5	40.5	2	40.5	40.5
⋮	⋮	⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮	⋮	⋮

NOTE:

Refer to page 2-79 for the maximum frequency.

(H,Y)VAHP168B(3,4,5)2S / (H,Y)VAHP192B(3,4,5)2S



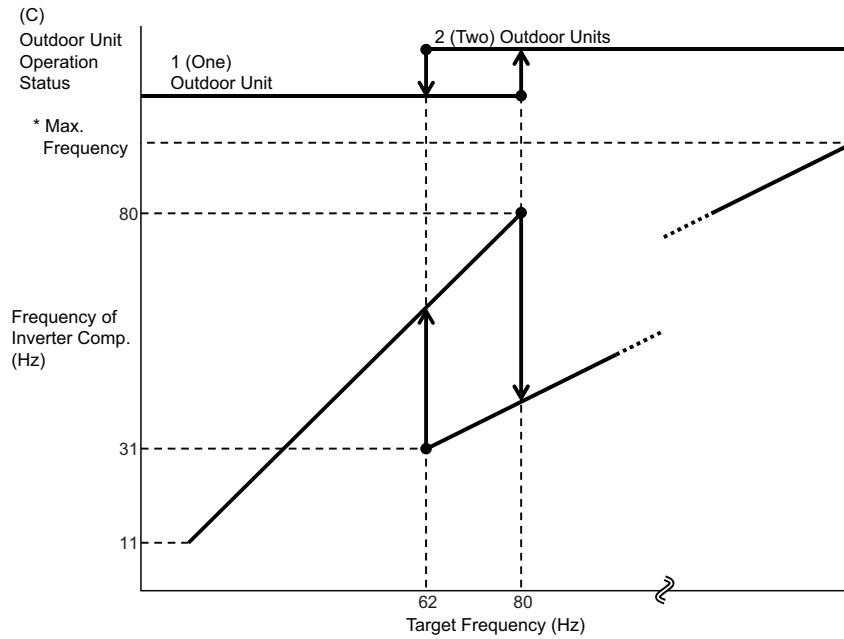
Target Frequency [Hz]	Each Compressor Frequency [Hz]					
	Increase Direction			Decrease Direction		
	Comp. Operation Status	No.1 Comp.	No.2 Comp.	Comp. Operation Status	No.1 Comp.	No.2 Comp.
11.0	1	11.0	—	1	11.0	—
61.0	1	61.0	—	1	61.0	—
62.0	1	62.0	—	2	31.0	31.0
80.0	1	80.0	—	2	40.0	40.0
81.0	2	40.5	40.5	2	40.5	40.5
⋮	⋮	⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮	⋮	⋮

NOTE:

Refer to page 2-79 for the maximum frequency.

■ Multiple outdoor units installed

(H,Y)VAHP216B(3,4,5)2S / (H,Y)VAHP240B(3,4,5)2S / (H,Y)VAHP264B(3,4,5)2S / (H,Y)VAHP288B(3,4,5)2S
(H,Y)VAHP312B(3,4,5)2S / (H,Y)VAHP336B(3,4,5)2S / (H,Y)VAHP360B(3,4,5)2S

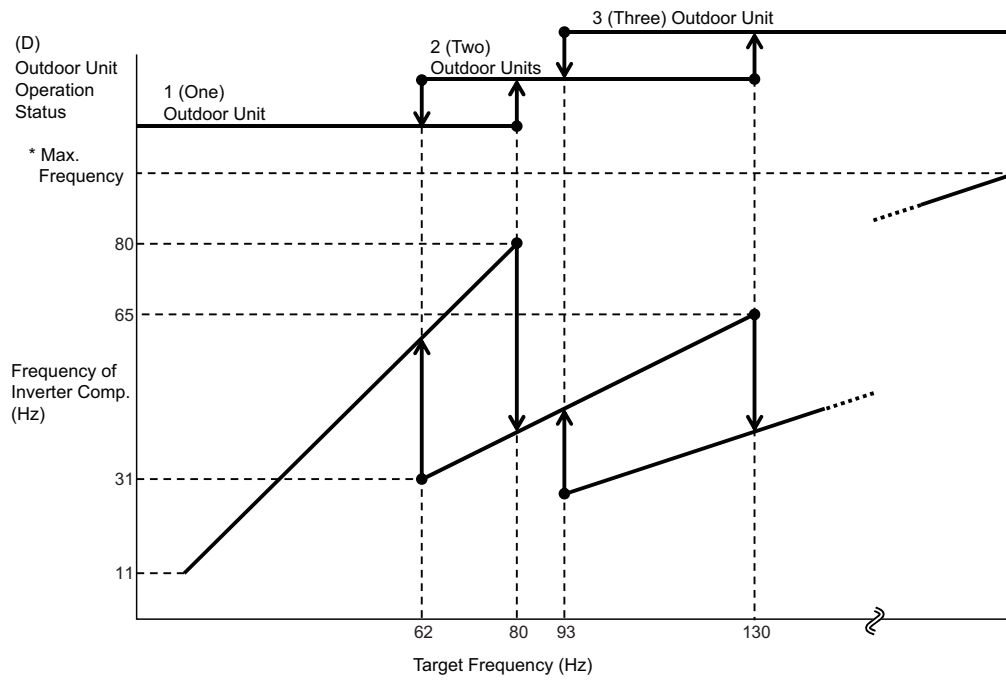


Target Frequency [Hz]	Each Compressor Frequency [Hz]					
	Increase Direction			Decrease Direction		
	Outdoor Unit Operation Status	Outdoor Unit (A)	Outdoor Unit (B)	Outdoor Unit Operation Status	Outdoor Unit (A)	Outdoor Unit (B)
11.0	1	11.0	—	1	11.0	—
61.0	1	61.0	—	1	61.0	—
62.0	1	62.0	—	2	31.0	31.0
80.0	1	80.0	—	2	40.0	40.0
81.0	2	40.5	40.5	2	40.5	40.5
⋮	⋮	⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮	⋮	⋮

NOTE:

Refer to page 2-79 for the maximum frequency.

(H,Y)VAHP384B(3,4,5)2S / (H,Y)VAHP408B(3,4,5)2S / (H,Y)VAHP432B(3,4,5)2S



Target Frequency [Hz]	Each Compressor Frequency [Hz]							
	Increase Direction				Decrease Direction			
	Outdoor Unit Operation Status	Outdoor Unit (A)	Outdoor Unit (B)	Outdoor Unit (C)	Outdoor Unit Operation Status	Outdoor Unit (A)	Outdoor Unit (B)	Outdoor Unit (C)
11.0	1	11.0	—	—	1	11.0	—	—
61.0	1	61.0	—	—	1	61.0	—	—
62.0	1	62.0	—	—	2	31.0	31.0	—
80.0	1	80.0	—	—	2	40.0	40.0	—
81.0	2	40.5	40.5	—	2	40.5	40.5	—
92.0	2	46.0	46.0	—	2	46.0	46.0	—
93.0	2	46.5	46.5	—	3	31.0	31.0	31.0
130.0	2	65.0	65.0	—	3	43.3	43.3	43.3
131.0	3	43.6	43.6	43.6	3	43.6	43.6	43.6
•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•

NOTE:

Refer to page 2-79 for the maximum frequency.

Combination of Base Units and Maximum Frequency

Model	Combination of Base Units	Maximum Frequency [Hz]
(H,Y)VAHP216B(3,4,5)2S	144	200
	072	110
(H,Y)VAHP240B(3,4,5)2S	120	175
	120	175
(H,Y)VAHP264B(3,4,5)2S	144	200
	120	175
(H,Y)VAHP288B(3,4,5)2S	144	200
	144	200
(H,Y)VAHP312B(3,4,5)2S	168	250
	144	200
(H,Y)VAHP336B(3,4,5)2S	192	260
	144	200
(H,Y)VAHP360B(3,4,5)2S	192	260
	168	250
(H,Y)VAHP384B(3,4,5)2S	144	200
	120	175
	120	175
(H,Y)VAHP408B(3,4,5)2S	144	200
	144	200
	120	175
(H,Y)VAHP432B(3,4,5)2S	144	200
	144	200
	144	200

NOTE:

The frequency in the table above indicates the total frequency of an outdoor unit if the unit has two compressors.

(3) Compressor Capacity Control

The operating speed of the compressor is determined according to the temperature difference (ΔT) between setting temperature and indoor unit air inlet temperature detected by each indoor unit under cooling/heating thermo-ON operation and the variation of ΔT to control compressor frequency.

The frequency is calculated as follows:

Current Frequency \times Coefficient Based on the Temperature

(for Cooling Operation)

The coefficient becomes larger when the value of ΔT (the temperature difference between setting temperature and air inlet temperature is large) or variation of ΔT is larger.

The coefficient becomes smaller when the value of ΔT (the temperature difference between setting temperature and air inlet temperature is small) or variation of ΔT is smaller.

(for Heating Operation)

The coefficient becomes larger when the value of ΔT (the temperature difference between setting temperature and air inlet temperature is large) or variation of ΔT is larger.

The coefficient becomes smaller when the value of ΔT (the temperature difference between setting temperature and air inlet temperature is small) or variation of ΔT is smaller.

NOTE:

The temperature of the thermistor in the wired controller is utilized instead of indoor unit air inlet temperature when the thermistor in the wired controller is set by functional setting mode.

PRODUCT SPECIFICATION

■ Heat Exchanger Mode Control

In accordance with the connectable indoor unit operation mode, the outdoor unit heat exchanger will be switched as shown in the table below.

O.U. Heat Exchanger Mode at Cooling: Condenser **COND**

O.U. Heat Exchanger Mode at Heating: Evaporator **EVAP**

(1) The Number of Outdoor Unit: 1 (one)

Heat Exchanger Mode		Cooling Mode	Heating Mode	Defrosting Mode
		COND	EVAP	DEF1
Heat Exchanger Condition		COND	EVAP	COND
Reversing Valve	RVR2	OFF	ON	OFF
Expansion Valve	MV1	Fully Open	Heat Exchanger SH	Fully Open
	MVB	Tsc - Tchg	Tchg - Tsc	Tsc - Tchg

(2) The Number of Outdoor Unit: 2 (two)

Heat Exchanger Mode			Cooling Mode	Heating Mode	Defrosting Mode
			COND	EVAP	DEF1
Main Outdoor Unit	Heat Exchanger Condition		<div>COND</div>	<div>EVAP</div>	<div>COND</div>
	Reversing Valve	RVR2	OFF	ON	OFF
	Expansion Valve	MV1	Fully Open	Heat Exchanger SH	Fully Open
		MVB	Tsc - Tchg	Tchg - Tsc	Tsc - Tchg
Sub Outdoor Unit	Heat Exchanger Condition		<div>COND</div>	<div>EVAP</div>	<div>COND</div>
	Reversing Valve	RVR2	OFF	ON	OFF
	Expansion Valve	MV1	Fully Open	Heat Exchanger SH	Fully Open
		MVB	Tsc - Tchg	Tchg - Tsc	Tsc - Tchg

(3) The Number of Outdoor Unit: 3 (three)

Heat Exchanger Mode			Cooling Mode	Heating Mode	Defrosting Mode
			COND	EVAP	DEF1
Main Outdoor Unit	Heat Exchanger Condition		<div>COND</div>	<div>EVAP</div>	<div>COND</div>
	Reversing Valve	RVR2	OFF	ON	OFF
	Expansion Valve	MV1	Fully Open	Heat Exchanger SH	Fully Open
		MVB	Tsc - Tchg	Tchg - Tsc	Tsc - Tchg
Sub Outdoor Unit 1	Heat Exchanger Condition		<div>COND</div>	<div>EVAP</div>	<div>COND</div>
	Reversing Valve	RVR2	OFF	ON	OFF
	Expansion Valve	MV1	Fully Open	Heat Exchanger SH	Fully Open
		MVB	Tsc - Tchg	Tchg - Tsc	Tsc - Tchg
Sub Outdoor Unit 2	Heat Exchanger Condition		<div>COND</div>	<div>EVAP</div>	<div>COND</div>
	Reversing Valve	RVR2	OFF	ON	OFF
	Expansion Valve	MV1	Fully Open	Heat Exchanger SH	Fully Open
		MVB	Tsc - Tchg	Tchg - Tsc	Tsc - Tchg

NOTES:

1. Condition of Heat Exchanger

COND : Use as Condenser

EVAP : Use as Evaporator

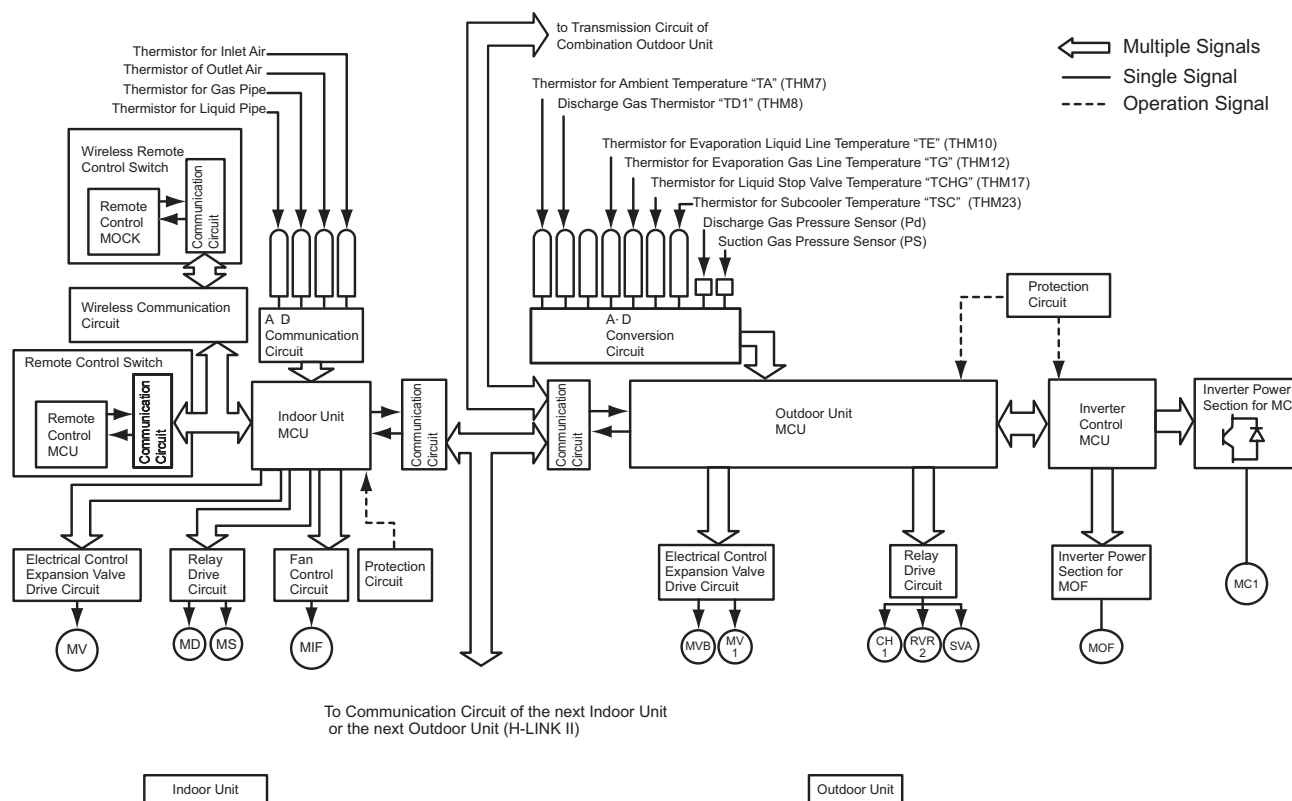
2. Control Method of Expansion Valve

Tsc - Tchg and Tchg - Tsc: PI control is carried out to achieve the target value of temperature difference between Tsc and Tchg.

Heat Exchanger SH: PI control is carried out to achieve the targeted value of outdoor heat exchanger SH.

The figure below is a representation of the control system.

Example: Combination of Base Units, (H,Y)VAHP072B(3,4,5)2S + Indoor Unit

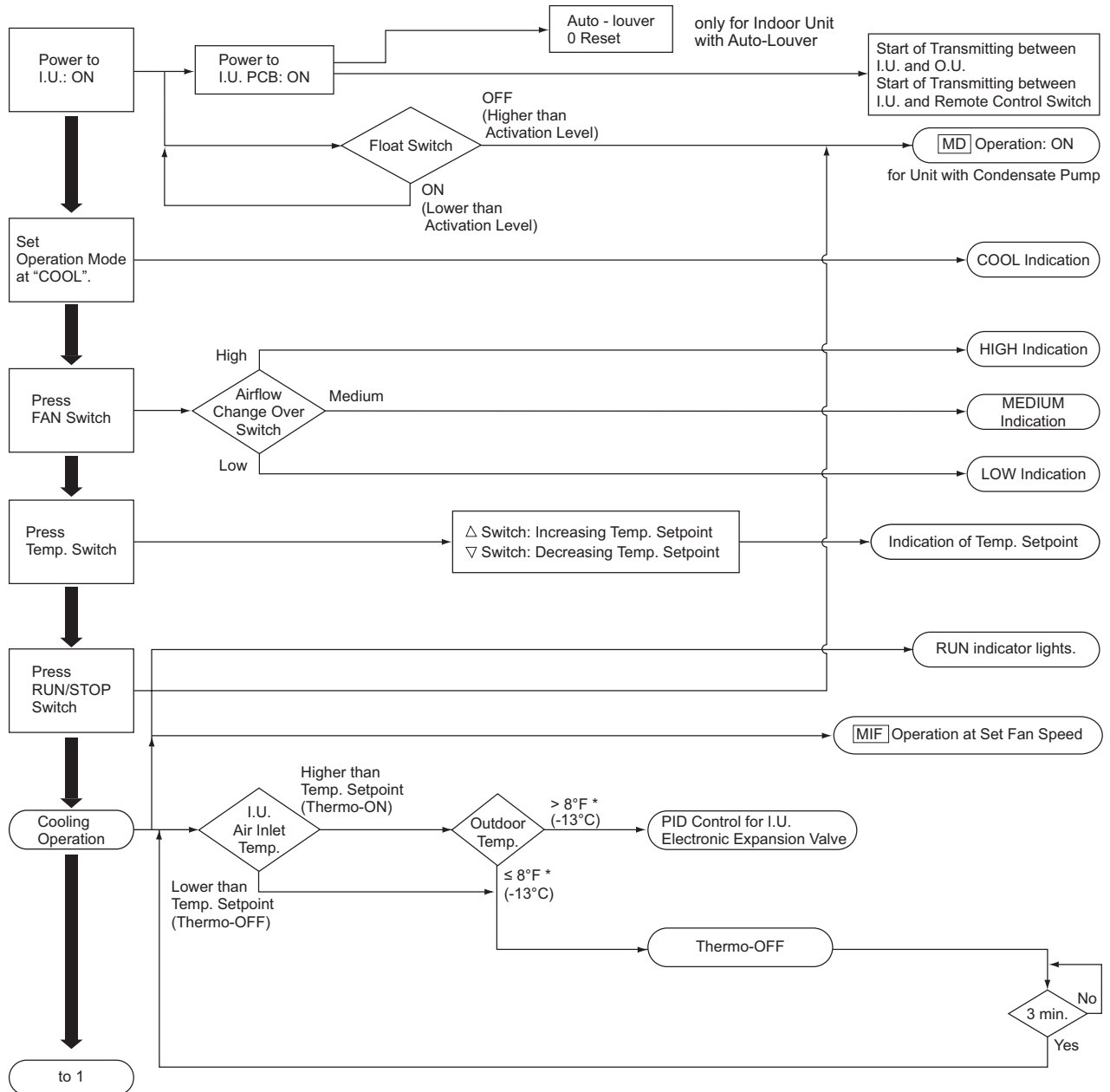


Symbol	Name
THM	Thermistor
MCU	Microcontroller
MC1	DC Motor (for Inverter Compressor)
MOF	DC Motor (for Outdoor Fan)
MIF	Motor (for Indoor Fan)
MS	Motor (for Auto-Louver)
MD	Motor (for Condensate Pump)
MV	Electronic Expansion Valve (for Indoor Unit)
MV1	Electronic Expansion Valve (for Outdoor Unit)
MVB	Electronic Expansion Valve for Supercooling Heat Exchanger
SVA	Solenoid Valve
RVR2	Reversing Valve
CH1	Crankcase Heater

2.11.3 Standard Operation Sequence

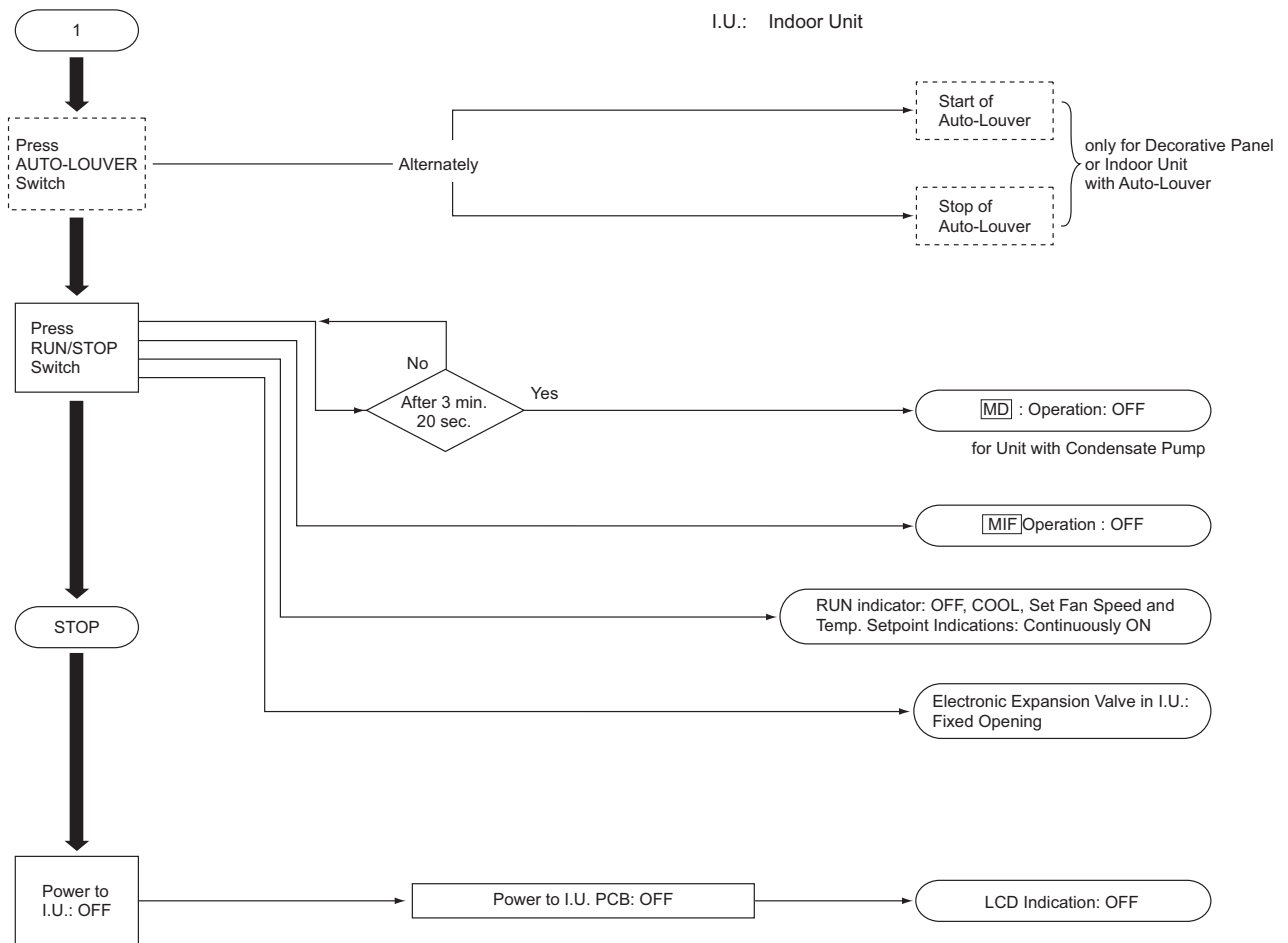
Cooling Operation

I.U.: Indoor Unit
O.U.: Outdoor Unit



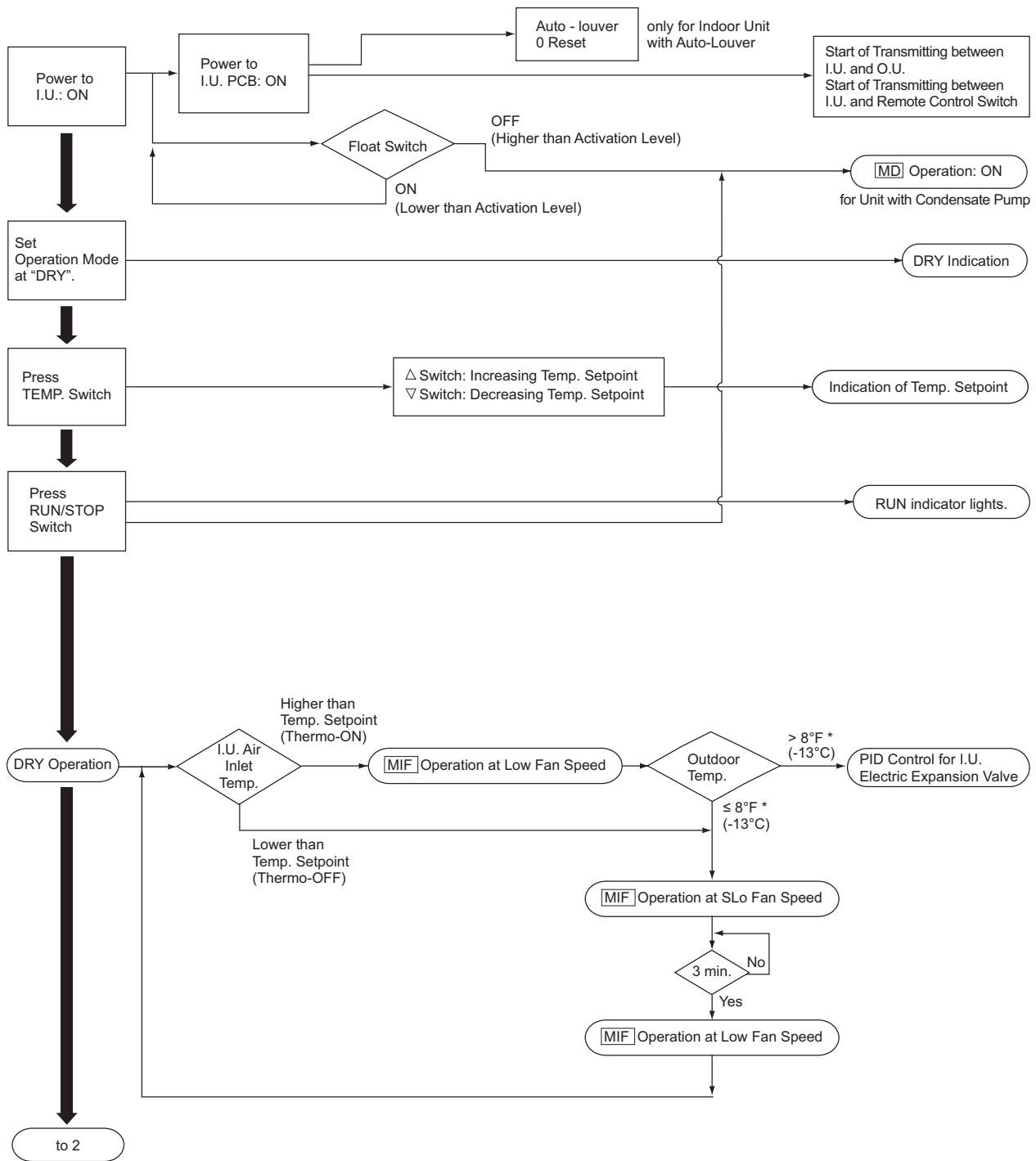
*: When Low Ambient Kit is installed (with DIP switch setting) this temperature becomes -15°F (-26°C).

Cooling Operation



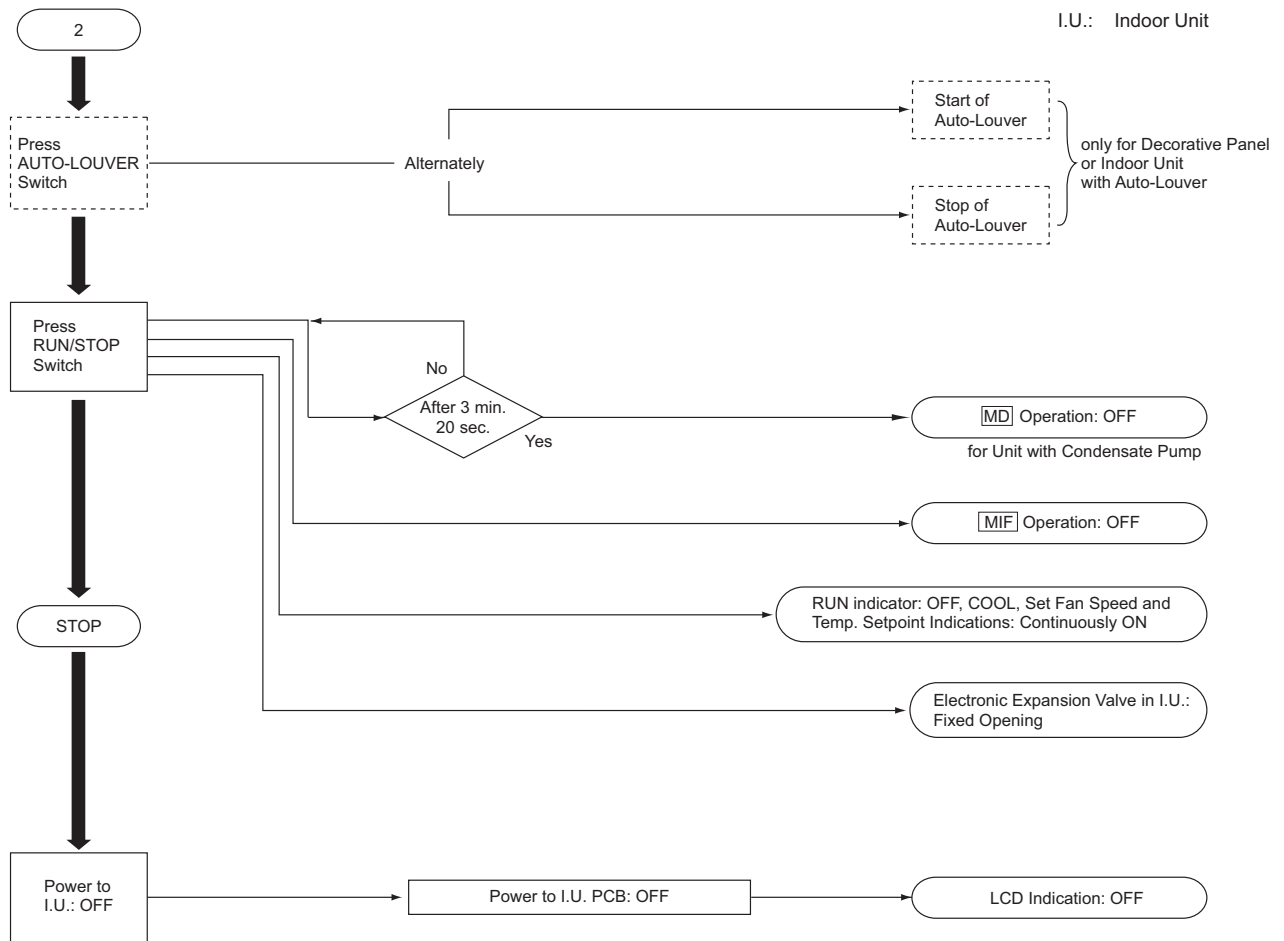
Dry Operation

I.U.: Indoor Unit
O.U.: Outdoor Unit



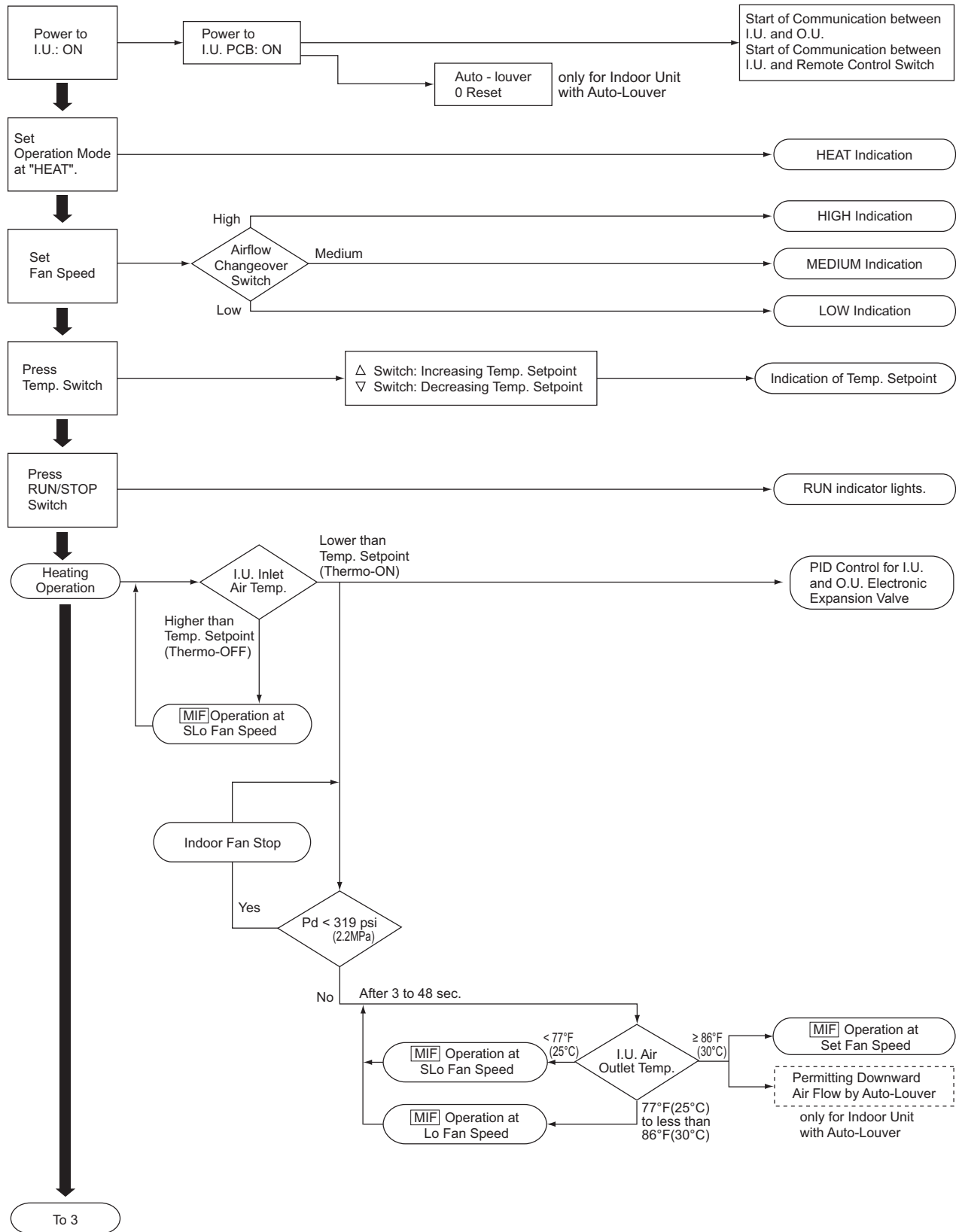
*: When Low Ambient Kit is installed (with DIP switch setting) this temperature becomes -15°F (-26°C).

Dry Operation

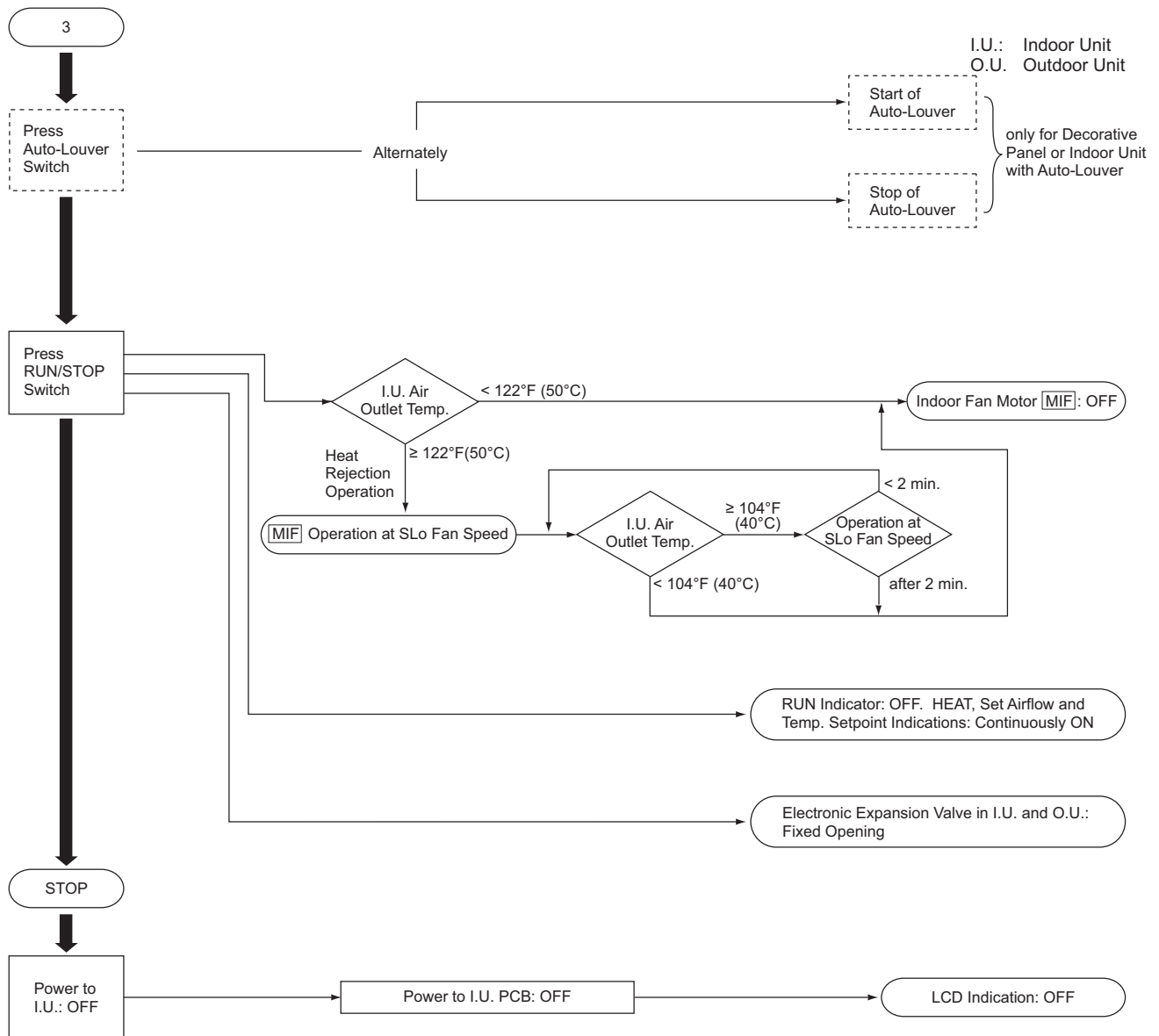


Heating Operation

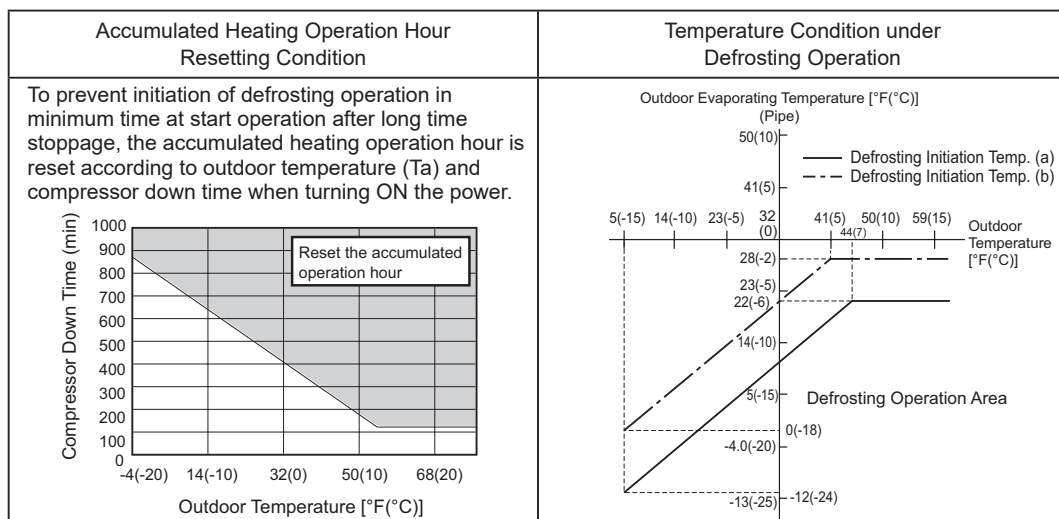
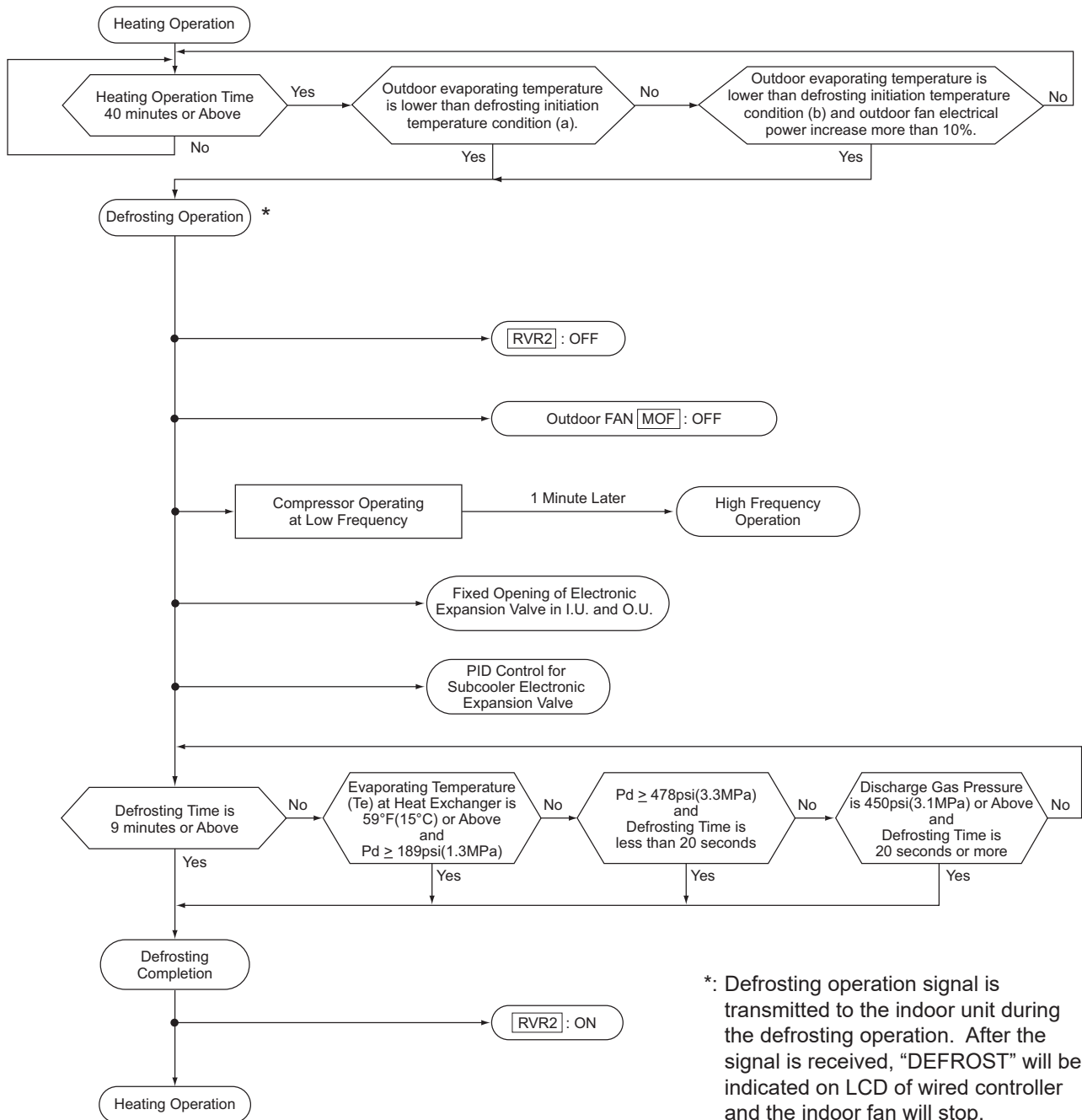
I.U.: Indoor Unit
O.U.: Outdoor Unit



Heating Operation



Defrosting Operation



Protection Control

- Whenever protection control sequences are activated, the corresponding code is displayed on the 7-segment LED array of the main control board.
- Protection control code is displayed when a unit protection mode has been initiated. The code will disappear once the cause of protection has been addressed.

Indicated Contents

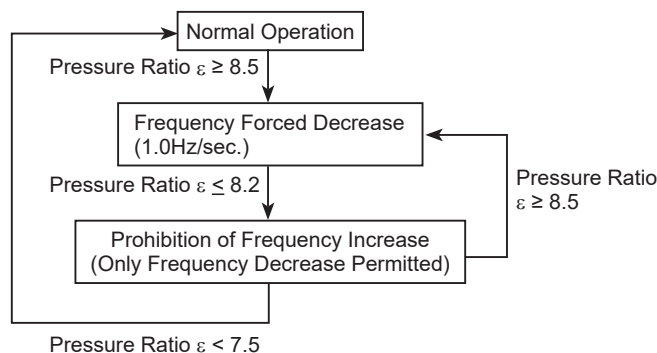
Indication	Protection Control Contents	Code During Override (Degeneration) Control
P01	Pressure Ratio Protection Control	Pc1
P02	High Pressure Increase Protection Control	Pc2
P03	Inverter Current Protection Control	Pc3
P04	Inverter Fin Temperature Increase Protection Control	Pc4
P05	Discharge Temperature Increase Protection Control	Pc5
P06	Low Pressure Decrease Protection Control	—
P09	High Pressure Decrease Protection Control	
P0A	Demand Current Control	
P0d	Low Pressure Increase Protection Control	

(1) P01: Pressure Ratio Protection Control

(a) Pressure Ratio Increase Protection Control

Pressure Ratio Increase Protection Control is performed in order to protect the compressor from an increase of pressure ratio.

Details of Control



NOTE:

1. With a combination of base units, the control in the figure is performed for the entire number of outdoor units to be connected.
2. The pressure ratio is calculated in each outdoor unit, and this control uses the maximum value.

$$\varepsilon = (P_d [\text{psi}] + 15) / (P_s [\text{psi}] + 9)$$

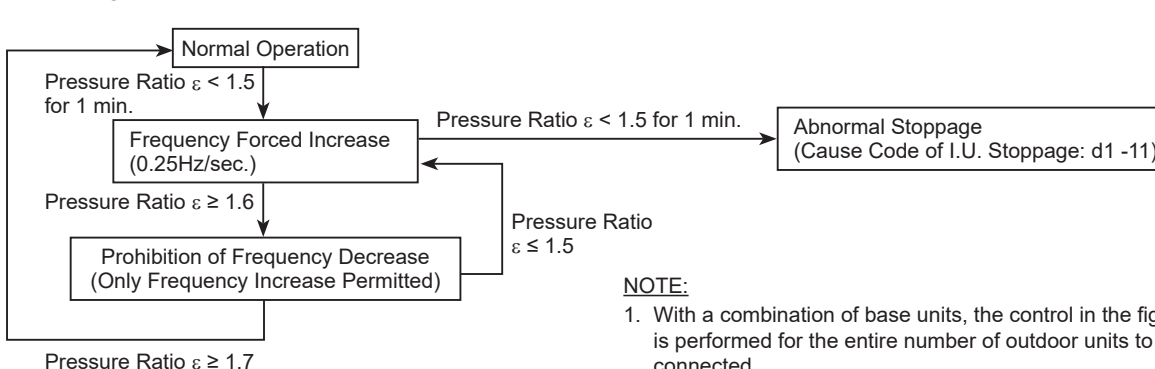
$$\varepsilon = (P_d [\text{MPa}] + 0.1) / (P_s [\text{MPa}] + 0.06)$$

Pd: Detected Value of High Pressure Sensor [psi]
Ps: Detected Value of Low Pressure Sensor [psi]

(b) Low Compression Ratio Protection Function

This function is activated to protect the compressor during occurrences of low compression ratio.

Details of Control



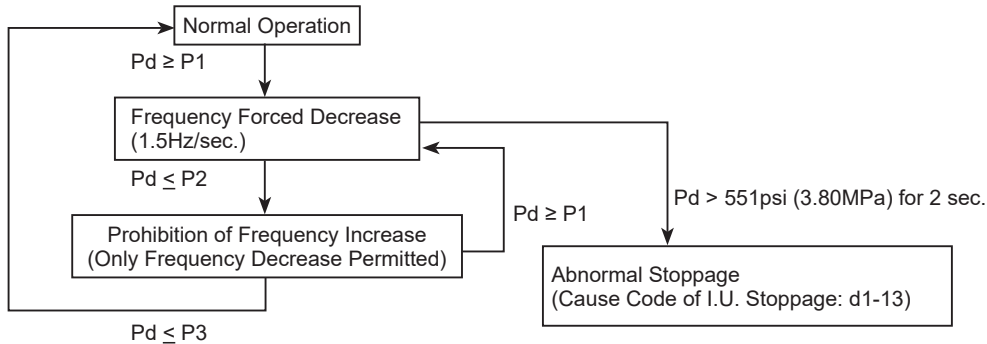
NOTE:

1. With a combination of base units, the control in the figure is performed for the entire number of outdoor units to be connected.
2. The pressure ratio is calculated in each outdoor unit, and this control uses the minimum value.

(2) P02: High Pressure Increase Protection Control

High Pressure Protection Control is performed in order to prevent activation of a protection device caused by a high pressure increase during an abnormality and to protect the compressor from an excessive increase of discharge pressure.

Details of Control



Control Value	[psi(MPa)]		
Operation Mode	P1	P2	P3
Cooling	500 (3.45)	493 (3.40)	464 (3.20)
Heating	486 (3.35)	479 (3.30)	450 (3.10)

NOTE:

- With a combination of base units, the control in the figure is performed for the entire number of outdoor units to be connected.
- High pressure is detected in each outdoor unit, and this control uses the maximum value.

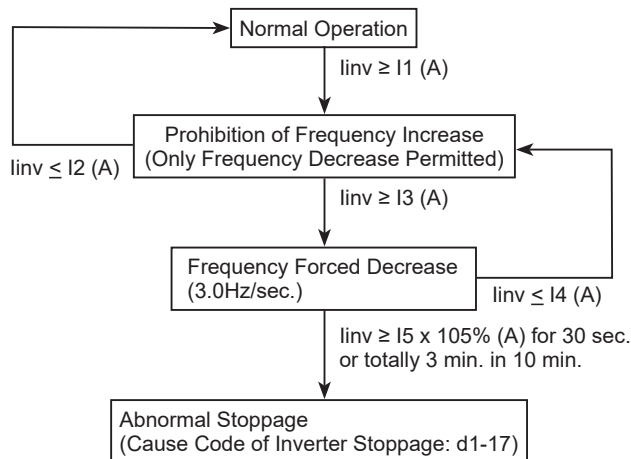
Pd: Detected Value of High Pressure Sensor [psi(MPa)]

(3) P03: Inverter Current Protection Control

Inverter Current Protection Control is performed in order to prevent an inverter trip caused by an increase of inverter secondary current value.

(a) Inverter Secondary Current Protection

Details of Control



Control Value

208 / 230V

Model	I1	I2	I3	I4	I5
(H,Y)VAHP120B32S (H,Y)VAHP144B32S	36.5	35.5	38.0	37.0	38.0
(H,Y)VAHP072B32S (H,Y)VAHP096B32S (H,Y)VAHP168B32S (H,Y)VAHP192B32S	45.5	44.5	47.0	46.0	48.0

460V

Model	I1	I2	I3	I4	I5
(H,Y)VAHP120B42S (H,Y)VAHP144B42S	18.0	17.5	19.0	18.5	19.5
(H,Y)VAHP072B42S (H,Y)VAHP096B42S (H,Y)VAHP168B42S (H,Y)VAHP192B42S	23.0	22.5	24.0	23.5	26.0

575V

Model	I1	I2	I3	I4	I5
(H,Y)VAHP120B52S (H,Y)VAHP144B52S	18.0	17.5	19.0	18.5	19.0
(H,Y)VAHP072B52S (H,Y)VAHP096B52S (H,Y)VAHP168B52S (H,Y)VAHP192B52S	23.0	22.5	24.0	23.5	24.0

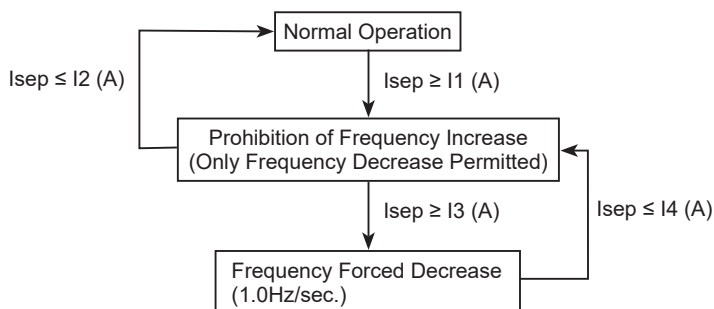
NOTE:

- With a combination of base units, the control in the figure is performed for each outdoor unit connected. When there is outdoor unit in Prohibition of Frequency Increase, all the outdoor units in operation are prohibited to increase frequency. When there is outdoor unit in Frequency Forced Decrease, all the outdoor units in operation are forced to decrease frequency.
- In the case of two inverter PCBs installed in an outdoor unit, the max. current value detected at each inverter PCB is utilized.

linv: Detected Value of Inverter Secondary Current Sensor[A]

(b) Primary Current Protection for each Inverter PCB

Details of Control


NOTE:

1. With a combination of base units, the control in the figure is performed for each outdoor unit connected. When there is outdoor unit in Prohibition of Frequency Increase, all the outdoor units in operation are prohibited to increase frequency. When there is outdoor unit in Frequency Forced Decrease, all the outdoor units in operation are forced to decrease frequency.
2. In the case of two inverter PCBs installed in an outdoor unit, the max. current value detected at each inverter PCB is utilized.

Isep: Inverter Primary Current[A]

Control Value

208 / 230V

Model	I1	I2	I3	I4
(H,Y)VAHP120B32S	39.5	38.0	40.0	39.5
(H,Y)VAHP144B32S				
(H,Y)VAHP072B32S	49.5	48.0	50.0	49.5
(H,Y)VAHP096B32S				
(H,Y)VAHP168B32S				
(H,Y)VAHP192B32S				

460V

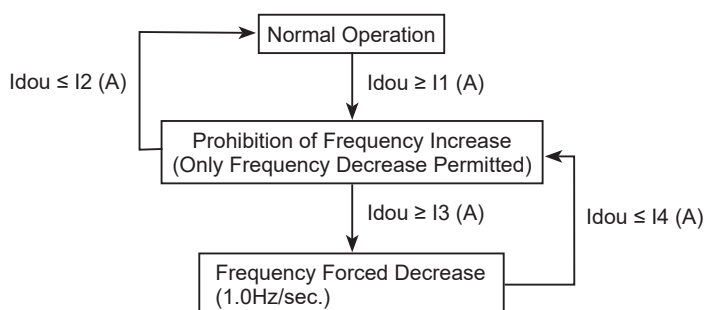
Model	I1	I2	I3	I4
(H,Y)VAHP072B42S	24.5	23.5	25.0	24.5
(H,Y)VAHP096B42S				
(H,Y)VAHP120B42S				
(H,Y)VAHP144B42S				
(H,Y)VAHP168B42S				
(H,Y)VAHP192B42S				

575V

Model	I1	I2	I3	I4
(H,Y)VAHP072B52S	21.0	20.0	21.5	21.0
(H,Y)VAHP096B52S				
(H,Y)VAHP120B52S				
(H,Y)VAHP144B52S				
(H,Y)VAHP168B52S				
(H,Y)VAHP192B52S				

(c) Primary Current Protection for each Outdoor Unit

Details of Control


NOTE:

1. With a combination of base units, the control in the figure is performed for each outdoor unit connected. When there is outdoor unit in Prohibition of Frequency Increase, all the outdoor units in operation are prohibited to increase frequency. When there is outdoor unit in Frequency Forced Decrease, all the outdoor units in operation are forced to decrease frequency.

Idou: Total Value of Primary Current of all the Inverter PCB in an Outdoor Unit[A]

Control Value

208V

Model	I1	I2	I3	I4
(H,Y)VAHP072B32S	22.0	20.5	22.5	22.0
(H,Y)VAHP096B32S	29.7	28.2	30.2	29.7
(H,Y)VAHP120B32S	39.3	37.8	39.8	39.3
(H,Y)VAHP144B32S	49.9	48.4	50.4	49.9
(H,Y)VAHP168B32S	56.1	54.6	56.6	56.1
(H,Y)VAHP192B32S	65.7	64.2	66.2	65.7

230V

Model	I1	I2	I3	I4
(H,Y)VAHP072B32S	19.9	18.4	20.4	19.9
(H,Y)VAHP096B32S	26.9	25.4	27.4	26.9
(H,Y)VAHP120B32S	35.6	34.1	36.1	35.6
(H,Y)VAHP144B32S	45.1	43.6	45.6	45.1
(H,Y)VAHP168B32S	50.8	49.3	51.3	50.8
(H,Y)VAHP192B32S	59.5	58.0	60.0	59.5

460V

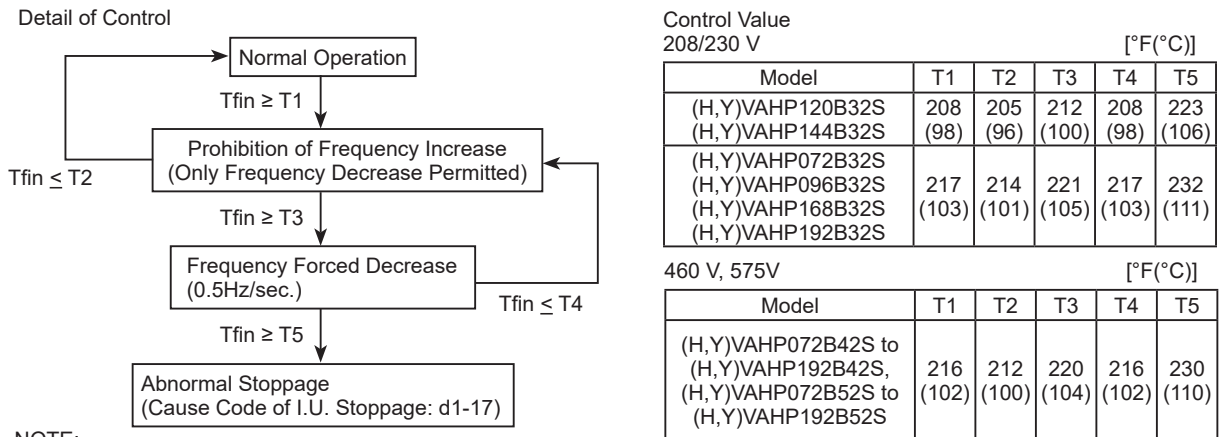
Model	I1	I2	I3	I4
(H,Y)VAHP072B42S	11.2	10.2	11.7	11.2
(H,Y)VAHP096B42S	15.2	14.2	15.7	15.2
(H,Y)VAHP120B42S	20.2	19.2	20.7	20.2
(H,Y)VAHP144B42S	25.7	24.7	26.2	25.7
(H,Y)VAHP168B42S	29.0	28.0	29.5	29.0
(H,Y)VAHP192B42S	34.0	33.0	34.5	34.0

575V

Model	I1	I2	I3	I4
(H,Y)VAHP072B52S	8.9	7.9	9.4	8.9
(H,Y)VAHP096B52S	12.1	11.1	12.6	12.1
(H,Y)VAHP120B52S	16.1	15.1	16.6	16.1
(H,Y)VAHP144B52S	20.5	19.5	21.0	20.5
(H,Y)VAHP168B52S	23.1	22.1	23.6	23.1
(H,Y)VAHP192B52S	27.1	26.1	27.6	27.1

(4) P04: Inverter Fin Temperature Increase Protection Control

Inverter Fin Temperature Increase Protection Control is performed in order to prevent an inverter trip caused by a temperature increase of the inverter fin.



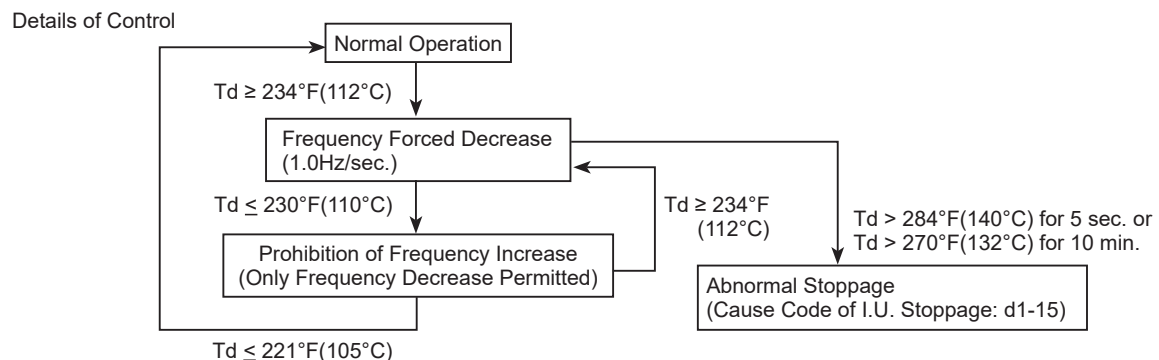
NOTE:

- In the case of a combination of base units, the control in the figure is performed for each outdoor unit connected. When there is outdoor unit in Prohibition of Frequency Increase, all the outdoor units in operation are prohibited to increase frequency. When there is outdoor unit in Frequency Forced Decrease, all the outdoor units in operation are forced to decrease frequency.
- In the case of two inverter PCBs installed in an outdoor unit, the max. temperature detected at each inverter PCB is utilized.

Tfin: Inverter Fin Temperature Sensor Detected Value

(5) P05: Discharge Temperature Increase Protection Control

Discharge Temperature Increase Protection Control is performed in order to protect the compressor motor coil from an increase of discharge temperature during an abnormality.



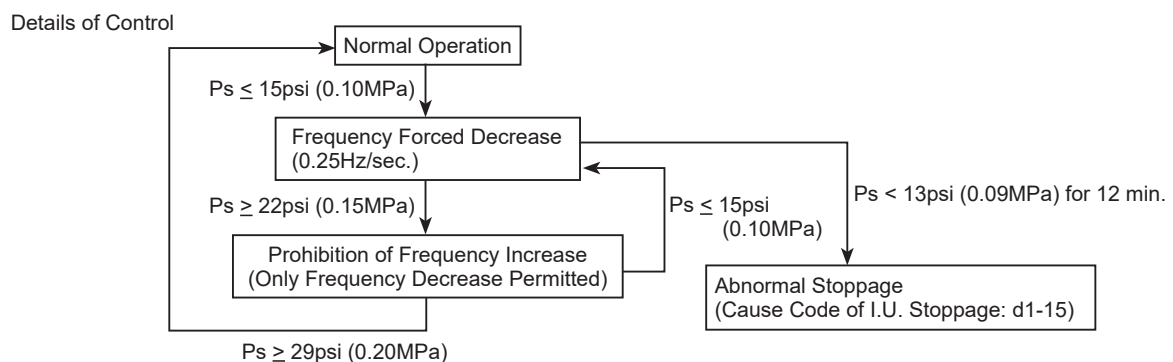
NOTE:

- With a combination of base units, the control in the figure is performed for the entire number of outdoor units to be connected.
- Discharge temperature is detected in each outdoor unit, and this control uses the maximum value.
- In the case of two inverter compressors installed in an outdoor unit, the max. temperature detected at each inverter compressor is utilized.

Td: Detected Value of Discharge Gas Thermistor [°F(°C)]

(6) P06: Low Pressure Decrease Protection Control

Low Pressure Decrease Protection Control is performed in order to protect the compressor from a transitional decrease of suction pressure.



NOTE:

- With a combination of base units, the control in the figure is performed for the entire number of outdoor units to be connected.
- Low pressure is detected in each outdoor unit, and this control uses the minimum value.

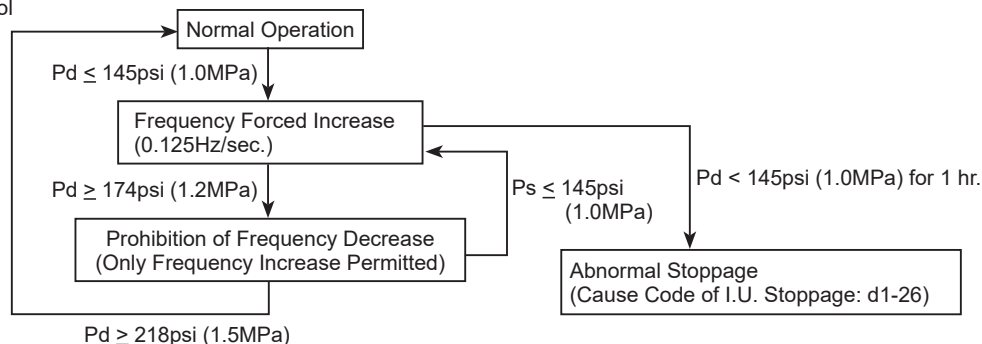
Ps: Detected Value of Low Pressure Sensor [psi(MPa)]

(7) P09: High Pressure Decrease Protection Control

When decreasing high pressure, the compressor operation frequency is controlled by this protection control for the following purposes.

- To prevent insufficient refrigerant supply to indoor units installed at different height locations.
- To keep the refrigerant oil supply in the compressor.

Details of Control



NOTE:

1. With a combination of base units, the control in the figure is performed for the entire number of outdoor units to be connected.
2. High pressure is detected in each outdoor unit, and this control uses the minimum value.

Pd: Detected Value of High Pressure Sensor [psi(MPa)]

(8) P0A: Demand Current Control

The compressor operation frequency is controlled to set at the setting value of the outdoor unit inverter primary current (40% to 100% of rated current of cooling operation). This function is detailed in the "External Input and Output Setting". Refer to the Service Manual for details.

Operating Conditions

The demand current control can be performed under the following conditions.

- (a) The demand signal is input from the centralized operation controller.
- (b) The demand signal is input at the external input terminals of the outdoor unit from external equipment such as a building management system or a utility with a smart meter.
- (c) The demand function settings are set from the outdoor unit PCB.
- (d) The wave function is set from the outdoor unit PCB.
- (e) The demand signal is input from the indoor unit (wired controller).

If the operation current exceeds each setting function value, the compressor operation frequency is controlled.

Cancellation Condition

The input signal is stopped at each condition (a) to (e).

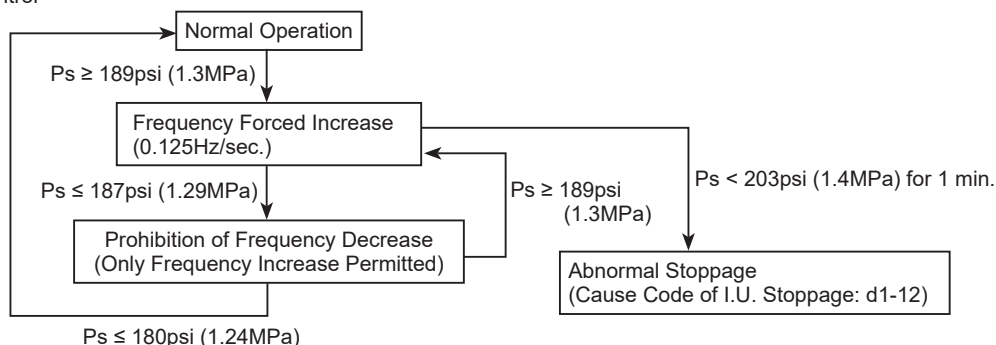
NOTE:

This function is not available when the compressor starts or during a defrosting operation.

(9) P0d: Low Pressure Increase Protection Control

The compressor operation frequency is controlled to protect the compressor from suction pressure transitional increasing.

Details of Control



NOTE:

1. With a combination of base units, the control in the figure is performed for the entire number of outdoor units to be connected.
2. Low pressure is detected in each outdoor unit, and this control uses the maximum value.

Ps: Detected Value of Low Pressure Sensor [psi(MPa)]

(10) Priority of Protection Control

If two or more protection controls meet a condition, the protection controls perform according to the following.

Rank Order.	Indication	Protection Control Performed
1	P01	Pressure Ratio Protection Control
2	P02	High Pressure Increase Protection Control
3	P03	Inverter Current Protection Control
4	P04	Inverter Fin Temperature Increase Protection Control
5	P05	Discharge Temperature Increase Protection Control
6	P06	Low Pressure Decrease Protection Control
7	P0A	Demand Current Control
8	P0d	Low Pressure Increase Protection Control
9	P09	High Pressure Decrease Protection Control

		② Lower Rank Order of Protection Control Function			
		Forced Decrease	Forced Increase	Prohibition of Increase	Prohibition of Decrease
① Higher Rank Order of Protection Control Function	Forced Decrease	①	①	①	①
	Forced Increase	①	①	①	①
	Prohibited Increase	②	①	② *	①
	Prohibited Decrease	②	②	②	②

*: Discharge Temperature Increase Protection Control (P05) is higher than the following protection controls.

a) Low Pressure Decrease Protection Control (P06)

b) Demand Current Control (P0A)

(11) Override (Degeneration) Control

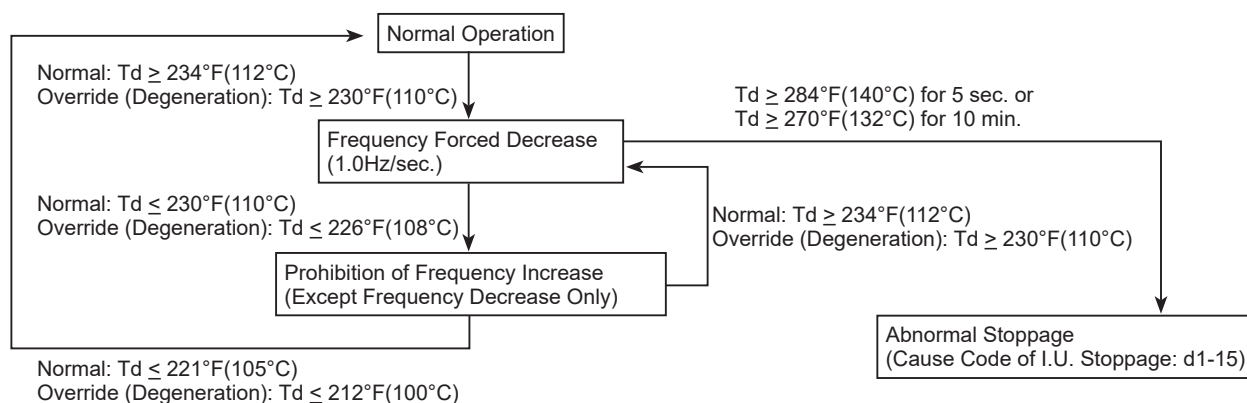
Override (Degeneration) Control is performed to change the protection control range.

This control sequence will suppress re-occurring alarms in response to repeated equipment restarts during protection control conditions listed below.

Related Protection Control

- (1) Pressure Ratio Decrease Protection Control (P01)
- (2) High Pressure Increase Protection Control (P02)
- (3) Inverter Current Protection Control (P03)
- (4) Inverter Fin Temperature Increase Protection Control (P04)
- (5) Discharge Temperature Increase Protection Control (P05)

Example of Discharge Temperature Increase Protection Control



(12) Oil Return Control

Oil return control is performed in order to avoid insufficient oil supply to the compressor caused by long time low frequency operation. This control is utilized to return the oil flow out to the indoor unit side from the compressor.

Activating Condition

This control function is started the compressor runs below the specified speed for 1 hour continuously (refer to the table below).

Compressor Speed for Oil Return Control (Hz)

Capacity [MBH]	Cooling Operation	Heating Operation
072, 096	50	54
120 to 192	66	72
216 to 288	96	108
312 ≤	132	156

Detail of Control**Compressor:**

Increase the compressor speed above the required value to return the oil to the compressor

Expansion Valve:

(In the Case of Cooling Operation) Open the expansion valve of the indoor unit under thermo-ON.

(In the Case of Heating Operation) Open the expansion valve of the outdoor unit.

Deactivating Condition

This control function is canceled when the oil return control continues for more than 60 sec. (for cooling operation) /120sec. (for heating operation).

2.11.4 Safety and Control Device Setting

208/230V 60Hz

Model		(H,Y)VAHP072B32S	(H,Y)VAHP096B32S	(H,Y)VAHP120B32S	(H,Y)VAHP144B32S	(H,Y)VAHP168B32S	(H,Y)VAHP192B32S
High Pressure Increase Protection		Automatic Reset, Non-Adjustable					
High Pressure Increase Protection Control	psi (MPa)	551 (3.80)	551 (3.80)	551 (3.80)	551 (3.80)	551 (3.80)	551 (3.80)
Pressure Switch		(for each compressor)					
Cut-Out	psi (MPa)	601 -7 -21 (4.15 -0.05) -0.15)	601 -7 -21 (4.15 -0.05) -0.15)	601 -7 -21 (4.15 -0.05) -0.15)	601 -7 -21 (4.15 -0.05) -0.15)	601 -7 -21 (4.15 -0.05) -0.15)	601 -7 -21 (4.15 -0.05) -0.15)
Cut-In	psi (MPa)	464 ±21 (3.20 ±0.15)	464 ±21 (3.20 ±0.15)	464 ±21 (3.20 ±0.15)	464 ±21 (3.20 ±0.15)	464 ±21 (3.20 ±0.15)	464 ±21 (3.20 ±0.15)
For Inverter Compressor		Automatic Reset, Non-Adjustable					
Over Current							
Inverter Current Protection Control	A	48	48	38	38	48	48
Fuse	A	50	50	40	40	50	50
Over Heat		Automatic Reset, Non-Adjustable					
Discharge Temperature Increase Protection Control							
for 5sec	°F (°C)	284 (140)	284 (140)	284 (140)	284 (140)	284 (140)	284 (140)
for 10min	°F (°C)	270 (132)	270 (132)	270 (132)	270 (132)	270 (132)	270 (132)
For Fan Motor		Automatic Reset, Non-Adjustable					
Over Current Protection Control	A	7	7	7	7	7	7
Fuse	A	10	10	10	10	10	10

460V 60Hz

Model		(H,Y)VAHP072B42S	(H,Y)VAHP096B42S	(H,Y)VAHP120B42S	(H,Y)VAHP144B42S	(H,Y)VAHP168B42S	(H,Y)VAHP192B42S
High Pressure Increase Protection		Automatic Reset, Non-Adjustable					
High Pressure Increase Protection Control	psi (MPa)	551 (3.80)	551 (3.80)	551 (3.80)	551 (3.80)	551 (3.80)	551 (3.80)
Pressure Switch		(for each compressor)					
Cut-Out	psi (MPa)	601 -7 -21 (4.15 -0.05) -0.15)	601 -7 -21 (4.15 -0.05) -0.15)	601 -7 -21 (4.15 -0.05) -0.15)	601 -7 -21 (4.15 -0.05) -0.15)	601 -7 -21 (4.15 -0.05) -0.15)	601 -7 -21 (4.15 -0.05) -0.15)
Cut-In	psi (MPa)	464 ±21 (3.20 ±0.15)	464 ±21 (3.20 ±0.15)	464 ±21 (3.20 ±0.15)	464 ±21 (3.20 ±0.15)	464 ±21 (3.20 ±0.15)	464 ±21 (3.20 ±0.15)
For Inverter Compressor		Automatic Reset, Non-Adjustable					
Over Current							
Inverter Current Protection Control	A	26	26	19.5	19.5	26	26
Fuse	A	25	25	25	25	25	25
Over Heat		Automatic Reset, Non-Adjustable					
Discharge Temperature Increase Protection Control							
for 5sec	°F (°C)	284 (140)	284 (140)	284 (140)	284 (140)	284 (140)	284 (140)
for 10min	°F (°C)	270 (132)	270 (132)	270 (132)	270 (132)	270 (132)	270 (132)
For Fan Motor		Automatic Reset, Non-Adjustable					
Over Current Protection Control	A	3.5	3.5	3.5	3.5	3.5	3.5
Fuse	A	5	10	5	5	5	5

575V 60Hz

Model		(H,Y)VAHP072B52S	(H,Y)VAHP096B52S	(H,Y)VAHP120B52S	(H,Y)VAHP144B52S	(H,Y)VAHP168B52S	(H,Y)VAHP192B52S
High Pressure Increase Protection		Automatic Reset, Non-Adjustable					
High Pressure Increase Protection Control	psi (MPa)	551 (3.80)	551 (3.80)	551 (3.80)	551 (3.80)	551 (3.80)	551 (3.80)
Pressure Switch		(for each compressor)					
Cut-Out	psi (MPa)	601 -7 -21 (4.15 -0.05) -0.15)	601 -7 -21 (4.15 -0.05) -0.15)	601 -7 -21 (4.15 -0.05) -0.15)	601 -7 -21 (4.15 -0.05) -0.15)	601 -7 -21 (4.15 -0.05) -0.15)	601 -7 -21 (4.15 -0.05) -0.15)
Cut-In	psi (MPa)	464 ±21 (3.20 ±0.15)	464 ±21 (3.20 ±0.15)	464 ±21 (3.20 ±0.15)	464 ±21 (3.20 ±0.15)	464 ±21 (3.20 ±0.15)	464 ±21 (3.20 ±0.15)
For Inverter Compressor		Automatic Reset, Non-Adjustable					
Over Current							
Inverter Current Protection Control	A	24.0	24.0	19.0	19.0	24.0	24.0
Fuse	A	25	25	25	25	25	25
Over Heat		Automatic Reset, Non-Adjustable					
Discharge Temperature Increase Protection Control							
for 5sec	°F (°C)	284 (140)	284 (140)	284 (140)	284 (140)	284 (140)	284 (140)
for 10min	°F (°C)	270 (132)	270 (132)	270 (132)	270 (132)	270 (132)	270 (132)
For Fan Motor		Automatic Reset, Non-Adjustable					
Over Current Protection Control	A	3.5	3.5	3.5	3.5	3.5	3.5
Fuse	A	5	10	5	5	5	5

2.11.5 Electrical Wiring Diagram

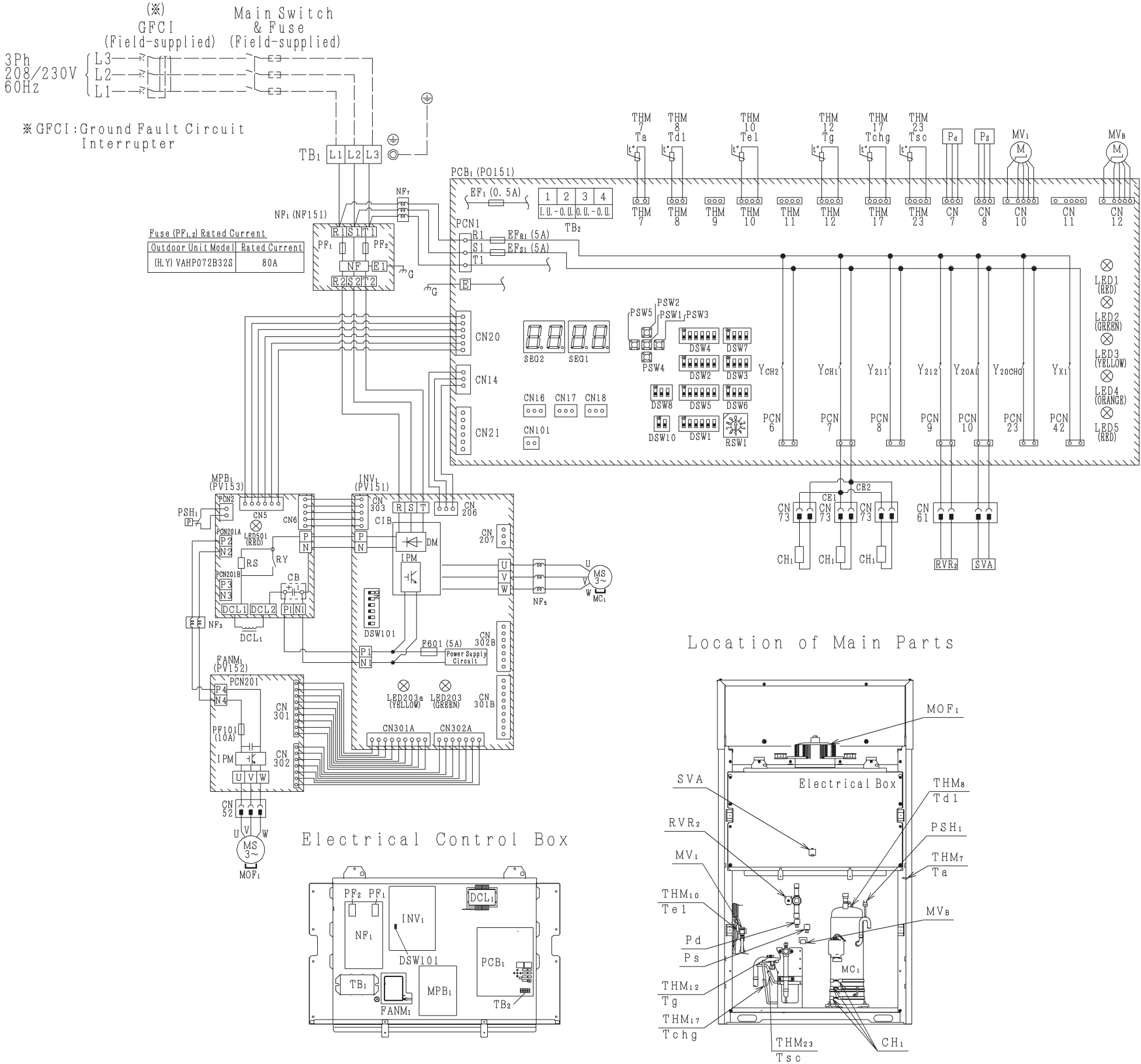
2.11.5.1 Outdoor Units

(1) 208 / 230V 60Hz

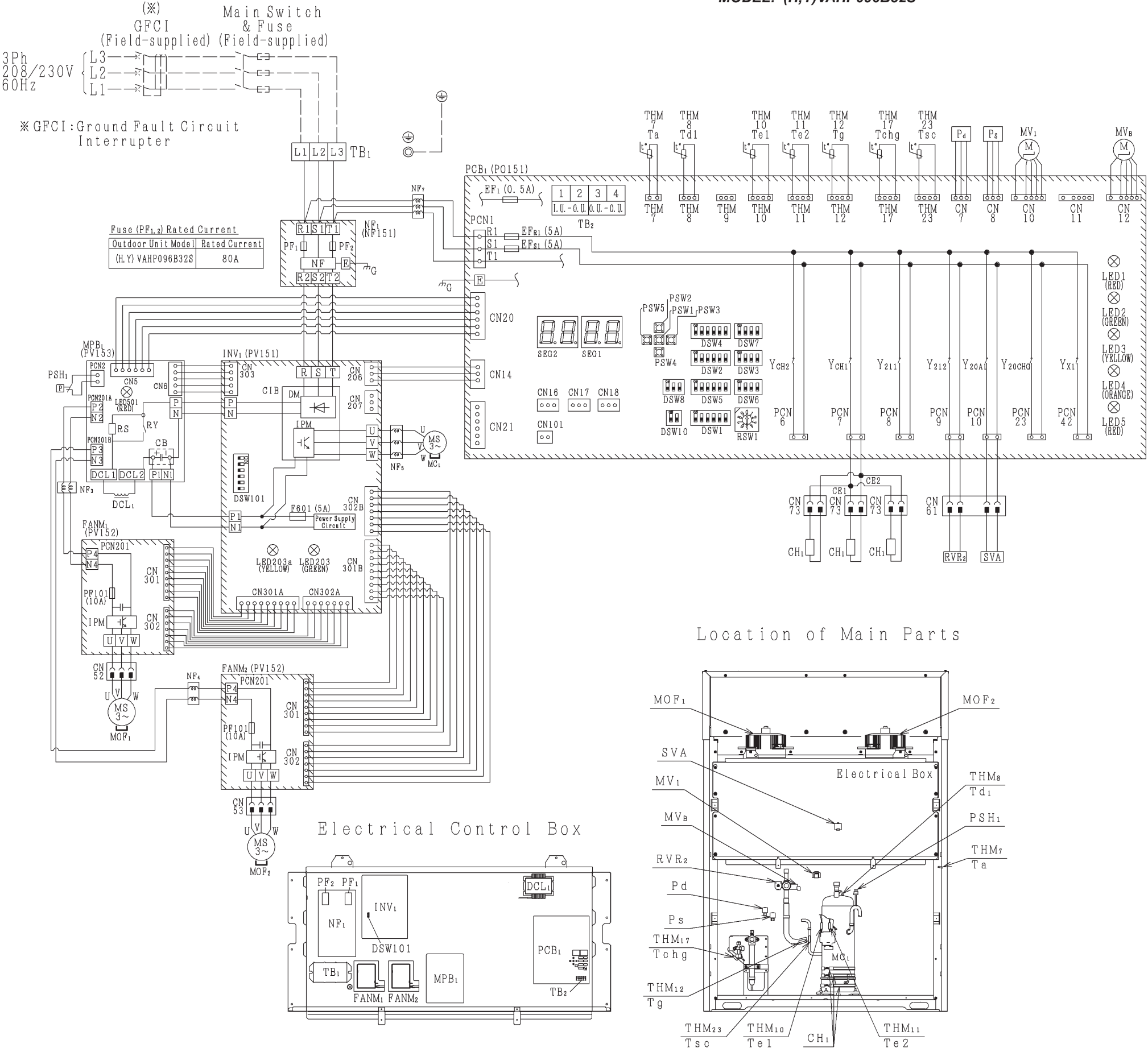
MODEL: (H,Y)VAHP072B32S

Mark	Name
MC ₁	Motor for Compressor
MOF ₁	Motor for Outdoor Fan
CH ₁	Crankcase Heater
RVR ₂	Reversing Valve Relay
SVA	Solenoid Valve
MV _{1,B}	Electronic Expansion Valve
Pd, s	Sensor for Refrigerant Pressure
THM _{7~23}	Thermistor
PSH ₁	Pressure Switch for Protection
NF _{3, 5, 7}	Noise Filter
PCB ₁	Control PCB
INV ₁	Inverter PCB
FANM ₁	Fan Controller
MPB ₁	Main Power PCB
NF ₁	Noise Filter (PCB)
EF _{R1, S1, 1}	Fuse on PCB ₁
PF _{1, 2}	Fuse on NF
PF ₁₀₁	Fuse on FANM
F ₆₀₁	Fuse on INV
CIB	Converter Inverter Brake Module
IPM	Intelligent Power Module
DCL ₁	Reactor
CB	Capacitor
RS	Resistor
RY	Relay
TB ₁	Terminal Block for Power Supply Wiring
TB ₂	Terminal Block for Communication Wiring
⊕, G	Ground
CN ₁₆	Connector for External Output
CN _{17, 18}	Connector for External Input
LED _{1~5}	Signal Light on PCB ₁
LED _{203, 203a}	Signal Light on INV
LED ₅₀₁	Signal Light on MPB
CN ₁₀₁	Connector for H-LINKII

—————	: Factory Wiring
-----	: Field Wiring
—[]—	: Connector
○	: Connector on PCB
▨	: Printed Circuit Board (PCB)



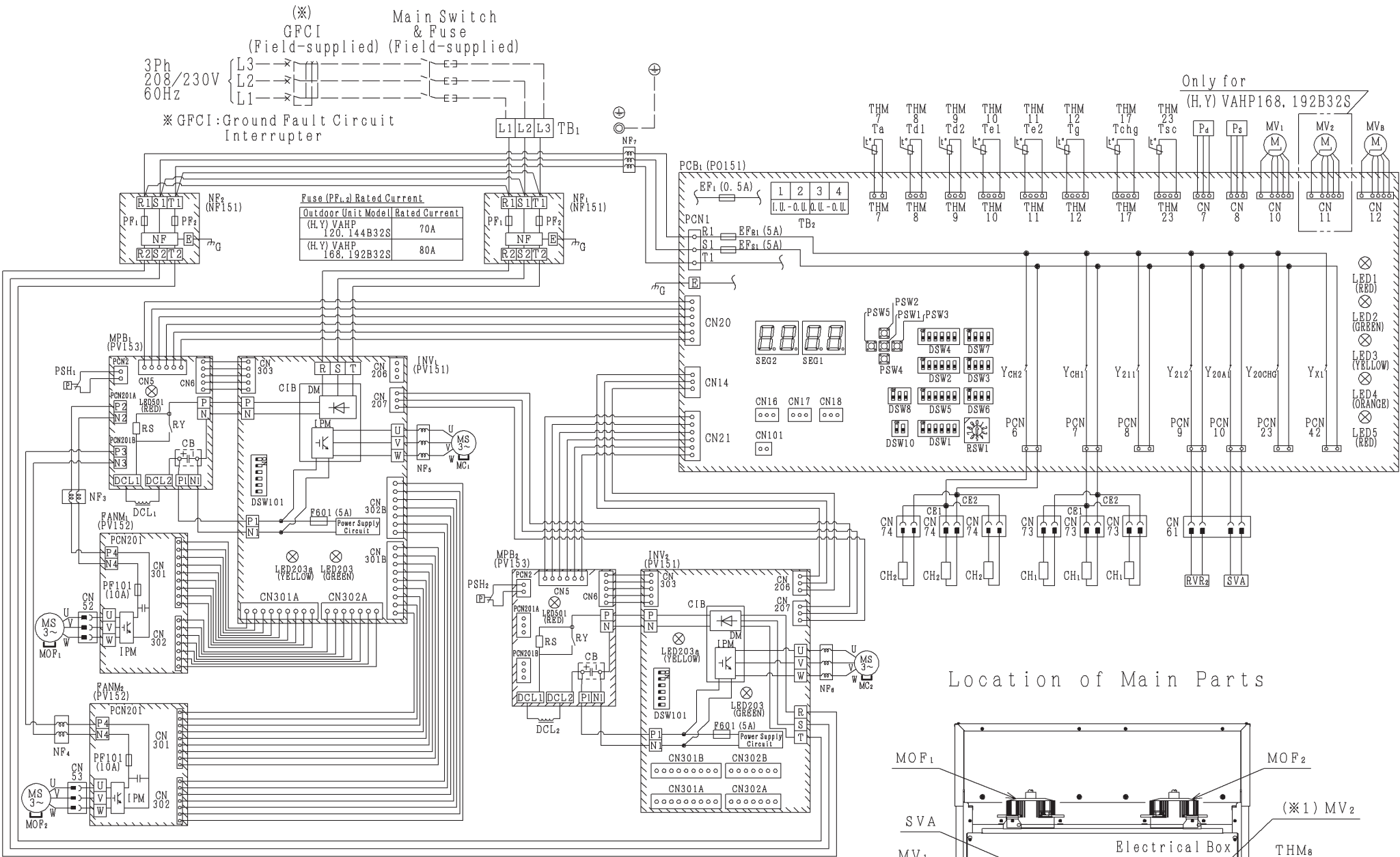
MODEL: (H,Y)VAHP096B32S



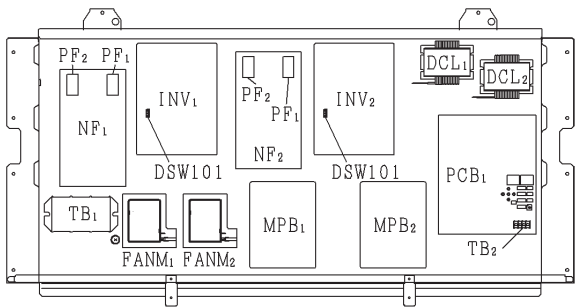
Mark	Name
MC ₁	Motor for Compressor
MOF _{1,2}	Motor for Outdoor Fan
CH ₁	Crankcase Heater
RVR ₂	Reversing Valve Relay
SVA	Solenoid Valve
MV _{1,B}	Electronic Expansion Valve
Pd, s	Sensor for Refrigerant Pressure
THM ₇₋₂₃	Thermistor
PSH ₁	Pressure Switch for Protection
NF _{3-5,7}	Noise Filter
PCB ₁	Control PCB
INV ₁	Inverter PCB
FANM _{1,2}	Fan Controller
MPB ₁	Main Power PCB
NF ₁	Noise Filter (PCB)
EF _{R1.s1.1}	Fuse on PCB ₁
PF _{1,2}	Fuse on NF
F ₆₀₁	Fuse on INV
CIB	Converter Inverter Brake Module
IPM	Intelligent Power Module
DCL ₁	Reactor
CB	Capacitor
RS	Resistor
RY	Relay
TB ₁	Terminal Block for Power Supply Wiring
TB ₂	Terminal Block for Communication Wiring
⊕, G	Ground
CN ₁₆	Connector for External Output
CN _{17,18}	Connector for External Input
LED ₁₋₅	Signal Light on PCB ₁
LED _{203, 203a}	Signal Light on INV
LED ₅₀₁	Signal Light on MPB
CN ₁₀₁	Connector for H-LINKII

—————	: Factory Wiring
-----	: Field Wiring
—□—	: Connector
○	: Connector on PCB
▨	: Printed Circuit Board (PCB)

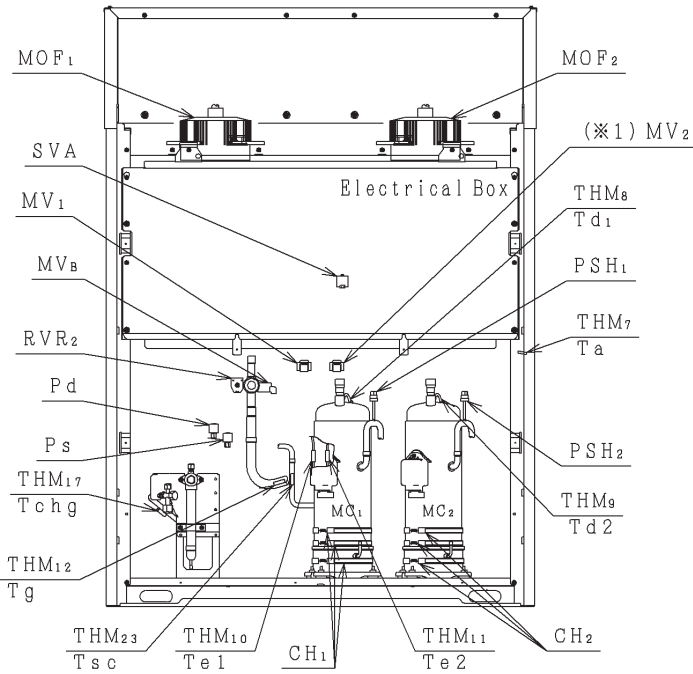
MODELS: (H,Y)VAHP120B32S, (H,Y)VAHP144B32S, (H,Y)VAHP168B32S and (H,Y)VAHP192B32S



Electrical Control Box



Location of Main Parts



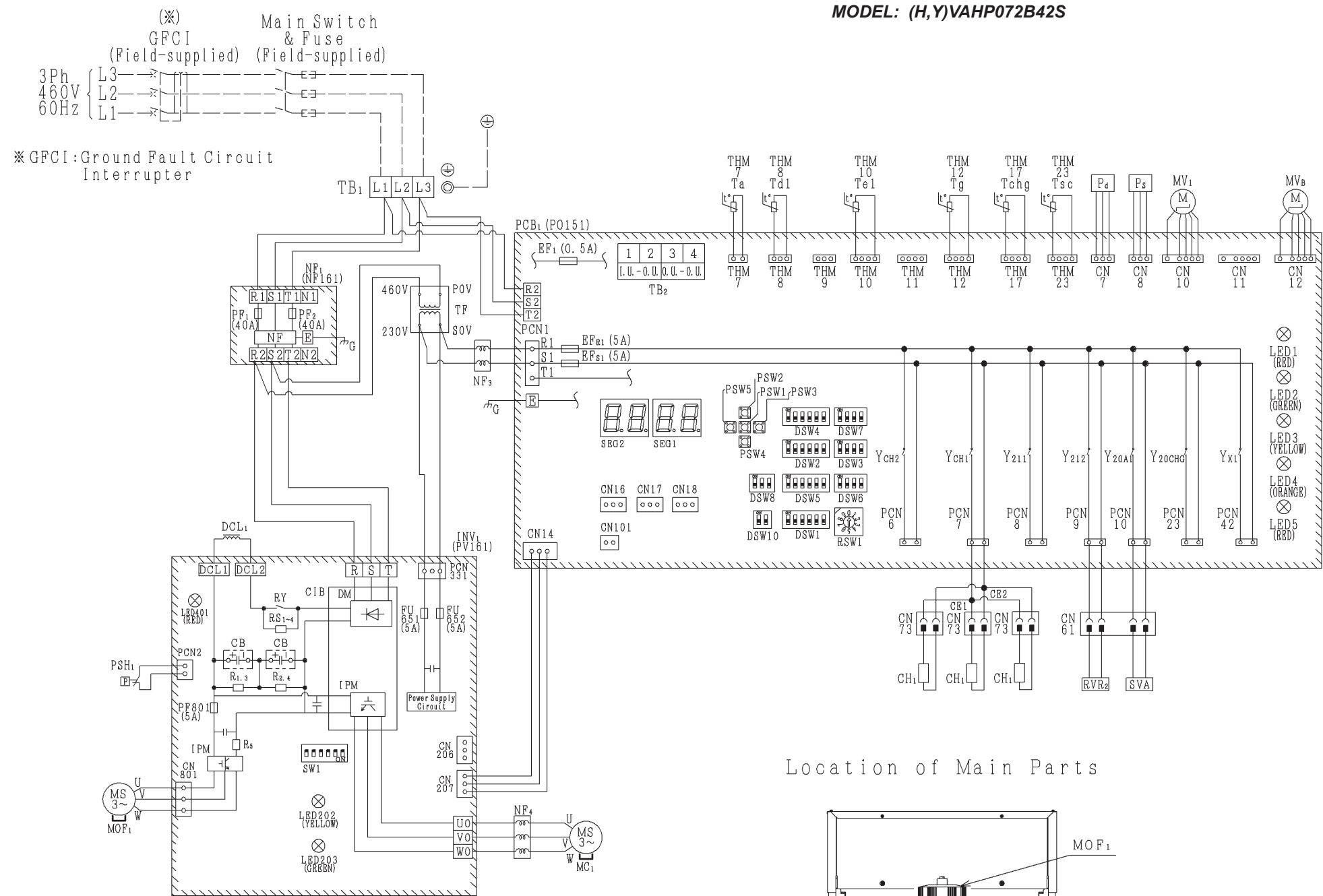
(※1) Only for (H,Y) VAHP168, 192B32S

Mark	Name
MC _{1,2}	Motor for Compressor
MOF _{1,2}	Motor for Outdoor Fan
CH _{1,2}	Crankcase Heater
RVR ₂	Reversing Valve Relay
SVA	Solenoid Valve
MV _{1,2,B}	Electronic Expansion Valve
Pd, s	Sensor for Refrigerant Pressure
THM _{7~23}	Thermistor
PSH _{1,2}	Pressure Switch for Protection
NF _{3~7}	Noise Filter
PCB ₁	Control PCB
INV _{1,2}	Inverter PCB
FANM _{1,2}	Fan Controller
MPB _{1,2}	Main Power PCB
NF _{1,2}	Noise Filter (PCB)
EF _{R1, S1, 1}	Fuse on PCB ₁
PF _{1,2}	Fuse on NF
PF ₁₀₁	Fuse on FANM
F ₆₀₁	Fuse on INV
CIB	Converter Inverter Brake Module
IPM	Intelligent Power Module
DCL _{1,2}	Reactor
CB	Capacitor
RS	Resistor
RY	Relay
TB ₁	Terminal Block for Power Supply Wiring
TB ₂	Terminal Block for Communication Wiring
⓪ . G	Ground
CN ₁₆	Connector for External Output
CN _{17,18}	Connector for External Input
LED _{1~5}	Signal Light on PCB ₁
LED _{203, 203a}	Signal Light on INV
LED ₅₀₁	Signal Light on MPB
CN ₁₀₁	Connector for H-LINKII

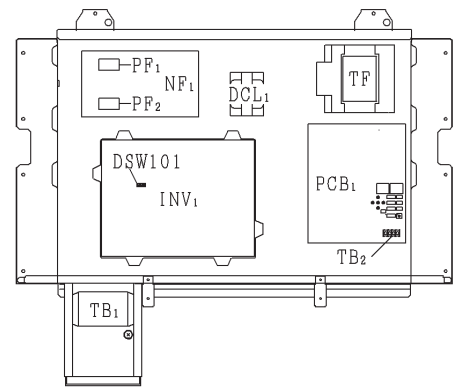
- : Factory Wiring
- : Field Wiring
- []— : Connector
- [] : Connector on PCB
- [] : Printed Circuit Board (PCB)

(2) 460V 60Hz

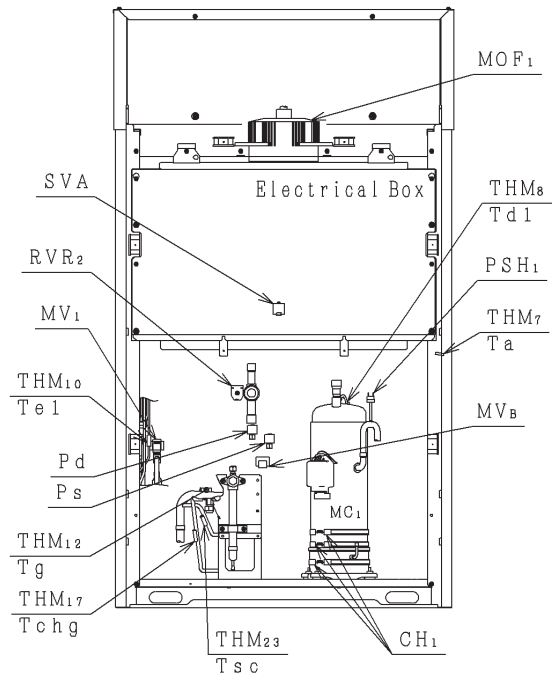
MODEL: (H,Y)VAHP072B42S



Electrical Control Box



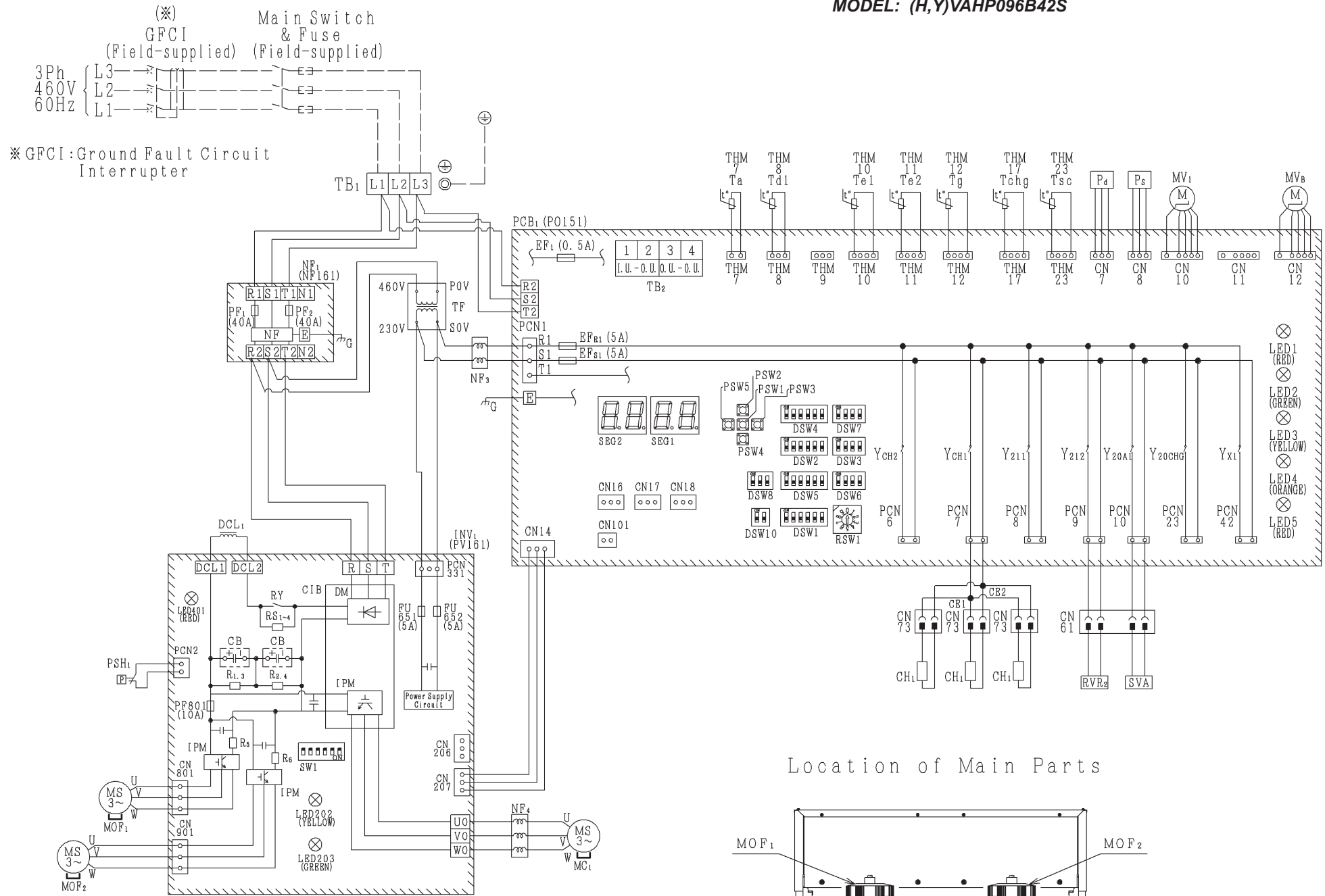
Location of Main Parts



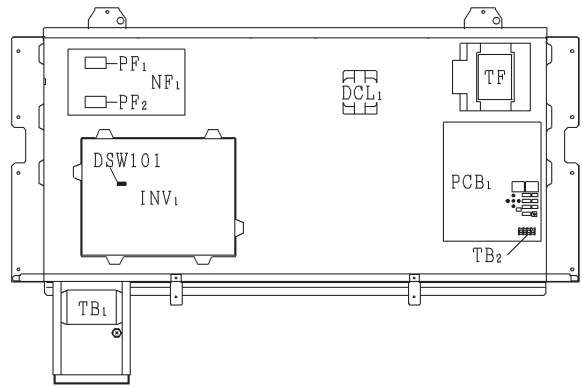
Mark	Name
MC ₁	Motor for Compressor
MOF ₁	Motor for Outdoor Fan
CH ₁	Crankcase Heater
RVR ₂	Reversing Valve Relay
SVA	Solenoid Valve
MV _{1.B}	Electronic Expansion Valve
Pd, s	Sensor for Refrigerant Pressure
THM ₇₋₂₃	Thermistor
PSH ₁	Pressure Switch for Protection
NF _{3.4}	Noise Filter
PCB ₁	Control PCB
INV ₁	Inverter PCB
NF ₁	Noise Filter (PCB)
EF _{R1.s1.1}	Fuse on PCB ₁
PF _{1.2}	Fuse on NF
FU _{651.652}	Fuse on INV
PF ₈₀₁	Fuse on INV
CIB	Converter Inverter Brake Module
IPM	Intelligent Power Module
DCL ₁	Reactor
CB	Capacitor
RS ₁₋₄ , R ₁₋₄	Resistor
RY	Relay
TF	Transformer
TB ₁	Terminal Block for Power Supply Wiring
TB ₂	Terminal Block for Communication Wiring
⊕, G	Ground
CN ₁₆	Connector for External Output
CN _{17,18}	Connector for External Input
LED ₁₋₅	Signal Light on PCB ₁
LED _{202, 203, 401}	Signal Light on INV
CN ₁₀₁	Connector for H-LINKII

- : Factory Wiring
-----: Field Wiring
—[]—: Connector
○: Connector on PCB
▨: Printed Circuit Board (PCB)

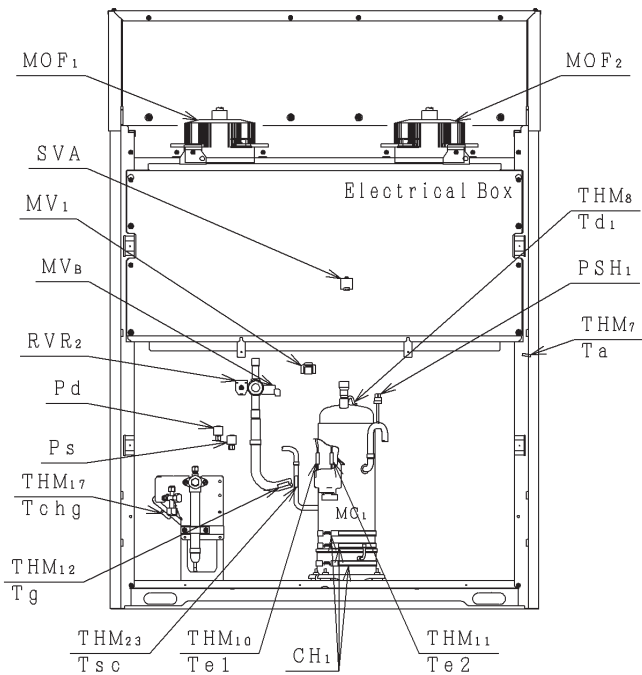
MODEL: (H,Y)VAHP096B42S



Electrical Control Box



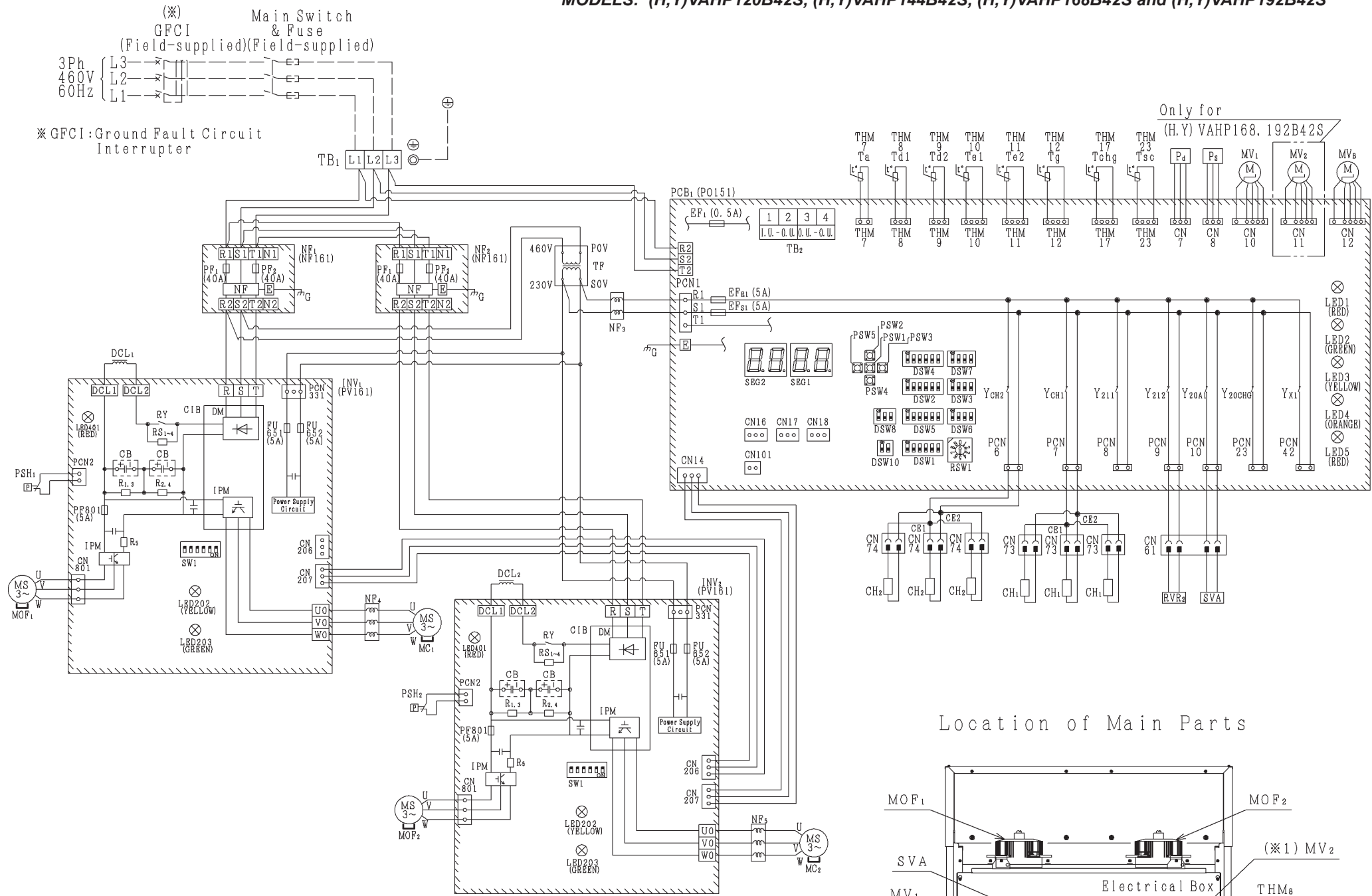
Location of Main Parts



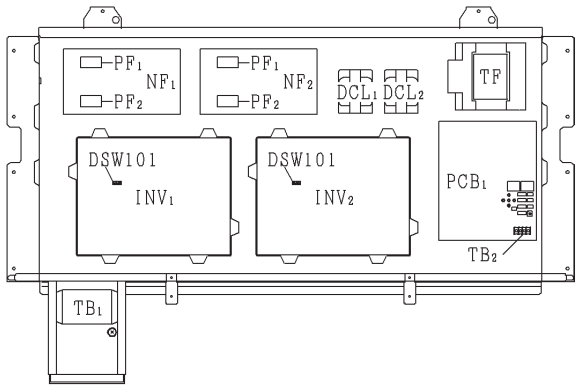
Mark	Name
MC ₁	Motor for Compressor
MOF _{1,2}	Motor for Outdoor Fan
CH ₁	Crankcase Heater
RVR ₂	Reversing Valve Relay
SVA	Solenoid Valve
MV _{1,B}	Electronic Expansion Valve
Pd, s	Sensor for Refrigerant Pressure
THM ₇₋₂₃	Thermistor
PSH ₁	Pressure Switch for Protection
NF _{3,4}	Noise Filter
PCB ₁	Control PCB
INV ₁	Inverter PCB
NF ₁	Noise Filter (PCB)
EF _{1, S1, 1}	Fuse on PCB ₁
PF _{1, 2}	Fuse on NF
FU _{651, 652}	Fuse on INV
PF ₈₀₁	Fuse on INV
CIB	Converter Inverter Brake Module
IPM	Intelligent Power Module
DCL ₁	Reactor
CB	Capacitor
RS ₁₋₄ , R ₁₋₄	Resistor
RY	Relay
TF	Transformer
TB ₁	Terminal Block for Power Supply Wiring
TB ₂	Terminal Block for Communication Wiring
⊕, G	Ground
CN ₁₆	Connector for External Output
CN _{17,18}	Connector for External Input
LED ₁₋₅	Signal Light on PCB ₁
LED _{202, 203, 401}	Signal Light on INV
CN ₁₀₁	Connector for H-LINKII

—	: Factory Wiring
---	: Field Wiring
—□—	: Connector
○	: Connector on PCB
▨	: Printed Circuit Board (PCB)

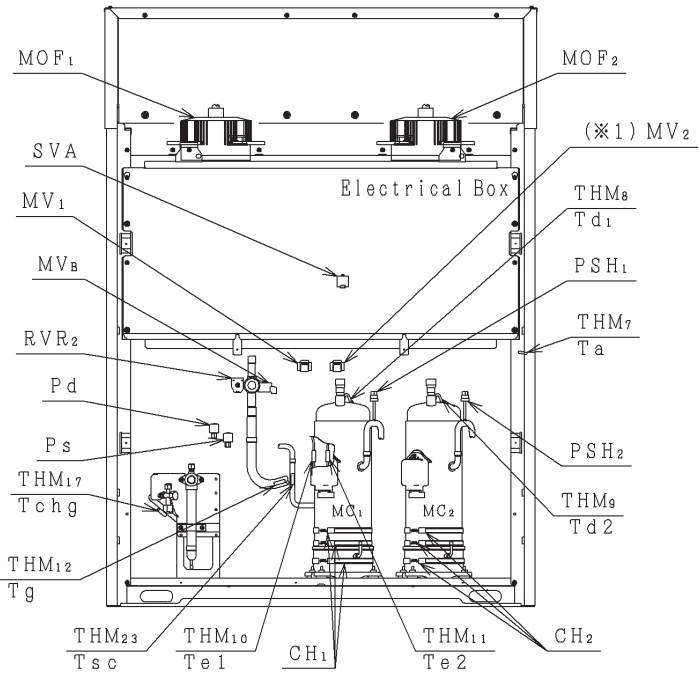
MODELS: (H,Y)VAHP120B42S, (H,Y)VAHP144B42S, (H,Y)VAHP168B42S and (H,Y)VAHP192B42S



Electrical Control Box



Location of Main Parts



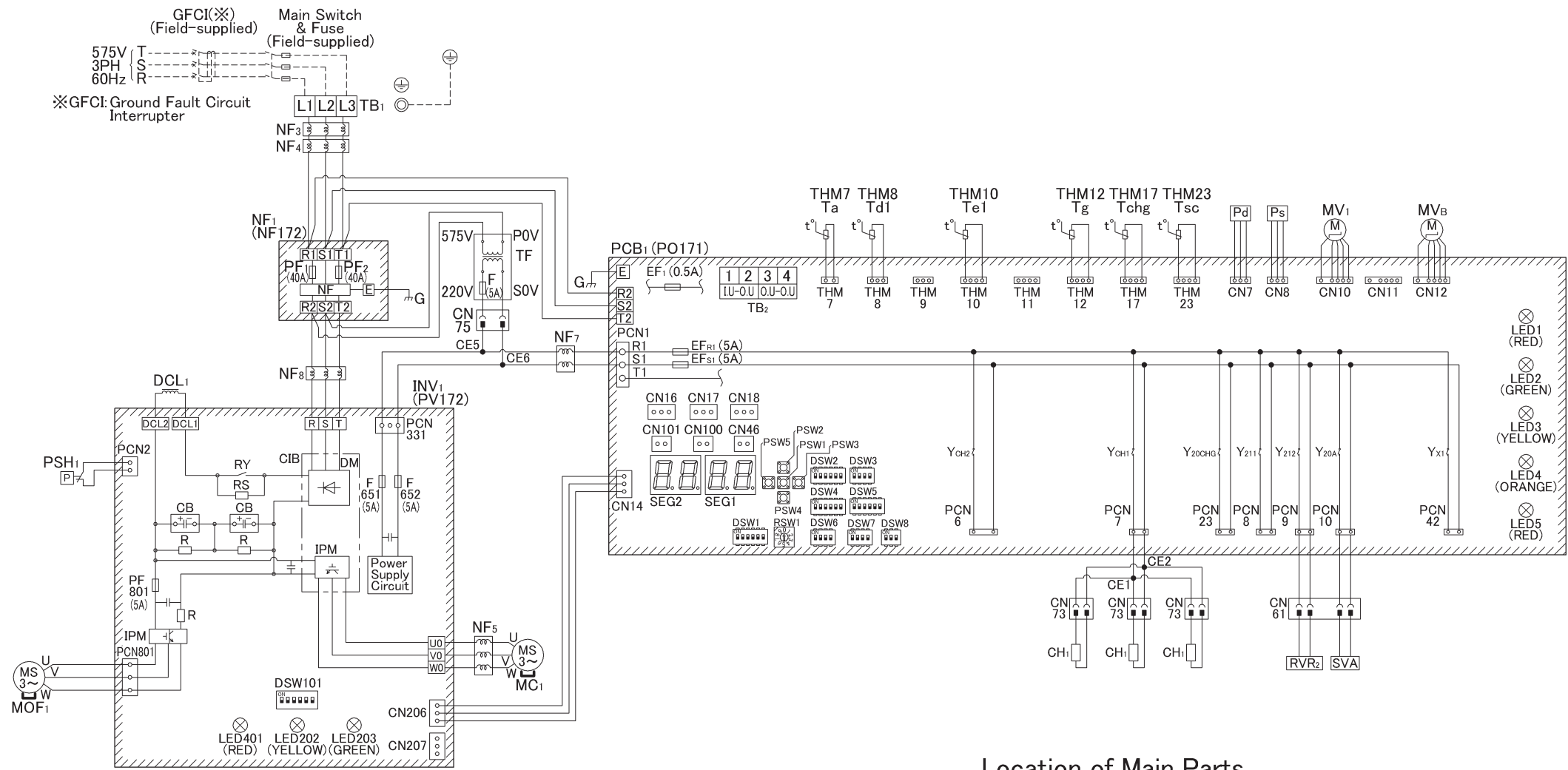
(※1) Only for (H,Y) VAHP168, 192B42S

Mark	Name
MC1,2	Motor for Compressor
MOF1,2	Motor for Outdoor Fan
CH1,2	Crankcase Heater
RVR2	Reversing Valve Relay
SVA	Solenoid Valve
MV1,2,B	Electronic Expansion Valve
Pd,s	Sensor for Refrigerant Pressure
THM7~23	Thermistor
PSH1,2	Pressure Switch for Protection
NF3~5	Noise Filter
PCB1	Control PCB
INV1,2	Inverter PCB
NF1,2	Noise Filter (PCB)
EF _{R1.S1.1}	Fuse on PCB ₁
PF1,2	Fuse on NF
FU _{651.652}	Fuse on INV
PF ₈₀₁	Fuse on INV
CIB	Converter Inverter Brake Module
IPM	Intelligent Power Module
DCL1,2	Reactor
CB	Capacitor
RS1~4, Ri~4	Resistor
RY	Relay
TF	Transformer
TB1	Terminal Block for Power Supply Wiring
TB2	Terminal Block for Communication Wiring
⓪ . G	Ground
CN16	Connector for External Output
CN17,18	Connector for External Input
LED1~5	Signal Light on PCB ₁
LED _{202.203.401}	Signal Light on INV
CN101	Connector for H-LINKII

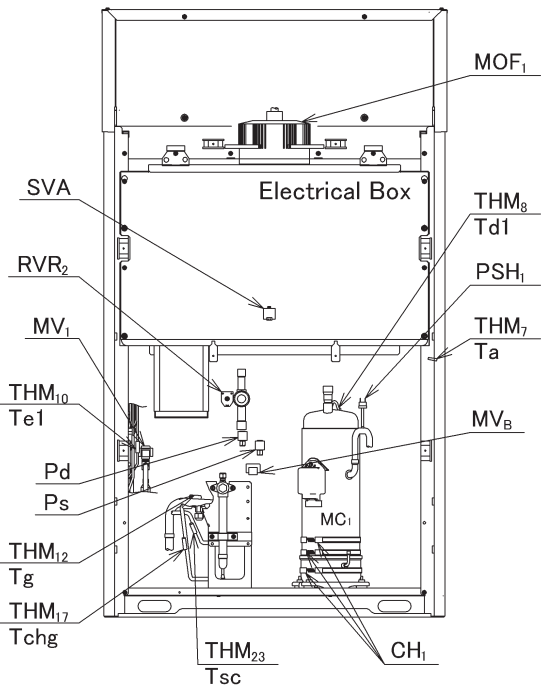
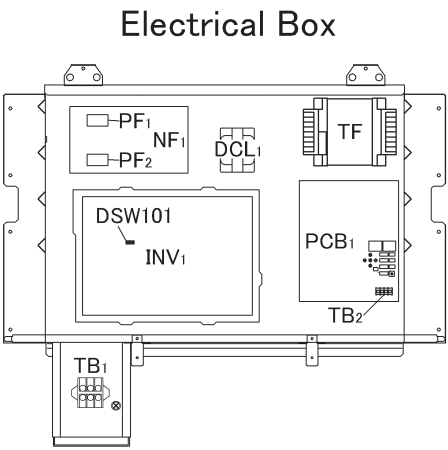
—————	: Factory Wiring
-----	: Field Wiring
—□—	: Connector
○	: Connector on PCB
▨	: Printed Circuit Board (PCB)

(3) 575V 60Hz

MODEL: (H,Y)VAHP072B52S



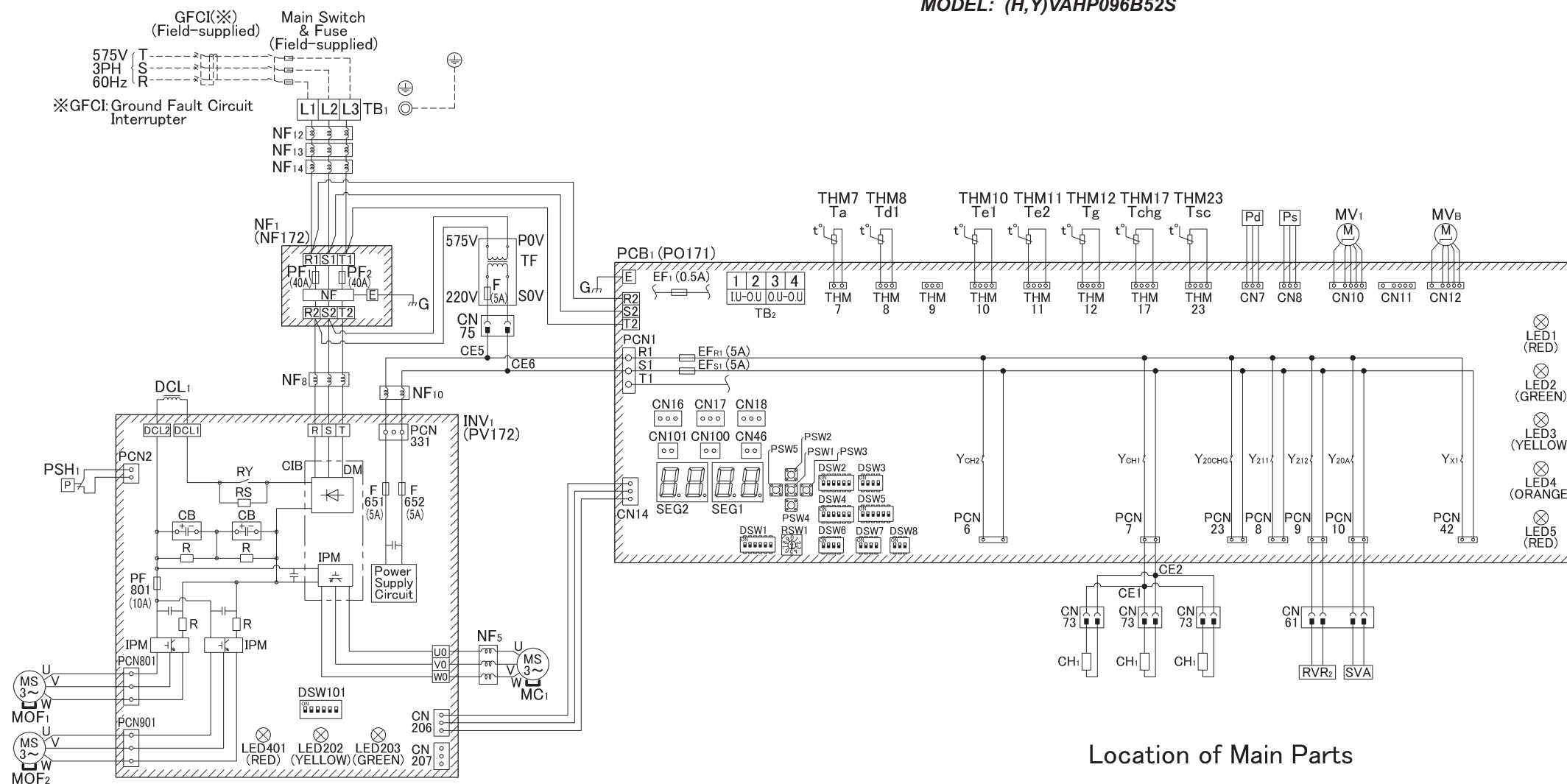
Location of Main Parts









Mark	Name
MC ₁	Motor for Compressor
MOF ₁	Motor for Outdoor Fan
CH ₁	Crankcase Heater
RVR ₂	Reversing Valve Relay
SVA	Solenoid Valve
MV _{1, B}	Electronic Expansion Valve
Pd, s	Sensor for Refrigerant Pressure
THM _{7~23}	Thermistor
PSH ₁	Pressure Switch for Protection
NF _{3~5, 7, 8}	Noise Filter
PCB ₁	Control PCB
INV ₁	Inverter PCB
NF ₁	Noise Filter (PCB)
EF _{R1, S1, 1}	Fuse on PCB ₁
PF _{1, 2}	Fuse on NF
F _{651, 652}	Fuse on INV
PF ₈₀₁	Fuse on INV
F	Fuse on TF
CIB	Converter Inverter Brake Module
IPM	Intelligent Power Module
DCL ₁	Reactor
CB	Capacitor
RS, R	Resistor
RY	Relay
TF	Transformer
TB ₁	Terminal Block for Power Supply Wiring
TB ₂	Terminal Block for Communication Wiring
⊕, G	Ground
CN ₁₆	Connector for External Output
CN _{17, 18}	Connector for External Input
LED _{1~5}	Signal Light on PCB ₁
LED _{202, 203, 401}	Signal Light on INV
CN ₁₀₁	Connector for H-LINK II

————	: Factory Wiring
-----	: Field Wiring
—●—	: Connector
○	: Connector on PCB
▨	: Printed Circuit Board (PCB ₁)

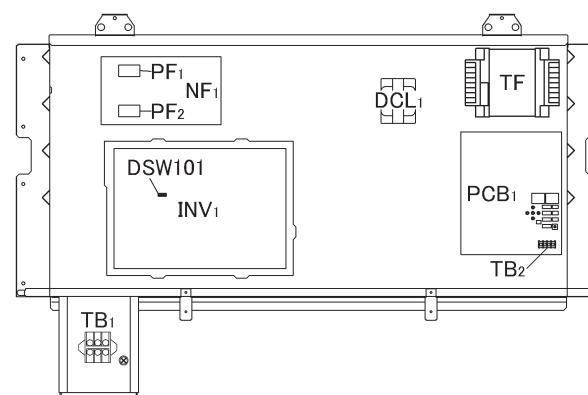
MODEL: (H,Y)VAHP096B52S



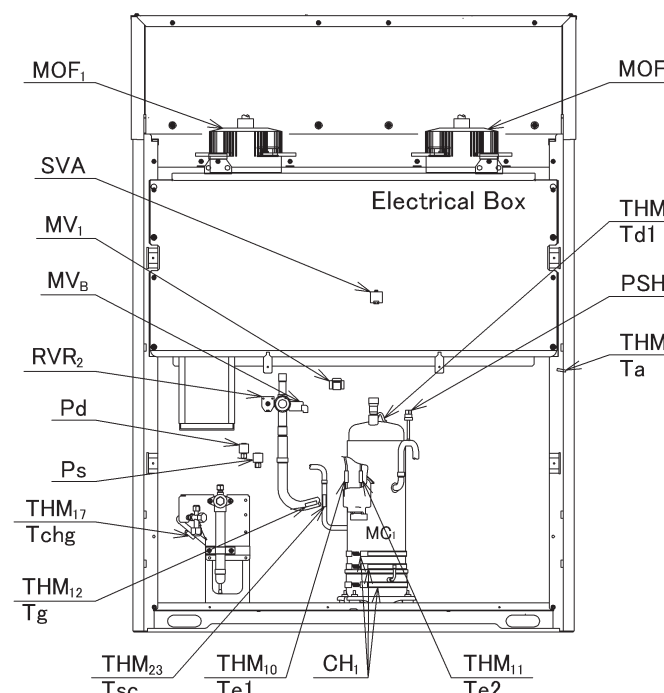
Mark	Name
MC ₁	Motor for Compressor
MOF _{1, 2}	Motor for Outdoor Fan
CH ₁	Crankcase Heater
RVR ₂	Reversing Valve Relay
SVA	Solenoid Valve
MV _{1, B}	Electronic Expansion Valve
Pd, s	Sensor for Refrigerant Pressure
THM _{7~23}	Thermistor
PSH ₁	Pressure Switch for Protection
NF _{5,8,10,12~14}	Noise Filter
PCB ₁	Control PCB
INV ₁	Inverter PCB
NF ₁	Noise Filter (PCB)
EF _{R1, S1, 1}	Fuse on PCB ₁
PF _{1, 2}	Fuse on NF
F _{651, 652}	Fuse on INV
PF ₈₀₁	Fuse on INV
F	Fuse on TF
CIB	Converter Inverter Brake Module
IPM	Intelligent Power Module
DCL ₁	Reactor
CB	Capacitor
RS, R	Resistor
RY	Relay
TF	Transformer
TB ₁	Terminal Block for Power Supply Wiring
TB ₂	Terminal Block for Communication Wiring
 , G	Ground
CN ₁₆	Connector for External Output
CN _{17, 18}	Connector for External Input
LED _{1~5}	Signal Light on PCB ₁
LED _{202,203,401}	Signal Light on INV
CN ₁₀₁	Connector for H-LINK II

 : Factory Wiring
 : Field Wiring
 : Connector
 : Connector on PCB
 : Printed Circuit Board (PCB)

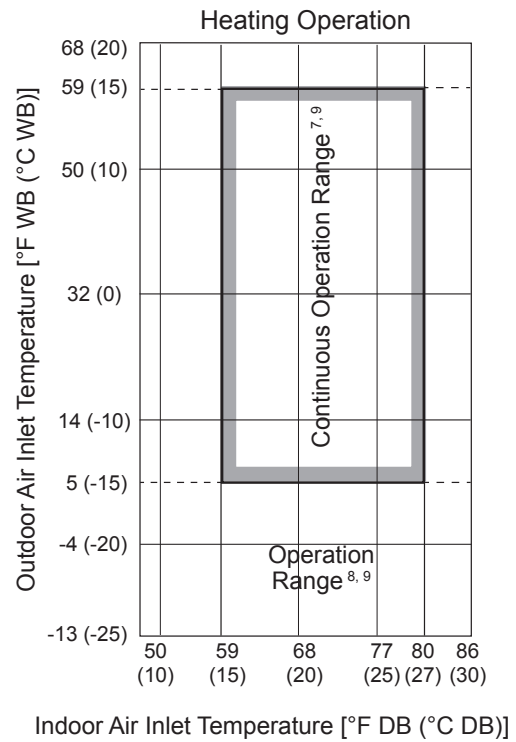
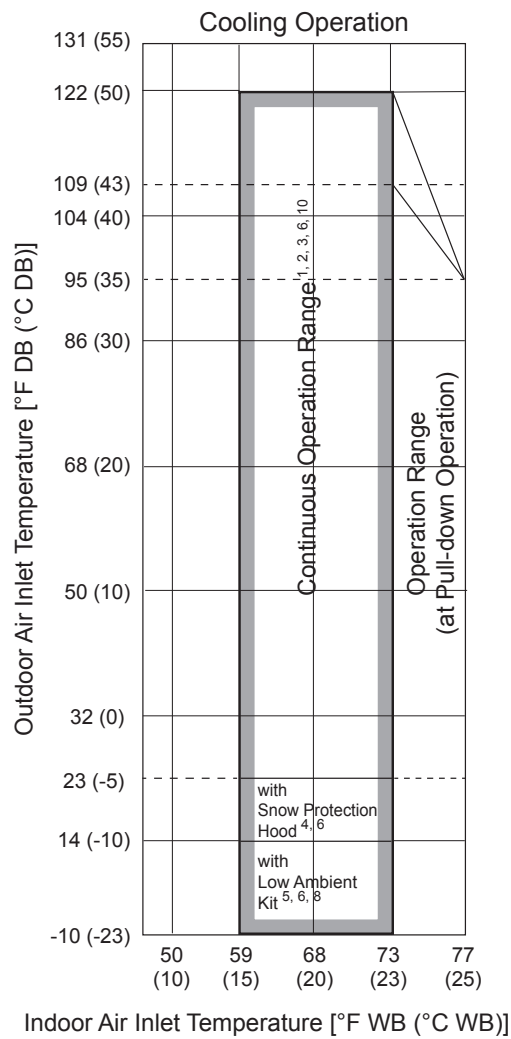
Electrical Box



Location of Main Parts



2.12 Operation Temperature Range



Cooling Operation Range	Indoor	°F WB (°C WB)	59 (15) ~ 73 (23)
	Outdoor ^{1, 2, 3, 6, 10}	°F DB (°C DB)	23 (-5) ~ 122 (50)
	with Snow Protection Hood ^{4, 6}	°F DB (°C DB)	14 (-10) ~ 109 (43)
	with Low Ambient Kit ^{5, 6, 8}	°F DB (°C DB)	-10 (-23) ~ 109 (43)
Heating Operation Range	Indoor	°F DB (°C DB)	59 (15) ~ 80 (27)
	Outdoor ^{7, 8, 9}	°F WB (°C WB)	-13 (-25) ~ 59 (15)

1. When the system meets the following conditions, the outdoor unit may be thermo-OFF to prevent the compressor from failure.
 - Total capacity of the operating indoor unit is larger than capacity of outdoor unit; and
 - Outdoor air temperature is 100°F DB (38°C DB) or more.
2. If the installation takes place under either one of the following conditions, the maximum connectable indoor unit capacity ratio is 100%.
 - Outdoor air temperature is 109°F (43°C) or more during cooling operation; or
 - Outdoor air temperature is 14°F (-10°C) or less during cooling operation.
3. When installing the snow protection hood or low ambient kit, the upper limit of outdoor air temperature must be 109°F (43°C).
4. When the outdoor air temperature is 23°F (-5°C) or less during the outdoor unit cooling operation, the minimum connectable indoor unit capacity is 18MBH.
In this case, installing the snow protection hood (optional part) is required.
5. When the outdoor air temperature is 14°F (-10°C) or less during the outdoor unit cooling operation, the minimum connectable indoor unit capacity is 18MBH.
In this case, installing the Low Ambient Kit (optional part) is required.
6. When operating the outdoor unit under the low cooling load conditions and in the low outdoor air temperature, (approx. 50°F DB (10°C DB) or less), the indoor unit will be Thermo-OFF to prevent the heat exchanger of the indoor unit from frost.
Depending on the operating condition, the outlet air temperature of the indoor unit may be excessively low. Pay attention to the direction of the outlet air. Do not place items near the air outlet and under the indoor unit as they may be damaged by condensates that may form if the humidity or the latent heat load is continuously high.
(for example:
 - using at kitchen or gymnasium; or
 - using at the room that has high population density or introduces outside air; or
 - using humidifier together; or
 - using combustion heater like gas heater together))
7. When operating the outdoor unit under the low heating load conditions and the outdoor temperature is 59°F DB (15°C DB) or more, the outdoor unit changes to Thermo-OFF to protect the compressor from failure.
8. Operation in the outdoor temperature of 5~13°F WB (-15~-25°C WB) is assumed to limited conditions such as start-up in early morning. Extended operation in this condition may shorten the life of the compressor.
9. When the outdoor air temperature is 14°F (-10°C) or less, or under the high heating load conditions, the total indoor unit capacity must be less than 100% of the outdoor unit capacity, and the total piping length must be less than 984 ft (300m).
10. There are some limitations of the Height Difference between Outdoor Units and Indoor Units.
Refer to Section 2.14.3 "Piping Size and Multi-kit Selection", for details.

2.13 Combinations of Indoor Units and Outdoor Units

Table 2.1 Indoor Unit Model List

Indoor Unit Model			Capacity (MBH)													
			6	8	12	15	18	24	27	30	36	48	54	60	72	96
Ducted	Ducted (High Static)	(H,Y)IDH_B21S					○	○		○	○	○			○	○
		(H,Y)IDH_B22S				○	○	○	○	○	○	○	○			
	Ducted (Medium Static)	(H,Y>IDM_B21S	○	○	○	○	○	○		○	○	○				
		(H,Y)IDM_B22S	○	○	○	○	○	○	○	○	○	○	○			
	Ducted (Slim)	(H,Y)IDS_B21S	○	○	○	○	○									
	Ducted (EconoFresh)	(H,Y)IDM_B21E								○	○	○				
	DOAS	(H,Y)DOA_B21S														○
	Air Handler with DX-Kit	(H,Y)MAHP_(B,C,D)21S					○	○		○	○	○		○		
Non-Ducted	Ceiling-Mounted 4-Way Cassette	(H,Y)IC4_B21S		○	○	○	○	○		○	○	○				
	Ceiling-Mounted 4-Way Cassette Mini	(H,Y)ICM_B21S		○	○	○	○									
	Ceiling-Mounted 2-Way Cassette	(H,Y)IC2_B21S					○	○								
	Ceiling-Mounted 1-Way Cassette	(H,Y)IC1_B21S	○	○	○	○										
	Wall Mount	TIWM_B21S	○	○	○	○	○	○		○						
		TIWM_B22S	○	○	○	○	○	○		○						
	Ceiling Suspended	(H,Y)ICS_B21S				○		○		○	○					
	Floor Exposed	(H,Y)IFE_B21S	○	○	○	○										
	Floor Concealed	(H,Y)IFC_B21S	○	○	○	○										

○ : Available

NOTICE:

For connection to a DOAS, see below.

- DOAS only:
Total capacity of DOAS is 100%~120% of the outdoor unit capacity.
- DOAS + Other Standard Indoor Unit:
Capacity of DOAS shall be calculated by increased 1.5 times.
and
Total capacity of indoor unit shall be within capacity range of connected outdoor unit.

For connection to a Ducted (EconoFresh), see below.

- Ducted (EconoFresh) only:
Total capacity of Ducted (EconoFresh) is 70%~100% of the outdoor unit capacity.
- Ducted (EconoFresh) + Other Standard Indoor Unit:
Total capacity of Ducted (EconoFresh) is 30% or below the outdoor unit capacity.
and
Total capacity of indoor unit, including Ducted (EconoFresh) is 70%~100% of the outdoor unit capacity.

- The number of indoor units that can be connected to an outdoor unit is as defined in Table 2.2:
Comply with the following conditions when installing the unit.
- A maximum and minimum total capacity against the nominal outdoor unit capacity can be obtained through combination of indoor units.

Table 2.2 System Combination

Model: (H,Y)VAHP_B(3,4,5)2S

Outdoor Unit Capacity (MBH)	Minimum Capacity at Individual Operation (MBH)	Maximum Number of Connectable I.U.	Recommended Number of Connected I.U.	Connectable Indoor Unit Capacity Ratio	
				Maximum ^{2,3,4,5}	Minimum
72	6 ¹	15	8	130%	70%
96		20	8	130%	65%
120		26	8	130%	60%
144		26	10	130%	55%
168		36	12	130%	55%
192		40	14	130%	55%
216		46	18	130%	60%
240		52	18	130%	60%
264		56	20	130%	55%
288		59	20	130%	55%
312		64	22	130%	55%
336		64	24	130%	55%
360		64	28	130%	55%
384		64	30	130%	55%
408		64	30	130%	55%
432		64	30	130%	55%

1. When the outdoor air temperature is 23°F (-5°C) or less during the outdoor unit cooling operation, the minimum connectable indoor unit capacity is 18 MBH. For detail, refer to Section 2.12 "Operation Temperature Range".
2. When the outdoor air temperature is 109°F (43°C) or more, or 14°F (-10°C) or less during the outdoor unit cooling operation, the maximum connectable indoor unit capacity ratio is 100%.
3. When the outdoor air temperature is 14°F (-10°C) or less, or under the high heating load conditions, the total indoor unit capacity must be less than 100% of the outdoor unit capacity, and the total piping length must be less than 984 ft (300m).
4. When the number of connected indoor unit (I.U.) is within the recommended, the maximum connectable indoor unit capacity ratio is available up to 150%.
5. There are some limitations of the Height Difference between Outdoor Units and Indoor Units. Refer to Section 2.14.3 "Piping Size and Multi-kit Selection", for details.

NOTICE:

The connectable indoor unit capacity ratio can be calculated as follows:

$$\text{Connectable Indoor Unit Capacity Ratio} = \text{Total Indoor Unit Capacity} / \text{Total Outdoor Unit Capacity}$$

In a system where all the indoor units operate simultaneously, the total indoor unit capacity must be less than the outdoor unit capacity. Otherwise, a decrease in operating performance and an increase in the operating limit can result in an overload.

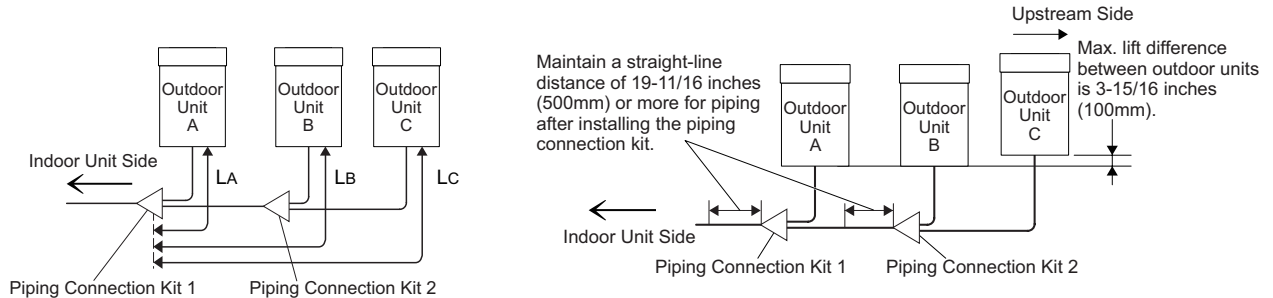
In a system where all the indoor units do not operate simultaneously, the total indoor unit capacity is available up to 150% against the outdoor unit capacity.

The air flow volume for indoor units of 6 and 8 MBH is set higher than that for indoor units of 12 MBH or more. Make sure to select appropriate indoor units for installation where a cold draft may occur during heating operation. If installing indoor units in such locations, refer to the recommended number of indoor units that can be connected.

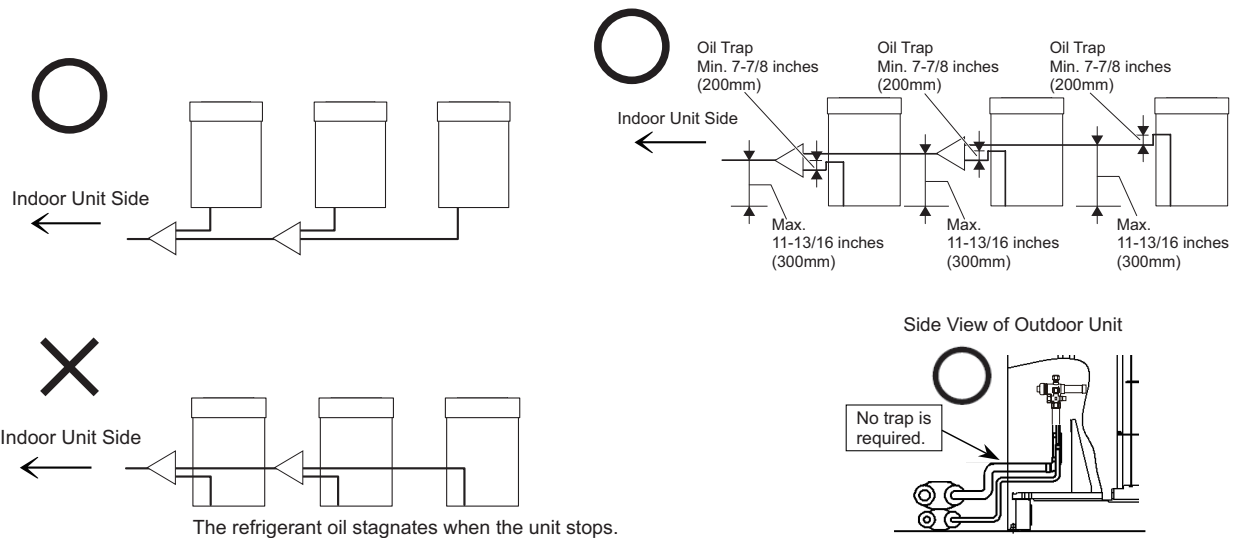
2.14 Piping Work

2.14.1 Piping Work between Outdoor Units

- (1) Piping length between piping connection kit 1 and each outdoor unit must be $L_A \leq L_B \leq L_C \leq 32.8 \text{ ft (10m)}$.
Maintain a straight-line distance of 19-11/16 inches (500mm) or more for piping after the piping connection kit 1.



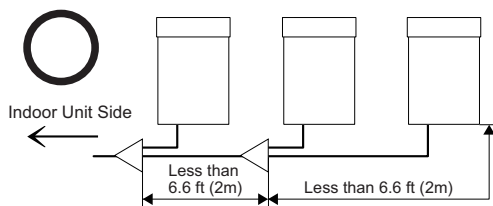
- (2) Place the piping connection kit lower than the outdoor unit piping connection.
When the piping connection kit is installed higher than the outdoor unit piping connection, maintain a maximum clearance of 11-13/16 inches (300mm) between the piping connection kit and the bottom of the outdoor unit. Also, install an oil trap (minimum 7-7/8 inches (200mm)) for the gas piping between the piping connection kit and the outdoor unit.



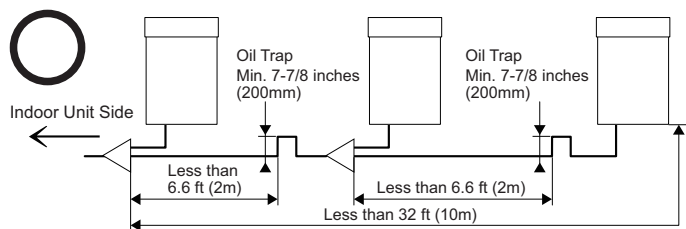
The refrigerant oil stagnates in the stopped outdoor unit during system operation.

- (3) Install an oil trap for the gas piping when the piping length between the piping connection kits, or the outdoor unit and the piping connection kit is 6.6 ft (2m) or more to prevent any accumulation of refrigerant oil.

• Less than 6.6 ft (2m)

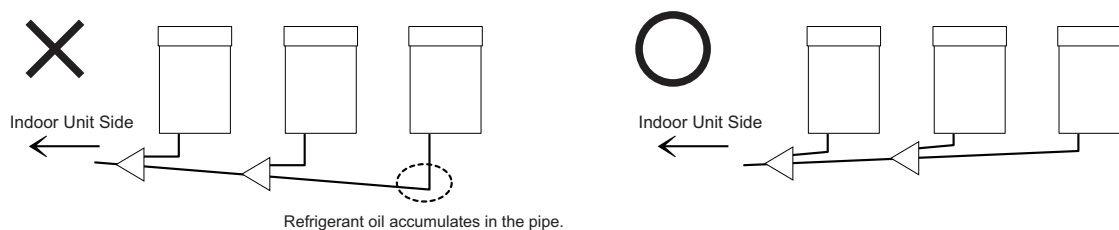


• 6.6 ft (2m) or More

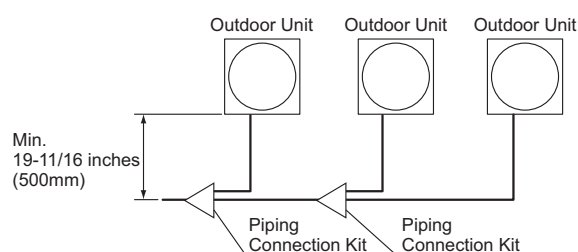


PRODUCT SPECIFICATION

- (4) Place the outdoor unit pipe horizontally or with the pipe slanted downward towards the indoor unit side so that accumulation of refrigerant oil does not occur in the pipe.

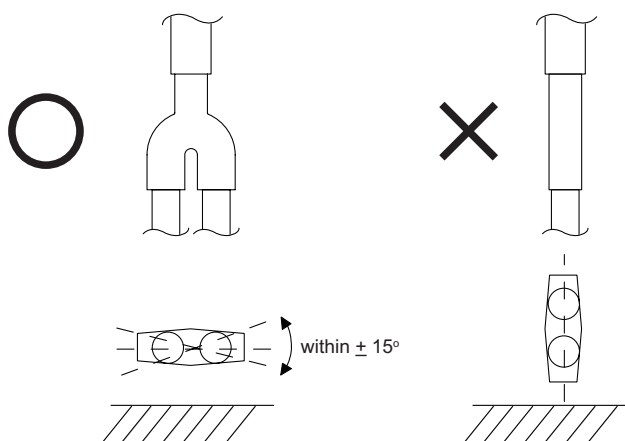


- (5) For servicing, if the pipe is installed in front of the outdoor unit, make sure a minimum clearance of 19-11/16 inches (500mm) between the outdoor unit and each piping connection kit. (When the compressor is replaced, ensure a minimum clearance of 19-11/16 inches (500mm).)



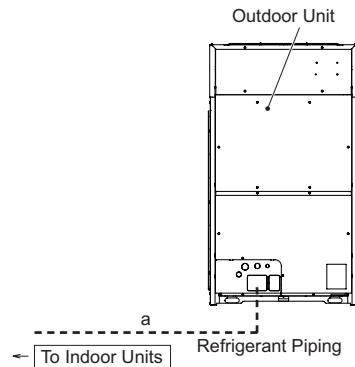
- (6) Direction of Piping Connection Kit

Place the piping connection kit so it is parallel to the ground (the slope must be within $\pm 15^\circ$) as shown in the figure.



2.14.2 Piping Sizes between Outdoor Units

Base Unit



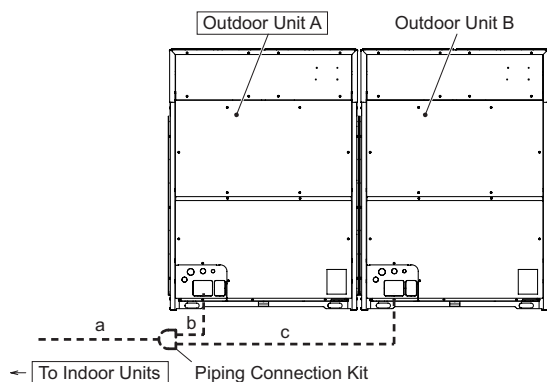
Model		72	96	120	144	168	192
Piping Size	a	Gas 7/8 (22.2)	7/8 (22.2)	1-1/8 (28.58)	1-1/8 (28.58)	1-1/8 (28.58)	1-1/8 (28.58)
	Liquid	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)

inch (mm)

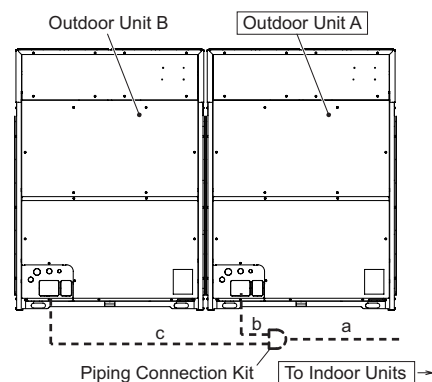
Two Unit Combination

The following drawing is for a 288 model combination.

(Indoor Unit on Left Side)



(Indoor Unit on Right Side)



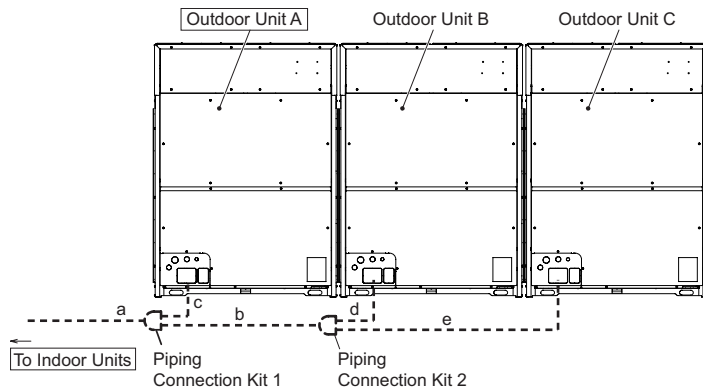
Model		216	240	264	288	312	336	360
Combination Unit	Outdoor Unit A	144	120	144	144	168	192	192
	Outdoor Unit B	72	120	120	144	144	144	168
Piping Connection Kit		MC-NP21SA1						
Piping Size	a	Gas	1-1/8 (28.58)	1-3/8 (34.93)	1-3/8 (34.93)	1-3/8 (34.93)	1-3/8 (34.93)	1-3/8 (34.93)
		Liquid	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)
	b	Gas	1-1/8 (28.58)	1-1/8 (28.58)	1-1/8 (28.58)	1-1/8 (28.58)	1-1/8 (28.58)	1-1/8 (28.58)
		Liquid	5/8 (15.88)	1/2 (12.7)	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)
	c	Gas	7/8 (22.2)	1-1/8 (28.58)	1-1/8 (28.58)	1-1/8 (28.58)	1-1/8 (28.58)	1-1/8 (28.58)
		Liquid	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)

inch (mm)

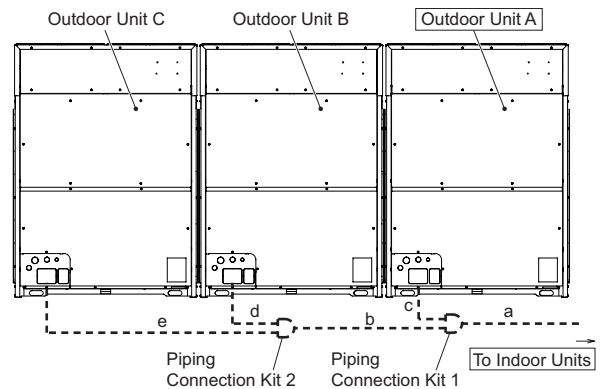
Three Unit Combination

The following drawing is for a 432 model combination.

(Indoor Unit on Left Side)



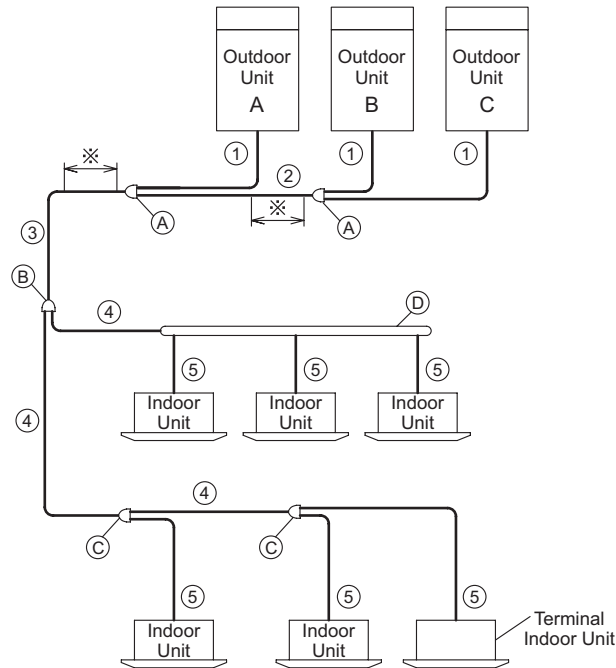
(Indoor Unit on Right Side)



			inch (mm)		
Model			384	408	432
Combination Unit	Outdoor Unit A		144	144	144
	Outdoor Unit B		120	144	144
	Outdoor Unit C		120	120	144
Piping Connection Kit			MC-NP30SA1		
Piping Size	a	Gas	1-5/8 (41.28)	1-5/8 (41.28)	1-5/8 (41.28)
		Liquid	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)
	b	Gas	1-3/8 (34.93)	1-3/8 (34.93)	1-3/8 (34.93)
		Liquid	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)
	c	Gas	1-1/8 (28.58)	1-1/8 (28.58)	1-1/8 (28.58)
		Liquid	5/8 (15.88)	5/8 (15.88)	5/8 (15.88)
	d	Gas	1-1/8 (28.58)	1-1/8 (28.58)	1-1/8 (28.58)
		Liquid	1/2 (12.7)	5/8 (15.88)	5/8 (15.88)
	e	Gas	1-1/8 (28.58)	1-1/8 (28.58)	1-1/8 (28.58)
		Liquid	1/2 (12.7)	1/2 (12.7)	5/8 (15.88)

2.14.3 Piping Size and Multi-Kit Selection

For selecting the pipe sizes ① between the outdoor unit and the piping connection kit, and the piping size ② between the piping connection kits and piping connection kit (A), refer to Section 2.14.2 “Piping Sizes between Outdoor Units”.



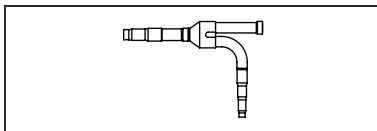
※ Maintain a straight-line distance of 19-11/16 inches (500mm) or more for piping after the piping connection kit.

— : Gas Pipe, Liquid Pipe

Multi-Kit (Optional Parts)

Line Branch

Branch using Multi-Kit (MW Model)



If (C) “Multi-Kit after First Branch” is larger than (B) “Multi-Kit for First Branch”, use the same model as (B) “Multi-Kit for First Branch”.

(B) Multi-Kit for First Branch

Outdoor Unit Capacity (MBH)	Model
72 - 120	MW-NP452A3 *
144 - 216	MW-NP692A3 *
240 - 432	MW-NP902A3 *

NOTE:

Header branch can also be used instead of the multi-kit as first branch.

(C) Multi-Kit after First Branch

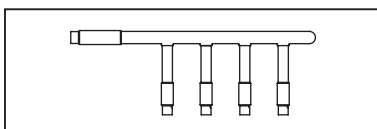
Total Indoor Unit Capacity (MBH)	Model
≤ 95	MW-NP282A3 *
96 - 143	MW-NP452A3 *
144 - 215	MW-NP692A3 *
≥ 216	MW-NP902A3 *

* A2 type is to be used in place of A3 type:

The piping kits for A2 model numbers MW-NP282A2, MW-NP452A2, MW-NP692A2, and MW-NP902A2 are to be used in place of the piping kits for the A3 model numbers, MW-NP282A3, MW-NP452A3, MW-NP692A3, and MW-NP902A3, as noted.

Header Branch

Branch using Multi-Kit (MH Model)



(D) Header Branch

Total Indoor Unit Capacity (MBH)	No. of Header Branches	Model
36 - 60	4	MH-NP224A
36 - 72	8	MH-NP288A

PRODUCT SPECIFICATION

Refer to the figure at the beginning of section 2.14.3.

Piping Size Unit: inch (mm)

- ③ Main Pipe Diameter
(Base Unit or Piping Connection Kit 1 to First Branch)

Model: (H,Y)VAHP_B(3,4,5)2S

Outdoor Unit Capacity (MBH)	Equivalent Piping Length			
	< 328.1 ft (100m)		≥ 328.1 ft (100m) *	
	Gas	Liquid	Gas	Liquid
72, 96	7/8 (22.2)	1/2 (12.7)	1-1/8 (28.58)	5/8 (15.88)
120	1-1/8 (28.58)	1/2 (12.7)	1-3/8 (34.93)	5/8 (15.88)
144 - 192	1-1/8 (28.58)	5/8 (15.88)	1-3/8 (34.93)	3/4 (19.05)
216	1-1/8 (28.58)	3/4 (19.05)	1-3/8 (34.93)	3/4 (19.05)
240, 264	1-3/8 (34.93)	3/4 (19.05)	1-5/8 (41.28)	3/4 (19.05)
288 - 360	1-3/8 (34.93)	3/4 (19.05)	1-5/8 (41.28)	7/8 (22.2)
384 - 432	1-5/8 (41.28)	3/4 (19.05)	1-5/8 (41.28)	7/8 (22.2)

* In some cases, it is required to prepare the reducer (field-supplied).

- ④ Diameter of Pipe after First Branch

If the size of ④ "Diameter of Pipe after First Branch" is larger than the size of the ③ "Main Pipe Diameter", adjust the size of the ④ "Diameter of Pipe after First Branch" to the same size as the ③ "Main Pipe Diameter".

Total Indoor Unit Capacity (MBH)	Piping Length between First Branch and Indoor Unit			
	≤ 131.2 ft (40m)		> 131.2 ft (40m) *	
	Gas	Liquid	Gas	Liquid
≤ 47	5/8 (15.88)	3/8 (9.52)	3/4 (19.05)	1/2 (12.7)
48 - 71	3/4 (19.05)	3/8 (9.52)	7/8 (22.2)	1/2 (12.7)
72 - 95	7/8 (22.2)	3/8 (9.52)	7/8 (22.2)	1/2 (12.7)
96 - 119	7/8 (22.2)	1/2 (12.7)	1-1/8 (28.58)	5/8 (15.88)
120 - 143	1-1/8 (28.58)	1/2 (12.7)	1-3/8 (34.93)	5/8 (15.88)
144 - 215	1-1/8 (28.58)	5/8 (15.88)	1-3/8 (34.93)	3/4 (19.05)
216 - 299	1-3/8 (34.93)	3/4 (19.05)	1-5/8 (41.28)	7/8 (22.2)
≥ 300	1-5/8 (41.28)	3/4 (19.05)	1-5/8 (41.28)	7/8 (22.2)

* When installing, if piping length from the multi-kit at the first branch to the terminal indoor unit exceeds 131.2 ft (40m), according to "Piping Branch Restriction" in Section 2.14.3, in some cases, it is required to prepare the reducer (field-supplied).

- ⑤ Diameter of Pipe between Multi-Kit and Indoor Unit

The pipe diameter must be the same as the indoor unit piping connection size.

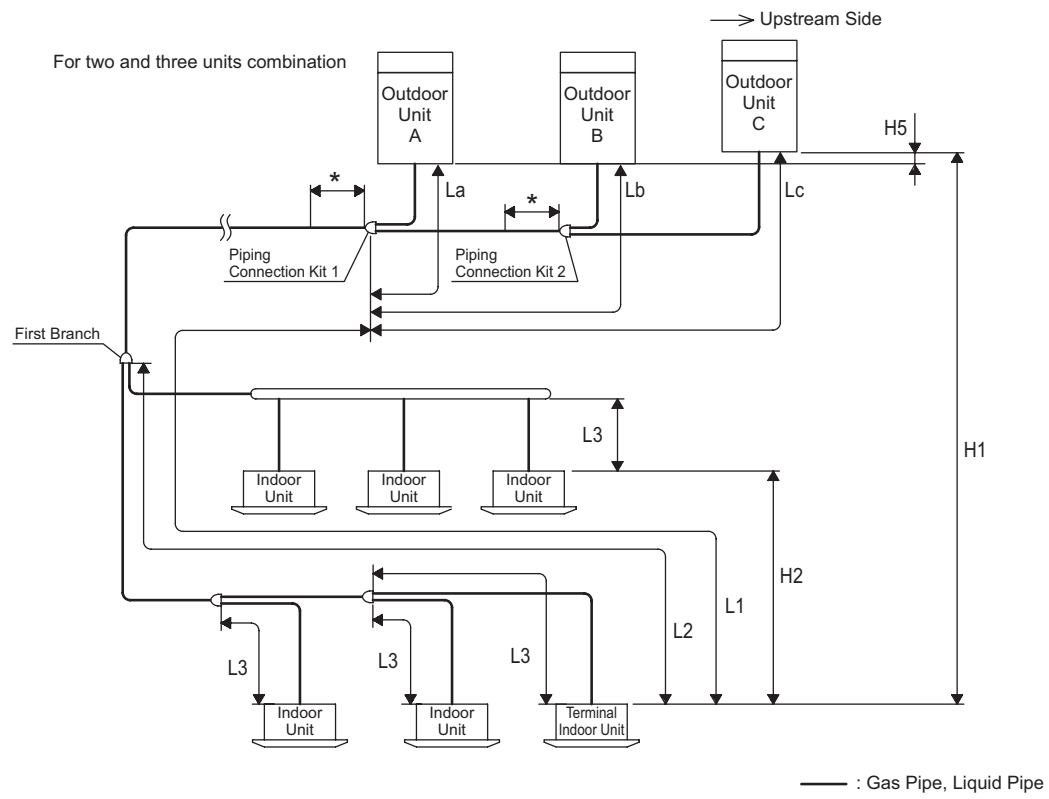
Indoor Unit Capacity (MBH)	Gas	Liquid
6 - 15	1/2 (12.7)	1/4 (6.35) *
18 - 54	5/8 (15.88)	3/8 (9.52)
60 - 72	3/4 (19.05)	3/8 (9.52)
96	7/8 (22.2)	3/8 (9.52)

* When liquid piping length is longer than 49.2 ft (15m), use 3/8 inch (9.52mm) diameter piping with the reducer (an accessory pipe for Multi-Kit).

● Piping Work Conditions

Comply with the following when installing the unit.

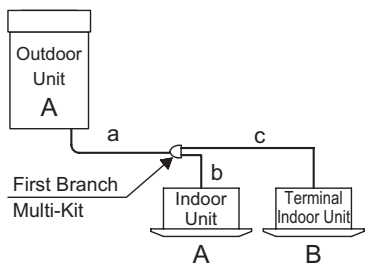
The drawing displays the constraints the installer must comply with when combining two or three units.



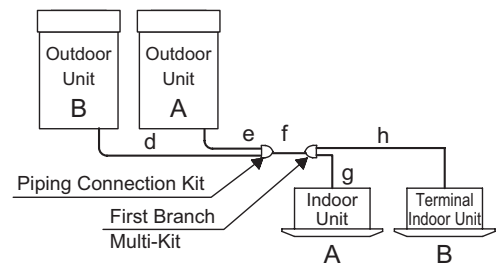
* Maintain a straight-line distance of 19-11/16 inches (500mm) or more for piping after installing the piping connection kit.

Item	Mark		Details
Total Piping Length	Ex1	a+b+c	The total amount of all piping actual length.
	Ex2	d+e+f+g+h	
Maximum Piping Length	Ex1	a+c	The actual piping length between the stop valve of the outdoor unit or the piping connection kit 1 and the terminal indoor unit.
	Ex2	f+h	
Piping Length	-		The actual length of pipe does not take into account equivalent lengths for pressure drops of elbows.
Equivalent Piping Length	-		The combination of the straight pipe length plus the equivalent length of elbows and other pressure drop calculations.

Example 1) If a Line Branch Including Main Branch



Example 2) If Utilizing a Piping Connection Kit



PRODUCT SPECIFICATION

Item		Mark	Allowable Piping Length	
			≤ the recommended number of connected indoor units	> the recommended number of connected indoor units
Total Piping Length		-	≤ 3,281 ft (1,000m)	≤ 984 ft (300m)
Maximum Piping Length	Actual Length	L1	≤ 541 ft (165m)	≤ 541 ft (165m)
	Equivalent Length		≤ 623 ft (190m)	≤ 623 ft (190m)
Maximum Piping Length between Multi-kit of 1st Branch and Terminal Indoor Unit		L2	≤ 295 ft (90m)	≤ 131 ft (40m)
Maximum Piping Length between Each Multi-kit and Each Indoor Unit		L3	≤ 131 ft (40m)	≤ 98 ft (30m)
Piping Length between Piping Connection Kit 1 and Each Outdoor Unit		La, Lb, Lc	≤ 32 ft (10m)	≤ 32 ft (10m)
Height Difference between Outdoor Units and Indoor Units	O.U. is Higher	H1	≤ 164 ft (50m) (360 ft (110m)) ¹⁰	≤ 164 ft (50m) (360 ft (110m)) ¹⁰
	O.U. is Lower		≤ 131 ft (40m) (360 ft (110m)) ¹¹	≤ 131 ft (40m) (360 ft (110m)) ¹¹
Height Difference between Indoor Units		H2 ⁸	≤ 98 ft (30m)	≤ 98 ft (30m)
Height Difference between Outdoor Units		H5	≤ 0.3 ft (0.1m)	≤ 0.3 ft (0.1m)

NOTICE

Comply with the following conditions when installing the unit.

- For a combination of two or three outdoor units, the outdoor unit "A" must be connected to the piping connection of Kit 1. (Refer to Section 2.14.2 for outdoor unit models.) Refer to the Piping Kit Installation Manual for piping details.
- The piping length between outdoor units must be $La \leq Lb \leq Lc \leq 32$ ft (10m).
(If the piping length is incorrect, there may be a failure of outdoor units caused by returned refrigerant.)
- Maintain a straight-line distance of 19-11/16 inches (500mm) or more for piping after installing the piping connection kit.
- The condition of refrigerant piping installation is different depending on the number of indoor units that are connected. Refer to Table 2.2 "System Combination" above for details.
- Allowable total piping length may not exceed 3,281 ft (1,000m) because of the limitation of maximum additional refrigerant amount as described in the following table. Make sure that the additional refrigerant volume does not exceed the maximum additional refrigerant amount as shown below.

Outdoor Unit Capacity (MBH)	72	96 - 144	168	192	216 - 432
Max. Additional Refrigerant Charge: lbs (kg)	79.4 (36)	88.2 (40)	112.5 (51)	114.7 (52)	138.9 (63)

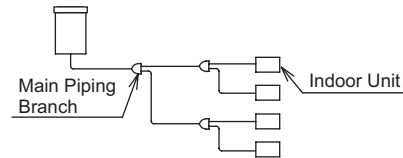
When the outdoor air temperature is 14°F (-10°C) or less, or under the high heating load conditions, the total indoor unit capacity must be less than 100% of the outdoor unit capacity, and the total piping length must be less than 984 ft (300m).

- If the piping length (L3) between each multi-kit and indoor unit is considerably longer than other indoor unit, refrigerant may not flow well, and may lessen the unit's performance compared to other models.
(Recommended Piping Length: Within 49 ft (15m))
- When the piping length from the multi-kit to the first branch and to the terminal indoor unit exceeds 131 ft (40m), refer to "Piping Branch Restrictions," Section 2.14.3.
- When installing DOAS in the system, the height difference between indoor units (including DOAS) (H2) must be within 49 ft (15m).
- When completing on-site piping, install bent piping or horizontal loop piping to absorb any expansion or contraction due to changing temperatures.
- When the height difference is longer than 164 ft (50m) and up to 360 ft (110m) (in case the outdoor unit is higher, "O.U. is Higher"), there are following restrictions.
 - Maximum outdoor temperature for cooling operation must be within 109°F DB (43°C DB).
 - When operating the outdoor unit in the outdoor air temperature approx. 14°F (-10°C) or less, the height difference must be below 164ft (50m).
 - Maximum connectable indoor units capacity ratio must be within 100%.
 - When operating the outdoor unit under the high cooling load conditions or in the high outdoor air temperature (approx. 100°F (38°C) or more), the capacity may decrease significantly due to the compressor protection controls compared to the installation condition of height difference below 164 ft (50m). When the outdoor air temperature is 100°F DB (38°C DB) or more, the outdoor unit will function as Thermo-OFF to protect the compressor from failure.
 - Use of outdoor unit function setting item "nU" (Priority Capacity Mode) may be invalid.
 - Contact your distributor or contractor for details of setting.
- When the height difference is longer than 131 ft (40m) and up to 360 ft (110m) (in case the outdoor unit is lower, "O.U. is Lower"), there are following restrictions.
 - Maximum outdoor temperature for cooling operation must be 109°F DB (43°C DB) or less.
 - Minimum outdoor temperature for cooling operation must be 50°F DB (10°C DB) or more.
 - Contact your distributor or contractor for setting details.

Piping Branch Restriction

* Main Piping Branch:

Both branches of piping from Multi-Kit are connected to the next Multi-Kits.



In the following instances, there is no limit to the number of main piping branches.

If the piping length L2 from the multi-kit at the first branch to the farthest indoor unit is over 131.2 ft (40m), follow the instructions below when performing the field-supplied piping work.

Example 1: Installation with Main Piping Branch (*)

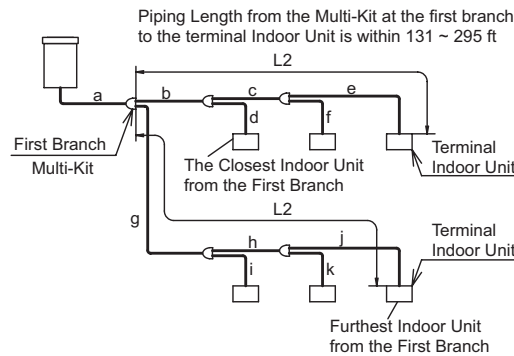
Piping length from the Multi-Kit at the first branch to the terminal indoor unit is within 131 - 295 ft (40 - 90m).

- (1) If the pipe length L2 is over 131 ft (40m), the size of gas and liquid pipes "b and c" or "g and h" must be selected according to Table ④, "Diameter of Pipe after First Branch".

* After selecting the size according to Table ④, if the size of "a" is smaller than the size of "b and g", "Diameter of Pipe after First Branch", adjust the size of "a" so it is the same size as "b and g".

If the size of "a" is larger than the size indicated in Table ③, "Main Pipe Diameter" of (Equivalent Piping Length ≥ 328 ft), adjust the size of "a" so it is the same size according to Table ③, "Main Pipe Diameter" of (Equivalent Piping Length ≥ 328 ft).

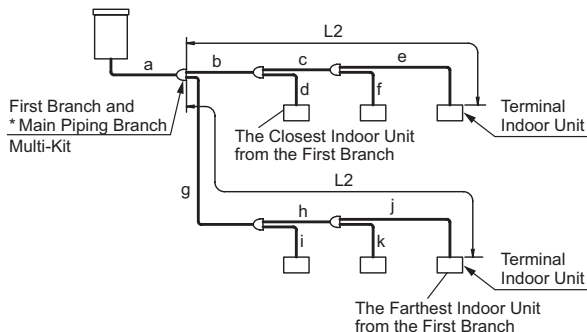
In this instance, if the size of "b, c, g and h" is larger than the size of each before the branch, adjust the size of "b, c, g and h" to the same size as each one before the branch.



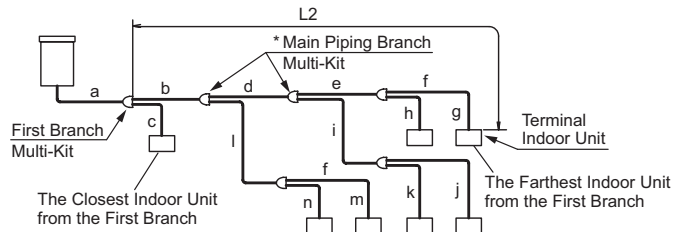
- (2) If any piping length between the first branch to each indoor units (L2) is over 131.2 ft (40m). Then the difference between closest L2 and the farthest L2 (terminal unit) cannot be greater than 131.2 ft (40m).

Piping Length from the Multi-Kit at the first branch to the terminal Indoor Unit is within 131.2 - 295.3 ft (40 - 90m)

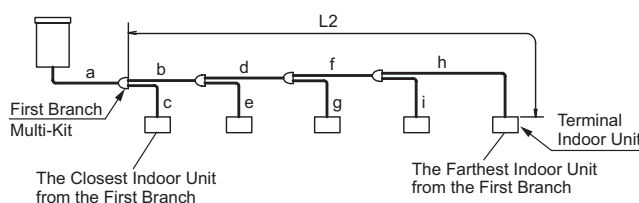
$$(g+h+j)-(b+d) \leq 131.2 \text{ ft (40m)}$$



$$(b+d+e+f+g) - c \leq 131.2 \text{ ft (40m)}$$



Installation without Main Piping Branch: Unrestricted



Example 2: Installation without Main Piping Branch (*)

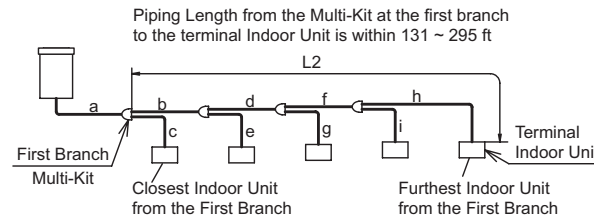
Piping length from the Multi-Kit at the first branch to the terminal indoor unit is within 131 - 295 ft (40 - 90m).

- (1) If the pipe length L2 is over 131 ft (40m), the size of gas and liquid pipes “b, d and f” must be selected according to Table ④, “Diameter of Pipe after First Branch”.

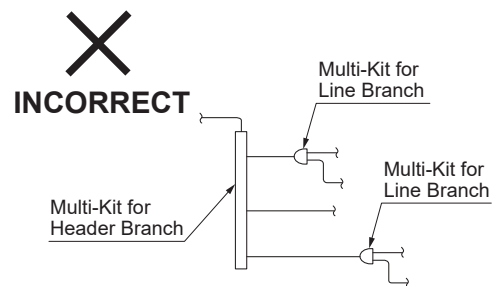
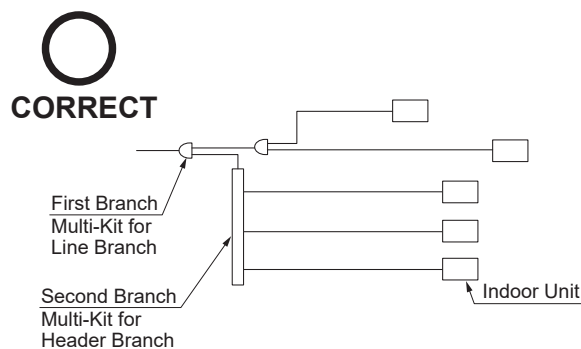
* If the size of “a” is smaller than the size of “b” after selecting the size according to Table ④, “Diameter of Pipe after First Branch”, adjust the size of “a” so it is the same size as “b”.

If the size of “a” is larger than the size indicated in Table ③, “Main Pipe Diameter” of (Equivalent Piping Length ≥ 328 ft), adjust the size of “a” so it is the size according to Table ③, “Main Pipe Diameter” of (Equivalent Piping Length ≥ 328 ft).

In this case, if the size of “b, d and f” is larger than the size of each before the branch, adjust the size of “b, d and f” to the same size as each before the branch.



A header branch can be used with a line branch at the three-pipe segment and two-pipe segment. A header branch can also be used after the second branch. Do not connect a line branch to a header branch.

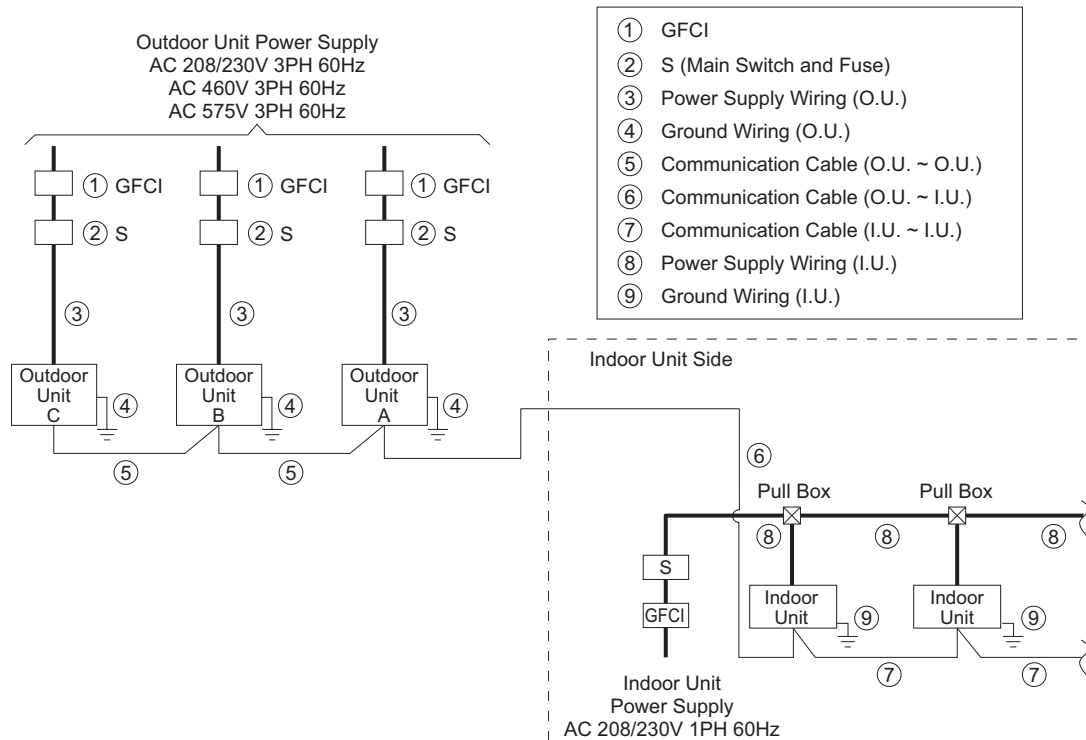


Refer to Table 2.2 for the number of indoor units connectable to the outdoor unit.

2.15 Electrical Wiring Connection

2.15.1 Power Supply Wiring

Supply the power supplies to each outdoor unit and indoor unit group respectively.
Using this method is a basic principle of power supply wiring.



2.15.2 Electrical Characteristics

Note the following when selecting wiring:

208/230V

Model	Outdoor Unit							INV Comp. 1		INV Comp. 2	
	Hz (Hz)	Voltage (V)	Max. (V)	Min. (V)	MCA (A)	MOP (A)	Max. Fuse (A)	RLA (A)	LRA (A)	RLA (A)	LRA (A)
(H,Y)VAHP072B32S	60	208/230	253	188	29/26	40/40	40/40	22.6/20.4	50	-	-
(H,Y)VAHP096B32S	60	208/230	253	188	39/35	50/50	50/50	30.7/27.8	50	-	-
(H,Y)VAHP120B32S	60	208/230	253	188	46/42	60/50	60/50	20.2/18.3	54	20.2/18.3	54
(H,Y)VAHP144B32S	60	208/230	253	188	58/52	70/70	70/70	25.5/23.1	54	25.5/23.1	54
(H,Y)VAHP168B32S	60	208/230	253	188	65/59	80/80	80/80	28.6/25.9	50	28.6/25.9	50
(H,Y)VAHP192B32S	60	208/230	253	188	76/68	90/90	90/90	33.4/30.2	50	33.4/30.2	50

Model	Fan Motor 1		Fan Motor 2		Wiring Size		
	Output (kW)	FLA* (A)	Output (kW)	FLA* (A)	Power Supply Wiring (AWG)	Ground Wiring (AWG)	Communication Cable (AWG)
(H,Y)VAHP072B32S	0.75	3.2/3.2	-	-	10/10	10/10	18
(H,Y)VAHP096B32S	0.75	2.1/2.1	0.75	2.1/2.1	8/8	8/8	18
(H,Y)VAHP120B32S	0.75	2.1/2.1	0.75	2.1/2.1	6/6	6/6	18
(H,Y)VAHP144B32S	0.75	2.1/2.1	0.75	2.1/2.1	4/4	4/4	18
(H,Y)VAHP168B32S	0.75	3.6/3.6	0.75	3.6/3.6	4/4	4/4	18
(H,Y)VAHP192B32S	0.75	3.6/3.6	0.75	3.6/3.6	2/4	2/4	18

460V

Model	Outdoor Unit							INV Comp. 1		INV Comp. 2	
	Hz (Hz)	Voltage (V)	Max. (V)	Min. (V)	MCA (A)	MOP (A)	Max. Fuse (A)	RLA (A)	LRA (A)	RLA (A)	LRA (A)
(H,Y)VAHP072B42S	60	460	506	414	15	20	20	11.5	47	-	-
(H,Y)VAHP096B42S	60	460	506	414	22	30	30	17.1	47	-	-
(H,Y)VAHP120B42S	60	460	506	414	24	30	30	10.4	32	10.4	32
(H,Y)VAHP144B42S	60	460	506	414	30	35	35	13.2	32	13.2	32
(H,Y)VAHP168B42S	60	460	506	414	34	40	40	14.8	47	14.8	47
(H,Y)VAHP192B42S	60	460	506	414	39	50	50	17.3	47	17.3	47

Model	Fan Motor 1		Fan Motor 2		Wiring Size		
	Output (kW)	FLA* (A)	Output (kW)	FLA* (A)	Power Supply Wiring (AWG)	Ground Wiring (AWG)	Communication Cable (AWG)
(H,Y)VAHP072B42S	0.75	1.7	-	-	14	14	18
(H,Y)VAHP096B42S	0.75	0.9	0.75	0.9	12	12	18
(H,Y)VAHP120B42S	0.75	1.0	0.75	1.0	12	12	18
(H,Y)VAHP144B42S	0.75	1.0	0.75	1.0	10	10	18
(H,Y)VAHP168B42S	0.75	1.9	0.75	1.9	8	8	18
(H,Y)VAHP192B42S	0.75	1.9	0.75	1.9	8	8	18

* : FLA Value is after inverter.

MCA: Minimum Circuit Ampacity (A)

MOP: Maximum Overcurrent Protective Device (A)

RLA: Rated Load Ampacity (A)

LRA: Locked Rotor Ampacity (A)

FLA: Full Load Ampacity (A)

575V

Model	Outdoor Unit							INV Comp. 1		INV Comp. 2	
	Hz (Hz)	Voltage (V)	Max. (V)	Min. (V)	MCA (A)	MOP (A)	Max. Fuse (A)	RLA (A)	LRA (A)	RLA (A)	LRA (A)
(H,Y)VAHP072B52S	60	575	660	518	12	15	15	9.1	24	-	-
(H,Y)VAHP096B52S	60	575	660	518	16	25	25	12.5	24	-	-
(H,Y)VAHP120B52S	60	575	660	518	19	25	25	8.3	19.5	8.3	19.5
(H,Y)VAHP144B52S	60	575	660	518	24	30	30	10.5	19.5	10.5	19.5
(H,Y)VAHP168B52S	60	575	660	518	27	35	35	11.8	24	11.8	24
(H,Y)VAHP192B52S	60	575	660	518	32	40	40	13.8	24	13.8	24

Model	Fan Motor 1		Fan Motor 2		Wiring Size		
	Output (kW)	FLA* (A)	Output (kW)	FLA* (A)	Power Supply Wiring (AWG)	Ground Wiring (AWG)	Communication Cable (AWG)
(H,Y)VAHP072B52S	0.75	1.7	-	-	16	16	18
(H,Y)VAHP096B52S	0.75	0.9	0.75	0.9	14	14	18
(H,Y)VAHP120B52S	0.75	1.0	0.75	1.0	12	12	18
(H,Y)VAHP144B52S	0.75	1.0	0.75	1.0	12	12	18
(H,Y)VAHP168B52S	0.75	1.9	0.75	1.9	10	10	18
(H,Y)VAHP192B52S	0.75	1.9	0.75	1.9	8	8	18

*: FLA Value is after inverter.

MCA: Minimum Circuit Ampacity (A)

MOP: Maximum Overcurrent Protective Device (A)

RLA: Rated Load Ampacity (A)

LRA: Locked Rotor Ampacity (A)

FLA: Full Load Ampacity (A)

2.16 Additional Refrigerant Charge Calculation

(1) Calculating Method of Additional Refrigerant Charge [WT lbs (kg)]

No.	Symbol	Step	Additional Charge																																														
1	W1	<div>Additional Refrigerant Charge Calculation for Liquid Piping [W1 lbs (kg)]</div> <table><thead><tr><th>Pipe Diameter [inch (mm)]</th><th>Total Piping Length [ft (m)]</th><th>Refrigerant Charge for 1 ft Pipe [lbs/ft (kg/m)]</th><th>Additional Charge [lbs (kg)]</th></tr></thead><tbody><tr><td>7/8 (22.2)</td><td></td><td>× 0.24 (0.36) =</td><td></td></tr><tr><td>3/4 (19.05)</td><td></td><td>× 0.17 (0.26) =</td><td></td></tr><tr><td>5/8 (15.88)</td><td></td><td>× 0.11 (0.17) =</td><td></td></tr><tr><td>1/2 (12.7)</td><td></td><td>× 0.074 (0.11) =</td><td></td></tr><tr><td>3/8 (9.52)</td><td></td><td>× 0.038 (0.056) =</td><td></td></tr><tr><td>1/4 (6.35)</td><td></td><td>× 0.016 (0.024) =</td><td></td></tr><tr><td colspan="4">Total Additional Charge For Liquid Piping =</td></tr></tbody></table> <div>If the calculated charge above is less than the charge shown in the table below, then add W1 as the additional refrigerant charge shown below.</div> <table><thead><tr><th>Outdoor Unit Capacity (MBH)</th><th>072-144</th><th>168, 192</th><th>216-288</th><th>312, 336</th><th>360</th><th>384-432</th></tr></thead><tbody><tr><td>Minimum Additional Ref. Charge [lbs (kg)]</td><td>6.6 (3.0)</td><td>8.8 (4.0)</td><td>13.2 (6.0)</td><td>15.4 (7.0)</td><td>17.6 (8.0)</td><td>19.8 (9.0)</td></tr></tbody></table>	Pipe Diameter [inch (mm)]	Total Piping Length [ft (m)]	Refrigerant Charge for 1 ft Pipe [lbs/ft (kg/m)]	Additional Charge [lbs (kg)]	7/8 (22.2)		× 0.24 (0.36) =		3/4 (19.05)		× 0.17 (0.26) =		5/8 (15.88)		× 0.11 (0.17) =		1/2 (12.7)		× 0.074 (0.11) =		3/8 (9.52)		× 0.038 (0.056) =		1/4 (6.35)		× 0.016 (0.024) =		Total Additional Charge For Liquid Piping =				Outdoor Unit Capacity (MBH)	072-144	168, 192	216-288	312, 336	360	384-432	Minimum Additional Ref. Charge [lbs (kg)]	6.6 (3.0)	8.8 (4.0)	13.2 (6.0)	15.4 (7.0)	17.6 (8.0)	19.8 (9.0)	lbs (kg)
Pipe Diameter [inch (mm)]	Total Piping Length [ft (m)]	Refrigerant Charge for 1 ft Pipe [lbs/ft (kg/m)]	Additional Charge [lbs (kg)]																																														
7/8 (22.2)		× 0.24 (0.36) =																																															
3/4 (19.05)		× 0.17 (0.26) =																																															
5/8 (15.88)		× 0.11 (0.17) =																																															
1/2 (12.7)		× 0.074 (0.11) =																																															
3/8 (9.52)		× 0.038 (0.056) =																																															
1/4 (6.35)		× 0.016 (0.024) =																																															
Total Additional Charge For Liquid Piping =																																																	
Outdoor Unit Capacity (MBH)	072-144	168, 192	216-288	312, 336	360	384-432																																											
Minimum Additional Ref. Charge [lbs (kg)]	6.6 (3.0)	8.8 (4.0)	13.2 (6.0)	15.4 (7.0)	17.6 (8.0)	19.8 (9.0)																																											
2	W2	<div>Depending on connection of indoor unit capacity, additional refrigerant charge is required. Select adequate refrigerant charge from the table below.</div> <div>Additional Refrigerant Charge for Each Indoor Unit Connected [W2 lbs (kg)]</div> <table><thead><tr><th>Indoor Unit Capacity (MBH)</th><th>006, 008</th><th>012-054</th></tr></thead><tbody><tr><td>Additional Ref. Charge [lbs (kg)/unit]</td><td>0.7 (0.3)</td><td>1.1 (0.5)</td></tr></tbody></table> <div>Maximum additional refrigerant charge must not exceed 13.2 lbs (6.0kg).</div>	Indoor Unit Capacity (MBH)	006, 008	012-054	Additional Ref. Charge [lbs (kg)/unit]	0.7 (0.3)	1.1 (0.5)	lbs (kg)																																								
Indoor Unit Capacity (MBH)	006, 008	012-054																																															
Additional Ref. Charge [lbs (kg)/unit]	0.7 (0.3)	1.1 (0.5)																																															
3	W3	<div>Calculation Method for Additional Refrigerant Charge [W3 lbs (kg)]</div> <div>The additional refrigerant charge must be 2.2 lbs (1.0kg) per indoor unit which is 060 MBH or more.</div> <div><div></div> unit × 2.2 lbs (1.0kg)/unit = <div></div></div>	lbs (kg)																																														
4	W4	<div>The Ratio of Indoor Unit Connection Capacity (Indoor Unit Total Capacity/Outdoor Unit Capacity) Additional Charge [W4 lbs (kg)]</div> <div>Determine the ratio of indoor unit connection capacity.</div> <table><thead><tr><th>Condition</th><th>Additional Charge [lbs (kg)]</th></tr></thead><tbody><tr><td>I.U. Capacity Ratio is less than 100%</td><td>0.0 (0.0)</td></tr><tr><td>I.U. Capacity Ratio is 100% or more</td><td>1.1 (0.5)</td></tr></tbody></table>	Condition	Additional Charge [lbs (kg)]	I.U. Capacity Ratio is less than 100%	0.0 (0.0)	I.U. Capacity Ratio is 100% or more	1.1 (0.5)	lbs (kg)																																								
Condition	Additional Charge [lbs (kg)]																																																
I.U. Capacity Ratio is less than 100%	0.0 (0.0)																																																
I.U. Capacity Ratio is 100% or more	1.1 (0.5)																																																
5	W5	<div>Depending on connection of outdoor unit model, additional refrigerant charge is required. Select adequate refrigerant charge from the table below. [W5 lbs (kg)]</div> <table><thead><tr><th>Outdoor Unit Model</th><th>Additional Charge [lbs (kg)]</th></tr></thead><tbody><tr><td>(H,Y)VAHP192B(3,4,5)2S</td><td rowspan="3">2.2 (1.0)</td></tr><tr><td>(H,Y)VAHP336B(3,4,5)2S</td></tr><tr><td>(H,Y)VAHP360B(3,4,5)2S</td></tr></tbody></table>	Outdoor Unit Model	Additional Charge [lbs (kg)]	(H,Y)VAHP192B(3,4,5)2S	2.2 (1.0)	(H,Y)VAHP336B(3,4,5)2S	(H,Y)VAHP360B(3,4,5)2S	lbs (kg)																																								
Outdoor Unit Model	Additional Charge [lbs (kg)]																																																
(H,Y)VAHP192B(3,4,5)2S	2.2 (1.0)																																																
(H,Y)VAHP336B(3,4,5)2S																																																	
(H,Y)VAHP360B(3,4,5)2S																																																	
6	WT	<div>Calculation of Additional Charge [WT lbs (kg)] =</div> <div>W1 + W2 + W3 + W4 + W5 =</div>	lbs (kg)																																														

Ensure that the total additional charge WT does not exceed the maximum additional refrigerant charge as shown in the table on the following page.

Max. Additional Refrigerant Charge Quantity Allowed

Outdoor Unit Capacity (MBH)	072	096 - 144	168	192	216 - 432
Max. Additional Ref. Charge [lbs (kg)]	79.4 (36.0)	88.2 (40.0)	112.5 (51.0)	114.7 (52.0)	138.9 (63.0)

Initial Ref. Charge Amount of O.U. (Before Shipment) [W0 lbs (kg)]

Outdoor Unit Capacity (MBH)	072	096	120	144	168	192
W0 Outdoor Unit Ref. Charge [lbs (kg)]	15.9 (7.2)	19.6 (8.9)	21.8 (9.9)	23.6 (10.7)	24.9 (11.3)	25.6 (11.6)

W0 is the outdoor unit refrigerant charge prior to shipment.

If there is a combination of base units, calculate the total refrigerant charge prior to shipment of those combined outdoor units.

(2) Record of Additional Charge

Total refrigerant charge of this system is calculated in the following formula.

$$\text{Total Ref. Charge} = \text{WT lbs (kg)} + \text{W0 lbs (kg)} = \boxed{} \text{ lbs (} \boxed{} \text{ kg)}$$

When refrigerant is recovered or charged due to repairs, operating, or adjusting the unit, record the refrigerant quantity again.

- Special Attention Regarding Refrigerant Gas Leakage**

Make sure that the entire VRF system meets ASHRAE Standard 15, or any local codes, regarding Safety. The ASHRAE Standard 15-2013 provides safeguards for life, limb, health, property, and prescribes safety requirements.

The standard is recognized as the main guide for personal safety involving refrigeration systems. It strives to ensure a safe application of refrigerant systems by limiting the maximum charge as follows so that a complete discharge due to a leak into a small, occupied, and enclosed room can never exceed the allowable limit for the room.

3. Optional Parts

3.1 Line Up

Item No.	Type	Adopting Model Name	Item No.	Optional Parts		Optional Parts Model Name	Compatible with O.U. Size
3.2	Outdoor Unit	(H,Y)VAHP 072~192B(3,4,5)2S	3.2.1	Drain Adapter		DBS-TP10A	For 072 to 192
			3.2.2	Protection Net	Protection Net (Rear)	PN-TP20BA	For 072 only
					Protection Net (Rear)	PN-TP20BB	For 096 and 144
					Protection Net (Rear)	PN-TP20BC	For 168 and 192
					Protection Net (Right)	PN-TP20R	For 072 to 192
					Protection Net (Left)	PN-TP20L	For 072 only
			3.2.3	Snow Protection Hood	Snow Protection Hood (Upper)	ASG-TP50FAS	For 072 only
					Snow Protection Hood (Upper)	ASG-TP50FBS	For 096 to 144
					Snow Protection Hood (Upper)	ASG-TP50FCS	For 168 and 192
					Snow Protection Hood (Rear)	ASG-TP50BAS	For 072 only
					Snow Protection Hood (Rear)	ASG-TP50BBS	For 096 to 144
					Snow Protection Hood (Rear)	ASG-TP50BCS	For 168 and 192
					Snow Protection Hood (Side)	ASG-TP50RS	For 072 to 192
					Snow Protection Hood (Left)	ASG-TP50LS	For 072 only
					Toppling Prevention Tool	ASG-SW20A	For 072 to 192
			3.2.4	Low Ambient Kit	Low Ambient Kit (Upper)	LAK-DAMPER-S-01	For 072 only
					Low Ambient Kit (Upper)	LAK-DAMPER-M-01	For 096 to 144
					Low Ambient Kit (Upper)	LAK-DAMPER-L-01	For 168 and 192
					Low Ambient Kit (Rear)	LAK-BACK-S-01	For 072 only
					Low Ambient Kit (Rear)	LAK-BACK-M-01	For 096 to 144
					Low Ambient Kit (Rear)	LAK-BACK-L-01	For 168 and 192
					Low Ambient Kit (Side)	LAK-SIDE-01	For 072 to 192
					Low Ambient Kit (Left)	LAK-6T-LEFT-01	For 072 only
					Toppling Prevention Tool	ASG-SW20A	For 072 to 192
					Protection Screen for Low Ambient Kit (Upper)	LAK-NET-S-01	For 072 only
						LAK-NET-M-01	For 096 to 144
						LAK-NET-L-01	For 168 and 192
3.3	Piping Kit	—			3.3.1	Piping Connection Kit for Heat Pump System (2-Pipes Connection)	MC-NP21SA1 ²
			MC-NP30SA1 ²	For 3 Module O.U. System			
			3.3.2	Multi-Kit (Line Branch) for Heat Pump System (2-Pipes Connection)	MW-NP282A3 ¹	—	
					MW-NP452A3 ¹	—	
					MW-NP692A3 ¹	—	
					MW-NP902A3 ¹	—	
			3.3.3	Multi-Kit (Header Branch) for Heat Pump System (2-Pipes Connection)	MH-NP224A	—	
					MH-NP288A	—	

1. A3 type is to be used in place of A2 type:

The piping kits for A3 model numbers MW-NP282A3, MW-NP452A3, MW-NP692A3, and MW-NP902A3 are to be used in place of the piping kits for the A2 model numbers, MW-NP282A2, MW-NP452A2, MW-NP692A2, and MW-NP902A2, as noted.

2. SA1 type is to be used in place of SA type.

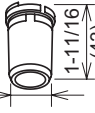


The piping kits for SA1 model numbers MC-NP21SA1 and MC-NP30SA1 are to be used in place of the piping kits for the SA model numbers MC-NP21SA and MC-NP30SA, as noted.

3.2 Outdoor Unit

3.2.1 Drain Adapter DBS-TP10A

The drain adapter is for the condensate pipe connection when the outdoor unit bottom base is used as a condensate pan.

Unit: inch (mm)

No.	Accessory	Qty	Remarks
①	Drain Adapter (VP20 Equivalent)  Outer Diameter $\phi 1$ ($\phi 25$) Inner Diameter $\phi 13/16$ ($\phi 20$)	2	Connection for Condensate Piping
②	Rubber Cap 	4	Fitting for ① Adapter and ③ Cap
③	Drain Cap 	2	Plug for Future Use

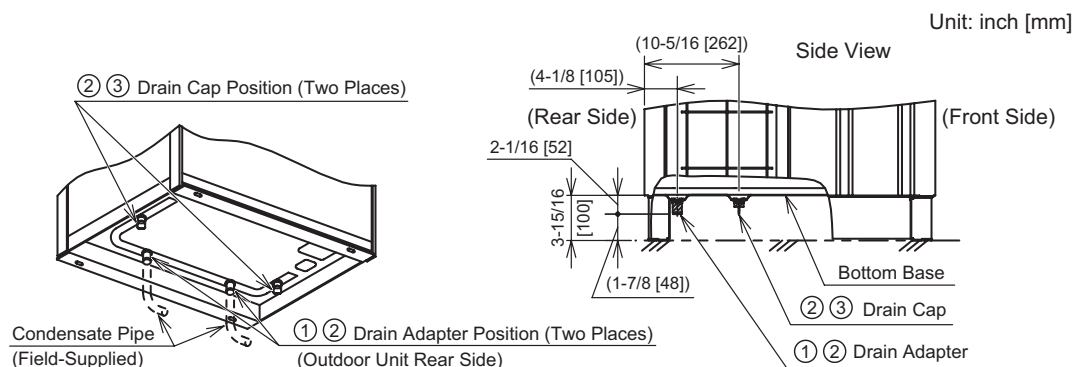
CAUTION

Place the outdoor unit on a flat foundation or block and place it at least 4 inches (100mm) higher than the ground. For smooth drainage, install the outdoor unit with a slight downward slope on the drainage side (rear side).

Installation Position

Example

Capacity: 72,000 Btu/h



Condensate Treatment

Condensate is discharged during heating and defrosting operation. (Even rain water can be discharged.) Note the following.

- (1) Choose a place that is well drained or provide a drain ditch.
- (2) If the unit is installed above places where people might be, an additional condensate pan is required.
- (3) Do not use a drain adapter in a cold area. The condensate in the condensate pipe may freeze and crack the pipe.

3.2.2 Protection Net

The protection net is intended to protect the outdoor unit heat exchanger from external damages.

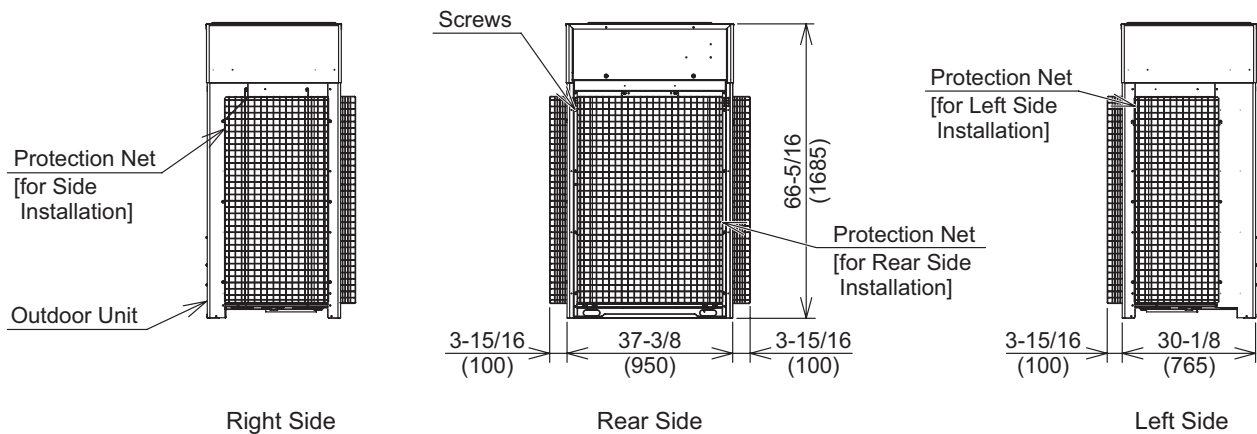
Available Combinations

Applicable Outdoor Unit (Representative Model)	Model		
	(H,Y)VAHP072B32S	(H,Y)VAHP096 - 144B32S	(H,Y)VAHP168, 192B32S
	(H,Y)VAHP072B42S	(H,Y)VAHP096 - 144B42S	(H,Y)VAHP168, 192B42S
	(H,Y)VAHP072B52S	(H,Y)VAHP096 - 144B52S	(H,Y)VAHP168, 192B52S
Protection Net for Rear Side	PN-TP20BA	PN-TP20BB	PN-TP20BC
Protection Net for Left Side	PN-TP20L	PN-TP20R	
Protection Net for Right Side	PN-TP20R		

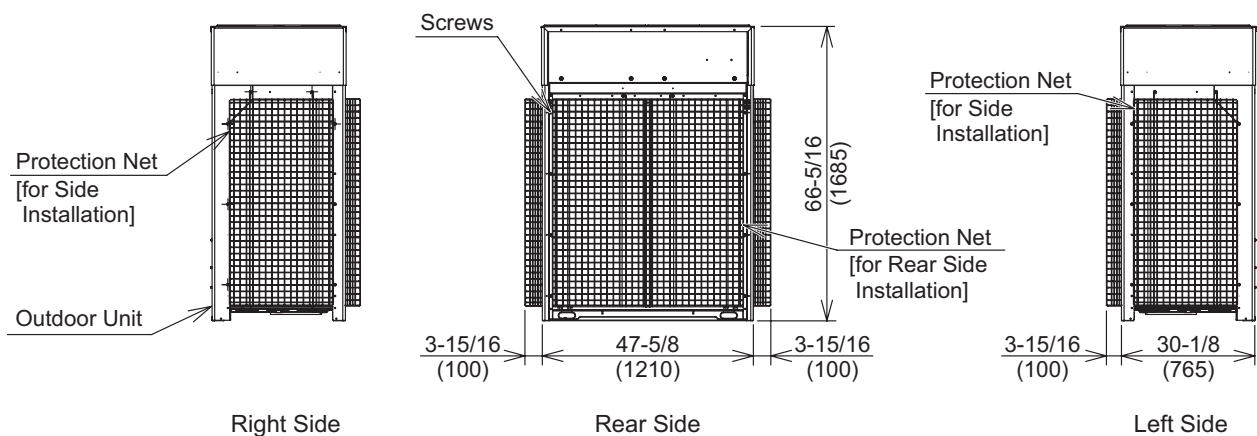
Installation Appearance

Unit: inch (mm)

• O.U. Size 72MBH



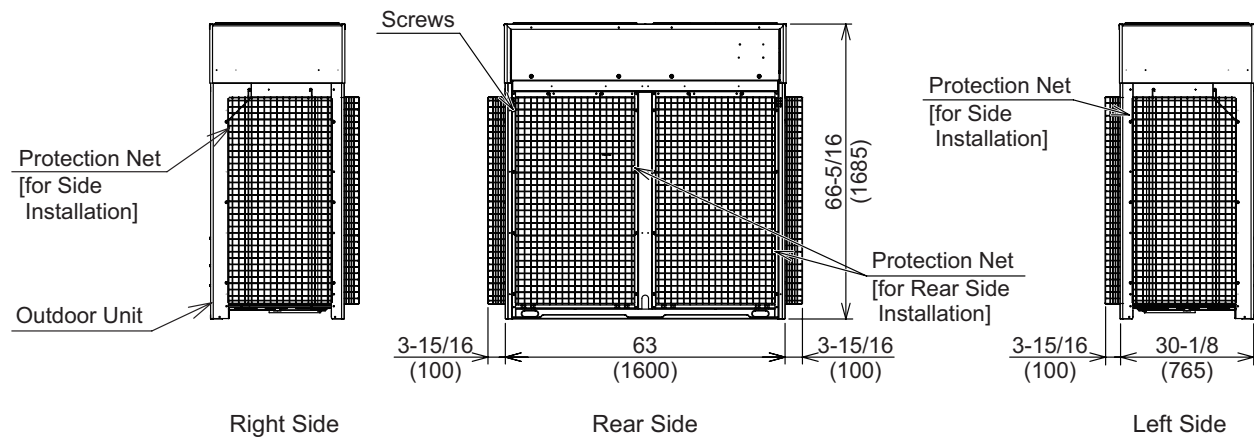
• O.U. Size 96, 120 and 144MBH



OPTIONAL PARTS

- O.U. Size 168 and 192MBH

Unit: inch (mm)



3.2.3 Snow Protection Hood

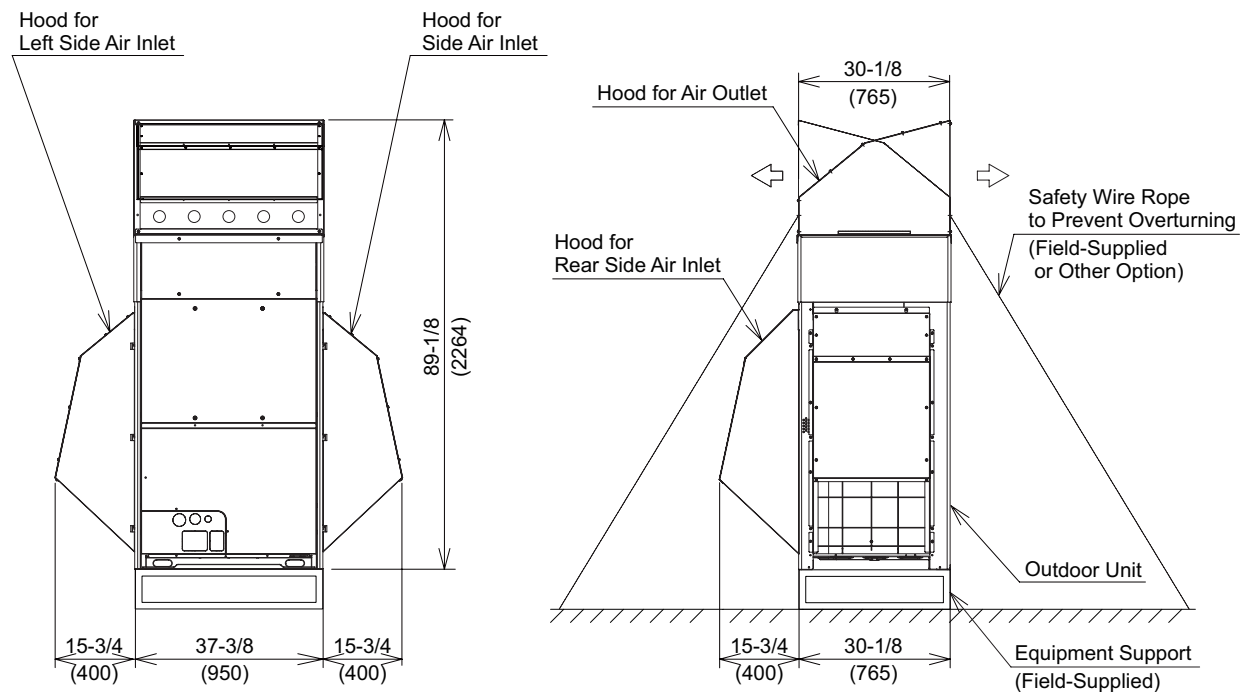
Available Combinations

Applicable Outdoor Unit	Model		
	O.U. Size 72MBH	O.U. Size 96 to 144MBH	O.U. Size 168 and 192MBH
Hood for Upper Air Outlet	ASG-TP50FAS	ASG-TP50FBS	ASG-TP50FCS
Hood for Rear Side Air Inlet	ASG-TP50BAS	ASG-TP50BBS	ASG-TP50BCS
Hood for Left Side Air Inlet	ASG-TP50LS	ASG-TP50RS	
Hood for Right Side Air Inlet	ASG-TP50RS		
Toppling Prevention Tool	ASG-SW20A		

Installation Appearance

- O.U. Size 72MBH

Unit: inch (mm)



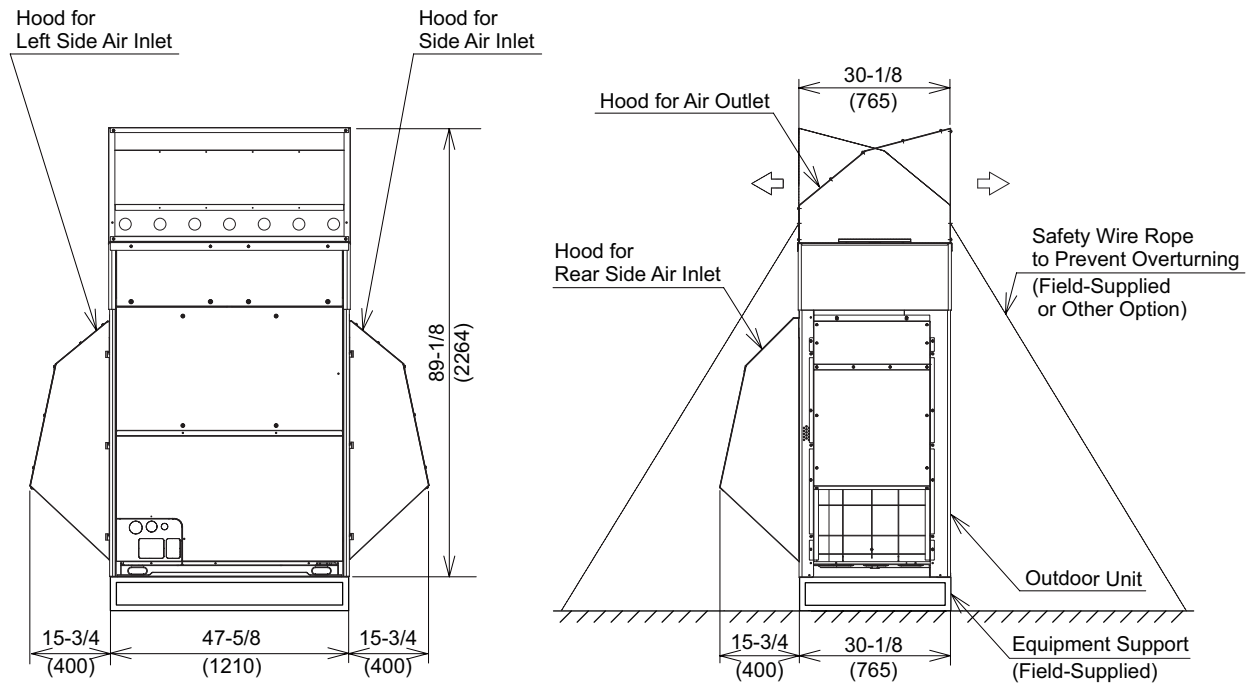
Available Combinations

Applicable Outdoor Unit (Representative Model)	Model
	(H,Y)VAHP072B32S (H,Y)VAHP072B42S (H,Y)VAHP072B52S
Hood for Air Outlet	ASG-TP50FAS
Hood for Rear Side Air Inlet	ASG-TP50BAS
Hood for Left Side Air Inlet	ASG-TP50LS
Hood for Right Side Air Inlet	ASG-TP50RS

OPTIONAL PARTS

- O.U. Size 96, 120 and 144MBH

Unit: inch (mm)

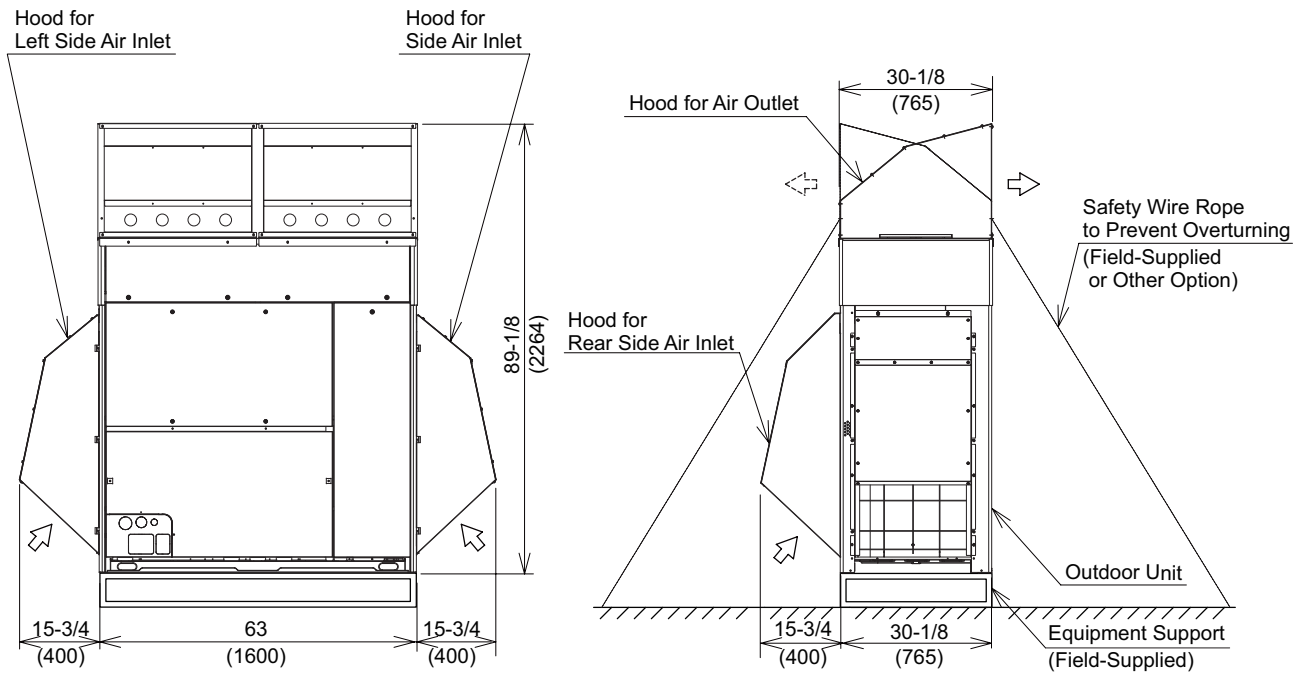


Available Combinations

Applicable Outdoor Unit (Representative Model)	Model
	(H,Y)VAHP096 - 144B32S (H,Y)VAHP096 - 144B42S (H,Y)VAHP096 - 144B52S
Hood for Air Outlet	ASG-TP50FBS
Hood for Rear Side Air Inlet	ASG-TP50BBS
Hood for Left Side Air Inlet	ASG-TP50RS
Hood for Right Side Air Inlet	ASG-TP50RS

• O.U. Size 168 and 192MBH

Unit: inch (mm)



Available Combinations

Applicable Outdoor Unit (Representative Model)	Model
	(H,Y)VAHP168, 192B32S
	(H,Y)VAHP168, 192B42S
	(H,Y)VAHP168, 192B52S
Hood for Air Outlet	ASG-TP50FCS
Hood for Rear Side Air Inlet	ASG-TP50BCS
Hood for Left Side Air Inlet	ASG-TP50RS
Hood for Right Side Air Inlet	ASG-TP50RS

3.2.4 Low Ambient Kit

3.2.4.1 Dimensional Data

Available Combinations

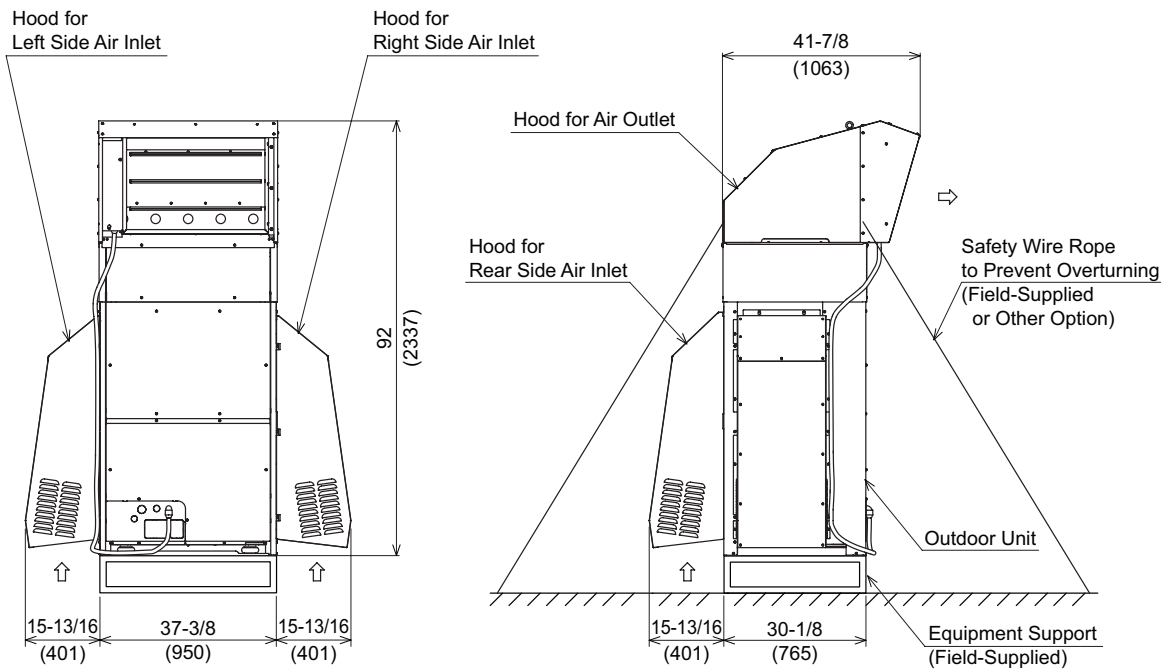
Applicable Outdoor Unit	Model		
	O.U. Size 72MBH	O.U. Size 96 to 144MBH	O.U. Size 168 and 192MBH
Hood for Upper Air Outlet	LAK-DAMPER-S-01	LAK-DAMPER-M-01	LAK-DAMPER-L-01
Hood for Rear Side Air Inlet	LAK-BACK-S-01	LAK-BACK-M-01	LAK-BACK-L-01
Hood for Left Side Air Inlet	LAK-6T-LEFT-01	LAK-SIDE-01	
Hood for Right Side Air Inlet	LAK-SIDE-01		
Protection Screen	LAK-NET-S-01	LAK-NET-M-01	LAK-NET-L-01
Toppling Prevention Tool	ASG-SW20A		

Installation Appearance

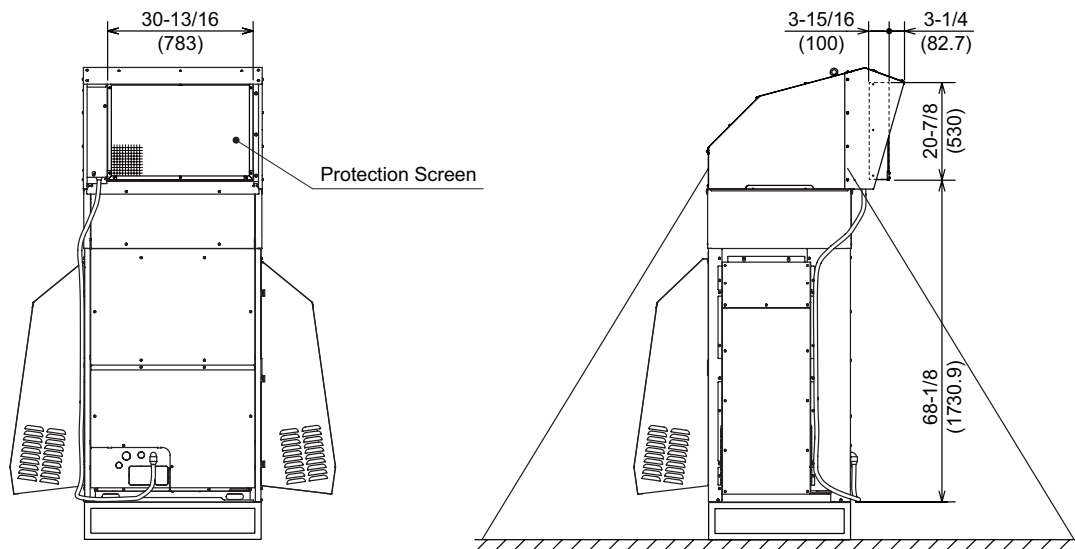
- O.U. Size 72MBH

Unit: inch (mm)

Without Protection Screen



With Protection Screen



Available Combinations

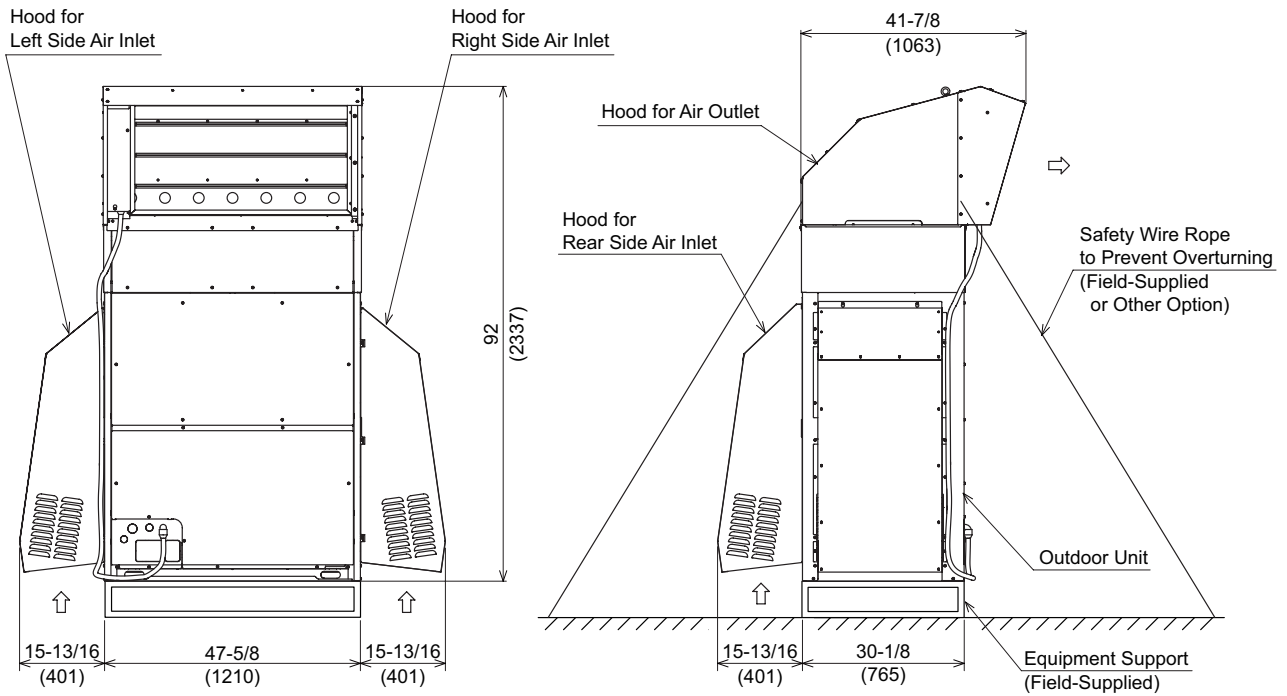
Applicable Outdoor Unit (Representative Model)	Model
	(H,Y)VAHP072B32S
	(H,Y)VAHP072B42S
	(H,Y)VAHP072B52S
Hood for Upper Air Outlet	LAK-DAMPER-S-01
Hood for Rear Side Air Inlet	LAK-BACK-S-01
Hood for Left Side Air Inlet	LAK-6T-LEFT-01
Hood for Right Side Air Inlet	LAK-SIDE-01
Protection Screen	LAK-NET-S-01

OPTIONAL PARTS

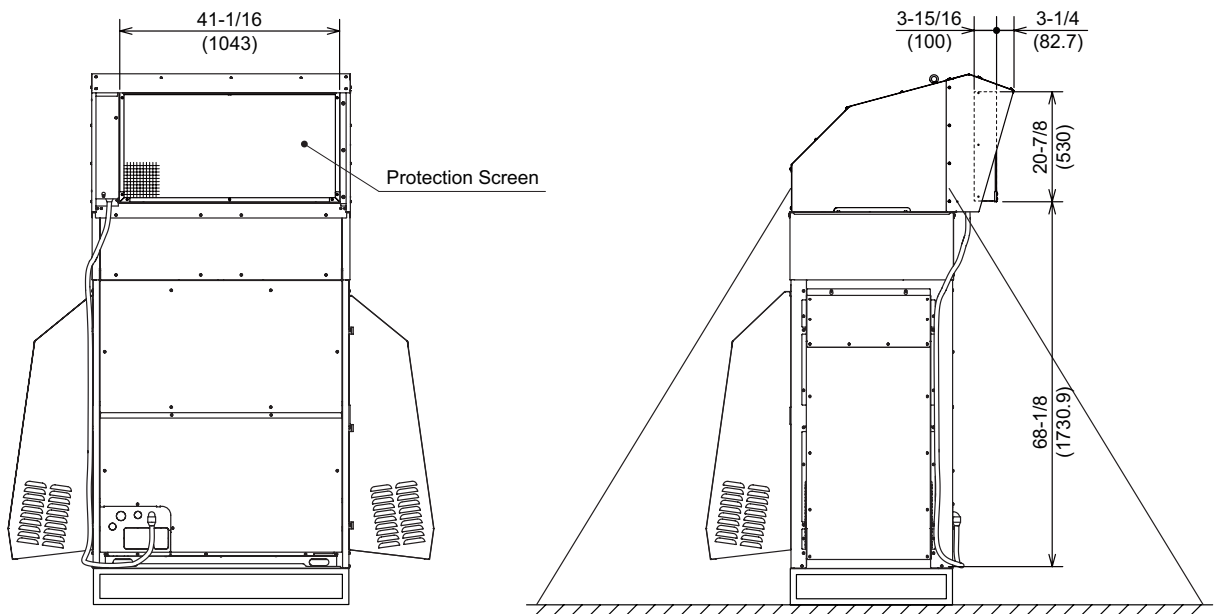
• O.U. Size 96, 120 and 144MBH

Unit: inch (mm)

Without Protection Screen



With Protection Screen



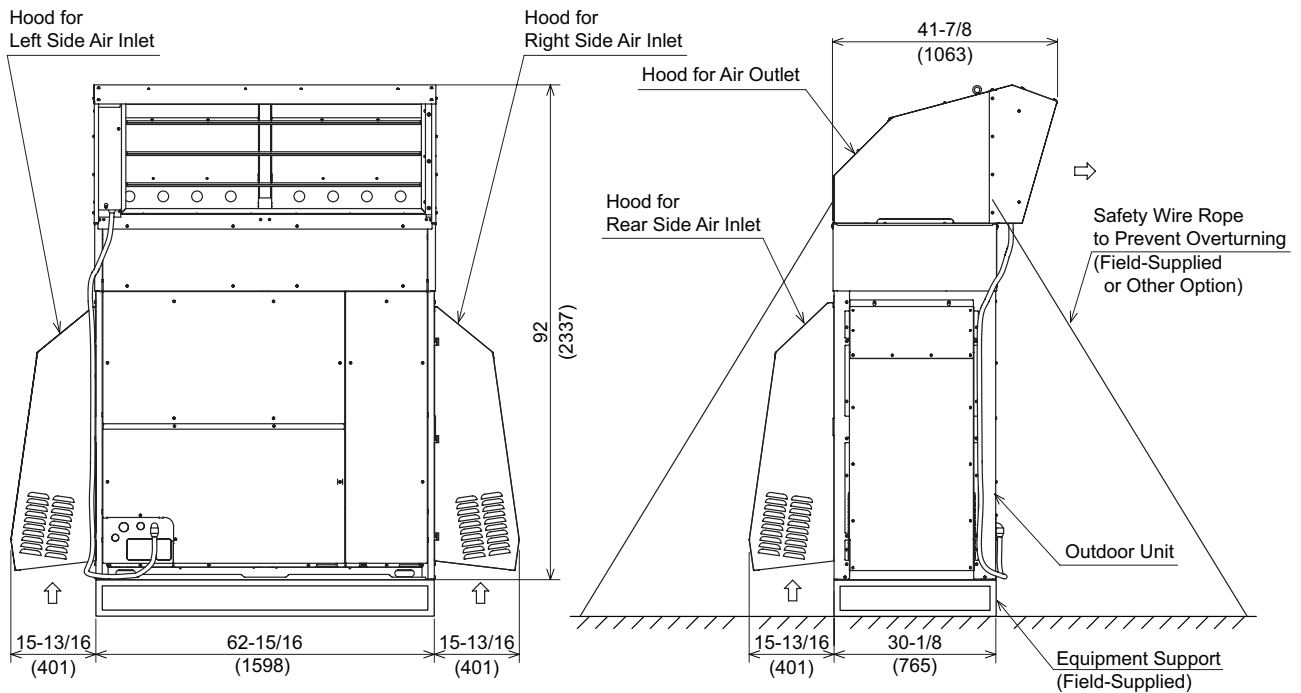
Available Combinations

Applicable Outdoor Unit (Representative Model)	Model
	(H,Y)VAHP096 - 144B32S (H,Y)VAHP096 - 144B42S (H,Y)VAHP096 - 144B52S
Hood for Upper Air Outlet	LAK-DAMPER-M-01
Hood for Rear Side Air Inlet	LAK-BACK-M-01
Hood for Left Side Air Inlet	LAK-SIDE-01
Hood for Right Side Air Inlet	LAK-SIDE-01
Protection Screen	LAK-NET-M-01

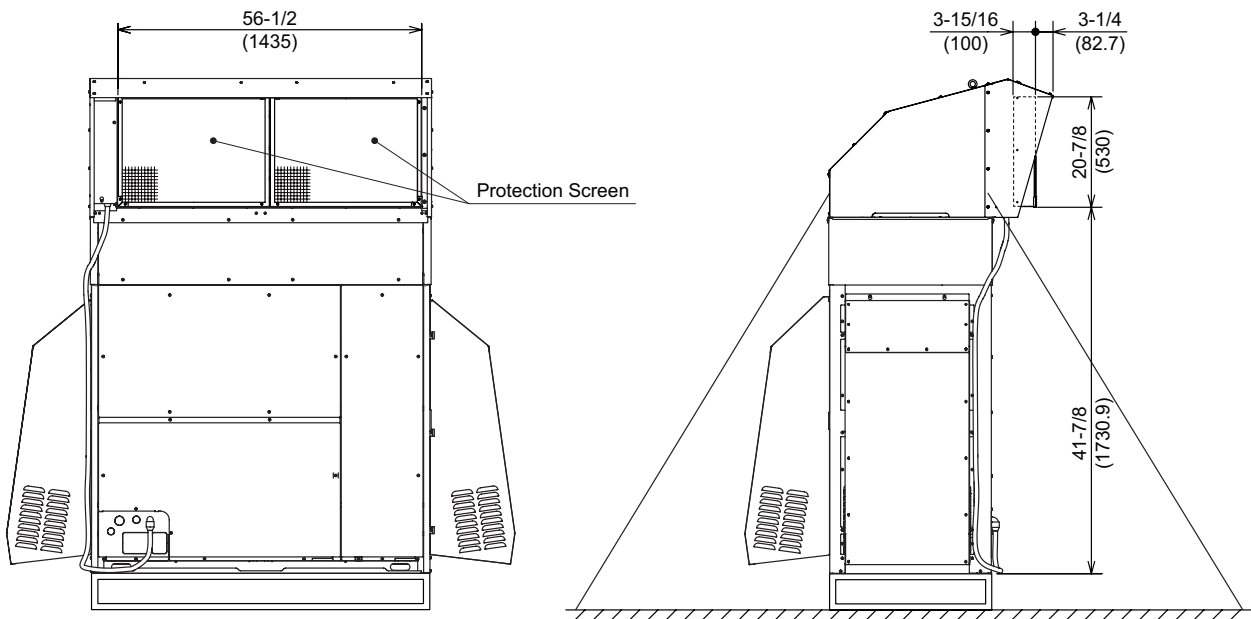
• O.U. Size 168 and 192MBH

Unit: inch (mm)

Without Protection Screen



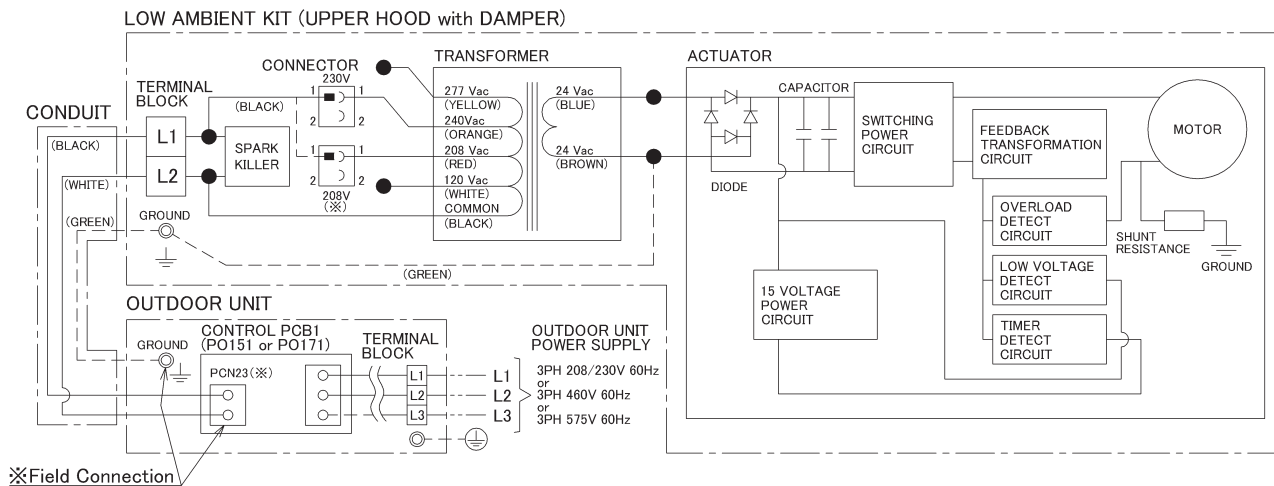
With Protection Screen



Available Combinations

Applicable Outdoor Unit (Representative Model)	Model
	(H,Y)VAHP168, 192B32S
	(H,Y)VAHP168, 192B42S
	(H,Y)VAHP168, 192B52S
Hood for Air Outlet	LAK-DAMPER-L-01
Hood for Rear Side Air Inlet	LAK-BACK-L-01
Hood for Left Side Air Inlet	LAK-SIDE-01
Hood for Right Side Air Inlet	LAK-SIDE-01
Protection Screen	LAK-NET-L-01

3.2.4.2 Wiring Diagram

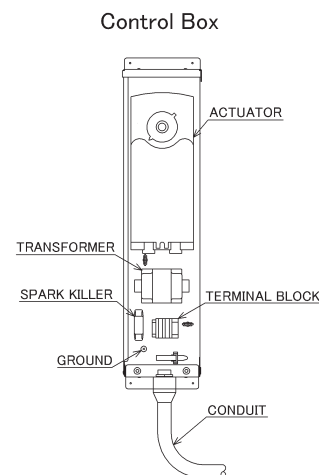


- : Factory Wiring
- - - : Ground Wiring
- - - : Field Wiring
- ※ : Field Connection

NOTE:

1. All the field wiring and equipment must comply with local codes.

DIP Switch Setting of Outdoor Unit	Method of Changing Voltage
<p>Be sure to set DIP switch (DSW6) on the control PCB1 (PO151 or PO171) of outdoor unit for using the low ambient kit.</p> <p>● DSW6 Setting Turn ON DSW6-No.4 pin on control PCB1. The darkened square (■) indicates the position of DIP switch.</p> <p>Switches on Control PCB1</p> <p>ON 1 2 3 4 Turn ON No.4 pin</p> <p>OFF 1 2 3 4 Depending on Outdoor Unit</p> <p>DSW6</p>	<p>If the outdoor unit is connected to a 208V power supply, the connector must be reconnected to the 208V side in the control box.</p> <p>CONNECTOR TRANSFORMER</p> <p>Connector for 230 or 460 or 575V Power Supply</p> <p>Connector for 208V Power Supply</p> <p>230V (BLACK), 208V</p> <p>240 Vac (ORANGE), 208 Vac (RED)</p>



3.2.4.3 Installation Location and Precautions

⚠ WARNING

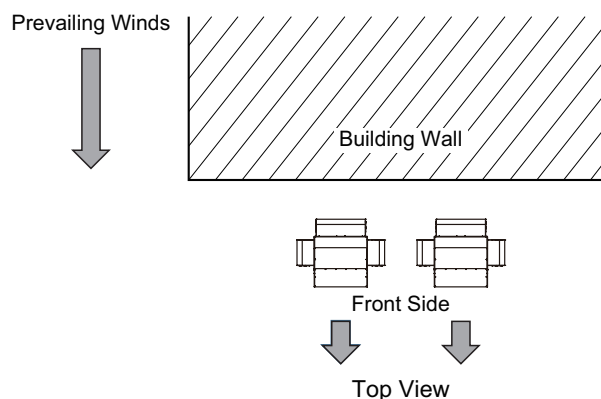
To reduce the risk of serious injury or death, the following installation precautions must be followed.

- Install the optional screen (model name: LAK-NET-(S,M,L)-01) to prevent serious injury from accidental contact to the damper.
- When installing the unit into...
 - Damp or uneven areas: Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the unit to prevent water damage and abnormal vibration.
 - An area with high winds: Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable wind baffle (field-supplied).
- Do not install the unit in the following places. Doing so can result in an explosion, fire, deformation, corrosion, or product failure.
 - Explosive or flammable atmosphere
 - Where a fire, oil, steam or powder can directly enter the unit, such as nearby or above a kitchen stove.
 - Where oil (including machinery oil) may be present.
 - Where corrosive gases such as chlorine, bromine, or sulfide can accumulate, such as near a hot tub or hot spring.
 - Where dense, salt-laden airflow is heavy, such as in coastal regions.
 - Where the air quality is of high acidity.
 - Where harmful gases can be generated from decomposition.
- During heating or defrosting operation, condensate water is discharged. Provide adequate drainage around the foundation. If installing the unit on a roof or a balcony, provide the additional drainage around the foundation to prevent water from dripping on walkways, people, property, and preventing ice from forming during freezing temperatures creating slip hazards.
- Perform a test run to ensure normal operation. Safety guards, shields, barriers, covers, and protective devices must be in place while the compressor/unit is operating. During the test run, keep fingers and clothing away from any moving parts.
- Clean up the site when finished, remembering to check that no tools, metal scraps, or bits of wiring have been left behind inside the unit being installed.

After installation work for the system is completed, explain the “Safety Precautions,” the proper use and maintenance of the unit to the customer according to the information in all manuals that comes with the system. Be sure to give all manuals and warranty information to the customer, or leave them near the unit.

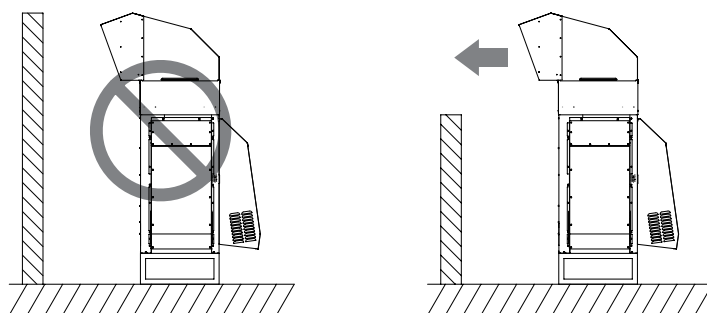
Locate outdoor units in an area protected from prevailing wind.

Never install the direction of the outlet air toward the windward side.

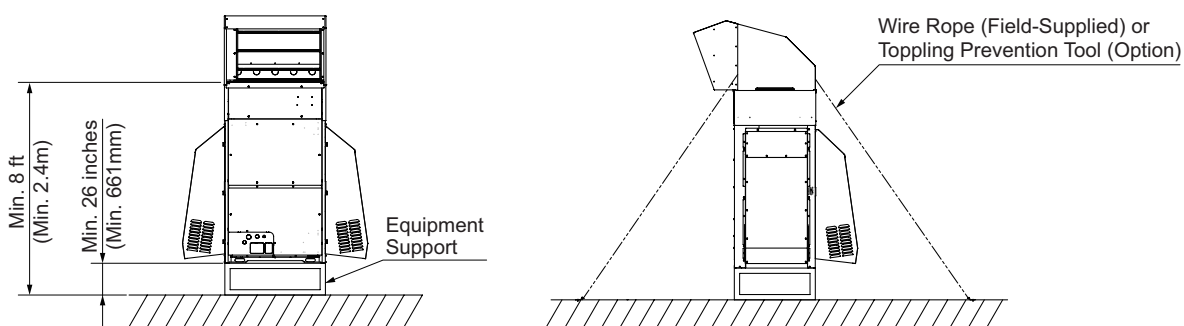


OPTIONAL PARTS

The wall in front of the outlet hood must be short enough to allow the hood to discharge the air out and over the enclosure walls to prevent air recirculation.



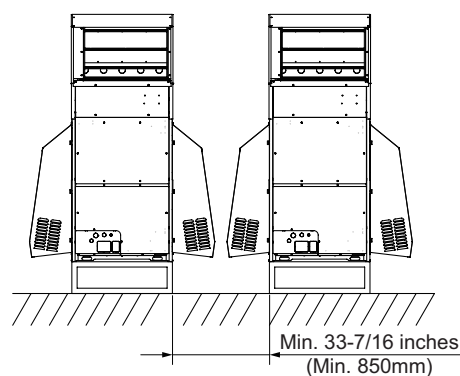
When the low ambient kit is used, the equipment support must elevate the unit at least 12 inches (305mm) above the maximum expected snow accumulation depth or 26 inches (661mm) above floor or grade level, whichever is higher. If the optional screen is attached to the low ambient kit, the equipment support must elevate the unit at least 12 inches (305mm) above floor, grade level or the maximum expected snow accumulation depth.



NOTES:

- The equipment support must be an open construction to minimize snow drifting and/or ice formation during defrost.
- The wire rope (field-supplied) or toppling prevention tool (optional: ASG-SW20A) must be attached to the low ambient kit for prevention of outdoor unit from overturning.

When installing outdoor modules side by side with sufficient spacing, attach the left and right hood to each outdoor unit as shown in the right figure.

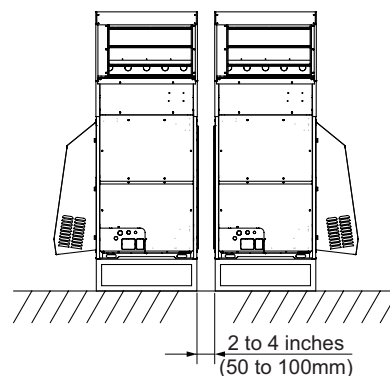


* Limited Space Installation

When the installation space of the outdoor unit is limited and the outdoor unit is located in an area with no seasonal or strong wind, it is possible to set space between the units 2 to 4 inches (50 to 100mm) without attaching a hood between the units as shown in the right figure.

In this case, the service of the damper actuator must be carried out by removing the upper hood of the unit on the left side of the unit to be serviced.

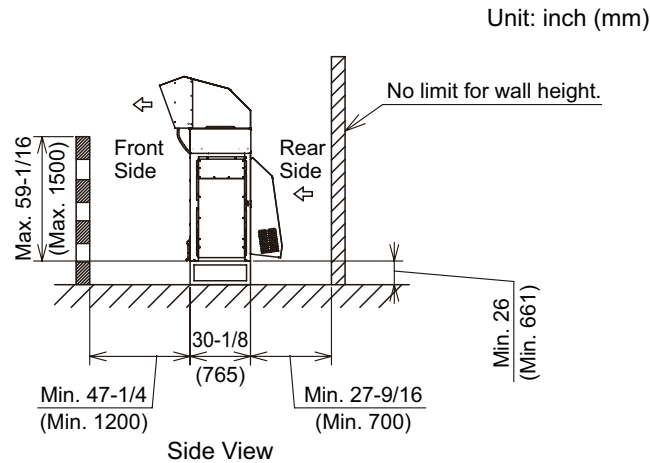
Space between the units must not exceed 4 inches (100mm) for this installation.



3.2.4.4 Service Space

When installing an outdoor unit, allow sufficient clearance as follows:

- If there is insufficient clearance for air inlets and outlets, it may result in a performance drop-off and mechanical issues due to insufficient air intake.
- Additionally, adequate clearance is required for service maintenance access.



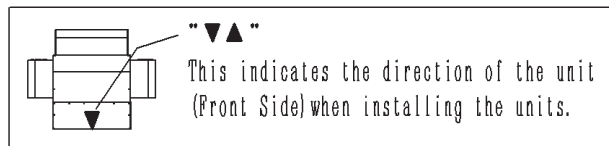
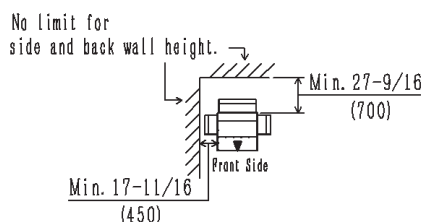
- If there are no walls on the front and rear sides, clearance for service access is required as follows:
 - * Front Side: Minimum 47-1/4 inches (1200mm)
 - * Rear Side: Minimum 27-9/16 inches (700mm)
 - * Right and Left Sides: Minimum 17-11/16 inches (450mm)
 - * Upper Side: Installation must be conducted where there are no obstacles.
- When the wall in front of the unit is taller than 59-1/16 inches (1500mm), the clearance (distance) from the wall must be more than 157-1/2 inches (4000mm).

1) Walls on Two Sides

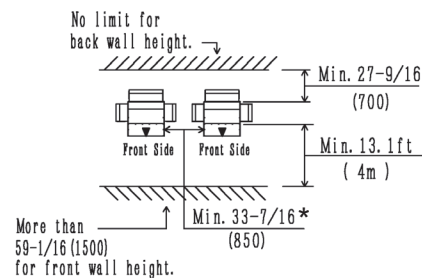
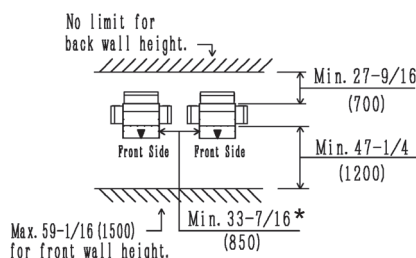
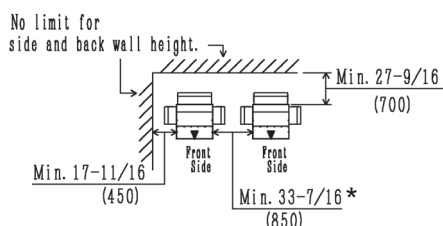
If units are installed adjacent to tall buildings where there are two open sides, the minimum rear side clearance must be at least 27-9/16 inches (700mm).

• Single Installation

Unit: inch (mm)



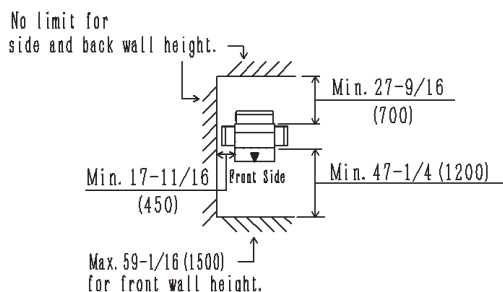
• Multiple / Serial Installation



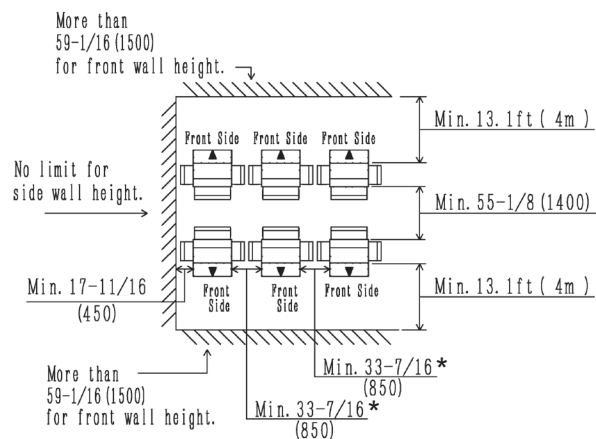
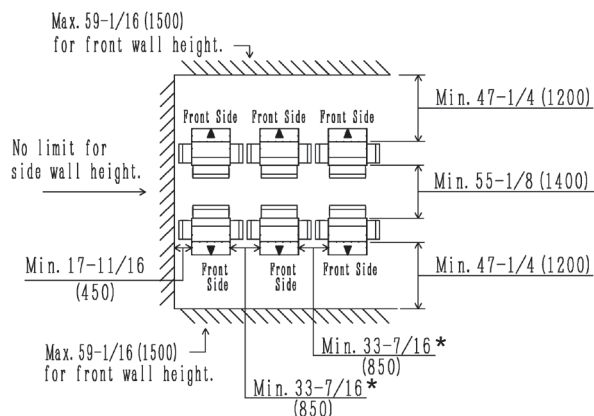
2) Walls on Three Sides

• Single Installation

Unit: inch (mm)



• Multiple / Serial Installation

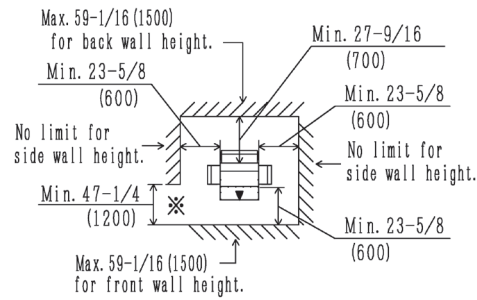


* Limited space installation rule can be applied.

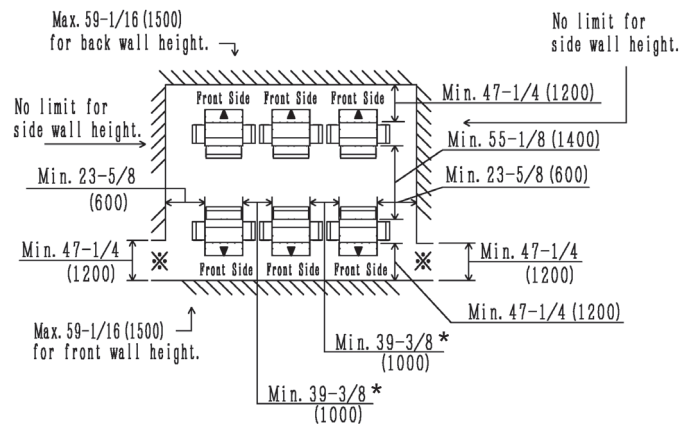
3) Walls on Four Sides

• Single Installation

Unit: inch (mm)



• Multiple / Serial Installation



※ Create wall openings when outdoor units are surrounded by walls on four sides.

* Limited space installation rule can be applied.

NOTICE:

1. Keep the upper side open to prevent mutual interference between the inlet and outlet air of each outdoor unit.
2. The figure indicates sufficient clearance around the outdoor units for operation and maintenance at typical installation conditions as follows.

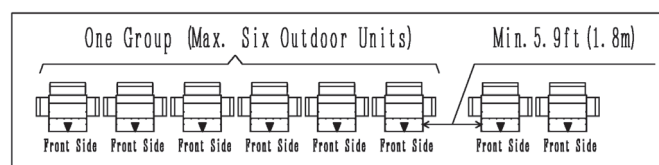
[Operation Mode: Cooling Operation, Outside Temp.: 95°F (35°C)]

In the following situations when compared to the installation condition, an appropriate clearance dimension is required by calculating air flow current when

* the outdoor unit ambient temperature is higher

* a short circuit is likely to occur

3. For the multiple installation of units, one group will consist of a maximum of six outdoor units. Maintain a distance of Min. 5.9 ft (1.8m) between each unit group.



3.3 Piping Kit

Item		Model
Piping Connection Kit	for Heat Pump System (2-Pipes Connection)	MC-NP21SA1 ^{*2}
		MC-NP30SA1 ^{*2}
Multi-Kit	Line Branch for Heat Pump System (2-Pipes Connection)	MW-NP282A3 ^{*1}
		MW-NP452A3 ^{*1}
		MW-NP692A3 ^{*1}
		MW-NP902A3 ^{*1}
	Header Branch for Heat Pump System (2-Pipes Connection)	MH-NP224A
		MH-NP288A

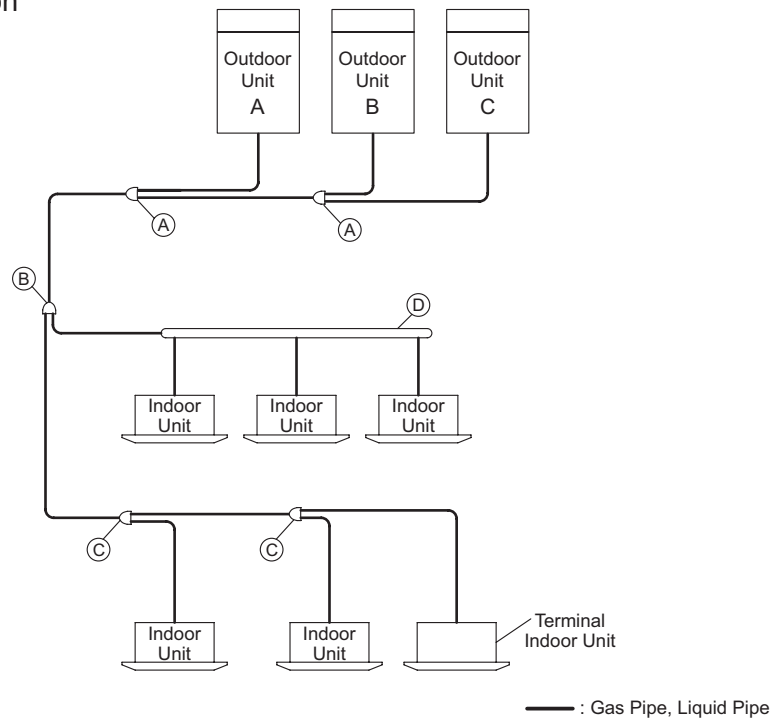
^{*1} A3 type is to be used in place of A2 type:

The piping kits for A3 model numbers MW-NP282A3, MW-NP452A3, MW-NP692A3, and MW-NP902A3 are to be used in place of the piping kits for the A2 model numbers, MW-NP282A2, MW-NP452A2, MW-NP692A2, and MW-NP902A2, as noted.

^{*2} SA1 type is to be used in place of SA type.

The piping kits for SA1 model numbers MC-NP21SA1 and MC-NP30SA1 are to be used in place of the piping kits for the SA model numbers MC-NP21SA and MC-NP30SA, as noted.

■ Piping Kit Selection



Piping Connection Kit

Ⓐ Piping Connection Kit

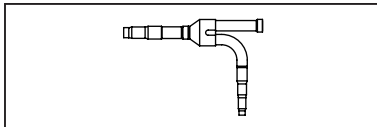
Outdoor Unit Capacity (MBH)	Model
216 - 360	MC-NP21SA1 * ¹
384 - 432	MC-NP30SA1 * ¹

*¹ SA1 type is to be used in place of SA type.

The piping kits for SA1 model numbers MC-NP21SA1 and MC-NP30SA1 are to be used in place of the piping kits for the SA model numbers MC-NP21SA and MC-NP30SA, as noted.

Line Branch

Branch using Multi-Kit (MW Model)



If Ⓒ “Multi-Kit after First Branch” is larger than Ⓑ “Multi-Kit for First Branch”, use the same model as Ⓑ “Multi-Kit for First Branch”.

Ⓑ Multi-Kit for First Branch

Outdoor Unit Capacity (MBH)	Model
72 - 120	MW-NP452A3 * ²
144 - 216	MW-NP692A3 * ²
240 - 432	MW-NP902A3 * ²

NOTE:

Header branch can also be used instead of the multi-kit as first branch.

Ⓒ Multi-Kit after First Branch

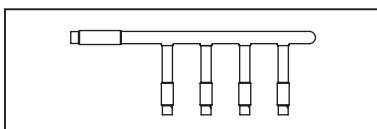
Total Indoor Unit Capacity (MBH)	Model
≤ 95	MW-NP282A3 * ²
96 - 143	MW-NP452A3 * ²
144 - 215	MW-NP692A3 * ²
≥ 216	MW-NP902A3 * ²

*² A3 type is to be used in place of A2 type:

The piping kits for A3 model numbers MW-NP282A3, MW-NP452A3, MW-NP692A3, and MW-NP902A3 are to be used in place of the piping kits for the A2 model numbers, MW-NP282A2, MW-NP452A2, MW-NP692A2, and MW-NP902A2, as noted.

Header Branch

Branch using Multi-Kit (MH Model)



Ⓓ Header Branch

Total Indoor Unit Capacity (MBH)	No. of Header Branches	Model
36 - 60	4	MH-NP224A
36 - 96	8	MH-NP288A

3.3.1 Piping Connection Kit

MC-NP21SA, MC-NP30SA, MC-NP21SA1 and MC-NP30SA1

Piping Connection Size

The ends of the piping connection kits are finished as shown in the following figures. Cut the end of the pipe to get the right pipe size.

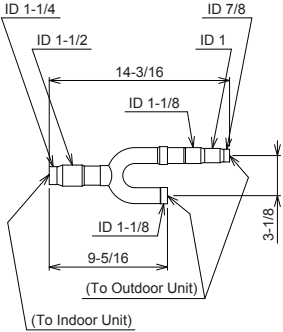
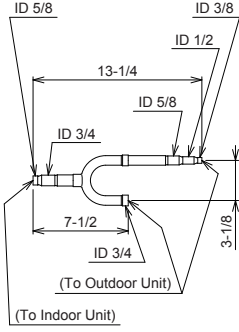
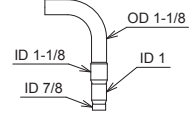
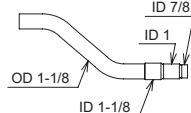
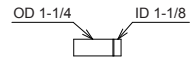
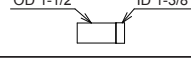
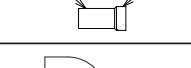
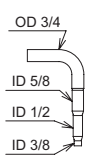
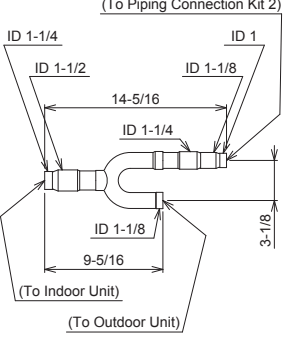
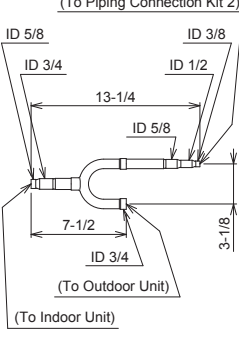
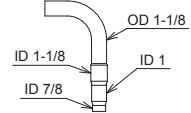
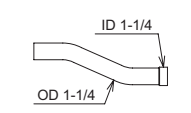
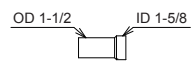
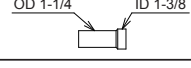
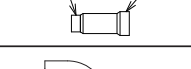
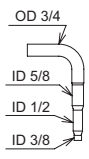
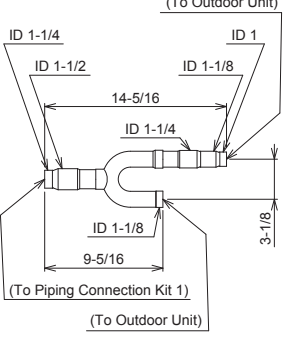
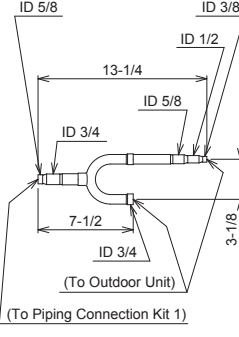
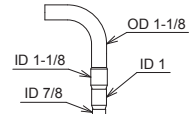
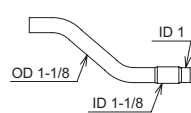
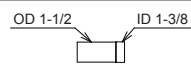
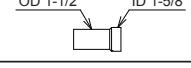
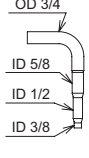
(1) MC-NP21SA and MC-NP30SA

Unit: inch, ID: Inner Diameter, OD: Outer Diameter

Model		Branch Pipe for Gas Line	Branch Pipe for Liquid Line	Reducer for Gas Line	Reducer for Liquid Line
MC-NP21SA					
MC-NP30SA	Piping Connection Kit 1				
	Piping Connection Kit 2				

(2) MC-NP21SA1 and MC-NP30SA1

Unit: inch, ID: Inner Diameter, OD: Outer Diameter

Model	Branch Pipe for Gas Line	Branch Pipe for Liquid Line	Reducer for Gas Line	Reducer for Liquid Line
MC-NP21SA1			    	
MC-NP30SA1	<p>Piping Connection Kit 1</p> 		    	
	<p>Piping Connection Kit 2</p> 		   	

3.3.2 Multi-Kit (Line Branch)

MW-NP282A2, MW-NP452A2, MW-NP692A2 and MW-NP902A2
MW-NP282A3, MW-NP452A3, MW-NP692A3 and MW-NP902A3

Piping Connection Size

The ends of the multi-kits are finished as shown in the following figures. Cut the end of the pipe to get the right pipe size.

(1) MW-NP282A2, MW-NP452A2, MW-NP692A2 and MW-NP902A2

Model	Branch Pipe for Gas Line	Branch Pipe for Liquid Line	Reducer for Gas Line	Reducer for Liquid Line
MW-NP282A2				
MW-NP452A2				
MW-NP692A2				
MW-NP902A2				

NOTE:

Refer to the "Installation Manual for Multi-Kit" for more details.

Unit: inch, ID: Inner Diameter, OD: Outer Diameter

(2) MW-NP282A3, MW-NP452A3, MW-NP692A3 and MW-NP902A3

Model	Branch Pipe for Gas Line	Branch Pipe for Liquid Line	Reducer for Gas Line	Reducer for Liquid Line
MW-NP282A3			—	
MW-NP452A3				
MW-NP692A3				
MW-NP902A3				

NOTE:
Refer to the "Installation Manual for Multi-Kit" for more details.

Unit: inch, ID: Inner Diameter, OD: Outer Diameter

3.3.3 Multi-Kit (Header Branch) MH-NP224A and MH-NP288A

Piping Connection Size

The ends of the multi-kits are finished as shown in the following figures. Cut the end of the pipe to get the right pipe size.

Models	Gas Line	Liquid Line	Expander	Closing Pipe
MH-NP224A			(For Gas Line)	<p>Qty.: 2</p>
			(For Liquid Line)	<p>Qty.: 2</p>
MH-NP288A			(For Gas Line)	<p>Qty.: 6</p>
			(For Liquid Line)	<p>Qty.: 6</p>

Unit: inch, ID: Inner Diameter, OD: Outer Diameter

NOTE:

Refer to "Installation Manual for Multi-Kit" for more details.

4. Selection Data

4.1 Selection Guide

(1) Key for Terms Used for Indoor Units

Nomenclature Description		H	I	C4	012	B	2	1	S
H = Hitachi Brand Y = York Brand T = Tag in the Bag	H								
Indoor Unit	I								
Indoor Unit Type C4 = 4-Way Cassette Type C2 = 2-Way Cassette Type C1 = 1-Way Cassette Type CM = 4-Way Cassette Mini Type CS = Ceiling Suspended Type FE = Floor Exposed Type FC = Floor Concealed Type DH = Ducted High Static Type DM = Ducted Medium Static Type DS = Ducted Slim Type WM = Wall Mount Type	C4								
Capacity (MBH)	012								
Refrigerant Type B = R410A	B								
Power Supply 2 = 208/230Volts - 1Phase - 60Hz	2								
1 = Model Type 1 2 = Model Type 2	1								
S = Standard Type E = Economizer Type	S								

(2) Nominal Capacity of Indoor Units

Capacity		006	008	012	015	018	024
Nominal Cooling Capacity	Btu/h (kW)	6,000 (1.8)	8,000 (2.3)	12,000 (3.5)	15,000 (4.4)	18,000 (5.3)	24,000 (7.0)
Nominal Heating Capacity	Btu/h (kW)	6,700 (2.0)	9,000 (2.6)	13,500 (4.0)	17,000 (5.0)	20,000 (5.9)	27,000 (7.9)

Capacity		030	036	048	060	072	096
Nominal Cooling Capacity	Btu/h (kW)	30,000 (8.8)	36,000 (10.5)	48,000 (14.1)	60,000 (17.6)	72,000 (21.1)	96,000 (28.2)
Nominal Heating Capacity	Btu/h (kW)	34,000 (10.0)	40,000 (11.7)	54,000 (15.8)	64,000 (18.8)	81,000 (23.8)	108,000 (31.7)

SELECTION DATA

(3) Key for Terms Used for Outdoor Unit

Nomenclature Description		H	V	A	HP	072	B	4	2	S
H = Hitachi Brand Y = York Brand	H									
VRF	V									
A = Air Source	A									
HP = Heat Pump	HP									
072 = 72 MBH = 6RT 096 = 96 MBH = 8RT 120 = 120 MBH = 10RT 144 = 144 MBH = 12RT 168 = 168 MBH = 14RT 192 = 192 MBH = 16RT 216 = 216 MBH = 18RT 240 = 240 MBH = 20RT 264 = 264 MBH = 22RT 288 = 288 MBH = 24RT 312 = 312 MBH = 26RT 336 = 336 MBH = 28RT 360 = 360 MBH = 30RT	072									
B = R410A	B									
3 = 208/230Volts - 3Phase - 60Hz 4 = 460Volts - 3Phase - 60Hz 5 = 575Volts - 3Phase - 60Hz	4									
2 = Model Type 2	2									
S = Standard (Factory Options)	S									

(4) Nominal Capacity of Outdoor Unit

Item		(H,Y)VAHP072B32S (H,Y)VAHP072B42S (H,Y)VAHP072B52S	(H,Y)VAHP096B32S (H,Y)VAHP096B42S (H,Y)VAHP096B52S	(H,Y)VAHP120B32S (H,Y)VAHP120B42S (H,Y)VAHP120B52S	(H,Y)VAHP144B32S (H,Y)VAHP144B42S (H,Y)VAHP144B52S	(H,Y)VAHP168B32S (H,Y)VAHP168B42S (H,Y)VAHP168B52S
Nominal Cooling Capacity	Btu/h (kW)	72,000 (21.1)	96,000 (28.1)	120,000 (35.2)	144,000 (42.2)	168,000 (49.2)
Nominal Heating Capacity	Btu/h (kW)	81,000 (23.7)	108,000 (31.7)	135,000 (39.6)	162,000 (47.5)	189,000 (55.4)

Item		(H,Y)VAHP192B32S (H,Y)VAHP192B42S (H,Y)VAHP192B52S	(H,Y)VAHP216B32S (H,Y)VAHP216B42S (H,Y)VAHP216B52S	(H,Y)VAHP240B32S (H,Y)VAHP240B42S (H,Y)VAHP240B52S	(H,Y)VAHP264B32S (H,Y)VAHP264B42S (H,Y)VAHP264B52S	(H,Y)VAHP288B32S (H,Y)VAHP288B42S (H,Y)VAHP288B52S
Nominal Cooling Capacity	Btu/h (kW)	192,000 (56.3)	216,000 (63.3)	240,000 (70.3)	264,000 (77.4)	288,000 (84.4)
Nominal Heating Capacity	Btu/h (kW)	216,000 (63.3)	243,000 (71.2)	270,000 (79.1)	297,000 (87.0)	324,000 (95.0)

Item		(H,Y)VAHP312B32S (H,Y)VAHP312B42S (H,Y)VAHP312B52S	(H,Y)VAHP336B32S (H,Y)VAHP336B42S (H,Y)VAHP336B52S	(H,Y)VAHP360B32S (H,Y)VAHP360B42S (H,Y)VAHP360B52S	(H,Y)VAHP384B32S (H,Y)VAHP384B42S (H,Y)VAHP384B52S	(H,Y)VAHP408B32S (H,Y)VAHP408B42S (H,Y)VAHP408B52S
Nominal Cooling Capacity	Btu/h (kW)	312,000 (91.4)	336,000 (98.5)	360,000 (105.5)	384,000 (112.5)	408,000 (119.5)
Nominal Heating Capacity	Btu/h (kW)	351,000 (102.9)	378,000 (110.8)	405,000 (118.7)	432,000 (126.0)	459,000 (134.5)

Item		(H,Y)VAHP432B32S (H,Y)VAHP432B42S (H,Y)VAHP432B52S
Nominal Cooling Capacity	Btu/h (kW)	432,000 (126.6)
Nominal Heating Capacity	Btu/h (kW)	486,000 (142.4)

Nominal Capacity of Outdoor Unit is under the condition that the total indoor unit capacity is same as outdoor unit capacity.

(5) Given Condition (Example)

● Estimated Load

Item		Room (1)	Room (2)	Room (3)	Room (4)
Estimated Cooling Load	Btu/h (kW)	17,500 (5.1)	22,000 (6.4)	22,000 (6.4)	24,000 (7.0)
Estimated Heating Load	Btu/h (kW)	18,000 (5.3)	22,000 (6.4)	22,000 (6.4)	27,000 (7.9)

Item		Room (5)	Room (6)	Room (7)
Estimated Cooling Load	Btu/h (kW)	30,000 (8.8)	32,000 (9.4)	34,000 (10.0)
Estimated Heating Load	Btu/h (kW)	34,000 (10.0)	36,000 (10.6)	36,000 (10.6)

● Temperature Condition

Cooling		Heating	
Outdoor Coil Air Inlet		Outdoor Coil Air Inlet	
Dry Bulb: 100°F (38°C)		Dry Bulb: 37°F (2.8°C)	
Indoor Coil Air Inlet		Wet Bulb: 35°F (1.7°C)	
Dry Bulb: 75°F (24°C)		Indoor Coil Air Inlet	
Wet Bulb: 63°F (17°C)		Dry Bulb: 68°F (20°C)	

● Altitude Condition: 1000 ft (305m)

Heat Pump System (2 Pipes)

Equivalent Piping Length between Indoor Units and Outdoor Unit: 200 ft (61m)

Piping Lift: 50 ft (15m)

Power Supply: 60Hz

(6) Selecting Matching Indoor Units and Nominal Capacity

Select Ducted Medium Type Indoor Units (Example)

Item		Room (1)	Room (2)	Room (3)	Room (4)
Selected Model		HIDM024B21S	HIDM030B21S	HIDM030B21S	HIDM036B21S
Nominal Cooling Capacity	Btu/h (kW)	24,000 (7.0)	30,000 (8.8)	30,000 (8.8)	36,000 (10.6)
Nominal Heating Capacity	Btu/h (kW)	27,000 (7.9)	34,000 (10.0)	34,000 (10.0)	40,000 (11.7)

Item		Room (5)	Room (6)	Room (7)	Total
Selected Model		HIDM048B21S	HIDM048B21S	HIDM048B21S	(1) ~ (7)
Nominal Cooling Capacity	Btu/h (kW)	48,000 (14.1)	48,000 (14.1)	48,000 (14.1)	264,000 (77.4)
Nominal Heating Capacity	Btu/h (kW)	54,000 (15.8)	54,000 (15.8)	54,000 (15.8)	297,000 (87.0)

Item		Outdoor Unit
Selected Model		HVAHP240B32S
Nominal Cooling Capacity	Btu/h (kW)	240,000 (70.3)
Nominal Heating Capacity	Btu/h (kW)	270,000 (79.1)

Connected Indoor Unit Capacity Ratio = 110%

SELECTION DATA

(7) Actual Capacity

In the example, the total indoor unit capacity is 264MBH

(= 24MBH + 30MBH + 30MBH + 36MBH + 48MBH + 48MBH + 48MBH),

and outdoor unit capacity is 240MBH.

Therefore, the connected indoor unit capacity ratio is 110%.

a) Actual Capacity of Outdoor Unit

Maximum Actual Capacity of Outdoor Unit

= ① Outdoor Unit Capacity According to Temperature Condition and Connected IDU Capacity Ratio

× ② Correction Factor According to Piping Length and Lift

× ③ Correction Factor According to Defrosting Operation (only heating)

× ④ Correction Factor According to Altitude

	①	②	③	④
Cooling	223 MBH	0.91	-	0.97
Heating	316 MBH	0.96	0.86	0.97
Note	Section 4.2	Section 4.3	Section 4.4	Section 4.5

Maximum Actual Capacity of Outdoor Unit

Cooling = 223,000Btu/h × 0.91 × 0.97 = 196,842Btu/h

Heating = 316,000Btu/h × 0.96 × 0.86 × 0.97 = 253,063Btu/h

b) Actual Capacity of Each Indoor Unit

Actual Capacity of Each Indoor Unit

= Actual Capacity of Outdoor Unit × Each Indoor Unit Capacity ÷ Total Indoor Unit Capacity

Result

Item			Room (1)	Room (2)	Room (3)	Room (4)
Selected Model			HIDM024B21S	HIDM030B21S	HIDM030B21S	HIDM036B21S
Actual Capacity	Actual Maximum Cooling Capacity	Btu/h (kW)	17,895 (5.2)	22,368 (6.6)	22,368 (6.6)	26,842 (7.9)
	Actual Maximum Heating Capacity	Btu/h (kW)	23,006 (6.7)	28,757 (8.4)	28,757 (8.4)	34,509 (10.1)
Design Load	Estimated Cooling Load	Btu/h (kW)	17,500 (5.1)	22,000 (6.4)	22,000 (6.4)	24,000 (7.0)
	Estimated Heating Load	Btu/h (kW)	18,000 (5.3)	22,000 (6.4)	22,000 (6.4)	27,000 (7.9)

Item			Room (5)	Room (6)	Room (7)	Total
Selected Model			HIDM048B21S	HIDM048B21S	HIDM048B21S	(1) ~ (7)
Actual Capacity	Actual Maximum Cooling Capacity	Btu/h (kW)	35,789 (10.5)	35,789 (10.5)	35,789 (10.5)	196,842 (57.7)
	Actual Maximum Heating Capacity	Btu/h (kW)	46,011 (13.5)	46,011 (13.5)	46,011 (13.5)	253,063 (74.2)
Design Load	Estimated Cooling Load	Btu/h (kW)	30,000 (8.8)	32,000 (9.4)	34,000 (10.0)	182,000 (53.3)
	Estimated Heating Load	Btu/h (kW)	34,000 (10.0)	36,000 (10.6)	36,000 (10.6)	195,000 (57.1)

4.2 Outdoor Unit Capacity According to Temperature Condition and Connected IDU Capacity Ratio

(H,Y)VAHP072B(3,4,5)2S

Cooling Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °FWB												Connection ratio	Outdoor air temp	Indoor air temp. °FWB											
		59			61			63			65					67			69			71			73		
		TC	IP	MWH	TC	IP	MWH	TC	IP	MWH	TC	IP	MWH			TC	IP	MWH	TC	IP	MWH	TC	IP	MWH	TC	IP	MWH
%	°FDB	MWH	kW	MWH	kW	MWH	kW	MWH	kW	MWH	kW	MWH	kW	MWH	kW	MWH	kW	MWH	kW	MWH	kW	MWH	kW	MWH	kW	MWH	kW
150	-10	76.1	3.0	79.1	3.0	82.1	3.0	85.2	2.9	88.2	2.9	91.2	2.8	94.2	2.8	97.3	2.7										
	-4	76.1	3.0	79.1	3.0	82.1	3.0	85.2	2.9	88.2	2.9	91.2	2.8	94.2	2.8	97.3	2.7										
	14	76.1	3.0	79.1	3.0	82.1	3.0	85.2	2.9	88.2	2.9	91.2	2.8	94.2	2.8	97.3	2.7										
	23	76.1	3.0	79.1	3.0	82.1	3.0	85.2	2.9	88.2	2.9	91.2	2.8	94.2	2.8	97.3	2.7										
	32	76.1	3.1	79.1	3.1	82.1	3.0	85.2	3.0	88.2	3.0	91.2	2.9	94.2	2.9	97.3	2.8										
	40	76.1	3.3	79.1	3.2	82.1	3.2	85.2	3.1	88.2	3.1	91.2	3.1	94.2	3.0	97.3	3.0										
	50	76.1	3.5	79.1	3.4	82.1	3.4	85.2	3.3	88.2	3.3	91.2	3.2	94.2	3.2	97.3	3.1										
	58	76.1	3.8	79.1	3.7	82.1	3.7	85.2	3.6	88.2	3.6	91.2	3.5	94.2	3.5	97.3	3.4										
	66	76.1	3.9	79.1	3.9	82.1	3.8	85.2	3.8	88.2	3.7	91.2	3.7	94.2	3.6	97.3	3.6										
	66	76.1	4.1	79.1	4.1	82.1	4.0	85.2	4.0	88.2	3.9	91.2	3.9	94.2	3.8	97.3	3.7										
	70	76.1	4.4	79.1	4.3	82.1	4.3	85.2	4.2	88.2	4.2	91.2	4.1	94.2	4.0	97.3	4.0										
	74	76.1	4.6	79.1	4.6	82.1	4.5	85.2	4.5	88.2	4.4	91.2	4.3	94.2	4.3	97.3	4.2										
140	78	76.1	4.9	79.1	4.9	82.1	4.8	85.2	4.7	88.2	4.7	91.2	4.6	94.2	4.5	97.3	4.5										
	82	76.1	5.2	79.1	5.2	82.1	5.1	85.2	5.1	88.2	5.0	91.2	4.9	94.2	4.8	97.3	4.7										
	86	76.1	5.5	79.1	5.5	82.1	5.4	85.2	5.4	88.2	5.3	91.2	5.2	94.2	5.1	97.3	5.0										
	90	75.2	6.0	78.0	5.9	80.8	5.9	83.5	5.8	86.3	5.7	89.1	5.6	91.5	5.5	94.5	5.4										
	95	73.2	6.6	75.9	6.5	78.7	6.4	81.5	6.3	84.3	6.2	87.0	6.1	89.8	6.0	92.6	5.9										
	100	71.1	7.1	73.9	7.1	76.7	7.0	79.4	6.9	82.2	6.8	85.0	6.7	87.8	6.6	90.6	6.5										
	106	68.7	7.7	71.4	7.7	74.2	7.7	77.0	7.7	79.8	7.6	82.5	7.6	85.3	7.5	88.1	7.4										
	110	65.0	7.7	68.7	7.7	72.6	7.7	75.3	7.4	78.1	7.0	80.9	6.7	83.7	6.5	86.4	6.2										
	114	62.4	7.5	65.8	7.2	70.0	6.9	73.2	6.5	76.3	6.2	79.2	6.0	82.0	5.7	84.8	5.5										
	118	61.5	6.5	64.9	6.2	69.1	5.9	72.3	5.5	75.4	5.2	78.5	4.9	81.6	4.6	84.7	4.4										
	122	50.4	5.6	50.4	5.3	50.4	5.1	50.4	4.9	50.4	4.6	50.4	4.5	50.4	4.3	50.4	4.1										
	130	-10	73.1	2.9	76.1	2.9	79.1	2.9	82.2	2.8	85.2	2.8	88.2	2.7	91.2	2.7	94.3	2.6									
-4		73.1	2.9	76.1	2.9	79.1	2.9	82.2	2.8	85.2	2.8	88.2	2.7	91.2	2.7	94.3	2.6										
14		73.1	2.9	76.1	2.9	79.1	2.9	82.2	2.8	85.2	2.8	88.2	2.7	91.2	2.7	94.3	2.6										
23		73.1	2.9	76.1	2.9	79.1	2.9	82.2	2.8	85.2	2.8	88.2	2.7	91.2	2.7	94.3	2.6										
32		73.1	3.0	76.1	3.0	79.1	2.9	82.2	2.9	85.2	2.9	88.2	2.8	91.2	2.8	94.3	2.7										
40		73.1	3.2	76.1	3.1	79.1	3.1	82.2	3.0	85.2	3.0	88.2	2.9	91.2	2.9	94.3	2.8										
50		73.1	3.3	76.1	3.3	79.1	3.3	82.2	3.2	85.2	3.2	88.2	3.1	91.2	3.1	94.3	3.0										
58		73.1	3.6	76.1	3.6	79.1	3.5	82.2	3.5	85.2	3.5	88.2	3.4	91.2	3.4	94.3	3.3										
66		73.1	3.8	76.1	3.8	79.1	3.7	82.2	3.7	85.2	3.6	88.2	3.6	91.2	3.5	94.3	3.4										
66		73.1	4.0	76.1	4.0	79.1	3.9	82.2	3.9	85.2	3.8	88.2	3.7	91.2	3.7	94.3	3.6										
70		73.1	4.2	76.1	4.2	79.1	4.1	82.2	4.1	85.2	4.0	88.2	4.0	91.2	3.9	94.3	3.8										
74		73.1	4.5	76.1	4.4	79.1	4.4	82.2	4.3	85.2	4.3	88.2	4.2	91.2	4.1	94.3	4.1										
120	78	73.1	4.8	76.1	4.7	79.1	4.7	82.2	4.6	85.2	4.5	88.2	4.5	91.2	4.4	94.3	4.3										
	82	73.1	5.1	76.1	5.0	79.1	5.0	82.2	4.9	85.2	4.8	88.2	4.7	91.2	4.6	94.3	4.5										
	86	73.1	5.4	76.1	5.4	79.1	5.3	82.2	5.2	85.2	5.2	88.2	5.1	91.2	5.0	94.3	4.9										
	90	72.9	5.8	75.7	5.7	78.5	5.7	81.3	5.6	84.0	5.5	86.8	5.4	89.6	5.3	92.4	5.2										
	95	70.9	6.3	73.7	6.3	76.4	6.2	79.2	6.1	82.0	6.0	84.8	5.9	87.6	5.8	90.4	5.7										
	100	68.8	6.9	71.6	6.8	74.4	6.7	77.2	6.7	79.9	6.6	82.7	6.5	85.5	6.4	88.3	6.2										
	106	66.4	7.7	69.2	7.6	71.9	7.5	74.7	7.4	77.5	7.3	80.3	7.2	83.0	7.1	85.8	6.9										
	110	64.7	7.7	67.3	7.7	69.9	7.6	72.5	7.4	75.1	7.3	77.6	7.1	80.2	6.9	82.8	6.7										
	114	63.1	7.5	65.7	7.5	68.3	7.4	70.9	7.3	73.5	7.2	76.1	7.0	78.7	6.8	81.3	6.6										
	118	61.5	6.5	64.3	6.5	67.1	6.4	69.9	6.3	72.7	6.2	75.5	6.0	78.3	5.8	81.1	5.6										
	122	50.4	5.6	50.4	5.3	50.4	5.1	50.4	4.9	50.4	4.6	50.4	4.5	50.4	4.3	50.4	4.1										
	110	-10	70.0	2.8	73.0	2.8	76.0	2.7	79.1	2.7	82.1	2.7	85.1	2.6	88.1	2.6	91.2	2.5									
-4		70.0	2.8	73.0	2.8	76.0	2.7	79.1	2.7	82.1	2.7	85.1	2.6	88.1	2.6	91.2	2.5										
14		70.0	2.8	73.0	2.8	76.0	2.7	79.1	2.7	82.1	2.7	85.1	2.6	88.1	2.6	91.2	2.5										
23		70.0	2.8	73.0	2.8	76.0	2.7	79.1	2.7	82.1	2.7	85.1	2.6	88.1	2.6	91.2	2.5										
32		70.0	2.9	73.0	2.9	76.0	2.8	79.1	2.8	82.1	2.8	85.1	2.7	88.1	2.7	91.2	2.6										
42		70.0	3.0	73.0	3.0	76.0	3.0	79.1	2.9	82.1	2.9	85.1	2.8	88.1	2.8	91.2	2.7										
50		70.0	3.2	73.0	3.2	76.0	3.2	79.1	3.1	82.1	3.1	85.1	3.0	88.1	3.0	91.2	2.9										
58		70.0	3.5	73.0	3.5	76.0	3.4	79.1	3.4	82.1	3.3	85.1	3.3	88.1	3.2	91.2	3.2										
66		70.0	3.7	73.0	3.6	76.0	3.6	79.1	3.5	82.1	3.5	85.1	3.4	88.1	3.4	91.2	3.3										
66		70.0	3.9	73.0	3.8	76.0	3.8	79.1	3.7	82.1	3.7	85.1	3.6	88.1	3.5	91.2	3.5										
70		70.0	4.1	73.0	4.0	76.0	4.0	79.1	3.9	82.1	3.9	85.1	3.8	88.1	3.7	91.2	3.7										
74		70.0	4.3	73.0	4.2	76.0	4.2	79.1	4.1	82.1	4.1	85.1	4.0	88.1	3.9	91.2	4.0										
100	78	70.0	4.6	73.0	4.5	76.0	4.5	79.1	4.4	82.1	4.4	85.1	4.3	88.1	4.2	91.2	4.1										
	82	70.0	4.9	73.0	4.8	76.0	4.8	79.1	4.7	82.1	4.7	85.1	4.6	88.1	4.5	91.2	4.4										
	86	70.0	5.2	73.0	5.2	76.0	5.1	79.1	5.0	82.1	5.0	85.1	4.9	88.1	4.8	91.2	4.7										
	90	70.0	5.6	73.0	5.5	76.0	5.5	79.1	5.4	82.1	5.4	85.1	5.3	88.1	5.2	91.2	5.1										
	95	68.5	6.1	71.3	6.0	74.1	6.0	76.9	5.9	79.6	5.8	82.4	5.7	85.2	5.6	87.9	5.5										
	100	66.5	6.6	69.2																							

TC: Total Capacity
IP: Input Power

NOTES:

- NOTES:
1. The table shows the normal value of a cooling operation.
 2. The value in the table shows when the system is operating under the following conditions.
The total piping length: 24.6ft. (7.5m). The height difference: 0ft (0m)

SELECTION DATA

(H,Y)VAHP096B(3,4,5)2S

Cooling Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °FWB																Connection ratio	Outdoor air temp	Indoor air temp. °FWB																																
		59		61		63		65		67		69		71		73				59		61		63		65		67		69		71		73																		
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP																			
%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW																			
150	-10	101	4.4	106	4.3	110	4.3	114	4.2	118	4.2	122	4.1	126	4.0	130	4.0	-10	79.9	3.6	83.9	3.5	87.9	3.5	92.0	3.5	96.0	3.4	100	3.4	104	3.3	108	3.2	-10	70.3	3.2	74.3	3.2	78.3	3.1	82.4	3.1	86.4	3.1	90.4	3.0	94.5	3.0	98.5	2.9	
	-4	101	4.4	106	4.3	110	4.3	114	4.2	118	4.2	122	4.1	126	4.0	130	4.0	-4	79.9	3.6	83.9	3.5	87.9	3.5	92.0	3.5	96.0	3.4	100	3.4	104	3.3	108	3.2	-4	70.3	3.2	74.3	3.2	78.3	3.1	82.4	3.1	86.4	3.1	90.4	3.0	94.5	3.0	98.5	2.9	
	14	101	4.4	106	4.3	110	4.3	114	4.2	118	4.2	122	4.1	126	4.0	130	4.0	14	79.9	3.6	83.9	3.5	87.9	3.5	92.0	3.5	96.0	3.4	100	3.4	104	3.3	108	3.2	14	70.3	3.2	74.3	3.2	78.3	3.1	82.4	3.1	86.4	3.1	90.4	3.0	94.5	3.0	98.5	2.9	
	23	101	4.4	106	4.4	110	4.3	114	4.2	118	4.2	122	4.1	126	4.1	130	4.0	23	79.9	3.6	83.9	3.6	87.9	3.5	92.0	3.5	96.0	3.4	100	3.4	104	3.3	108	3.3	23	70.3	3.2	74.3	3.2	78.3	3.2	82.4	3.2	86.4	3.2	90.4	3.1	94.5	3.0	98.5	2.9	
	32	101	4.5	106	4.5	110	4.4	114	4.3	118	4.3	122	4.2	126	4.1	130	4.1	32	79.9	3.7	83.9	3.6	87.9	3.6	92.0	3.5	96.0	3.5	100	3.4	104	3.4	108	3.3	32	70.3	3.3	74.3	3.3	78.3	3.2	82.4	3.2	86.4	3.2	90.4	3.1	94.5	3.0	98.5	2.9	
	42	101	4.7	106	4.6	110	4.6	114	4.6	118	4.5	122	4.4	126	4.4	130	4.3	42	79.9	3.9	83.9	3.8	87.9	3.8	92.0	3.7	96.0	3.7	100	3.6	104	3.6	108	3.5	42	70.3	3.5	74.3	3.4	78.3	3.4	82.4	3.4	86.4	3.4	90.4	3.3	94.5	3.2	98.5	3.1	
	50	101	5.0	106	5.0	110	4.9	114	4.9	118	4.8	122	4.7	126	4.6	130	4.6	50	79.9	4.1	83.9	4.1	87.9	4.0	92.0	4.0	96.0	3.9	100	3.8	104	3.8	108	3.7	50	70.3	3.7	74.3	3.7	78.3	3.6	82.4	3.6	86.4	3.6	90.4	3.5	94.5	3.4	98.5	3.3	
	58	101	5.4	106	5.4	110	5.3	114	5.3	118	5.2	122	5.1	126	5.0	130	4.9	58	79.9	4.4	83.9	4.4	87.9	4.3	92.0	4.3	96.0	4.2	100	4.2	104	4.1	108	4.0	58	70.3	4.0	74.3	4.0	78.3	3.9	82.4	3.9	86.4	3.9	90.4	3.8	94.5	3.7	98.5	3.6	
	62	101	5.7	106	5.6	110	5.6	114	5.5	118	5.4	122	5.3	126	5.3	130	5.2	62	79.9	4.7	83.9	4.6	87.9	4.6	92.0	4.5	96.0	4.4	100	4.4	104	4.3	108	4.2	62	70.3	4.3	74.3	4.3	78.3	4.2	82.4	4.2	86.4	4.2	90.4	4.1	94.5	4.0	98.5	3.9	
	66	101	6.0	106	5.9	110	5.9	114	5.8	118	5.7	122	5.6	126	5.5	130	5.4	66	79.9	4.9	83.9	4.8	87.9	4.8	92.0	4.7	96.0	4.7	100	4.6	104	4.6	108	4.5	66	70.3	4.5	74.3	4.5	78.3	4.4	82.4	4.4	86.4	4.4	90.4	4.3	94.5	4.2	98.5	4.1	
	70	101	6.3	106	6.3	110	6.2	114	6.1	118	6.0	122	5.9	126	5.8	130	5.7	70	79.9	5.2	83.9	5.1	87.9	5.1	92.0	5.0	96.0	4.9	100	4.9	104	4.8	108	4.7	70	70.3	4.7	74.3	4.7	78.3	4.6	82.4	4.6	86.4	4.6	90.4	4.5	94.5	4.4	98.5	4.3	
	74	101	6.7	106	6.6	110	6.6	114	6.5	118	6.4	122	6.3	126	6.2	130	6.1	74	79.9	5.5	83.9	5.4	87.9	5.4	92.0	5.3	96.0	5.2	100	5.1	104	5.1	108	5.0	74	70.3	4.9	74.3	4.9	78.3	4.8	82.4	4.8	86.4	4.8	90.4	4.7	94.5	4.6	98.5	4.5	
	78	101	7.1	106	7.0	110	7.0	114	6.9	118	6.8	122	6.7	126	6.6	130	6.5	78	79.9	5.8	83.9	5.8	87.9	5.7	92.0	5.6	96.0	5.5	100	5.4	104	5.4	108	5.3	78	70.3	5.3	74.3	5.3	78.3	5.2	82.4	5.2	86.4	5.2	90.4	5.1	94.5	5.0	98.5	4.9	
	82	101	7.6	106	7.5	110	7.4	114	7.3	118	7.2	122	7.1	126	7.0	130	6.9	82	79.9	6.2	83.9	6.1	87.9	6.1	92.0	6.0	96.0	5.9	100	5.8	104	5.7	108	5.6	82	70.3	5.7	74.3	5.7	78.3	5.6	82.4	5.6	86.4	5.6	90.4	5.5	94.5	5.4	98.5	5.3	
	86	101	8.1	106	8.0	110	7.9	114	7.8	118	7.7	122	7.6	126	7.5	128	7.4	86	79.9	6.6	83.9	6.6	87.9	6.5	92.0	6.4	96.0	6.3	100	6.2	104	6.1	108	6.0	86	70.3	6.0	74.3	6.0	78.3	5.9	82.4	5.9	86.4	5.9	90.4	5.8	94.5	5.7	98.5	5.6	
	90	100	8.7	104	8.6	108	8.5	111	8.4	115	8.3	119	8.1	123	8.0	126	7.9	90	79.9	7.1	83.9	7.0	87.9	6.9	92.0	6.8	96.0	6.7	100	6.6	104	6.5	108	6.4	90	70.3	6.4	74.3	6.4	78.3	6.3	82.4	6.3	86.4	6.3	90.4	6.2	94.5	6.1	98.5	6.0	
	95	97.5	9.5	101	9.4	105	9.3	109	9.2	112	9.1	116	8.9	120	8.8	124	8.6	95	79.9	7.8	83.9	7.7	87.9	7.6	91.9	7.5	96.0	7.4	99.3	7.3	103	7.2	107	7.0	95	70.3	6.8	74.3	6.8	78.3	6.7	82.4	6.7	86.4	6.7	90.4	6.6	94.5	6.5	98.5	6.4	
	100	94.8	10.4	98.5	10.2	102	10.1	106	10.0	110	9.9	113	9.7	117	9.5	121	9.4	100	78.8	8.5	81.7	8.4	85.4	8.3	89.1	8.2	92.9	8.1	96.6	7.9	100	7.8	104	7.7	100	70.3	7.4	74.3	7.4	78.3	7.3	82.4	7.3	86.4	7.3	90.4	7.2	94.5	7.1	98.5	7.0	
	106	91.5	10.4	95.2	10.4	99.0	10.4	103.0	10.4	106.0	10.4	110.0	10.4	114.0	10.4	118.0	10.4	106	74.8	9.4	78.5	9.3	82.2	9.2	85.9	9.1	89.6	9.0	93.3	8.8	97.0	8.7	101	8.5	106	70.3	8.1	74.3	8.1	78.3	8.0	82.4	8.0	86.4	8.0	90.4	7.9	94.5	7.8	98.5	7.7	
	110	89.4	10.4	93.1	10.4	96.8	10.4	100.4	10.4	104.0	10.4	108.0	10.4	112.0	10.4	116.0	10.4	110	70.3	8.7	74.3	8.7	78.3	8.6	82.4	8.5	86.4	8.4	90.4	8.3	94.5	8.2	98.5	8.1	110	70.3	8.7	74.3	8.7	78.3	8.6	82.4	8.6	86.4	8.6	90.4	8.5	94.5	8.4	98.5	8.3	
	114	87.2	10.4	90.9	10.4	94.6	10.4	98.3	10.4	102.0	10.3	106.0	9.9	109.4	9.4	112.0	9.0	114	70.4	10.4	74.1	10.4	77.8	10.4	81.5	10.4	85.2	10.3	88.9	10.2	92.6	10.1	96.3	10.0	114	70.4	10.4	74.1	10.4	77.8	10.4	81.5	10.4	85.2	10.3	88.9	10.2	92.6	10.1	96.3	10.0	
	118	83.2	8.8	83.2	8.5	83.2	8.1	83.2	7.7	83.2	7.4	83.2	7.1	83.2	6.8	83.2	6.5	118	68.2	8.8	71.9	8.5	75.6	8.1	79.3	7.7	83.0	7.4	86.2	7.1	89.2	6.8	92.2	6.5	118	68.2	8.8	71.9	8.5	75.6	8.1	79.3	7.7	83.0	7.4	86.2	7.1	89.2	6.8	92.2	6.5	
	122	54.7	5.3	54.7	5.1	54.7	4.9	54.7	4.7	54.7	4.4	54.7	4.3	54.7	4.1	54.7	3.9	122	54.7	5.3	54.7	5.1	54.7	4.9	54.7	4.7	54.7	4.4	54.7	4.1	54.7	3.9	122	54.7	5.3	54.7	5.1	54.7	4.9	54.7	4.7	54.7	4.4	54.7	4.1	54.7	3.9					
140	-10	97.5	4.2	102	4.2	106	4.1	110	4.1	114	4.0	118	4.0	122	3.9	126	3.8	-10	70.3	3.2	74.3	3.2	78.3	3.1	82.4	3.1	86.4	3.1	90.4	3.0	94.5	3.0	98.5	2.9	80	-10	60.7	2.9	64.7	2.8	68.7	2.8	72.8	2.8	76.8	2.7	80.8	2.7	84.9	2.6	88.9	2.6
	-4	97.5	4.2	102	4.2	106	4.1	110	4.1	114	4.0	118	4.0	122	3.9	126	3.8	-4	70.3	3.2	74.3	3.2	78.3	3.1	82.4	3.1	86.4	3.1	90.4	3.0	94.5	3.0	98.5	2.9	80	-4	60.7	2.9	64.7	2.8	68.7	2.8	72.8	2								

(H,Y)VAHP120B(3,4,5)2S

Cooling Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °FWB																Connection ratio	Outdoor air temp	Indoor air temp. °FWB															
		59				61				63				65						67				69				71				73			
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP				
%	°F	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°F	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW				
150	-10	127	5.5	132	5.4	137	5.3	142	5.3	147	5.2	152	5.1	157	5.0	162	4.9	-10	98.8	4.5	105	4.4	110	4.3	115	4.3	120	4.2	125	4.2	130	4.1	135	4.0	
	-4	127	5.5	132	5.4	137	5.3	142	5.3	147	5.2	152	5.1	157	5.0	162	4.9	-4	98.8	4.5	105	4.4	110	4.3	115	4.3	120	4.2	125	4.2	130	4.1	135	4.0	
	14	127	5.5	132	5.4	137	5.3	142	5.3	147	5.2	152	5.1	157	5.0	162	4.9	14	98.8	4.5	105	4.4	110	4.3	115	4.3	120	4.2	125	4.2	130	4.1	135	4.0	
	23	127	5.5	132	5.4	137	5.3	142	5.3	147	5.2	152	5.1	157	5.0	162	4.9	23	98.8	4.5	105	4.4	110	4.3	115	4.3	120	4.2	125	4.2	130	4.1	135	4.0	
	32	127	5.6	132	5.5	137	5.5	142	5.4	147	5.3	152	5.2	157	5.2	162	5.1	32	98.8	4.6	105	4.5	110	4.5	115	4.4	120	4.4	125	4.3	130	4.2	135	4.1	
	42	127	5.9	132	5.8	137	5.7	142	5.7	147	5.6	152	5.5	157	5.4	162	5.3	42	98.8	4.8	105	4.7	110	4.7	115	4.6	120	4.6	125	4.5	130	4.4	135	4.3	
	50	127	6.3	132	6.2	137	6.1	142	6.0	147	6.0	152	5.9	157	5.8	162	5.7	50	98.8	5.1	105	5.0	110	5.0	115	4.9	120	4.9	125	4.8	130	4.7	135	4.6	
	58	127	6.8	132	6.7	137	6.6	142	6.5	147	6.5	152	6.3	157	6.2	162	6.1	58	98.8	5.5	105	5.5	110	5.4	115	5.3	120	5.3	125	5.2	130	5.1	135	5.0	
	62	127	7.1	132	7.0	137	6.9	142	6.8	147	6.8	152	6.6	157	6.5	162	6.4	62	98.8	5.8	105	5.7	110	5.7	115	5.6	120	5.5	125	5.4	130	5.3	135	5.2	
	66	127	7.5	132	7.4	137	7.3	142	7.2	147	7.1	152	7.0	157	6.9	162	6.8	66	98.8	6.1	105	6.0	110	6.0	115	5.9	120	5.8	125	5.7	130	5.6	135	5.5	
	70	127	7.9	132	7.8	137	7.7	142	7.6	147	7.5	152	7.4	157	7.3	162	7.1	70	98.8	6.4	105	6.4	110	6.3	115	6.2	120	6.1	125	6.0	130	5.9	135	5.8	
	74	127	8.4	132	8.3	137	8.2	142	8.1	147	8.0	152	7.8	157	7.7	162	7.6	74	98.8	6.8	105	6.7	110	6.7	115	6.6	120	6.5	125	6.4	130	6.3	135	6.2	
	78	127	8.9	132	8.8	137	8.7	142	8.6	147	8.5	152	8.3	157	8.2	162	8.0	78	98.8	7.3	105	7.2	110	7.1	115	7.0	120	6.9	125	6.8	130	6.7	135	6.6	
	82	127	9.5	132	9.4	137	9.2	142	9.1	147	9.0	152	8.9	157	8.7	162	8.6	82	98.8	7.7	105	7.6	110	7.5	115	7.4	120	7.3	125	7.2	130	7.1	135	7.0	
	86	127	10.1	132	10.0	137	9.9	142	9.8	147	9.6	151	9.5	156	9.3	161	9.1	86	98.8	8.3	105	8.2	110	8.1	115	8.0	120	7.9	125	7.7	130	7.6	135	7.5	
	90	125	10.8	130	10.7	135	10.6	139	10.4	144	10.3	149	10.1	153	10.0	158	9.8	90	98.8	8.8	105	8.7	110	8.6	115	8.5	120	8.4	125	8.3	130	8.1	135	8.0	
	95	122	11.8	127	11.7	131	11.5	136	11.4	140	11.3	145	11.1	150	10.9	154	10.7	95	98.8	9.7	105	9.5	110	9.4	115	9.3	120	9.2	125	9.0	130	8.9	135	8.7	
	100	119	12.9	123	12.7	128	12.6	132	12.4	137	12.3	142	12.1	146	11.9	151	11.7	100	97.6	10.5	102	10.4	107	10.3	111	10.1	116	10.0	121	9.8	125	9.7	130	9.5	
	106	114	13.7	119	13.7	124	13.7	128	13.7	133	13.6	138	13.4	142	13.2	147	13.0	106	93.6	11.7	98.1	11.8	103	11.4	107	11.3	112	11.1	117	10.9	121	10.8	126	10.6	
	110	112	13.7	117	13.7	122	13.7	127	13.7	132	13.6	137	13.4	142	13.2	147	13.0	110	93.6	11.7	98.1	11.8	103	11.4	107	11.3	112	11.1	117	10.9	121	10.8	126	10.6	
	114	106	13.6	114	13.6	118	13.6	122	13.6	127	13.5	132	13.3	137	13.1	142	12.9	114	88.0	13.5	92.6	13.0	97.2	12.4	102	11.9	107	11.3	111	10.9	116	10.4	120	9.9	
	118	91.5	9.7	91.5	9.3	91.5	8.9	91.5	8.5	91.5	8.1	91.5	7.8	91.5	7.4	91.5	7.1	118	85.3	9.7	89.9	9.3	91.5	8.9	91.5	8.5	91.5	8.1	91.5	7.8	91.5	7.4	91.5	7.1	
	122	60.1	5.9	60.1	5.6	60.1	5.4	60.1	5.1	60.1	4.9	60.1	4.7	60.1	4.5	60.1	4.3	122	60.1	5.9	60.1	5.6	60.1	5.4	60.1	5.1	60.1	4.9	60.1	4.7	60.1	4.5	60.1	4.3	
140	-10	122	5.3	127	5.2	132	5.1	137	5.1	142	5.0	147	4.9	152	4.8	157	4.8	-10	87.8	4.0	92.9	4.0	97.9	3.9	103	3.9	108	3.8	113	3.8	118	3.7	123	3.6	
	-4	122	5.3	127	5.2	132	5.1	137	5.1	142	5.0	147	4.9	152	4.8	157	4.8	-4	87.8	4.0	92.9	4.0	97.9	3.9	103	3.9	108	3.8	113	3.8	118	3.7	123	3.6	
	14	122	5.3	127	5.2	132	5.1	137	5.1	142	5.0	147	4.9	152	4.8	157	4.8	14	87.8	4.0	92.9	4.0	97.9	3.9	103	3.9	108	3.8	113	3.8	118	3.7	123	3.6	
	23	122	5.3	127	5.2	132	5.2	137	5.1	142	5.0	147	5.0	152	4.9	157	4.8	23	87.8	4.0	92.9	4.0	97.9	3.9	103	3.9	108	3.8	113	3.8	118	3.7	123	3.6	
	32	122	5.4	127	5.3	132	5.3	137	5.2	142	5.2	147	5.1	152	5.0	157	4.9	32	87.8	4.1	92.9	4.1	97.9	4.0	103	4.0	108	3.9	113	3.9	118	3.8	123	3.7	
	42	122	5.7	127	5.6	132	5.6	137	5.5	142	5.4	147	5.3	152	5.2	157	5.1	42	87.8	4.3	92.9	4.3	97.9	4.2	103	4.2	108	4.1	113	4.1	118	4.0	123	3.9	
	50	122	6.0	127	6.0	132	5.9	137	5.8	142	5.8	147	5.7	152	5.6	157	5.5	50	87.8	4.6	92.9	4.5	97.9	4.5	103	4.4	108	4.4	113	4.3	118	4.2	123	4.2	
	58	122	6.5	127	6.5	132	6.4	137	6.3	142	6.2	147	6.1	152	6.0	157	5.9	58	87.8	5.0	92.9	4.9	97.9	4.9	103	4.8	108	4.7	113	4.7	118	4.6	123	4.5	
	62	122	6.9	127	6.8	132	6.7	137	6.6	142	6.5	147	6.4	152	6.3	157	6.2	62	87.8	5.2	92.9	5.2	97.9	5.1	103	5.0	108	5.0	113	4.9	118	4.8	123	4.7	
	66	122	7.2	127	7.1	132	7.0	137	7.0	142	6.9	147	6.8	152	6.6	157	6.5	66	87.8	5.5	92.9	5.4	97.9	5.4	103	5.3	108	5.2	113	5.1	118	5.1	123	5.0	
	70	122	7.6	127	7.5	132	7.4	137	7.3	142	7.3	147	7.1	152	7.0	157	6.9	70	87.8	5.8	92.9	5.7	97.9	5.7	103	5.6	108	5.5	113	5.4	118	5.3	123	5.2	
	74	122	8.1	127	8.0	132	7.9	137	7.8	142	7.7	147	7.6	152	7.4	157	7.3	74	87.8	6.1	92.9	6.1	97.9	6.0	103	6.0	108	5.9	113	5.8	118	5.7	123	5.6	
	78	122	8.6	127	8.5	132	8.4	137	8.3	142	8.2	147	8.0	152	7.9	157	7.8	78	87.8	6.5	92.9	6.5	97.9	6.4	103	6.3	108	6.2	113	6.1	118	6.0	123	5.9	
	82	122	9.1	127	9.0	132	8.9	137	8.8	142	8.7	147	8.6	152	8.4	157	8.3	82	87.8	7.0	92.9	6.9	97.9	6.8	103	6.7	108	6.6	113	6.5	118	6.4	123	6.3	
	86	122	9.8	127	9.7	132	9.5	137	9.4	142	9.3	147	9.1	152	9.0																				

SELECTION DATA

(H,Y)VAHP144B(3,4,5)2S

Cooling Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °FWB																Connection ratio	Outdoor air temp	Indoor air temp. °FWB																																	
		59		61		63		65		67		69		71		73				59		61		63		65		67		69		71		73																			
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP																				
%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW						
150	-10	152	7.6	158	7.6	164	7.5	170	7.4	176	6.9	182	7.2	189	7.0	195	6.9	-10	120	6.0	126	5.9	132	5.8	138	5.7	144	5.7	150	5.6	156	5.5	162	5.4	-10	105	5.6	112	5.6	118	5.5	124	5.4	130	5.1	136	5.3	142	5.2	148	5.1		
	-4	152	7.6	158	7.6	164	7.5	170	7.4	176	6.9	182	7.2	189	7.0	195	6.9	-4	120	6.0	126	5.9	132	5.8	138	5.7	144	5.7	150	5.6	156	5.5	162	5.4	-4	105	5.6	112	5.6	118	5.5	124	5.4	130	5.1	136	5.3	142	5.2	148	5.1		
	14	152	7.6	158	7.6	164	7.5	170	7.4	176	6.9	182	7.2	189	7.0	195	6.9	14	120	6.0	126	5.9	132	5.8	138	5.7	144	5.7	150	5.6	156	5.5	162	5.4	14	105	5.6	112	5.6	118	5.5	124	5.4	130	5.1	136	5.3	142	5.2	148	5.1		
	23	152	7.7	158	7.6	164	7.5	170	7.4	176	7.0	182	7.2	189	7.1	195	7.0	23	120	6.0	126	5.9	132	5.8	138	5.8	144	5.7	150	5.6	156	5.5	162	5.4	23	105	5.8	112	5.7	118	5.7	124	5.6	130	5.2	136	5.4	142	5.3	148	5.2		
	32	152	7.9	158	7.8	164	7.7	170	7.6	176	7.1	182	7.2	189	7.2	195	7.1	32	120	6.1	126	6.0	132	6.0	138	5.9	144	5.8	150	5.7	156	5.6	162	5.5	32	105	5.8	112	5.7	118	5.7	124	5.6	130	5.2	136	5.4	142	5.3	148	5.2		
	42	152	8.3	158	8.2	164	8.1	170	8.0	176	7.5	182	7.7	189	7.6	195	7.5	42	120	6.4	126	6.3	132	6.3	138	6.2	144	6.1	150	6.0	156	5.9	162	5.8	42	105	6.1	112	6.0	118	5.9	124	5.8	130	5.5	136	5.7	142	5.6	148	5.5		
	50	152	8.8	158	8.7	164	8.6	170	8.5	176	8.0	182	8.2	189	8.1	195	8.0	50	120	6.8	126	6.7	132	6.7	138	6.6	144	6.5	150	6.4	156	6.3	162	6.2	50	105	6.4	112	6.3	118	6.2	124	6.1	130	5.8	136	6.0	142	5.9	148	5.8		
	58	152	9.5	158	9.4	164	9.3	170	9.2	176	8.6	182	8.9	189	8.7	195	8.6	58	120	7.4	126	7.3	132	7.2	138	7.1	144	7.0	150	6.9	156	6.8	162	6.7	58	105	7.0	112	6.9	118	6.8	124	6.7	130	6.4	136	6.6	142	6.5	148	6.4		
	62	152	10.0	158	9.8	164	9.7	170	9.6	176	9.0	182	9.3	189	9.2	195	9.0	62	120	7.8	126	7.7	132	7.6	138	7.5	144	7.4	150	7.3	156	7.1	162	7.0	62	105	7.4	112	7.3	118	7.2	124	7.1	130	6.7	136	6.9	142	6.7	148	6.6		
	66	152	10.5	158	10.3	164	10.2	170	10.1	176	9.5	182	9.8	189	9.6	195	9.5	66	120	8.2	126	8.1	132	8.0	138	7.9	144	7.8	150	7.6	156	7.5	162	7.4	66	105	7.8	112	7.7	118	7.6	124	7.5	130	7.1	136	7.3	142	7.1	148	7.0		
	70	152	11.1	158	10.9	164	10.8	170	10.7	176	10.0	182	10.4	189	10.2	195	10.0	70	120	8.6	126	8.5	132	8.4	138	8.3	144	8.2	150	8.1	156	7.9	162	7.8	70	105	8.2	112	8.1	118	8.0	124	7.9	130	7.5	136	7.7	142	7.5	148	7.4		
	74	152	11.7	158	11.6	164	11.4	170	11.3	176	10.6	182	11.0	189	10.8	195	10.6	74	120	9.1	126	9.0	132	8.9	138	8.8	144	8.7	150	8.5	156	8.4	162	8.3	74	105	8.6	112	8.5	118	8.4	124	8.3	130	7.8	136	8.0	142	7.8	148	7.7		
	78	152	12.5	158	12.3	164	12.2	170	12.0	176	11.3	182	11.7	189	11.5	195	11.3	78	120	9.5	126	9.4	132	9.3	138	9.2	144	9.1	150	8.9	156	8.8	162	8.7	78	105	9.0	112	8.9	118	8.8	124	8.7	130	8.2	136	8.4	142	8.2	148	8.1		
	82	152	13.3	158	13.1	164	13.0	170	12.8	176	12.1	182	12.4	189	12.2	195	12.0	82	120	10.3	126	10.2	132	10.1	138	10.0	144	9.9	150	9.7	156	9.5	162	9.4	82	105	9.6	112	9.5	118	9.4	124	9.3	130	8.7	136	8.9	142	8.7	148	8.6		
	86	152	14.2	158	14.0	164	13.8	170	13.7	176	12.9	182	13.3	187	13.1	193	12.8	86	120	11.0	126	10.9	132	10.8	138	10.6	144	10.5	150	10.3	156	10.2	162	10.0	86	105	10.4	112	10.3	118	10.2	124	10.1	130	9.4	136	9.6	142	9.4	148	9.3		
	90	152	15.2	156	15.0	162	14.8	167	14.6	173	13.8	177	14.2	184	14.0	189	13.7	90	120	11.8	126	11.7	132	11.5	138	11.4	144	11.2	150	11.1	156	10.9	162	10.7	90	105	11.2	118	11.1	124	11.0	130	10.9	136	10.2	142	10.3	148	10.1	154	10.0		
	94	152	16.6	152	16.4	157	16.2	163	16.0	169	15.1	174	15.5	180	15.3	185	15.0	94	120	12.9	126	12.8	132	12.6	138	12.5	144	12.3	149	12.1	155	11.9	160	11.7	94	105	11.7	114	11.6	120	11.5	126	11.4	132	10.6	138	10.8	144	10.6	150	10.4		
	100	142	16.1	148	16.1	153	16.1	159	16.1	164	16.1	170	16.1	176	16.1	181	16.1	100	117	14.1	123	13.9	129	13.7	134	13.6	139	13.4	145	13.2	150	12.9	155	12.7	100	102	13.6	110	13.5	118	13.3	126	13.1	134	12.4	142	12.6	150	12.4				
	106	137	16.1	143	16.1	148	16.1	154	16.1	160	16.1	166	16.1	171	16.1	176	16.1	106	112	15.6	118	15.5	124	15.3	129	15.1	134	14.9	140	14.7	146	14.4	151	14.2	106	100	13.3	108	13.2	116	13.0	124	12.8	132	12.1	140	12.3	148	12.1				
	110	131	16.1	137	16.1	142	16.1	147	16.1	152	16.1	157	16.1	162	16.1	167	16.1	110	107	16.1	113	16.1	119	15.9	125	15.7	131	15.5	137	15.3	143	15.1	149	14.9	110	95	13.0	103	12.9	111	12.7	119	12.5	127	11.8	135	12.0	143	11.8				
	114	131	14.8	134	14.2	138	13.6	142	13.0	146	12.3	150	11.8	154	11.3	158	10.8	114	106	14.8	111	14.2	117	13.6	122	13.0	128	12.3	133	11.8	138	11.3	143	10.8	114	99	10.6	107	10.2	115	9.7	123	9.1	131	8.5	139	8.9	147	8.7				
	118	99	10.6	99	10.2	99	9.7	99	9.3	99	8.8	99	8.5	99	8.1	99	7.8	118	99	10.6	99	10.2	99	9.7	99	9.3	99	8.8	99	8.5	99	8.1	99	7.8	118	99	10.6	99	10.2	99	9.7	99	9.3	99	8.8	99	8.5	99	8.1	99	7.8		
	122	65.6	6.4	65.6	6.1	65.6	5.9	65.6	5.6	65.6	5.3	65.6	5.1	65.6	4.9	65.6	4.7	122	65.6	6.4	65.6	6.1	65.6	5.9	65.6	5.6	65.6	5.3	65.6	5.1	65.6	4.9	65.6	4.7	122	65.6	6.4	65.6	6.1	65.6	5.9	65.6	5.6	65.6	5.3	65.6	5.1	65.6	4.9	65.6	4.7		
140	-10	146	7.4	152	7.3	158	7.2	164	7.1	170	6.7	176	6.9	183	6.8	189	6.7	-10	105	5.6	112	5.6	118	5.5	124	5.4	130	5.1	136	5.3	142	5.2	148	5.1	-10	90	5.0	97	5.0	104	4.9	110	4.8	117	4.7	124	4.6	130	4.5	137	4.4	143	4.3
	-4	146	7.4	152	7.3	158	7.2	164	7.1	170	6.7	176	6.9	183	6.8	189	6.7	-4	105	5.6	112	5.6	118	5.5	124	5.4	130	5.1	136	5.3	142	5.2	148	5.1	-4	90	5.0	97	5.0	104	4.9	110	4.8	117	4.7	124	4.6	130	4.5	137	4.4	143	4.3
	14	146	7.4	152	7.3	158	7.2	164	7.1	170	6.7	176	6.9																																								

(H,Y)VAHP168B(3,4,5)2S

Cooling Capacity

Connection ratio	Outdoor air temp.	Indoor air temp. °FWB																Connection ratio	Outdoor air temp.	Indoor air temp. °FWB																																	
		59		61		63		65		67		69		71		73				59		61		63		65		67		69		71		73																			
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP																				
%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW												
150	-10	178	8.0	185	7.9	192	7.8	199	7.7	206	7.6	213	7.5	220	7.4	227	7.2	100	-10	140	6.5	147	6.5	154	6.4	161	6.3	168	6.2	175	6.1	182	6.0	189	5.9	90	-10	123	5.9	130	5.8	137	5.7	144	5.7	151	5.6	158	5.5	165	5.4	172	5.3
	-4	178	8.0	185	7.9	192	7.8	199	7.7	206	7.6	213	7.5	220	7.4	227	7.2		-4	140	6.5	147	6.5	154	6.4	161	6.3	168	6.2	175	6.1	182	6.0	189	5.9		-4	123	5.9	130	5.8	137	5.7	144	5.7	151	5.6	158	5.5	165	5.4	172	5.3
	14	178	8.0	185	7.9	192	7.8	199	7.7	206	7.6	213	7.5	220	7.4	227	7.2		14	140	6.5	147	6.5	154	6.4	161	6.3	168	6.2	175	6.1	182	6.0	189	5.9		14	123	5.9	130	5.8	137	5.7	144	5.7	151	5.6	158	5.5	165	5.4	172	5.3
	23	178	8.0	185	7.9	192	7.8	199	7.7	206	7.6	213	7.5	220	7.4	227	7.2		23	140	6.6	147	6.5	154	6.4	161	6.3	168	6.3	175	6.1	182	6.0	189	5.9		23	123	6.0	130	5.9	137	5.8	144	5.7	151	5.6	158	5.5	165	5.4	172	5.3
	32	178	8.2	185	8.1	192	8.0	199	7.9	206	7.8	213	7.7	220	7.6	227	7.4		32	140	6.7	147	6.6	154	6.6	161	6.5	168	6.4	175	6.3	182	6.2	189	6.1		32	123	6.3	130	6.2	137	6.1	144	6.0	151	5.9	158	5.8	165	5.7	172	5.6
	42	178	8.6	185	8.5	192	8.4	199	8.3	206	8.2	213	8.1	220	8.0	227	7.8		42	140	7.1	147	7.0	154	6.9	161	6.8	168	6.7	175	6.6	182	6.5	189	6.4		42	123	6.8	130	6.7	137	6.6	144	6.5	151	5.9	158	5.8	165	5.7	172	5.6
	50	178	9.2	185	9.1	192	9.0	199	8.9	206	8.8	213	8.6	220	8.5	227	8.3		50	140	7.5	147	7.4	154	7.3	161	7.2	168	7.1	175	7.0	182	6.9	189	6.8		50	123	7.1	130	7.0	137	6.9	144	6.8	151	6.7	158	6.6	165	6.5	172	6.4
	58	178	9.9	185	9.8	192	9.7	199	9.6	206	9.5	213	9.3	220	9.2	227	9.0		58	140	8.1	147	8.0	154	7.9	161	7.8	168	7.7	175	7.6	182	7.5	189	7.4		58	123	7.7	130	7.6	137	7.5	144	7.4	151	7.3	158	7.2	165	7.1	172	7.0
	62	178	10.4	185	10.3	192	10.2	199	10.0	206	9.9	213	9.8	220	9.6	227	9.4		62	140	8.5	147	8.4	154	8.3	161	8.2	168	8.1	175	8.0	182	7.8	189	7.7		62	123	8.1	130	8.0	137	7.9	144	7.8	151	7.7	158	7.6	165	7.5	172	7.4
	66	178	11.0	185	10.8	192	10.7	199	10.6	206	10.4	213	10.3	220	10.1	227	9.9		66	140	8.9	147	8.8	154	8.7	161	8.6	168	8.5	175	8.4	182	8.2	189	8.1		66	123	8.5	130	8.4	137	8.3	144	8.2	151	8.1	158	8.0	165	7.9	172	7.8
	70	178	11.6	185	11.4	192	11.3	199	11.2	206	11.0	213	10.8	220	10.7	227	10.5		70	140	9.5	147	9.3	154	9.2	161	9.1	168	9.0	175	8.9	182	8.7	189	8.6		70	123	9.1	130	9.0	137	8.9	144	8.8	151	8.7	158	8.6	165	8.5	172	8.4
	74	178	12.3	185	12.1	192	12.0	199	11.8	206	11.7	213	11.5	220	11.3	227	11.1		74	140	10.0	147	9.9	154	9.8	161	9.7	168	9.6	175	9.5	182	9.4	189	9.3		74	123	9.6	130	9.5	137	9.4	144	9.3	151	9.2	158	9.1	165	9.0	172	8.9
78	178	13.0	185	12.9	192	12.7	199	12.6	206	12.4	213	12.2	220	12.0	227	11.8	78	140	10.6	147	10.5	154	10.4	161	10.3	168	10.2	175	10.1	182	10.0	189	9.9	78	123	10.2	130	10.1	137	10.0	144	9.9	151	9.8	158	9.7	165	9.6	172	9.5			
82	178	13.9	185	13.7	192	13.6	199	13.4	206	13.2	213	13.0	220	12.8	227	12.6	82	140	11.3	147	11.2	154	11.1	161	10.9	168	10.8	175	10.6	182	10.4	189	10.3	82	123	10.8	130	10.7	137	10.6	144	10.5	151	10.4	158	10.3	165	10.2	172	10.1			
86	178	14.8	185	14.7	192	14.5	199	14.3	206	14.1	213	13.9	220	13.7	225	13.4	86	140	12.1	147	12.0	154	11.8	161	11.7	168	11.5	175	11.3	182	11.2	189	11.0	86	123	11.4	130	11.3	137	11.2	144	11.1	151	11.0	158	10.9	165	10.8	172	10.7			
90	178	15.9	182	15.7	188	15.5	195	15.3	201	15.1	208	14.9	214	14.6	221	14.4	90	140	13.0	147	12.8	154	12.7	161	12.5	168	12.3	175	12.1	182	11.9	189	11.7	90	123	12.1	130	12.0	137	11.9	144	11.8	151	11.7	158	11.6	165	11.5	172	11.4			
95	178	17.4	177	17.2	184	16.9	190	16.7	197	16.5	203	16.3	210	16.0	216	15.7	95	140	14.2	147	14.0	154	13.8	161	13.7	168	13.5	174	13.3	182	13.1	189	12.8	95	123	13.2	130	13.1	137	13.0	144	12.9	151	12.8	158	12.7	165	12.6	172	12.5			
100	168	18.9	172	18.7	179	18.4	185	18.2	192	18.0	199	17.7	205	17.4	211	17.1	100	137	15.4	143	15.2	150	15.1	156	14.9	163	14.7	169	14.5	175	14.2	182	14.0	100	123	14.1	130	14.0	137	13.9	144	13.8	151	13.7	158	13.6	165	13.5	172	13.4			
106	168	19.4	167	19.4	173	19.4	180	19.4	186	19.4	193	19.4	200	19.4	207	19.1	106	131	17.2	137	17.0	144	16.8	150	16.6	157	16.4	163	16.1	170	15.8	176	15.5	106	123	14.8	130	14.7	137	14.6	144	14.5	151	14.4	158	14.3	165	14.2	172	14.1			
110	156	19.4	163	19.4	169	19.4	176	19.4	182	19.4	188	19.4	194	18.9	181	18.1	110	127	16.4	134	16.2	140	15.6	147	15.5	153	15.2	160	15.0	167	14.8	174	14.7	110	123	15.4	130	15.3	137	15.2	144	15.1	151	15.0	158	14.9	165	14.8	172	14.7			
114	156	19.4	163	19.4	169	19.4	176	19.4	182	19.4	188	19.4	194	18.9	181	18.1	114	123	16.4	130	16.2	137	15.6	144	15.5	151	15.4	158	15.2	165	15.0	172	14.9	114	123	15.4	130	15.4	137	15.3	144	15.2	151	15.0	158	14.9	165	14.8	172	14.7			
118	130	16.2	130	15.6	130	14.9	130	14.2	130	13.5	129	13.0	119	12.4	112	11.9	118	119	16.2	126	15.6	130	14.9	130	14.2	130	13.5	129	13.0	119	12.4	112	11.9	118	119	16.2	126	15.6	130	14.9	130	14.2	130	13.5	129	13.0	119	12.4	112	11.9			
122	101	12.0	101	11.5	101	11.0	101	10.5	101	10.0	93.9	9.6	85.8	9.2	78.0	8.8	122	101	12.0	101	11.5	101	11.0	101	10.5	101	10.0	93.9	9.6	85.8	9.2	78.0	8.8	122	101	12.0	101	11.5	101	11.0	101	10.5	101	10.0	93.9	9.6	85.8	9.2	78.0	8.8			
140	-10	171	7.7	178	7.6	185	7.5	192	7.5	199	7.4	206	7.2	213	7.1	220	7.0	90	-10	123	5.9	130	5.8	137	5.7	144	5.7	151	5.6	158	5.5	165	5.4	172	5.3	80	-10	106	5.2	113	5.2	120	5.1	127	5.0	134	5.0	141	4.9	148	4.8	155	4.7
	-4	171	7.7	178	7.6	185	7.5	192	7.5	199	7.4	206	7.2	213	7.1	220	7.0		-4	123	5.9	130	5.8	137	5.7	144	5.7	151	5.6	158	5.5	165	5.4	172	5.3		-4	106	5.2	113	5.2	120	5.1	127	5.0	134	5.0	141	4.9				

SELECTION DATA

(H,Y)VAHP192B(3,4,5)2S

Cooling Capacity

Connection ratio	Outdoor air temp.	Indoor air temp. °FWB																Connection ratio	Outdoor air temp.	Indoor air temp. °FWB																															
		59		61		63		65		67		69		71		73				59		61		63		65		67		69		71		73																	
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP																		
%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW										
150	-10	203	9.8	211	9.7	219	9.5	227	9.4	235	9.3	243	9.2	251	9.0	259	8.8	-10	160	8.0	168	7.9	176	7.8	184	7.7	192	7.6	200	7.5	208	7.4	216	7.2	-10	141	7.2	149	7.1	157	7.0	165	6.9	173	6.8	181	6.7	189	6.6	197	6.5
	-4	203	9.8	211	9.7	219	9.5	227	9.4	235	9.3	243	9.2	251	9.0	259	8.8	-4	160	8.0	168	7.9	176	7.8	184	7.7	192	7.6	200	7.5	208	7.4	216	7.2	-4	141	7.2	149	7.1	157	7.0	165	6.9	173	6.8	181	6.7	189	6.6	197	6.5
	14	203	9.8	211	9.7	219	9.5	227	9.4	235	9.3	243	9.2	251	9.0	259	8.8	14	160	8.0	168	7.9	176	7.8	184	7.7	192	7.6	200	7.5	208	7.4	216	7.2	14	141	7.2	149	7.1	157	7.0	165	6.9	173	6.8	181	6.7	189	6.6	197	6.5
	23	203	9.8	211	9.7	219	9.6	227	9.5	235	9.4	243	9.3	251	9.0	259	8.9	23	160	8.0	168	7.9	176	7.8	184	7.7	192	7.6	200	7.5	208	7.4	216	7.3	23	141	7.2	149	7.1	157	7.0	165	6.9	173	6.8	181	6.7	189	6.6	197	6.5
	32	203	10.0	211	9.9	219	9.8	227	9.7	235	9.6	243	9.4	251	9.2	259	9.1	32	160	8.2	168	8.1	176	8.0	184	7.9	192	7.8	200	7.7	208	7.6	216	7.4	32	141	7.2	149	7.1	157	7.0	165	6.9	173	6.8	181	6.7	189	6.6	197	6.5
	42	203	10.6	211	10.4	219	10.3	227	10.2	235	10.1	243	9.9	251	9.7	259	9.5	42	160	8.8	168	8.7	176	8.6	184	8.5	192	8.4	200	8.3	208	8.2	216	8.0	42	141	7.8	149	7.7	157	7.6	165	6.5	173	6.4	181	6.3	189	6.2	197	6.1
	50	203	11.2	211	11.1	219	11.0	227	10.8	235	10.7	243	10.5	251	10.3	259	10.1	50	160	9.2	168	9.1	176	9.0	184	8.9	192	8.8	200	8.7	208	8.6	216	8.4	50	141	8.2	149	8.1	157	8.0	165	7.9	173	7.8	181	7.7	189	7.6	197	7.5
	58	203	12.2	211	12.0	219	11.9	227	11.7	235	11.6	243	11.4	251	11.2	259	11.0	58	160	9.9	168	9.8	176	9.7	184	9.6	192	9.4	200	9.3	208	9.1	216	9.0	58	141	8.9	149	8.8	157	8.7	165	8.6	173	8.5	181	8.4	189	8.2	197	8.1
	62	203	12.7	211	12.6	219	12.4	227	12.3	235	12.1	243	11.9	251	11.7	259	11.5	62	160	10.4	168	10.3	176	10.1	184	10.0	192	9.9	200	9.7	208	9.6	216	9.4	62	141	9.3	149	9.2	157	9.1	165	9.0	173	8.9	181	8.8	189	8.6	197	8.5
	66	203	13.4	211	13.2	219	13.1	227	12.9	235	12.8	243	12.5	251	12.3	259	12.1	66	160	10.9	168	10.8	176	10.7	184	10.5	192	10.4	200	10.2	208	10.1	216	9.9	66	141	9.8	149	9.7	157	9.6	165	9.5	173	9.4	181	9.2	189	9.1	197	8.9
	70	203	14.1	211	14.0	219	13.8	227	13.6	235	13.5	243	13.3	251	13.0	259	12.8	70	160	11.6	168	11.4	176	11.3	184	11.1	192	11.0	200	10.8	208	10.6	216	10.5	70	141	10.4	149	10.3	157	10.1	166	10.0	173	9.9	181	9.8	189	9.6	197	9.5
	74	203	15.0	211	14.8	219	14.6	227	14.5	235	14.3	243	14.0	251	13.8	259	13.6	74	160	12.2	168	12.1	176	12.0	184	11.8	192	11.7	200	11.5	208	11.3	216	11.1	74	141	11.2	149	11.1	157	10.9	166	10.4	173	10.3	181	10.2	189	10.0	197	9.9
	78	203	15.9	211	15.7	219	15.6	227	15.4	235	15.2	243	14.9	251	14.7	259	14.4	78	160	13.0	168	12.9	176	12.7	184	12.5	192	12.4	200	12.2	208	12.0	216	11.8	78	141	12.0	149	11.9	157	11.7	165	11.5	173	11.4	181	11.2	189	11.0	197	10.8
	82	203	17.0	211	16.8	219	16.6	227	16.4	235	16.2	243	15.9	251	15.6	259	15.4	82	160	13.9	168	13.7	176	13.5	184	13.4	192	13.2	200	13.0	208	12.8	216	12.5	82	141	13.0	149	12.9	157	12.7	165	12.5	173	12.4	181	12.2	189	12.0	197	11.8
	86	203	18.1	211	17.9	219	17.7	227	17.5	235	17.3	243	17.0	251	16.7	255	16.4	86	160	14.8	168	14.6	176	14.5	184	14.3	192	14.1	200	13.9	208	13.6	216	13.4	86	141	14.0	149	13.9	157	13.7	165	13.5	173	13.4	181	13.2	189	13.0	197	12.8
	90	203	19.4	208	19.2	215	18.9	223	18.7	230	18.5	238	18.2	245	17.9	246	17.6	90	160	15.8	168	15.7	176	15.5	184	15.3	192	15.1	200	14.8	208	14.6	216	14.3	90	141	15.0	149	14.8	157	14.6	165	14.4	173	14.3	181	14.1	189	13.9	197	13.7
95	195	21.2	203	21.0	210	20.7	217	20.5	225	20.2	232	19.9	236	19.5	236	19.2	95	160	17.3	168	17.1	176	16.9	184	16.7	192	16.5	199	16.2	206	16.0	213	15.7	95	141	16.5	149	16.3	157	16.1	165	15.9	173	15.7	181	15.5	189	15.3	197	15.1	
100	190	22.7	197	22.7	204	22.5	212	22.3	219	22.0	225	21.6	225	21.3	225	20.9	100	156	18.9	164	18.6	171	18.4	178	18.2	186	18.0	193	17.7	201	17.4	205	17.1	100	141	18.0	149	17.8	157	17.6	165	17.4	173	17.2	181	17.0	189	16.8	197	16.6	
106	183	22.7	191	22.7	198	22.7	205	22.7	213	22.7	221	21.6	221	21.3	221	20.9	106	150	21.0	157	20.7	164	20.5	172	20.2	179	20.0	187	19.7	194	19.3	201	19.0	106	141	20.5	149	20.3	157	20.1	165	19.9	173	19.7	181	19.5	189	19.3			
110	179	22.7	186	22.7	194	22.7	201	22.7	209	22.7	217	22.7	225	22.7	233	22.7	110	141	22.5	149	22.3	157	22.1	165	21.7	175	21.3	183	20.9	191	20.5	203	20.0	110	141	22.5	149	22.3	157	22.1	165	21.7	175	21.3	183	20.9	191	20.5	203	20.0	
114	170	21.9	170	21.0	170	20.0	170	19.1	170	18.2	167	17.5	162	16.7	156	16.0	114	141	21.9	148	21.0	150	20.0	163	19.1	170	18.2	167	17.5	162	16.7	156	16.0	114	141	21.9	148	21.0	150	20.0	163	19.1	170	18.2	167	17.5	162	16.7	156	16.0	
118	130	17.3	139	16.6	139	15.9	139	15.2	139	14.4	134	13.8	127	13.3	120	12.7	118	130	17.3	139	16.6	139	15.9	139	15.2	139	14.4	134	13.8	127	13.3	120	12.7	118	130	17.3	139	16.6	139	15.9	139	15.2	139	14.4	134	13.8	127	13.3	120	12.7	
122	108	12.8	108	12.3	108	11.7	108	11.2	108	10.6	99.7	10.2	91.5	9.8	83.2	9.4	122	108	12.8	108	12.3	108	11.7	108	11.2	108	10.6	99.7	10.2	91.5	9.8	83.2	9.4	122	108	12.8	108	12.3	108	11.7	108	11.2	108	10.6	99.7	10.2	91.5	9.8	83.2	9.4	
140	-10	195	9.4	203	9.3	211	9.2	219	9.1	227	9.0	235	8.8	243	8.7	251	8.5	-10	141	7.2	149	7.1	157	7.0	165	6.9	173	6.8	181	6.7	189	6.6	197	6.5	-10	121	6.4	129	6.3	137	6.2	146	6.2	154	6.1	162	6.0	170	5.9	178	5.8
	-4	195	9.4	203	9.3	211	9.2	219	9.1	227	9.0	235	8.8	243	8.7	251	8.5	-4	141	7.2	149	7.1	157	7.0	165	6.9	173	6.8	181	6.7	189	6.6	197	6.5	-4	121	6.4	129	6.3	137	6.2	146	6.2	154	6.1	162					

(H,Y)VAHP216B(3,4,5)2S

Cooling Capacity

Connection ratio	Outdoor air temp.	Indoor air temp. °FWB																Connection ratio	Outdoor air temp.	Indoor air temp. °FWB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		59		61		63		65		67		69		71		73				59		61		63		65		67		69		71		73																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH

SELECTION DATA

Cooling Capacity

(H,Y)VAHP240B(3,4,5)2S

Connection ratio	Outdoor air temp.	Indoor air temp. °F/WB																Connection ratio	Outdoor air temp.	Indoor air temp. °F/WB															
		59		61		63		65		67		69		71		73				59		61		63		65		67		69		71		73	
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP		
%	°F/DB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°F/DB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW		
150																																			
-10	254	12.6	264	12.6	274	12.5	284	12.4	294	12.2	304	12.0	314	11.8	324	11.6	-10	200	10.5	210	10.4	220	10.3	230	10.1	240	10.0	250	9.8	260	9.7	270	9.5		
-4	254	12.6	264	12.6	274	12.5	284	12.4	294	12.2	304	12.0	314	11.8	324	11.6	-4	200	10.5	210	10.4	220	10.3	230	10.1	240	10.0	250	9.8	260	9.7	270	9.5		
14	254	12.6	264	12.6	274	12.5	284	12.4	294	12.2	304	12.0	314	11.8	324	11.6	14	200	10.5	210	10.4	220	10.3	230	10.1	240	10.0	250	9.8	260	9.7	270	9.5		
23	254	12.7	264	12.7	274	12.6	284	12.4	294	12.3	304	12.1	314	11.9	324	11.7	23	200	10.6	210	10.4	220	10.3	230	10.2	240	10.0	250	9.9	260	9.7	270	9.5		
32	254	12.9	264	12.9	274	12.9	284	12.7	294	12.5	304	12.3	314	12.1	324	11.9	32	200	10.8	210	10.7	220	10.5	230	10.4	240	10.3	250	10.1	260	9.9	270	9.8		
42	254	13.6	264	13.6	274	13.5	284	13.3	294	13.2	304	13.0	314	12.7	324	12.5	42	200	11.3	210	11.2	220	11.1	230	10.9	240	10.8	250	10.6	260	10.4	270	10.3		
50	254	14.4	264	14.4	274	14.4	284	14.2	294	14.0	304	13.8	314	13.5	324	13.3	50	200	12.0	210	11.9	220	11.8	230	11.6	240	11.5	250	11.3	260	11.1	270	10.9		
58	254	15.6	264	15.6	274	15.6	284	15.4	294	15.2	304	14.9	314	14.7	324	14.4	58	200	13.0	210	12.9	220	12.7	230	12.6	240	12.4	250	12.2	260	12.0	270	11.8		
62	254	16.4	264	16.4	274	16.3	284	16.1	294	15.9	304	15.6	314	15.4	324	15.1	62	200	13.7	210	13.5	220	13.3	230	13.2	240	13.0	250	12.8	260	12.6	270	12.4		
66	254	17.2	264	17.2	274	17.1	284	16.9	294	16.7	304	16.4	314	16.2	324	15.9	66	200	14.4	210	14.2	220	14.0	230	13.9	240	13.7	250	13.5	260	13.2	270	13.0		
70	254	18.2	264	18.2	274	18.1	284	17.9	294	17.7	304	17.4	314	17.1	324	16.8	70	200	15.2	210	15.0	220	14.8	230	14.7	240	14.5	250	14.2	260	14.0	270	13.7		
74	254	19.3	264	19.3	274	19.2	284	19.0	294	18.7	304	18.4	314	18.1	324	17.8	74	200	16.1	210	15.9	220	15.7	230	15.6	240	15.3	250	15.1	260	14.8	270	14.6		
78	254	20.5	264	20.5	274	20.4	284	20.1	294	19.9	304	19.6	314	19.3	324	19.0	78	200	17.1	210	16.9	220	16.7	230	16.5	240	16.3	250	16.0	260	15.8	270	15.5		
82	254	21.9	264	21.9	274	21.7	284	21.5	294	21.2	304	20.9	314	20.5	324	20.1	82	200	18.2	210	18.0	220	17.8	230	17.6	240	17.4	250	17.1	260	16.8	270	16.5		
86	254	23.3	264	23.3	274	23.2	284	22.9	293	22.6	302	22.3	312	21.9	321	21.5	86	200	19.5	210	19.2	220	19.0	230	18.8	240	18.5	250	18.2	260	17.9	270	17.6		
90	251	25.0	260	25.0	269	24.8	279	24.5	288	24.2	297	23.8	306	23.4	316	23.0	90	200	20.8	210	20.6	220	20.3	230	20.1	240	19.8	250	19.5	260	19.2	270	18.9		
95	244	27.3	253	27.3	262	27.2	272	26.8	281	26.5	290	26.1	299	25.6	308	25.2	95	200	22.8	210	22.5	220	22.2	230	22.0	240	21.7	248	21.3	258	21.0	267	20.6		
100	237	27.3	246	27.3	256	27.3	265	27.3	274	27.3	283	27.3	293	27.3	302	27.3	100	195	24.8	204	24.5	214	24.2	223	23.9	232	23.6	241	23.2	251	22.8	260	22.4		
106	229	27.3	238	27.3	247	27.3	257	27.3	266	27.3	275	27.3	284	27.3	293	27.3	106	187	27.3	196	27.3	205	26.9	215	26.6	224	26.3	233	25.8	242	25.4	251	25.0		
110	221	27.3	233	27.3	243	27.3	253	27.3	263	27.3	273	27.3	283	27.3	293	27.3	110	182	27.3	191	27.3	201	27.3	209	27.3	219	27.3	228	27.3	237	26.7	246	26.5		
114	219	27.2	227	26.0	236	24.9	245	23.8	254	22.6	263	21.4	272	20.8	281	19.9	114	176	27.2	185	26.0	194	24.9	203	23.8	212	22.6	221	21.7	230	20.8	239	19.9		
118	183	19.4	183	18.6	183	17.8	183	17.0	183	16.2	183	15.5	183	14.9	183	14.2	118	171	19.4	180	18.6	189	17.8	198	17.0	207	16.3	216	15.5	225	14.8	234	14.2		
122	120	11.7	120	11.2	120	10.7	120	10.2	120	9.8	120	9.4	120	9.0	120	8.6	122	120	11.7	120	11.2	120	10.7	120	10.2	120	9.8	120	9.4	120	9.0	120	8.6		
140																																			
-10	244	12.4	254	12.2	264	12.1	274	11.9	284	11.8	294	11.6	304	11.4	314	11.2	-10	176	9.5	186	9.3	196	9.2	206	9.1	216	9.0	226	8.9	236	8.7	246	8.6		
-4	244	12.4	254	12.2	264	12.1	274	11.9	284	11.8	294	11.6	304	11.4	314	11.2	-4	176	9.5	186	9.3	196	9.2	206	9.1	216	9.0	226	8.9	236	8.7	246	8.6		
14	244	12.4	254	12.2	264	12.1	274	11.9	284	11.8	294	11.6	304	11.4	314	11.2	14	176	9.5	186	9.3	196	9.2	206	9.1	216	9.0	226	8.9	236	8.7	246	8.6		
23	244	12.7	254	12.6	264	12.5	274	12.3	284	12.1	294	11.9	304	11.7	314	11.5	23	176	9.7	186	9.5	196	9.4	206	9.3	216	9.2	226	9.1	236	8.9	246	8.8		
32	244	13.4	254	13.2	264	13.1	274	12.9	284	12.7	294	12.5	304	12.3	314	12.1	32	176	10.2	186	10.1	196	10.0	206	9.8	216	9.7	226	9.6	236	9.4	246	9.2		
50	244	14.2	254	14.0	264	13.9	274	13.7	284	13.5	294	13.3	304	13.1	314	12.9	50	176	10.8	186	10.7	196	10.6	206	10.5	216	10.3	226	10.2	236	10.0	246	9.8		
58	244	15.4	254	15.2	264	15.0	274	14.8	284	14.7	294	14.4	304	14.2	314	13.9	58	176	11.7	186	11.6	196	11.5	206	11.3	216	11.2	226	11.0	236	10.8	246	10.6		
62	244	16.1	254	15.9	264	15.7	274	15.6	284	15.4	294	15.1	304	14.8	314	14.6	62	176	12.3	186	12.2	196	12.0	206	11.9	216	11.7	226	11.5	236	11.3	246	11.1		
66	244	17.0	254	16.8	264	16.6	274	16.4	284	16.2	294	15.9	304	15.6	314	15.4	66	176	12.9	186	12.8	196	12.6	206	12.5	216	12.3	226	12.1	236	11.9	246	11.7		
70	244	17.9	254	17.7	264	17.5	274	17.3	284	17.1	294	16.8	304	16.5	314	16.2	70	176	13.7	186	13.6	196	13.4	206	13.3	216	13.1	226	12.9	236	12.7	246	12.5		
74	244	19.0	254	18.8	264	18.6	274	18.3	284	18.1	294	17.8	304	17.5	314	17.2	74	176	14.6	186	14.3	196	14.1	206	14.0	216	13.8	226	13.6	236	13.3	246	13.1		
78	244	20.2	254	19.9	264	19.7	274	19.5	284	19.2	294	18.9	304	18.6	314	18.3	78	176	15.4	186	15.2	196	15.0	206	14.9	216	14.7	226	14.4	236	14.2	246	13.9		
82	244	21.5	254	21.3	264	21.0	274	20.7	284	20.5	294	20.1	304	19.8	314	19.5	82	176	16.4	186	16.2	196	16.0	206	15.8	216	15.6	226	15.4	236	15.1	246	14.8		
86	244	23.0	254	22.7	264	22.4	274	22.2	284	21.9	294	21.5	304	21.1																					

(H,Y)VAHP264B(3,4,5)2S

Cooling Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °FWB																Connection ratio	Outdoor air temp	Indoor air temp. °FWB															
		59		61		63		65		67		69		71		73				59		61		63		65		67		69		71		73	
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP		
%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW		
150	-10	279	12.6	290	12.6	301	12.6	312	12.6	323	12.6	334	12.6	346	12.6	357	12.6	100	-10	220	11.7	231	11.5	242	11.4	253	11.2	264	11.1	275	10.9	286	10.7	297	10.6
	-4	279	12.6	290	12.6	301	12.6	312	12.6	323	12.6	334	12.6	346	12.6	357	12.6	-4	220	11.7	231	11.5	242	11.4	253	11.2	264	11.1	275	10.9	286	10.7	297	10.6	
	14	279	12.6	290	12.6	301	12.6	312	12.6	323	12.6	334	12.6	346	12.6	357	12.6	14	220	11.7	231	11.5	242	11.4	253	11.2	264	11.1	275	10.9	286	10.7	297	10.6	
	23	279	12.7	290	12.7	301	12.7	312	12.7	323	12.7	334	12.7	346	12.7	357	12.7	23	220	11.7	231	11.5	242	11.4	253	11.2	264	11.2	275	11.0	286	10.8	297	10.6	
	32	279	12.9	290	12.9	301	12.9	312	12.9	323	12.9	334	12.9	346	12.9	357	12.9	32	220	12.0	231	11.8	242	11.7	253	11.6	264	11.4	275	11.2	286	11.0	297	10.8	
	42	279	13.6	290	13.6	301	13.6	312	13.6	323	13.6	334	13.6	346	13.6	357	13.6	42	220	12.6	231	12.4	242	12.3	253	12.1	264	12.0	275	11.8	286	11.6	297	11.4	
	50	279	14.4	290	14.4	301	14.4	312	14.4	323	14.4	334	14.4	346	14.4	357	14.4	50	220	13.4	231	13.2	242	13.1	253	12.9	264	12.7	275	12.5	286	12.3	297	12.1	
	58	279	15.6	290	15.6	301	15.6	312	15.6	323	15.6	334	15.6	346	15.6	357	15.6	58	220	14.5	231	14.3	242	14.1	253	14.0	264	13.8	275	13.6	286	13.3	297	13.1	
	62	279	16.4	290	16.4	301	16.4	312	16.4	323	16.4	334	16.4	346	16.4	357	16.4	62	220	15.2	231	15.0	242	14.8	253	14.6	264	14.5	275	14.2	286	14.0	297	13.7	
	66	279	17.2	290	17.2	301	17.2	312	17.2	323	17.2	334	17.2	346	17.2	357	17.2	66	220	16.0	231	15.8	242	15.6	253	15.4	264	15.2	275	15.0	286	14.7	297	14.5	
	70	279	18.2	290	18.2	301	18.2	312	18.2	323	18.2	334	18.2	346	18.2	357	18.2	70	220	16.9	231	16.7	242	16.5	253	16.3	264	16.1	275	15.8	286	15.5	297	15.3	
	74	279	19.3	290	19.3	301	19.3	312	19.3	323	19.3	334	19.3	346	19.3	357	19.3	74	220	17.9	231	17.7	242	17.5	253	17.2	264	17.0	275	16.7	286	16.5	297	16.2	
78	279	20.5	290	20.5	301	20.5	312	20.5	323	20.5	334	20.5	346	20.5	357	20.5	78	220	19.0	231	18.8	242	18.6	253	18.4	264	18.1	275	17.8	286	17.5	297	17.2		
82	279	21.9	290	21.9	301	21.9	312	21.9	323	21.9	334	21.9	346	21.9	357	21.9	82	220	20.3	231	20.0	242	19.8	253	19.5	264	19.3	275	19.0	286	18.6	297	18.3		
86	279	23.3	290	23.3	301	23.3	312	23.3	323	23.3	334	23.3	346	23.3	357	23.3	86	220	21.6	231	21.4	242	21.1	253	20.9	264	20.6	275	20.3	286	19.9	297	19.6		
90	279	25.0	290	25.0	301	25.0	312	25.0	323	25.0	334	25.0	346	25.0	357	25.0	90	220	23.1	231	22.9	242	22.6	253	22.3	264	22.0	275	21.7	286	21.3	297	20.9		
95	268	27.3	278	27.3	289	27.3	299	27.3	309	27.3	319	27.3	329	27.3	340	27.3	95	220	25.3	231	25.0	242	24.7	253	24.4	264	24.1	273	23.7	283	23.3	293	22.9		
100	261	27.3	271	27.3	281	27.3	291	27.3	301	27.3	311	27.3	322	27.3	332	27.3	100	215	27.3	225	27.2	235	26.9	245	26.6	255	26.2	266	25.8	276	25.4	286	24.9		
106	267	27.3	267	27.3	277	27.3	287	27.3	297	27.3	307	27.3	317	27.3	327	27.3	106	206	27.3	216	27.3	226	27.3	236	27.3	246	27.3	257	27.3	267	27.3	277	27.3		
110	240	27.3	256	27.3	266	27.3	276	27.3	287	27.3	297	27.3	307	27.3	317	27.3	110	200	27.3	210	27.3	220	27.3	230	27.3	240	27.3	251	27.3	261	27.3	271	27.3		
114	240	27.3	250	27.2	257	27.2	267	27.2	277	27.2	287	27.2	297	27.2	307	27.2	114	194	27.3	204	27.2	214	26.0	224	26.0	234	27.3	245	27.2	255	27.1	265	26.8		
118	191	20.3	191	19.5	191	18.6	191	17.8	191	16.9	191	16.2	191	15.6	191	14.9	118	188	20.3	191	19.5	191	18.6	191	17.8	191	16.9	191	16.2	191	15.6	191	14.9		
122	126	12.3	126	11.7	126	11.2	126	10.7	126	10.2	126	9.8	126	9.4	126	9.0	122	126	12.3	126	11.7	126	11.2	126	10.7	126	10.2	126	9.8	126	9.4	126	9.0		
140	-10	268	12.6	279	12.6	290	12.6	301	12.6	312	12.6	323	12.6	334	12.6	346	12.6	90	-10	193	10.5	204	10.4	210	10.2	217	10.1	223	10.0	229	9.8	235	9.6	241	9.4
	-4	268	12.6	279	12.6	290	12.6	301	12.6	312	12.6	323	12.6	334	12.6	346	12.6	-4	193	10.5	204	10.4	210	10.2	217	10.1	223	10.0	229	9.8	235	9.6	241	9.4	
	14	268	12.6	279	12.6	290	12.6	301	12.6	312	12.6	323	12.6	334	12.6	346	12.6	14	193	10.5	204	10.4	210	10.2	217	10.1	223	10.0	229	9.8	235	9.6	241	9.4	
	23	268	12.7	279	12.7	290	12.7	301	12.7	312	12.7	323	12.7	334	12.7	346	12.7	23	193	10.5	204	10.4	210	10.2	217	10.1	223	10.0	229	9.8	235	9.6	241	9.4	
	32	268	12.9	279	12.9	290	12.9	301	12.9	312	12.9	323	12.9	334	12.9	346	12.9	32	193	10.8	204	10.7	210	10.5	217	10.4	223	10.3	229	10.1	235	9.9	241	9.7	
	42	268	13.6	279	13.6	290	13.6	301	13.6	312	13.6	323	13.6	334	13.6	346	13.6	42	193	11.3	204	11.2	210	11.1	217	11.0	223	10.8	229	10.6	235	10.4	241	10.2	
	50	268	14.4	279	14.4	290	14.4	301	14.4	312	14.4	323	14.4	334	14.4	346	14.4	50	193	12.0	204	11.9	210	11.8	217	11.6	223	11.5	229	11.3	235	11.1	241	10.9	
	58	268	15.6	279	15.6	290	15.6	301	15.6	312	15.6	323	15.6	334	15.6	346	15.6	58	193	13.0	204	12.9	210	12.7	217	12.6	223	12.4	229	12.2	235	12.0	241	11.8	
	62	268	16.4	279	16.4	290	16.4	301	16.4	312	16.4	323	16.4	334	16.4	346	16.4	62	193	13.7	204	13.5	210	13.3	217	13.2	223	13.0	229	12.8	235	12.6	241	12.4	
	66	268	17.2	279	17.2	290	17.2	301	17.2	312	17.2	323	17.2	334	17.2	346	17.2	66	193	14.4	204	14.2	210	14.0	217	13.9	223	13.7	229	13.5	235	13.3	241	13.1	
	70	268	18.2	279	18.2	290	18.2	301	18.2	312	18.2	323	18.2	334	18.2	346	18.2	70	193	15.2	204	15.0	210	14.8	217	14.6	223	14.5	229	14.3	235	14.1	241	13.9	
	74	268	19.3	279	19.3	290	19.3	301	19.3	312	19.3	323	19.3	334	19.3	346	19.3	74	193	20.4	204	20.3	210	20.1	217	20.0	223	19.8	229	19.6	235	19.4	241	19.2	
78	268	20.5	279	20.5	290	20.5	301	20.5	312	20.5	323	20.5	334	20.5	346	20.5	78	193	21.6	204	21.4	210	21.2	217	21.1	223	21.0	229	20.8	235	20.6	241	20.4		
82	268	21.9	279	21.9	290	21.9	301	21.9	312	21.9	323																								

SELECTION DATA

Cooling Capacity

(H,Y)VAHP288B(3,4,5)2S

Connection ratio	Outdoor air temp	Indoor air temp. °FWB																Connection ratio	Outdoor air temp	Indoor air temp. °FWB															
		59		61		63		65		67		69		71		73				59		61		63		65		67		69		71		73	
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP		
%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW		
150	-10	304	15.9	316	15.9	329	15.9	341	15.9	353	15.8	365	15.5	377	15.2	389	15.0	-10	240	13.5	252	13.4	264	13.2	276	13.1	288	12.9	300	12.7	312	12.5	324	12.3	
	-4	304	15.9	316	15.9	329	15.9	341	15.9	353	15.8	365	15.5	377	15.2	389	15.0	-4	240	13.5	252	13.4	264	13.2	276	13.1	288	12.9	300	12.7	312	12.5	324	12.3	
	14	304	15.9	316	15.9	329	15.9	341	15.9	353	15.8	365	15.5	377	15.2	389	15.0	14	240	13.5	252	13.4	264	13.2	276	13.1	288	12.9	300	12.7	312	12.5	324	12.3	
	23	304	16.0	316	16.0	329	16.0	341	16.0	353	15.8	365	15.6	377	15.3	389	15.0	23	240	13.6	252	13.5	264	13.3	276	13.1	288	13.0	300	12.8	312	12.5	324	12.3	
	32	304	16.4	316	16.4	329	16.4	341	16.4	353	16.2	365	15.9	377	15.6	389	15.4	32	240	13.9	252	13.8	264	13.6	276	13.4	288	13.3	300	13.0	312	12.8	324	12.6	
	42	304	17.2	316	17.2	329	17.2	341	17.2	353	17.0	365	16.7	377	16.4	389	16.2	42	240	14.6	252	14.5	264	14.3	276	14.1	288	13.9	300	13.7	312	13.5	324	13.2	
	50	304	18.3	316	18.3	329	18.3	341	18.3	353	18.1	365	17.8	377	17.5	389	17.2	50	240	15.5	252	15.4	264	15.2	276	15.0	288	14.8	300	14.6	312	14.3	324	14.1	
	58	304	19.8	316	19.8	329	19.8	341	19.8	353	19.6	365	19.3	377	19.0	389	18.6	58	240	16.8	252	16.6	264	16.4	276	16.2	288	16.0	300	15.8	312	15.5	324	15.2	
	62	304	20.7	316	20.7	329	20.7	341	20.7	353	20.5	365	20.2	377	19.8	389	19.5	62	240	17.6	252	17.4	264	17.2	276	17.0	288	16.8	300	16.5	312	16.2	324	16.0	
	66	304	21.8	316	21.8	329	21.8	341	21.8	353	21.6	365	21.2	377	20.9	389	20.5	66	240	18.6	252	18.3	264	18.1	276	17.9	288	17.7	300	17.4	312	17.1	324	16.8	
	70	304	23.0	316	23.0	329	23.0	341	23.0	353	22.8	365	22.4	377	22.0	389	21.7	70	240	19.8	252	19.4	264	19.1	276	18.9	288	18.7	300	18.4	312	18.0	324	17.7	
	74	304	24.4	316	24.4	329	24.4	341	24.4	353	24.2	365	23.8	377	23.4	389	22.9	74	240	20.8	252	20.5	264	20.3	276	20.0	288	19.8	300	19.5	312	19.1	324	18.8	
	78	304	26.0	316	26.0	329	26.0	341	26.0	353	25.7	365	25.2	377	24.8	389	24.4	78	240	22.1	252	21.8	264	21.6	276	21.3	288	21.0	300	20.7	312	20.3	324	20.0	
82	304	27.7	316	27.7	329	27.7	341	27.7	353	27.4	365	26.9	377	26.4	389	26.0	82	240	23.5	252	23.2	264	23.0	276	22.7	288	22.4	300	22.0	312	21.7	324	21.3		
86	304	29.5	316	29.5	329	29.5	341	29.5	352	29.2	365	28.7	374	28.2	385	27.8	86	240	25.1	252	24.8	264	24.5	276	24.2	288	23.9	300	23.5	312	31.2	324	32.7		
90	301	31.6	312	31.6	323	31.6	334	31.6	345	31.3	356	30.7	368	30.2	379	29.7	90	240	26.9	252	26.6	264	26.2	276	25.9	288	25.6	300	25.2	312	24.7	324	24.3		
95	293	34.6	304	34.6	315	34.6	326	34.6	337	34.2	348	33.6	359	33.0	370	32.5	95	240	29.4	252	29.1	264	28.7	276	28.4	288	28.0	298	27.5	309	27.1	320	26.6		
100	285	34.6	296	34.6	307	34.6	318	34.6	329	34.6	340	34.6	351	34.6	362	34.6	100	234	32.0	245	31.6	256	31.2	267	30.9	279	30.5	290	30.0	301	29.5	312	29.0		
106	274	34.6	286	34.6	297	34.6	308	34.6	319	34.6	330	34.6	341	34.6	352	34.6	106	224	34.6	235	34.6	247	34.6	258	34.3	269	33.9	280	33.4	291	32.9	302	32.2		
110	264	34.6	276	34.6	287	34.6	298	34.6	309	34.6	320	34.6	331	34.6	342	34.6	110	214	34.6	225	34.6	237	34.6	248	34.3	259	34.0	270	33.6	281	33.2	292	32.8		
114	254	29.6	266	28.4	268	27.2	268	25.9	268	24.7	268	23.7	268	22.7	268	21.7	114	211	29.6	222	28.4	233	27.2	245	25.8	256	24.7	267	23.7	268	22.7	268	21.7		
118	240	21.2	200	20.3	200	19.4	200	18.5	200	17.7	200	16.9	200	16.2	200	15.5	118	200	21.2	200	20.3	200	19.4	200	18.5	200	17.7	200	16.9	200	16.2	200	15.5		
122	131	12.8	131	12.2	131	11.7	131	11.2	131	10.6	131	10.2	131	9.8	131	9.3	122	131	12.8	131	12.2	131	11.7	131	11.2	131	10.6	131	10.2	131	9.8	131	9.3		
140	-10	292	15.9	305	15.8	317	15.6	329	15.4	341	15.2	353	15.0	365	14.7	377	14.5	-10	211	12.2	223	12.0	235	11.9	247	11.8	259	11.6	271	11.4	283	11.2	296	11.0	
	-4	292	15.9	305	15.8	317	15.6	329	15.4	341	15.2	353	15.0	365	14.7	377	14.5	-4	211	12.2	223	12.0	235	11.9	247	11.8	259	11.6	271	11.4	283	11.2	296	11.0	
	14	292	15.9	305	15.8	317	15.6	329	15.4	341	15.2	353	15.0	365	14.7	377	14.5	14	211	12.2	223	12.0	235	11.9	247	11.8	259	11.6	271	11.4	283	11.2	296	11.0	
	23	292	16.0	305	16.0	317	16.0	329	15.8	341	15.5	353	15.4	365	15.1	377	14.9	23	211	12.5	223	12.4	235	12.2	247	12.1	259	11.9	271	11.7	283	11.5	296	11.3	
	32	292	16.4	305	16.4	317	16.4	329	16.2	341	16.0	353	15.8	365	15.5	377	15.2	32	211	12.8	223	12.7	235	12.5	247	12.3	259	12.1	271	11.9	283	11.7	296	11.5	
	42	292	17.2	305	17.0	317	16.8	329	16.6	341	16.4	353	16.2	365	15.9	377	15.6	42	211	13.2	223	13.0	235	12.8	247	12.7	259	12.5	271	12.3	283	12.1	296	11.9	
	50	292	18.3	305	18.1	317	17.9	329	17.7	341	17.5	353	17.2	365	16.9	377	16.6	50	211	14.0	223	13.8	235	13.7	247	13.5	259	13.3	271	13.1	283	12.9	296	12.7	
	58	292	19.8	305	19.6	317	19.4	329	19.2	341	18.9	353	18.6	365	18.3	377	18.0	58	211	15.2	223	15.0	235	14.8	247	14.6	259	14.4	271	14.2	283	14.0	296	13.7	
	62	292	20.7	305	20.6	317	20.3	329	20.1	341	19.8	353	19.5	365	19.2	377	18.8	62	211	15.9	223	15.7	235	15.5	247	15.3	259	15.1	271	14.9	283	14.6	296	14.4	
	66	292	21.8	305	21.6	317	21.4	329	21.1	341	20.9	353	20.5	365	20.2	377	19.8	66	211	16.7	223	16.5	235	16.3	247	16.1	259	15.9	271	15.6	283	15.4	296	15.1	
	70	292	23.0	305	22.8	317	22.6	329	22.3	341	22.0	353	21.7	365	21.3	377	20.9	70	211	17.8	223	17.5	235	17.2	247	17.0	259	16.8	271	16.5	283	16.2	296	15.9	
	74	292	24.4	305	24.2	317	24.0	329	23.7	341	23.4	353	23.1	365	22.7	377	22.3	74	211	18.8	223	18.5	235	18.2	247	18.0	259	17.7	271	17.4	283	17.1	296	16.8	
	78	292	26.0	305	25.7	317	25.4	329	25.1	341	24.8	353	24.4	365	24.0	377	23.6	78	211	19.9	223	19.6	235	19.4	247	19.2	259	18.9	271	18.6	283	18.3	296	18.0	
82	292	27.7	305	27.4	317	27.1	329	26.8	341	26.4	353	26.0	365	25.6	377	25.1	82	211	21.2	223	20.9	235	20.7	247	20.4	259	20.2	271	19.8	283	19.5	296	19.2		
86	292	29.5	305	29.3	317	28.9	329	28.6	341	28.2	353	27.8	365	27.3	376	26.8	86	211	22.6	223	22.3	235	22.1	247	21.8	259	21.5	271	21.2	283	20.8	296	20.5		
90	292	31.6	303	31.3	314	31.0	325	30.6	336	30.2	347	29.7	358	29.2	370	28.7	90	211	24.2	223	23.9	235	23.6	247	23.3	259	23.0	271	22.7	283	22.3	296	21.9		
95	284	34.6	295	34.3	306	33.9	317	33.4	328	33.0	339	32.5	350	31.9	361	31.4	95	211	26.5	223	26.1	235	25.8	247	25.5	259	25.2	271							

(H,Y)VAHP312B(3,4,5)2S

Cooling Capacity

Connection ratio	Outdoor air temp.	Indoor air temp. °FWB																Connection ratio	Outdoor air temp.	Indoor air temp. °FWB															
		59		61		63		65		67		69		71		73				59		61		63		65		67		69		71		73	
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP		
%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW		
150	-10	330	15.9	343	15.9	356	15.9	369	15.9	382	15.9	395	15.9	408	15.9	421	15.8	-10	280	14.3	273	14.1	286	13.9	299	13.8	312	13.6	325	13.4	338	13.1	351	12.9	
	-4	330	15.9	343	15.9	356	15.9	369	15.9	382	15.9	395	15.9	408	15.9	421	15.8	-4	280	14.3	273	14.1	286	13.9	299	13.8	312	13.6	325	13.4	338	13.1	351	12.9	
	14	330	15.9	343	15.9	356	15.9	369	15.9	382	15.9	395	15.9	408	15.9	421	15.8	14	280	14.3	273	14.1	286	13.9	299	13.8	312	13.6	325	13.4	338	13.1	351	12.9	
	23	330	16.0	343	16.0	356	16.0	369	16.0	382	16.0	395	16.0	408	16.0	421	15.8	23	280	14.3	273	14.2	286	14.0	299	13.8	312	13.7	325	13.4	338	13.2	351	13.0	
	32	330	16.4	343	16.4	356	16.4	369	16.4	382	16.4	395	16.4	408	16.4	421	16.2	32	280	14.7	273	14.5	286	14.3	299	14.1	312	14.0	325	13.7	338	13.5	351	13.3	
	42	330	17.2	343	17.2	356	17.2	369	17.2	382	17.2	395	17.2	408	17.2	421	17.0	42	280	15.4	273	15.2	286	15.0	299	14.8	312	14.7	325	14.4	338	14.2	351	13.9	
	50	330	18.3	343	18.3	356	18.3	369	18.3	382	18.3	395	18.3	408	18.3	421	18.1	50	280	16.4	273	16.2	286	16.0	299	15.8	312	15.6	325	15.3	338	15.1	351	14.8	
	58	330	19.8	343	19.8	356	19.8	369	19.8	382	19.8	395	19.8	408	19.8	421	19.6	58	280	17.7	273	17.5	286	17.3	299	17.1	312	16.9	325	16.6	338	16.3	351	16.0	
	62	330	20.7	343	20.7	356	20.7	369	20.7	382	20.7	395	20.7	408	20.7	421	20.5	62	280	18.6	273	18.4	286	18.1	299	17.9	312	17.7	325	17.4	338	17.1	351	16.8	
	66	330	21.8	343	21.8	356	21.8	369	21.8	382	21.8	395	21.8	408	21.8	421	21.6	66	280	19.6	273	19.3	286	19.1	299	18.9	312	18.6	325	18.3	338	18.0	351	17.7	
	70	330	23.0	343	23.0	356	23.0	369	23.0	382	23.0	395	23.0	408	23.0	421	22.8	70	280	20.7	273	20.4	286	20.2	299	19.9	312	19.7	325	19.3	338	19.0	351	18.7	
	74	330	24.4	343	24.4	356	24.4	369	24.4	382	24.4	395	24.4	408	24.4	421	22.8	74	280	21.9	273	21.6	286	21.4	299	21.1	312	20.8	325	20.5	338	20.1	351	19.8	
	78	330	26.0	343	26.0	356	26.0	369	26.0	382	26.0	395	26.0	408	26.0	421	23.0	78	280	23.3	273	23.0	286	22.7	299	22.4	312	22.2	325	21.8	338	21.4	351	21.0	
82	330	27.7	343	27.7	356	27.7	369	27.7	382	27.7	395	27.7	408	27.7	421	23.2	82	280	24.8	273	24.5	286	24.2	299	23.9	312	23.6	325	23.2	338	22.8	351	22.4		
86	330	29.5	343	29.5	356	29.5	369	29.5	382	29.5	395	29.5	408	29.5	417	23.4	86	280	26.5	273	26.2	286	25.8	299	25.5	312	25.2	325	24.8	338	24.4	351	24.0		
90	330	31.6	338	31.6	350	31.6	362	31.6	374	31.6	386	31.6	398	31.6	410	31.3	90	280	28.3	273	28.0	286	27.6	299	27.3	312	27.0	325	26.5	338	26.1	351	25.6		
95	330	34.6	329	34.6	341	34.6	353	34.6	365	34.6	377	34.6	389	34.6	401	34.2	95	280	31.0	273	30.6	286	30.2	299	29.9	312	29.5	323	29.0	335	28.5	347	28.0		
100	330	34.6	320	34.6	332	34.6	344	34.6	356	34.6	368	34.6	380	34.6	392	34.6	100	254	33.7	266	33.3	279	32.9	292	32.5	302	32.1	314	31.6	326	31.0	338	30.5		
106	330	34.6	310	34.6	322	34.6	334	34.6	346	34.6	358	34.6	370	34.6	382	34.6	106	243	34.6	255	34.6	267	34.6	279	34.6	291	34.6	303	34.6	315	34.5	327	33.9		
110	290	34.6	310	34.6	322	34.6	334	34.6	346	34.6	358	34.6	370	34.6	382	34.6	110	226	34.6	240	34.6	252	34.6	264	34.6	276	34.6	288	34.6	300	34.6	312	34.6		
114	274	30.3	274	29.0	274	27.7	274	26.5	274	25.2	274	24.2	274	23.1	274	22.1	114	229	30.3	241	29.0	253	27.7	265	26.5	274	25.2	274	24.2	274	23.1	274	22.1		
118	204	21.7	204	20.7	204	19.8	204	18.9	204	18.0	204	17.3	204	16.6	204	15.8	118	194	21.7	204	20.7	204	19.7	204	18.9	204	18.0	204	17.3	204	16.6	204	15.8		
122	134	13.1	134	12.5	134	12.0	134	11.4	134	10.9	134	10.4	134	10.0	134	9.5	122	134	13.1	134	12.5	134	12.0	134	11.4	134	10.9	134	10.4	134	10.0	134	9.5		
140	-10	317	15.9	330	15.9	343	15.9	356	15.9	369	15.9	382	15.8	395	15.5	408	15.2	-10	228	12.8	242	12.7	255	12.5	268	12.4	281	12.2	294	12.0	307	11.8	320	11.6	
	-4	317	15.9	330	15.9	343	15.9	356	15.9	369	15.9	382	15.8	395	15.5	408	15.2	-4	228	12.8	242	12.7	255	12.5	268	12.4	281	12.2	294	12.0	307	11.8	320	11.6	
	14	317	15.9	330	15.9	343	15.9	356	15.9	369	15.9	382	15.8	395	15.5	408	15.2	14	228	12.8	242	12.7	255	12.5	268	12.4	281	12.2	294	12.0	307	11.8	320	11.6	
	23	317	16.0	330	16.0	343	16.0	356	16.0	369	16.0	382	16.0	395	16.0	408	16.0	23	228	12.9	242	12.8	255	12.6	268	12.4	281	12.3	294	12.1	307	11.9	320	11.7	
	32	317	16.4	330	16.4	343	16.4	356	16.4	369	16.4	382	16.2	395	15.8	408	15.6	32	228	13.2	242	13.0	255	12.9	268	12.7	281	12.6	294	12.4	307	12.1	320	11.9	
	42	317	17.2	330	17.2	343	17.2	356	17.2	369	17.2	382	17.0	395	16.7	408	16.4	42	228	13.9	242	13.7	255	13.5	268	13.4	281	13.2	294	13.0	307	12.8	320	12.5	
	50	317	18.3	330	18.3	343	18.3	356	18.3	369	18.3	382	18.1	395	17.8	408	17.5	50	228	14.7	242	14.6	255	14.4	268	14.2	281	14.0	294	13.8	307	13.6	320	13.3	
	58	317	19.8	330	19.8	343	19.8	356	19.8	369	19.8	382	19.6	395	19.3	408	18.9	58	228	16.0	242	15.8	255	15.6	268	15.4	281	15.2	294	15.0	307	14.7	320	14.4	
	62	317	20.7	330	20.7	343	20.7	356	20.7	369	20.7	382	20.5	395	20.2	408	19.8	62	228	16.7	242	16.5	255	16.3	268	16.1	281	15.9	294	15.7	307	15.4	320	15.1	
	66	317	21.8	330	21.8	343	21.8	356	21.8	369	21.8	382	21.6	395	21.2	408	20.9	66	228	17.6	242	17.4	255	17.2	268	17.0	281	16.8	294	16.5	307	16.2	320	15.9	
	70	317	23.0	330	23.0	343	23.0	356	23.0	369	23.0	382	22.8	395	22.4	408	22.0	70	228	18.6	242	18.4	255	18.2	268	18.0	281	17.7	294	17.4	307	17.1	320	16.8	
	74	317	24.4	330	24.4	343	24.4	356	24.4	369	24.4	382	24.2	395	23.8	408	23.4	74	228	19.7	242	19.5	255	19.2	268	19.0	281	18.8	294	18.5	307	18.2	320	17.8	
	78	317	26.0	330	26.0	343	26.0	356	26.0	369	26.0	382	25.7	395	25.3	408	24.8	78	228	20.9	242	20.7	255	20.4	268	20.2	281	20.0	294	19.7	307	19.4	320	19.0	
82	317	27.7	330	27.7	343	27.7	356	27.7	369	27.7	382	27.4	395																						

SELECTION DATA

(H,Y)VAHP336B(3,4,5)2S

Cooling Capacity

Connection ratio	Outdoor air temp.	Indoor air temp. °FWB																Connection ratio	Outdoor air temp.	Indoor air temp. °FWB															
		59		61		63		65		67		69		71		73				59		61		63		65		67		69		71		73	
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP		
%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW		
150	-10	355	15.9	369	15.9	383	15.9	397	15.9	412	15.9	426	15.9	440	15.9	454	15.9	100	-10	280	15.7	294	15.5	308	15.4	322	15.2	336	15.0	350	14.7	364	14.5	378	14.2
	-4	355	15.9	369	15.9	383	15.9	397	15.9	412	15.9	426	15.9	440	15.9	454	15.9		-4	280	15.7	294	15.5	308	15.4	322	15.2	336	15.0	350	14.7	364	14.5	378	14.2
	14	355	15.9	369	15.9	383	15.9	397	15.9	412	15.9	426	15.9	440	15.9	454	15.9		14	280	15.7	294	15.5	308	15.4	322	15.2	336	15.0	350	14.7	364	14.5	378	14.2
	23	355	16.0	369	16.0	383	16.0	397	16.0	412	16.0	426	16.0	440	16.0	454	16.0		23	280	15.8	294	15.6	308	15.4	322	15.2	336	15.1	350	14.8	364	14.6	378	14.3
	32	355	16.0	369	16.0	383	16.0	397	16.0	412	16.0	426	16.0	440	16.0	454	16.0		32	280	15.8	294	15.6	308	15.4	322	15.2	336	15.1	350	14.8	364	14.6	378	14.3
	42	355	16.0	369	16.0	383	16.0	397	16.0	412	16.0	426	16.0	440	16.0	454	16.0		42	280	15.8	294	15.6	308	15.4	322	15.2	336	15.1	350	14.8	364	14.6	378	14.3
	50	355	18.3	369	18.3	383	18.3	397	18.3	412	18.3	426	18.3	440	18.3	454	18.3		50	280	16.0	294	15.8	308	15.6	322	15.4	336	15.2	350	15.0	364	14.8	378	14.6
	58	355	19.8	369	19.8	383	19.8	397	19.8	412	19.8	426	19.8	440	19.8	454	19.8		58	280	19.5	294	19.3	308	19.1	322	18.8	336	18.6	350	18.3	364	18.0	378	17.7
	62	355	20.7	369	20.7	383	20.7	397	20.7	412	20.7	426	20.7	440	20.7	454	20.7		62	280	20.5	294	20.2	308	20.0	322	19.7	336	19.5	350	19.2	364	18.9	378	18.5
	66	355	21.8	369	21.8	383	21.8	397	21.8	412	21.8	426	21.8	440	21.8	454	21.8		66	280	21.5	294	21.3	308	21.0	322	20.8	336	20.5	350	20.2	364	19.8	378	19.5
	70	355	23.0	369	23.0	383	23.0	397	23.0	412	23.0	426	23.0	440	23.0	454	23.0		70	280	22.8	294	22.5	308	22.2	322	21.9	336	21.7	350	21.3	364	20.9	378	20.6
	74	355	24.4	369	24.4	383	24.4	397	24.4	412	24.4	426	24.4	440	24.4	454	24.4		74	280	24.8	294	24.3	308	23.9	322	23.3	336	23.0	350	22.6	364	22.2	378	21.8
	78	355	26.0	369	26.0	383	26.0	397	26.0	412	26.0	426	26.0	440	26.0	454	26.0		78	280	25.6	294	25.0	308	24.6	322	24.0	336	23.6	350	23.2	364	22.8	378	22.4
	82	355	27.7	369	27.7	383	27.7	397	27.7	412	27.7	426	27.7	440	27.7	454	27.7		82	280	27.3	294	27.0	308	26.7	322	26.3	336	26.0	350	25.6	364	25.1	378	24.7
	86	355	29.5	369	29.5	383	29.5	397	29.5	411	29.5	426	29.5	440	29.5	454	29.5		86	280	29.2	294	28.8	308	28.5	322	28.1	336	27.8	350	27.3	364	26.9	378	26.4
	90	351	31.6	364	31.6	377	31.6	390	31.6	403	31.6	417	31.6	429	31.6	442	31.6		90	280	31.2	294	30.8	308	30.5	322	30.1	336	29.7	350	29.2	364	28.7	378	28.2
	94	341	34.6	354	34.6	367	34.6	380	34.6	393	34.6	406	34.6	419	34.6	432	34.6		94	280	34.1	294	33.7	308	33.3	322	32.9	336	32.5	348	32.0	361	31.4	373	30.9
100	332	34.6	354	34.6	367	34.6	379	34.6	391	34.6	403	34.6	415	34.6	427	34.6	100	273	34.6	286	34.6	298	34.6	312	34.6	325	34.6	338	34.6	351	34.2	364	33.6		
106	320	34.6	333	34.6	346	34.6	359	34.6	372	34.6	385	34.6	398	34.6	411	34.6	106	262	34.6	275	34.6	288	34.6	301	34.6	314	34.6	327	34.6	339	34.6	352	34.6		
110	311	34.6	326	34.6	341	34.6	356	34.6	371	34.6	386	34.6	401	34.6	416	34.6	110	251	34.6	267	34.6	282	34.6	297	34.6	312	34.6	327	34.6	342	34.6	357	34.6		
114	279	30.9	279	29.6	279	28.3	279	27.8	279	27.3	279	26.7	279	26.2	279	25.6	114	246	30.9	259	29.6	272	28.3	279	27.0	279	25.7	279	24.7	279	23.6	279	22.6		
118	208	22.1	208	21.2	208	20.2	208	19.3	208	18.4	208	17.6	208	16.9	208	16.2	118	208	22.1	208	21.2	208	20.2	208	19.3	208	18.4	208	17.6	208	16.9	208	16.2		
122	137	13.3	137	12.8	137	12.2	137	11.6	137	11.1	137	10.6	137	10.2	137	9.7	122	137	13.3	137	12.8	137	12.2	137	11.6	137	11.1	137	10.6	137	10.2	137	9.7		
140	-10	341	15.9	355	15.9	369	15.9	383	15.9	398	15.9	412	15.9	426	15.9	440	15.9	90	-10	246	14.2	260	14.0	274	13.8	288	13.6	302	13.5	317	13.3	331	13.0	345	12.8
	-4	341	15.9	355	15.9	369	15.9	383	15.9	398	15.9	412	15.9	426	15.9	440	15.9		-4	246	14.2	260	14.0	274	13.8	288	13.6	302	13.5	317	13.3	331	13.0	345	12.8
	14	341	15.9	355	15.9	369	15.9	383	15.9	398	15.9	412	15.9	426	15.9	440	15.9		14	246	14.2	260	14.0	274	13.8	288	13.6	302	13.5	317	13.3	331	13.0	345	12.8
	23	341	16.0	355	16.0	369	16.0	383	16.0	398	16.0	412	16.0	426	16.0	440	16.0		23	246	14.2	260	14.0	274	13.8	288	13.6	302	13.5	317	13.3	331	13.0	345	12.8
	32	341	16.0	355	16.0	369	16.0	383	16.0	398	16.0	412	16.0	426	16.0	440	16.0		32	246	14.5	260	14.4	274	14.2	288	14.0	302	13.8	317	13.6	331	13.3	345	13.0
	42	341	17.2	355	17.2	369	17.2	383	17.2	398	17.2	412	17.2	426	17.2	440	17.2		42	246	15.3	260	15.1	274	14.9	288	14.7	302	14.6	317	14.3	331	14.1	345	13.8
	50	341	18.3	355	18.3	369	18.3	383	18.3	398	18.3	412	18.3	426	18.3	440	18.3		50	246	16.2	260	16.0	274	15.9	288	15.7	302	15.5	317	15.2	331	14.9	345	14.7
	58	341	19.8	355	19.8	369	19.8	383	19.8	398	19.8	412	19.8	426	19.8	440	19.8		58	246	17.6	260	17.4	274	17.2	288	17.0	302	16.8	317	16.5	331	16.2	345	15.9
	62	341	20.7	355	20.7	369	20.7	383	20.7	398	20.7	412	20.7	426	20.7	440	20.7		62	246	18.4	260	18.2	274	18.0	288	17.8	302	17.6	317	17.3	331	17.0	345	16.7
	66	341	21.8	355	21.8	369	21.8	383	21.8	398	21.8	412	21.8	426	21.8	440	21.8		66	246	19.4	260	19.2	274	18.9	288	18.7	302	18.5	317	18.2	331	17.9	345	17.5
	70	341	23.0	355	23.0	369	23.0	383	23.0	398	23.0	412	23.0	426	23.0	440	23.0		70	246	20.8	260	20.6	274	20.4	288	20.2	302	20.0	317	19.7	331	19.4	345	19.0
	74	341	24.4	355	24.4	369	24.4	383	24.4	398	24.4	412	24.4	426	24.4	440	24.4		74	246	21.7	260	21.4	274	21.2	288	20.9	302	20.7	317	20.3	331	20.0	345	19.6
	78	341	26.0	355	26.0	369	26.0	383	26.0	398	26.0	412	26.0	426	26.0	440	26.0		78	246	23.1	260	22.8	274	22.5	288	22.2	302	22.0	317	21.6	331	21.2	345	20.8
	82	341	27.7	355	27.7	369	27.7	383	27.7	398	27.7																								

(H,Y)VAHP360B(3,4,5)2S

Cooling Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °FWB																Connection ratio	Outdoor air temp	Indoor air temp. °FWB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
		59		61		63		65		67		69		71		73				59		61		63		65		67		69		71		73																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
150	-10	380	17.9	396	17.9	411	17.9	426	17.9	441	17.9	456	17.9	471	17.9	486	17.9	100	-10	300	17.5	315	17.3	330	17.1	345	16.8	360	16.6	375	16.4	390	16.1	405	15.8	90	-10	284	15.7	299	15.5	314	15.3	329	15.2	344	15.0	359	14.7	374	14.5	389	14.2	80	-10	228	14.0	243	13.8	258	13.6	273	13.5	288	13.3	303	13.1	318	12.9	333	12.6	70	-10	192	12.2	207	12.1	222	11.9	237	11.8	252	11.6	267	11.5	282	11.3	297	11.1	312	10.9	60	-10	156	10.5	171	10.4	186	10.2	201	10.1	216	10.0	231	9.8	246	9.6	261	9.5	276	9.3	50	-10	120	7.7	135	7.6	150	7.4	165	7.3	180	7.1	195	6.9	210	6.7	225	6.5	240	6.3	255	6.1	40	-10	84	5.9	99	5.8	114	5.6	129	5.5	144	5.3	159	5.1	174	4.9	189	4.7	204	4.5	219	4.3	234	4.1	30	-10	48	3.1	63	3.0	78	2.9	93	2.8	108	2.6	123	2.4	138	2.2	153	2.0	168	1.8	183	1.6	198	1.4	213	1.2	228	1.0	243	0.8	258	0.6	273	0.4	288	0.2	303	0.0	318	-0.2	333	-0.4	348	-0.6	363	-0.8	378	-1.0	393	-1.2	408	-1.4	423	-1.6	438	-1.8	453	-2.0	468	-2.2	483	-2.4	498	-2.6	513	-2.8	528	-3.0	543	-3.2	558	-3.4	573	-3.6	588	-3.8	603	-4.0	618	-4.2	633	-4.4	648	-4.6	663	-4.8	678	-5.0	693	-5.2	708	-5.4	723	-5.6	738	-5.8	753	-6.0	768	-6.2	783	-6.4	798	-6.6	813	-6.8	828	-7.0	843	-7.2	858	-7.4	873	-7.6	888	-7.8	903	-8.0	918	-8.2	933	-8.4	948	-8.6	963	-8.8	978	-9.0	993	-9.2	1008	-9.4	1023	-9.6	1038	-9.8	1053	-10.0	1068	-10.2	1083	-10.4	1098	-10.6	1113	-10.8	1128	-11.0	1143	-11.2	1158	-11.4	1173	-11.6	1188	-11.8	1203	-12.0	1218	-12.2	1233	-12.4	1248	-12.6	1263	-12.8	1278	-13.0	1293	-13.2	1308	-13.4	1323	-13.6	1338	-13.8	1353	-14.0	1368	-14.2	1383	-14.4	1398	-14.6	1413	-14.8	1428	-15.0	1443	-15.2	1458	-15.4	1473	-15.6	1488	-15.8	1503	-16.0	1518	-16.2	1533	-16.4	1548	-16.6	1563	-16.8	1578	-17.0	1593	-17.2	1608	-17.4	1623	-17.6	1638	-17.8	1653	-18.0	1668	-18.2	1683	-18.4	1698	-18.6	1713	-18.8	1728	-19.0	1743	-19.2	1758	-19.4	1773	-19.6	1788	-19.8	1803	-20.0	1818	-20.2	1833	-20.4	1848	-20.6	1863	-20.8	1878	-21.0	1893	-21.2	1908	-21.4	1923	-21.6	1938	-21.8	1953	-22.0	1968	-22.2	1983	-22.4	1998	-22.6	2013	-22.8	2028	-23.0	2043	-23.2	2058	-23.4	2073	-23.6	2088	-23.8	2103	-24.0	2118	-24.2	2133	-24.4	2148	-24.6	2163	-24.8	2178	-25.0	2193	-25.2	2208	-25.4	2223	-25.6	2238	-25.8	2253	-26.0	2268	-26.2	2283	-26.4	2298	-26.6	2313	-26.8	2328	-27.0	2343	-27.2	2358	-27.4	2373	-27.6	2388	-27.8	2403	-28.0	2418	-28.2	2433	-28.4	2448	-28.6	2463	-28.8	2478	-29.0	2493	-29.2	2508	-29.4	2523	-29.6	2538	-29.8	2553	-30.0	2568	-30.2	2583	-30.4	2598	-30.6	2613	-30.8	2628	-31.0	2643	-31.2	2658	-31.4	2673	-31.6	2688	-31.8	2703	-32.0	2718	-32.2	2733	-32.4	2748	-32.6	2763	-32.8	2778	-33.0	2793	-33.2	2808	-33.4	2823	-33.6	2838	-33.8	2853	-34.0	2868	-34.2	2883	-34.4	2898	-34.6	2913	-34.8	2928	-35.0	2943	-35.2	2958	-35.4	2973	-35.6	2988	-35.8	3003	-36.0	3018	-36.2	3033	-36.4	3048	-36.6	3063	-36.8	3078	-37.0	3093	-37.2	3108	-37.4	3123	-37.6	3138	-37.8	3153	-38.0	3168	-38.2	3183	-38.4	3198	-38.6	3213	-38.8	3228	-39.0	3243	-39.2	3258	-39.4	3273	-39.6	3288	-39.8	3303	-40.0	3318	-40.2	3333	-40.4	3348	-40.6	3363	-40.8	3378	-41.0	3393	-41.2	3408	-41.4	3423	-41.6	3438	-41.8	3453	-42.0	3468	-42.2	3483	-42.4	3498	-42.6	3513	-42.8	3528	-43.0	3543	-43.2	3558	-43.4	3573	-43.6	3588	-43.8	3603	-44.0	3618	-44.2	3633	-44.4	3648	-44.6	3663	-44.8	3678	-45.0	3693	-45.2	3708	-45.4	3723	-45.6	3738	-45.8	3753	-46.0	3768	-46.2	3783	-46.4	3798	-46.6	3813	-46.8	3828	-47.0	3843	-47.2	3858	-47.4	3873	-47.6	3888	-47.8	3903	-48.0	3918	-48.2	3933	-48.4	3948	-48.6	3963	-48.8	3978	-49.0	3993	-49.2	4008	-49.4	4023	-49.6	4038	-49.8	4053	-50.0	4068	-50.2	4083	-50.4	4098	-50.6	4113	-50.8	4128	-51.0	4143	-51.2	4158	-51.4	4173	-51.6	4188	-51.8	4203	-52.0	4218	-52.2	4233	-52.4	4248	-52.6	4263	-52.8	4278	-53.0	4293	-53.2	4308	-53.4	4323	-53.6	4338	-53.8	4353	-54.0	4368	-54.2	4383	-54.4	4398	-54.6	4413	-54.8	4428	-55.0	4443	-55.2	4458	-55.4	4473	-55.6	4488	-55.8	4503	-56.0	4518	-56.2	4533	-56.4	4548	-56.6	4563	-56.8	4578	-57.0	4593	-57.2	4608	-57.4	4623	-57.6	4638	-57.8	4653	-58.0	4668	-58.2	4683	-58.4	4698	-58.6	4713	-58.8	4728	-59.0	4743	-59.2	4758	-59.4	4773	-59.6	4788	-59.8	4803	-60.0	4818	-60.2	4833	-60.4	4848	-60.6	4863	-60.8	4878	-61.0	4893	-61.2	4908	-61.4	4923	-61.6	4938	-61.8	4953	-62.0	4968	-62.2	4983	-62.4	4998	-62.6	5013	-62.8	5028	-63.0	5043	-63.2	5058	-63.4	5073	-63.6	5088	-63.8	5103	-64.0	5118	-64.2	5133	-64.4	5148	-64.6	5163	-64.8	5178	-65.0	5193	-65.2	5208	-65.4	5223	-65.6	5238	-65.8	5253	-66.0	5268	-66.2	5283	-66.4	5298	-66.6	5313	-66.8	5328	-67.0	5343	-67.2	5358	-67.4	5373	-67.6	5388	-67.8	5403	-68.0	5418	-68.2	5433	-68.4	5448	-68.6	5463	-68.8	5478	-69.0	5493	-69.2	5508	-69.4	5523	-69.6	5538	-69.8	5553	-70.0	5568	-70.2	5583	-70.4	5598	-70.6	5613	-70.8	5628	-71.0	5643	-71.2	5658	-71.4	5673	-71.6	5688	-71.8	5703	-72.0	5718	-72.2	5733	-72.4	5748	-72.6	5763	-72.8	5778	-73.0	5793	-73.2	5808	-73.4	5823	-73.6	5838	-73.8	5853	-74.0	5868	-74.2	5883	-74.4	5898	-74.6	5913	-74.8	5928	-75.0	5943	-75.2	5958	-75.4	5973	-75.6	5988	-75.8	6003	-76.0	6018	-76.2	6033	-76.4	6048	-76.6	6063	-76.8	6078	-77.0	6093	-77.2	6108	-77.4	6123	-77.6	6138	-77.8	6153	-78.0	6168	-78.2	6183	-78.4	6198	-78.6	6213	-78.8	6228	-79.0	6243	-79.2	6258	-79.4	6273	-79.6	6288	-79.8	6303	-80.0	6318	-80.2	6333	-80.4	6348	-80.6	6363	-80.8	6378	-81.0	6393	-81.2	6408	-81.4	6423	-81.6	6438	-81.8	6453	-82.0	6468	-82.2	6483	-82.4	6498	-82.6	6513	-82.8	6528	-83.0	6543	-83.2	6558	-83.4	6573	-83.6	6588	-83.8	6603	-84.0	6618	-84.2	6633	-84.4	6648	-84.6	6663	-84.8	6678	-85.0	6693	-85.2	6708	-85.4	6723	-85.6	6738	-85.8	6753	-86.0	6768	-86.2	6783	-86.4	6798	-86.6	6813	-86.8	6828	-87.0	6843	-87.2	6858	-87.4	6873	-87.6	6888	-87.8	6903	-88.0	6918	-88.2	6933	-88.4	6948	-88.6	6963	-88.8	6978	-89.0	6993	-89.2	7008	-89.4	7023	-89.6	7038	-89.8	7053	-90.0	7068	-90.2	7083	-90.4	7098	-90.6	7113	-90.8	7128	-91.0	7143	-91.2	7158	-91.4	7173	-91.6	7188	-91.8	7203	-92.0	7218	-92.2	7233	-92.4	7248	-92.6	7263	-92.8	7278	-93.0	7293	-93.2	7308	-93.4	7323	-93.6	7338	-93.8	7353	-94.0	7368	-94.2	7383	-94.4	7398	-94.6	7413	-94.8	7428	-95.0	7443	-95.2	7458	-95.4	7473	-95.6	7488

SELECTION DATA

(H,Y)VAHP384B(3,4,5)2S

Cooling Capacity

Connection ratio	Outdoor air temp.	Indoor air temp. °FWB																Connection ratio	Outdoor air temp.	Indoor air temp. °FWB															
		59		61		63		65		67		69		71		73				59		61		63		65		67		69		71		73	
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP		
%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW		
150																																			
-10	-406	22.7	422	22.4	438	22.1	454	21.9	470	21.6	486	21.2	503	20.9	519	20.5	-10	320	18.6	336	18.4	352	18.1	368	17.9	384	17.7	400	17.4	416	17.1	432	16.8		
-4	406	22.7	422	22.4	438	22.1	454	21.9	470	21.6	486	21.2	503	20.9	519	20.5	-4	320	18.6	336	18.4	352	18.1	368	17.9	384	17.7	400	17.4	416	17.1	432	16.8		
14	406	22.7	422	22.4	438	22.1	454	21.9	470	21.6	486	21.2	503	20.9	519	20.5	14	320	18.6	336	18.4	352	18.1	368	17.9	384	17.7	400	17.4	416	17.1	432	16.8		
23	406	22.8	422	22.5	438	22.3	454	22.0	470	21.7	486	21.4	503	21.1	519	20.6	23	320	18.7	336	18.5	352	18.2	368	18.0	384	17.8	400	17.5	416	17.2	432	16.9		
32	406	23.3	422	23.0	438	22.7	454	22.5	470	22.2	486	21.8	503	21.5	519	21.1	32	320	19.1	336	18.9	352	18.6	368	18.4	384	18.2	400	17.9	416	17.6	432	17.3		
42	406	24.5	422	24.2	438	23.9	454	23.6	470	23.3	486	22.9	503	22.5	519	22.2	42	320	20.1	336	19.8	352	19.6	368	19.4	384	19.1	400	18.8	416	18.5	432	18.1		
50	406	26.0	422	25.7	438	25.4	454	25.1	470	24.8	486	24.4	503	24.0	519	23.5	50	320	21.3	336	21.1	352	20.8	368	20.6	384	20.3	400	20.0	416	19.6	432	19.3		
58	406	28.2	422	27.9	438	27.5	454	27.2	470	26.9	486	26.4	503	26.0	519	25.5	58	320	23.1	336	22.8	352	22.5	368	22.3	384	22.0	400	21.6	416	21.3	432	20.9		
62	406	29.5	422	29.2	438	28.8	454	28.5	470	28.1	486	27.7	503	27.2	519	26.7	62	320	24.2	336	23.9	352	23.6	368	23.3	384	23.0	400	22.7	416	22.3	432	21.9		
66	406	31.1	422	30.7	438	30.3	454	30.0	470	29.6	486	29.1	503	28.6	519	28.1	66	320	25.5	336	25.2	352	24.9	368	24.5	384	24.2	400	23.8	416	23.4	432	23.0		
70	406	32.8	422	32.4	438	32.0	454	31.7	470	31.3	486	30.7	503	30.2	519	29.7	70	320	26.9	336	26.6	352	26.2	368	25.9	384	25.6	400	25.2	416	24.8	432	24.3		
74	406	34.8	422	34.4	438	34.0	454	33.5	470	33.1	486	32.6	503	32.0	519	31.5	74	320	28.5	336	28.2	352	27.8	368	27.5	384	27.1	400	26.7	416	26.2	432	25.8		
78	406	37.0	422	36.5	438	36.1	454	35.7	470	35.2	486	34.6	503	34.1	519	33.5	78	320	30.3	336	29.9	352	29.6	368	29.2	384	28.8	400	28.4	416	27.9	432	27.4		
82	406	39.4	422	38.9	438	38.5	454	38.0	470	37.5	486	36.9	503	36.3	519	35.6	82	320	32.3	336	31.9	352	31.5	368	31.1	384	30.7	400	30.2	416	29.7	432	29.2		
86	406	42.1	422	41.6	438	41.1	454	40.6	469	40.1	484	39.4	499	38.7	514	38.1	86	320	34.5	336	34.1	352	33.6	368	33.2	384	32.8	400	32.3	416	31.7	432	31.2		
90	401	45.0	416	44.5	431	43.9	446	43.4	460	42.9	475	42.2	490	41.4	505	40.7	90	320	36.9	336	36.4	352	36.0	368	35.6	384	35.1	400	34.5	416	33.9	432	33.4		
95	390	49.2	405	48.6	420	48.1	435	47.5	449	46.9	464	46.1	479	45.3	494	44.5	95	320	40.3	336	39.8	352	39.4	368	38.9	384	38.4	397	37.8	412	37.1	427	36.5		
100	370	51.8	394	51.8	409	51.8	424	51.8	439	51.2	453	50.3	468	49.5	483	48.6	100	312	43.9	327	43.4	342	42.8	357	42.3	371	41.8	386	41.1	401	40.4	416	39.7		
106	368	51.8	381	51.8	396	51.8	411	51.8	426	51.8	441	51.8	456	50.4	471	49.2	106	299	48.8	314	48.3	329	47.7	344	47.1	358	46.5	373	45.7	388	45.0	403	44.2		
110	357	51.8	372	51.7	387	51.4	402	51.2	417	50.9	432	50.3	447	49.3	461	39.4	110	290	51.8	305	51.7	320	51.4	335	47.2	350	44.9	364	43.1	379	41.3	394	39.4		
114	249	42.0	364	40.2	378	38.5	390	36.7	380	35.0	380	33.5	380	32.1	380	30.7	114	282	42.0	296	40.2	311	38.5	326	36.7	341	35.0	356	33.5	370	32.1	385	30.7		
118	283	30.1	283	28.3	283	27.5	283	26.3	283	25.0	283	24.0	283	23.0	283	22.0	118	273	30.1	283	28.3	283	27.5	283	26.3	283	25.0	283	24.0	283	23.0	283	22.0		
122	186	18.1	186	17.4	186	16.6	186	15.8	186	15.1	186	14.5	186	13.9	186	13.2	122	186	18.1	186	17.4	186	16.6	186	15.8	186	15.1	186	14.5	186	13.9	186	13.2		
140																																			
-10	390	21.9	406	21.7	422	21.4	438	21.1	454	20.9	471	20.5	487	20.2	503	19.8	-10	281	16.7	297	16.5	313	16.3	330	16.1	346	15.9	362	15.7	378	15.4	394	15.1		
-4	390	21.9	406	21.7	422	21.4	438	21.1	454	20.9	471	20.5	487	20.2	503	19.8	-4	281	16.7	297	16.5	313	16.3	330	16.1	346	15.9	362	15.7	378	15.4	394	15.1		
14	390	21.9	406	21.7	422	21.4	438	21.1	454	20.9	471	20.5	487	20.2	503	19.8	14	281	16.7	297	16.5	313	16.3	330	16.1	346	15.9	362	15.7	378	15.4	394	15.1		
23	390	22.1	406	21.8	422	21.5	438	21.2	454	21.0	471	20.7	487	20.4	503	19.9	23	281	16.8	297	16.6	313	16.4	330	16.2	346	16.0	362	15.7	378	15.5	394	15.2		
32	390	22.5	406	22.2	422	21.9	438	21.6	454	21.4	471	21.1	487	20.7	503	20.4	32	281	17.2	297	17.0	313	16.8	330	16.6	346	16.4	362	16.1	378	15.8	394	15.5		
42	390	23.7	406	23.4	422	23.1	438	22.8	454	22.5	471	22.2	487	21.8	503	21.4	42	281	18.1	297	17.8	313	17.6	330	17.4	346	17.2	362	16.9	378	16.6	394	16.3		
50	390	25.1	406	24.8	422	24.5	438	24.2	454	23.9	471	23.5	487	23.1	503	22.8	50	281	19.2	297	19.0	313	18.7	330	18.5	346	18.3	362	18.0	378	17.7	394	17.4		
58	390	27.2	406	26.9	422	26.6	438	26.3	454	25.9	471	25.5	487	25.1	503	24.6	58	281	20.8	297	20.5	313	20.3	330	20.0	346	19.8	362	19.5	378	19.1	394	18.8		
62	390	28.5	406	28.2	422	27.9	438	27.5	454	27.2	471	26.7	487	26.3	503	25.8	62	281	21.8	297	21.5	313	21.3	330	21.0	346	20.7	362	20.4	378	20.0	394	19.7		
66	390	30.0	406	29.7	422	29.3	438	29.0	454	28.6	471	28.1	487	27.6	503	27.2	66	281	22.9	297	22.6	313	22.4	330	22.1	346	21.8	362	21.5	378	21.1	394	20.7		
70	390	31.9	406	31.5	422	31.2	438	30.9	454	30.5	471	29.7	487	29.2	503	28.7	70	281	24.2	297	23.9	313	23.6	330	23.3	346	23.0	362	22.7	378	22.3	394	21.9		
74	390	33.6	406	33.2	422	32.9	438	32.4	454	32.0	471	31.5	487	31.0	503	30.4	74	281	25.6	297	25.3	313	25.0	330	24.7	346	24.4	362	24.0	378	23.6	394	23.2		
78	390	35.7	406	35.3	422	34.9	438	34.4	454	34.0	471	33.5	487	32.9	503	32.3	78	281	27.3	297	26.9	313	26.6	330	26.3	346	26.0	362	25.6	378	25.2	394	24.8		
82	390	38.1	406	37.6	422	37.2	438	36.7																											

(H,Y)VAHP408B(3,4,5)2S

Cooling Capacity

Connection ratio	Outdoor air temp.	Indoor air temp. °FWB																Connection ratio	Outdoor air temp.	Indoor air temp. °FWB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		59		61		63		65		67		69		71		73				59		61		63		65		67		69		71		73																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH

SELECTION DATA

(H,Y)VAHP432B(3,4,5)2S

Cooling Capacity

Connection ratio	Outdoor air temp.	Indoor air temp. °FWB																Connection ratio	Outdoor air temp.	Indoor air temp. °FWB															
		59		61		63		65		67		69		71		73				59		61		63		65		67		69		71		73	
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP		
%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW		
150	-10	457	23.9	475	23.9	493	23.9	511	23.9	529	23.9	547	23.6	565	23.2	584	22.8	-10	359	20.6	378	20.4	396	20.1	414	19.9	432	19.6	450	19.3	468	19.0	486	18.7	
	-4	457	23.9	475	23.9	493	23.9	511	23.9	529	23.9	547	23.6	565	23.2	584	22.8	-4	359	20.6	378	20.4	396	20.1	414	19.9	432	19.6	450	19.3	468	19.0	486	18.7	
	14	457	23.9	475	23.9	493	23.9	511	23.9	529	23.9	547	23.6	565	23.2	584	22.8	14	359	20.6	378	20.4	396	20.1	414	19.9	432	19.6	450	19.3	468	19.0	486	18.7	
	23	457	24.0	475	24.0	493	24.0	511	24.0	529	24.0	547	23.7	565	23.3	584	22.9	23	359	20.7	378	20.5	396	20.2	414	20.0	432	19.7	450	19.4	468	19.1	486	18.7	
	32	457	24.5	475	24.5	493	24.5	511	24.5	529	24.5	547	24.2	565	23.8	584	23.4	32	359	21.2	378	20.9	396	20.7	414	20.4	432	20.2	450	19.8	468	19.5	486	19.2	
	42	457	25.8	475	25.8	493	25.8	511	25.8	529	25.8	547	25.4	565	25.0	584	24.6	42	359	22.3	378	22.0	396	21.7	414	21.5	432	21.2	450	20.8	468	20.5	486	20.1	
	50	457	27.4	475	27.4	493	27.4	511	27.4	529	27.4	547	27.0	565	26.6	584	26.1	50	359	23.8	378	23.4	396	23.1	414	22.8	432	22.5	450	22.1	468	21.8	486	21.4	
	58	457	29.7	475	29.7	493	29.7	511	29.7	529	29.7	547	29.3	565	28.8	584	28.3	58	359	25.6	378	25.3	396	25.0	414	24.7	432	24.4	450	24.0	468	23.6	486	23.2	
	62	457	31.1	475	31.1	493	31.1	511	31.1	529	31.1	547	30.7	565	30.2	584	29.7	62	359	26.8	378	26.5	396	26.2	414	25.9	432	25.6	450	25.1	468	24.7	486	24.3	
	66	457	32.7	475	32.7	493	32.7	511	32.7	529	32.7	547	32.3	565	31.7	584	31.2	66	359	28.2	378	27.9	396	27.6	414	27.2	432	26.9	450	26.4	468	26.0	486	25.6	
	70	457	34.6	475	34.6	493	34.6	511	34.6	529	34.6	547	34.1	565	33.5	584	32.9	70	359	29.8	378	29.5	396	29.1	414	28.8	432	28.4	450	27.9	468	27.5	486	27.0	
	74	457	36.6	475	36.6	493	36.6	511	36.6	529	36.6	547	36.1	565	35.5	584	34.9	74	359	31.6	378	31.2	396	30.9	414	30.5	432	30.1	450	29.6	468	29.1	486	28.6	
	78	457	38.9	475	38.9	493	38.9	511	38.9	529	38.9	547	38.4	565	37.8	584	37.1	78	359	33.6	378	33.2	396	32.8	414	32.4	432	32.0	450	31.5	468	30.9	486	30.4	
82	457	41.5	475	41.5	493	41.5	511	41.5	529	41.5	547	40.9	565	40.2	584	39.5	82	359	35.8	378	35.4	396	34.9	414	34.5	432	34.1	450	33.5	468	33.0	486	32.4		
86	457	44.3	475	44.3	493	44.3	511	44.3	529	44.3	547	43.7	565	43.0	584	42.2	86	359	38.2	378	37.8	396	37.3	414	36.9	432	36.4	450	35.8	468	35.2	486	34.6		
90	457	47.4	468	47.4	485	47.4	501	47.4	518	47.4	535	46.8	551	46.0	568	45.2	90	359	40.9	378	40.4	396	39.9	414	39.4	432	39.0	450	38.3	468	37.7	486	37.0		
95	439	51.8	456	51.8	474	51.8	489	51.8	506	51.8	522	51.1	539	50.3	556	49.4	95	359	44.7	378	44.2	396	43.7	414	43.1	432	42.6	447	41.9	463	41.2	480	40.5		
100	427	51.8	443	51.8	460	51.8	477	51.8	493	51.8	510	51.8	527	51.8	543	51.8	100	351	48.7	368	48.1	385	47.5	401	47.0	418	46.4	435	45.6	451	44.8	468	44.1		
106	417	51.8	429	51.8	445	51.8	462	51.8	479	51.8	496	51.8	512	51.8	529	51.8	106	336	51.8	353	51.8	370	51.8	386	51.8	403	51.6	420	50.7	437	49.8	454	49.0		
112	407	46.5	417	46.5	427	46.5	437	46.5	447	46.5	457	46.5	467	46.5	477	46.5	112	327	51.8	344	51.8	361	51.8	378	51.8	395	51.6	412	50.7	429	49.8	446	48.9		
114	399	44.5	402	44.5	405	44.5	408	44.5	411	44.5	414	44.5	417	44.5	420	44.5	114	317	44.5	333	44.5	350	44.5	367	44.5	383	44.5	400	44.5	417	44.5	434	44.5		
118	390	41.8	400	41.8	403	41.8	406	41.8	409	41.8	412	41.8	415	41.8	418	41.8	118	300	41.8	300	41.8	300	41.8	300	41.8	300	41.8	300	41.8	300	41.8	300	41.8		
122	197	19.2	197	19.2	197	19.2	197	19.2	197	19.2	197	19.2	197	19.2	197	19.2	122	197	19.2	197	19.2	197	19.2	197	19.2	197	19.2	197	19.2	197	19.2	197	19.2		
140	-10	439	23.9	457	23.9	475	23.9	493	23.9	511	23.9	529	23.6	547	23.2	566	22.8	-10	316	18.6	334	18.3	353	18.1	371	17.9	389	17.7	407	17.4	425	17.1	443	16.8	
	-4	439	23.9	457	23.9	475	23.9	493	23.9	511	23.9	529	23.6	547	23.2	566	22.8	-4	316	18.6	334	18.3	353	18.1	371	17.9	389	17.7	407	17.4	425	17.1	443	16.8	
	14	439	23.9	457	23.9	475	23.9	493	23.9	511	23.9	529	23.6	547	23.2	566	22.8	14	316	18.6	334	18.3	353	18.1	371	17.9	389	17.7	407	17.4	425	17.1	443	16.8	
	23	439	24.0	457	24.0	475	24.0	493	24.0	511	24.0	529	23.7	547	23.3	566	22.9	23	316	18.6	334	18.3	353	18.2	371	18.0	389	17.8	407	17.5	425	17.2	443	16.9	
	32	439	24.5	457	24.5	475	24.5	493	24.5	511	24.5	529	24.2	547	23.8	566	23.4	32	316	18.6	334	18.3	353	18.1	371	17.9	389	17.7	407	17.4	425	17.1	443	16.8	
	42	439	25.8	457	25.8	475	25.8	493	25.8	511	25.8	529	25.4	547	25.0	566	24.6	42	316	20.0	334	19.8	353	19.5	371	19.3	389	19.1	407	18.8	425	18.4	443	18.1	
	50	439	27.4	457	27.4	475	27.4	493	27.4	511	27.4	529	26.1	547	25.7	566	25.2	50	316	21.3	334	21.0	353	20.8	371	20.5	389	20.3	407	19.9	425	19.6	443	19.3	
	58	439	29.7	457	29.7	475	29.7	493	29.7	511	29.7	529	28.3	547	27.8	566	27.3	58	316	23.1	334	22.8	353	22.5	371	22.2	389	22.0	407	21.6	425	21.2	443	20.9	
	62	439	31.1	457	31.1	475	31.1	493	31.1	511	31.1	529	29.7	547	29.1	566	28.6	62	316	24.2	334	23.9	353	23.6	371	23.3	389	23.0	407	22.6	425	22.2	443	21.9	
	66	439	32.7	457	32.7	475	32.7	493	32.7	511	32.7	529	31.2	547	30.7	566	30.1	66	316	25.4	334	25.1	353	24.8	371	24.5	389	24.2	407	23.8	425	23.4	443	23.0	
	70	439	34.6	457	34.6	475	34.6	493	34.6	511	34.6	529	32.7	547	32.1	566	31.5	70	316	26.8	334	26.5	353	26.2	371	25.9	389	25.6	407	25.2	425	24.8	443	24.4	
	74	439	36.6	457	36.6	475	36.6	493	36.6	511	36.6	529	34.9	547	34.3	566	33.7	74	316	28.2	334	27.9	353	27.6	371	27.3	389	27.0	407	26.6	425	26.2	443	25.7	
	78	439	38.9	457	38.9	475	38.9	493	38.9	511	38.9	529	37.1	547	36.5	566	35.9	78	316	30.2	334	29.9	353	29.6	371	29.3	389	28.8	407	28.3	425	27.8	443	27.4	
82	439	41.5	457	41.5	475	41.5	493	41.5	511	41.5	529	39.5	5																						

(H,Y)VAHP072B(3,4,5)2S

Heating Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °FDB																Connection ratio	Outdoor air temp	Indoor air temp. °FDB																			
		59		63		66		68		70		74		77		80				59		63		66		68		70		74		77		80					
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP				
%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW				
150	-13	54.2	5.3	54.2	5.4	54.2	5.5	54.2	5.6	54.2	5.7	54.2	5.9	54.2	6.1	54.2	6.3	100	-13	54.2	6.5	54.2	6.6	54.2	6.8	54.2	6.9	54.2	7.2	54.2	7.5	54.2	7.7						
	-9	58.2	5.3	58.2	5.5	58.2	5.6	58.2	5.7	58.2	5.7	58.2	6.0	58.2	6.2	58.2	6.4		-9	58.2	6.5	58.2	6.7	58.2	6.8	58.2	6.9	58.2	7.0	58.2	7.3	58.2	7.6						
	-5	62.2	5.4	62.2	5.5	62.2	5.7	62.2	5.8	62.2	5.8	62.2	6.1	62.2	6.2	62.2	6.5		-5	62.2	6.6	62.2	6.8	62.2	6.9	62.2	7.0	62.2	7.1	62.2	7.4	62.2	7.6						
	-1	66.2	5.4	66.2	5.6	66.2	5.7	66.2	5.8	66.2	5.9	66.2	6.1	66.2	6.3	66.2	6.5		-1	66.2	6.7	66.2	6.9	66.2	7.0	66.2	7.1	66.2	7.2	66.2	7.5	63.0	7.7						
	3	70.2	5.5	70.2	5.7	70.2	5.8	70.2	5.9	70.2	5.9	70.2	6.2	70.2	6.4	70.2	6.6		3	70.2	6.7	70.2	6.9	70.2	7.0	70.2	7.2	70.2	7.3	70.2	7.6	63.0	7.8						
	7	74.2	5.6	74.2	5.7	74.2	5.9	74.2	5.9	74.2	6.0	74.2	6.3	74.2	6.4	74.2	6.7		7	74.2	6.8	74.2	7.0	74.2	7.2	74.2	7.4	74.2	7.4	74.2	7.6	63.0	7.9						
	11	78.2	5.6	78.2	5.8	78.2	5.9	78.2	6.0	78.2	6.1	78.2	6.3	78.2	6.5	78.2	6.7		11	78.2	6.9	78.2	7.1	78.2	7.2	78.2	7.3	78.2	7.4	70.7	7.5	63.0	7.9						
	15	82.2	5.7	82.2	5.8	82.2	6.0	82.2	6.0	82.2	6.1	82.2	6.4	82.2	6.6	82.2	6.8		15	82.2	7.0	82.2	7.2	82.2	7.3	82.2	7.4	81.0	7.5	70.7	7.6	63.0	7.9						
	19	86.1	5.7	86.1	5.9	86.1	6.0	86.1	6.1	86.1	6.2	86.1	6.5	86.1	6.7	82.9	6.8		19	86.1	7.0	86.1	7.2	86.1	7.4	86.1	7.5	81.0	7.4	70.7	7.2	70.7	7.0	55.2	6.7				
	23	90.1	5.8	90.1	6.0	90.1	6.1	90.1	6.2	90.1	6.2	90.1	6.5	90.1	6.7	82.9	6.8		23	90.1	7.1	90.1	7.3	90.1	7.5	86.2	7.5	81.0	7.3	70.7	7.1	63.0	6.8	55.2	6.6				
	27	94.1	5.9	94.1	6.0	94.1	6.2	94.1	6.3	94.1	6.3	94.1	6.6	94.1	6.8	82.9	6.7		27	94.1	7.2	94.1	7.4	91.3	7.5	86.2	7.4	81.0	7.2	70.7	6.9	63.0	6.7	55.2	6.5				
	31	98.1	5.9	98.1	6.1	98.1	6.2	98.1	6.3	98.1	6.3	98.1	6.6	94.5	6.8	82.9	6.7		31	98.1	7.3	98.1	7.5	91.3	7.4	86.2	7.2	81.0	7.1	70.7	6.8	63.0	6.6	55.2	6.4				
	35	102	6.0	102	6.2	102	6.3	102	6.4	102	6.4	102	6.7	94.5	6.7	82.9	6.8		35	102	7.3	99.0	7.5	91.3	7.3	86.2	7.1	81.0	6.9	70.7	6.7	63.0	6.5	55.2	6.3				
	39	106	6.0	106	6.2	106	6.3	106	6.4	106	6.5	106	6.8	94.5	6.7	82.9	6.5		39	106	7.4	99.0	7.4	91.3	7.1	86.2	7.0	81.0	6.8	70.7	6.6	63.0	6.4	55.2	6.2				
	43	110	6.1	110	6.3	110	6.4	110	6.5	110	6.6	106	6.8	94.5	6.6	82.9	6.5		43	109	7.5	99.0	7.3	91.3	7.0	86.2	6.9	81.0	6.7	70.7	6.5	63.0	6.3	55.2	6.2				
	47	114	6.2	114	6.3	114	6.5	114	6.5	114	6.6	106	6.7	94.5	6.6	82.9	6.4		47	109	7.4	99.0	7.1	91.3	6.9	86.2	6.7	81.0	6.6	70.7	6.4	63.0	6.2	55.2	6.1				
	51	118	6.2	118	6.4	118	6.5	118	6.6	118	6.7	106	6.7	94.5	6.5	82.9	6.4		51	109	7.3	99.0	7.0	91.3	6.8	86.2	6.6	81.0	6.5	70.7	6.3	63.0	6.2	55.2	6.1				
	55	122	6.3	122	6.5	122	6.6	122	6.7	122	6.8	106	6.6	94.5	6.5	82.9	6.3		55	109	7.2	99.0	6.9	91.3	6.7	86.2	6.5	81.0	6.4	70.7	6.2	63.0	6.2	55.2	6.1				
	59	126	6.3	126	6.5	126	6.7	126	6.7	126	6.7	106	6.6	94.5	6.4	82.9	6.3		59	109	7.1	99.0	6.8	91.3	6.6	86.2	6.4	81.0	6.3	70.7	6.2	63.0	6.1	55.2	6.1				
140	-13	54.2	5.3	54.2	5.4	54.2	5.5	54.2	5.6	54.2	5.7	54.2	5.9	54.2	6.1	54.2	6.3	90	-13	54.2	6.8	54.2	7.0	54.2	7.2	54.2	7.4	54.2	7.5	54.2	7.8	54.2	7.9	49.7	7.5				
	-9	58.2	5.3	58.2	5.5	58.2	5.6	58.2	5.7	58.2	5.7	58.2	6.0	58.2	6.2	58.2	6.4		-9	58.2	6.9	58.2	7.1	58.2	7.2	58.2	7.4	58.2	7.4	58.2	7.7	49.7	7.7						
	-5	62.2	5.4	62.2	5.5	62.2	5.7	62.2	5.8	62.2	5.8	62.2	6.1	62.2	6.2	62.2	6.5		-5	62.2	7.0	62.2	7.2	62.2	7.3	62.2	7.4	62.2	7.6	56.7	7.7	49.7	7.9						
	-1	66.2	5.4	66.2	5.6	66.2	5.7	66.2	5.8	66.2	5.9	66.2	6.1	66.2	6.3	66.2	6.5		-1	66.2	7.0	66.2	7.2	66.2	7.4	66.2	7.5	66.2	7.7	56.7	7.9	49.7	7.9						
	3	70.2	5.5	70.2	5.7	70.2	5.8	70.2	5.9	70.2	6.0	70.2	6.1	70.2	6.3	70.2	6.5		3	70.2	6.9	70.2	7.1	70.2	7.3	70.2	7.4	70.2	7.6	56.7	7.9	49.7	7.9						
	7	74.2	5.6	74.2	5.7	74.2	5.9	74.2	6.0	74.2	6.1	74.2	6.2	74.2	6.4	74.2	6.6		7	74.2	7.2	74.2	7.4	74.2	7.5	74.2	7.6	74.2	7.8	56.7	7.9	49.7	7.9						
	11	78.2	5.6	78.2	5.8	78.2	6.0	78.2	6.0	78.2	6.1	78.2	6.3	78.2	6.5	78.2	6.7		11	78.2	7.3	78.2	7.5	78.2	7.6	78.2	7.7	78.2	7.9	56.7	7.9	49.7	7.9						
	15	82.2	5.7	82.2	5.8	82.2	6.0	82.2	6.0	82.2	6.1	82.2	6.3	82.2	6.5	82.2	6.7		15	82.2	7.3	82.2	7.5	82.2	7.6	82.2	7.7	82.2	7.9	56.7	7.9	49.7	7.9						
	19	86.1	5.7	86.1	5.9	86.1	6.0	86.1	6.1	86.1	6.2	86.1	6.4	86.1	6.6	82.9	6.8		19	86.1	7.4	86.1	7.6	82.2	7.7	82.2	7.7	82.2	7.9	56.7	7.9	49.7	7.9						
	23	90.1	5.8	90.1	6.0	90.1	6.1	90.1	6.2	90.1	6.2	90.1	6.5	90.1	6.7	82.9	6.8		23	90.1	7.5	90.1	7.7	82.2	7.8	82.2	7.8	82.2	7.9	56.7	7.9	49.7	7.9						
	27	94.1	5.9	94.1	6.0	94.1	6.2	94.1	6.3	94.1	6.3	94.1	6.6	94.1	6.8	82.9	6.7		27	94.1	7.6	94.1	7.8	82.2	7.9	82.2	7.9	82.2	7.9	56.7	7.9	49.7	7.9						
	31	98.1	5.9	98.1	6.1	98.1	6.2	98.1	6.3	98.1	6.3	98.1	6.6	94.5	6.8	82.9	6.7		31	98.1	7.7	98.1	7.9	82.2	8.0	82.2	8.0	82.2	8.0	56.7	7.9	49.7	7.9						
	35	102	6.0	102	6.2	102	6.3	102	6.4	102	6.4	102	6.7	94.5	6.7	82.9	6.8		35	102	7.8	99.0	7.9	82.2	8.1	82.2	8.1	82.2	8.1	56.7	7.9	49.7	7.9						
	39	106	6.0	106	6.2	106	6.3	106	6.4	106	6.5	106	6.8	94.5	6.7	82.9	6.7		39	106	7.9	99.0	8.0	82.2	8.2	82.2	8.2	82.2	8.2	56.7	7.9	49.7	7.9						
	43	110	6.1	110	6.3	110	6.4	110	6.5	110	6.6	106	6.8	94.5	6.6	82.9	6.7		43	109	8.0	99.0	8.1	82.2	8.3	82.2	8.3	82.2	8.3	56.7	7.9	49.7	7.9						
	47	114	6.2	114	6.3	114	6.5	114	6.5	114	6.6	106	6.7	94.5	6.6	82.9	6.6		47	109	8.1	99.0	8.2	82.2	8.4	82.2	8.4	82.2	8.4	56.7	7.9	49.7	7.9						
	51	118	6.2	118	6.4	118	6.5	118	6.6	118	6.7	106	6.7	94.5	6.5	82.9	6.6		51	109	8.2	99.0	8.3	82.2	8.5	82.2	8.5	82.2	8.5	56.7	7.9	49.7	7.9						
55	122	6.3	122	6.5	122	6.6	122	6.7	122	6.8	106	6.6	94.5	6.5	82.9	6.6	55	109	8.3	99.0	8.4	82.2	8.6	82.2	8.6	82.2	8.6	56.7	7.9	49.7	7.9								
59	126	6.3	126	6.5	126	6.7	126	6.7	126	6.7	106	6.6	94.5	6.4	82.9	6.6	59	109	8.4	99.0	8.5	82.2	8.7	82.2	8.7	82.2	8.7	56.7	7.9	49.7	7.9								
130	-13	54.2	5.3	54.2	5.4	54.2	5.5	54.2	5.6	54.2	5.7	54.2	5.9	54.2	6.1	54.2	6.3	80	-13	54.2	7.7	54.2	7.8	54.2	8.0	54.2	8.1	54.2	8.4	54.2	8.5	54.2	8.8	44.2	7.4				
	-9	58.2	5.3																																				

SELECTION DATA

(H,Y)VAHP096B(3,4,5)2S

Heating Capacity

[illegible]

TC: Total Capacity

IP: Input Power

NOTES:

1. The table shows the normal value of a heating operation.
2. The heating capacity in the table indicates the peak value, which does not include the capacity decrease caused by frost.
3. The value in the table shows when the system is operating under the following conditions.

The total piping length: 24.6ft. (7.5m), The height difference: 0ft (0m)

(H,Y)VAHP120B(3,4,5)2S

Heating Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °FDB																Connection ratio	Outdoor air temp	Indoor air temp. °FDB																			
		59		63		66		68		70		74		77		80				59		63		66		68		70		74		77		80					
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP				
%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW				
150	-13	69.9	9.7	69.9	9.9	69.9	10.1	69.9	10.3	69.9	10.4	69.9	10.8	69.9	11.2	69.9	11.6	-13	69.9	11.8	69.9	12.2	69.9	12.4	69.9	12.6	69.9	12.7	69.9	13.3	69.9	13.7	69.9	13.7					
	-9	75.5	9.8	75.5	10.0	75.5	10.2	75.5	10.4	75.5	10.5	75.5	11.0	75.5	11.3	75.5	11.7	-9	75.5	12.0	75.5	12.3	75.5	12.5	75.5	12.7	75.5	12.9	75.5	13.4	75.5	13.7	75.5	13.7					
	-5	81.6	9.9	81.6	10.2	81.6	10.4	81.6	10.6	81.6	10.8	81.6	11.1	81.6	11.4	81.6	11.9	-5	81.6	12.1	81.6	12.4	81.6	12.7	81.6	12.9	81.6	13.0	81.6	13.6	81.6	13.7	81.6	13.7					
	-1	88.1	10.0	88.1	10.3	88.1	10.5	88.1	10.6	88.1	10.8	88.1	11.2	88.1	11.6	88.1	12.0	-1	88.1	12.2	88.1	12.6	88.1	12.8	88.1	13.0	88.1	13.2	88.1	13.7	88.1	13.7	88.1	13.7					
	3	95.0	10.1	95.0	10.4	95.0	10.6	95.0	10.7	95.0	10.9	95.0	11.3	95.0	11.7	95.0	12.1	3	95.0	12.4	95.0	12.7	95.0	13.0	95.0	13.1	95.0	13.3	95.0	13.7	95.0	13.7	95.0	13.7					
	7	102.1	10.2	102.1	10.5	102.1	10.7	102.1	10.8	102.1	11.0	102.1	11.5	102.1	11.9	102.1	12.2	7	102.1	12.5	102.1	12.8	102.1	13.0	102.1	13.1	102.1	13.3	102.1	13.7	102.1	13.7	102.1	13.7					
	11	110.3	10.3	110.3	10.6	110.3	10.8	110.3	11.0	110.3	11.1	110.3	11.6	110.3	11.9	110.3	12.4	11	110.3	12.6	110.3	13.0	110.3	13.2	110.3	13.4	110.3	13.6	110.3	13.7	105.1	13.7	92.1	12.4					
	15	119.4	10.4	119.4	10.7	119.4	10.9	119.4	11.1	119.4	11.2	119.4	11.7	119.4	12.1	119.4	12.5	15	119.4	12.8	119.4	13.1	119.4	13.4	119.4	13.6	119.4	13.8	119.4	13.7	118.1	13.7	105.1	13.7					
	19	127.1	10.5	127.1	10.8	127.1	11.0	127.1	11.2	127.1	11.3	127.1	11.8	127.1	12.2	127.1	12.6	19	127.1	12.9	127.1	13.3	127.1	13.5	127.1	13.7	127.1	13.7	127.1	13.6	118.1	13.6	105.1	12.2					
	23	136.1	10.6	136.1	10.9	136.1	11.2	136.1	11.3	136.1	11.5	136.1	12.0	136.1	12.3	136.1	12.8	23	136.1	13.0	136.1	13.4	136.1	13.7	136.1	13.7	136.1	13.7	136.1	13.7	136.1	13.7	118.1	12.7					
	27	146.1	10.8	146.1	11.1	146.1	11.3	146.1	11.4	146.1	11.6	146.1	12.1	146.1	12.4	138.1	12.9	27	146.1	13.2	146.1	13.5	146.1	13.7	144.1	13.7	135.1	13.5	118.1	11.9	105.1	10.9	92.1	9.9					
	31	156.1	10.9	156.1	11.2	156.1	11.4	156.1	11.5	156.1	11.7	156.1	12.2	156.1	12.5	138.1	12.9	31	156.1	13.3	156.1	13.7	152.1	13.7	144.1	13.4	135.1	13.7	118.1	12.7	105.1	10.3	92.1	9.5					
	35	166.1	11.0	166.1	11.3	166.1	11.5	166.1	11.6	166.1	11.8	166.1	12.3	166.1	12.6	138.1	12.9	35	166.1	13.4	165.1	13.7	162.1	13.7	152.1	13.3	146.1	13.6	135.1	13.9	118.1	10.6	105.1	9.4					
	39	177.1	11.1	177.1	11.4	177.1	11.6	177.1	11.8	177.1	11.9	177.1	12.4	177.1	12.7	138.1	12.9	39	177.1	13.6	165.1	13.5	152.1	12.5	144.1	13.8	135.1	13.2	118.1	10.1	105.1	9.4	92.1	8.9					
	43	188.1	11.2	188.1	11.5	188.1	11.7	188.1	11.9	188.1	12.0	177.1	12.4	157.1	11.4	138.1	12.5	43	182.1	13.7	165.1	12.7	152.1	11.7	144.1	11.1	135.1	10.6	118.1	9.7	105.1	9.1	92.1	8.7					
	47	200.1	11.3	200.1	11.6	200.1	11.9	200.1	12.0	200.1	12.2	177.1	11.8	157.1	10.9	138.1	12.0	47	182.1	13.2	165.1	11.9	152.1	11.1	144.1	10.5	135.1	10.1	118.1	9.3	105.1	8.9	92.1	8.6					
	51	212.1	11.4	212.1	11.7	212.1	12.0	212.1	12.1	203.1	12.3	177.1	11.2	157.1	10.4	138.1	9.7	51	182.1	12.3	165.1	11.2	152.1	10.5	144.1	10.0	135.1	9.6	118.1	9.0	105.1	8.7	92.1	8.5					
	55	225.1	11.5	225.1	11.8	225.1	12.1	215.1	12.2	203.1	11.7	177.1	10.7	157.1	10.0	138.1	9.3	55	182.1	11.6	165.1	10.6	152.1	10.0	144.1	9.6	135.1	9.3	118.1	8.8	105.1	8.5	92.1	8.4					
	59	238.1	11.6	238.1	11.9	238.1	12.2	215.1	11.7	203.1	11.2	177.1	10.3	157.1	9.6	138.1	9.1	59	182.1	11.0	165.1	10.1	152.1	9.5	144.1	9.2	135.1	9.0	118.1	8.6	105.1	8.4	92.1	8.4					
140	-13	69.9	10.0	69.9	10.2	69.9	10.4	69.9	10.6	69.9	10.8	69.9	11.1	69.9	11.4	69.9	11.6	-13	69.9	12.0	69.9	12.2	69.9	12.4	69.9	12.6	69.9	12.7	69.9	13.3	69.9	13.7	69.9	13.7					
	-9	75.5	10.1	75.5	10.4	75.5	10.6	75.5	10.7	75.5	10.9	75.5	11.4	75.5	11.7	75.5	12.1	-9	75.5	12.6	75.5	13.0	75.5	13.2	75.5	13.4	75.5	13.6	75.5	13.7	75.5	13.7	75.5	13.7					
	-5	81.6	10.2	81.6	10.5	81.6	10.7	81.6	10.9	81.6	11.0	81.6	11.5	81.6	11.8	81.6	12.3	-5	81.6	12.8	81.6	13.1	81.6	13.4	81.6	13.6	81.6	13.7	81.6	13.7	81.6	13.7	81.6	13.7					
	-1	88.1	10.3	88.1	10.6	88.1	10.8	88.1	11.0	88.1	11.1	88.1	11.6	88.1	12.0	88.1	12.4	-1	88.1	12.9	88.1	13.3	88.1	13.5	88.1	13.7	88.1	13.7	88.1	13.7	88.1	13.7	88.1	13.7					
	3	95.0	10.5	95.0	10.7	95.0	11.0	95.0	11.1	95.0	11.3	95.0	11.7	95.0	12.1	95.0	12.5	3	95.0	13.0	95.0	13.4	95.0	13.7	95.0	13.7	95.0	13.7	95.0	13.7	95.0	13.7	95.0	13.7					
	7	102.1	10.6	102.1	10.9	102.1	11.1	102.1	11.2	102.1	11.4	102.1	11.9	102.1	12.2	102.1	12.6	7	102.1	13.2	102.1	13.5	102.1	13.7	102.1	13.7	102.1	13.7	102.1	13.7	94.5	13.3	82.1	12.0					
	11	110.3	10.7	110.3	11.0	110.3	11.2	110.3	11.3	110.3	11.5	110.3	12.0	110.3	12.4	110.3	12.8	11	110.3	13.3	110.3	13.7	110.3	13.7	110.3	13.7	110.3	13.7	110.3	13.7	106.1	13.7	94.5	12.6					
	15	119.4	10.8	119.4	11.1	119.4	11.3	119.4	11.4	119.4	11.6	119.4	12.1	119.4	12.5	119.4	12.9	15	119.4	13.4	119.4	13.7	119.4	13.7	119.4	13.7	119.4	13.7	119.4	13.7	119.4	13.7	119.4	13.7					
	19	127.1	10.9	127.1	11.2	127.1	11.4	127.1	11.6	127.1	11.7	127.1	12.2	127.1	12.6	127.1	13.0	19	127.1	13.6	127.1	13.7	127.1	13.7	127.1	13.7	127.1	13.7	127.1	13.7	127.1	13.7	127.1	13.7					
	23	136.1	11.0	136.1	11.3	136.1	11.6	136.1	11.7	136.1	11.9	136.1	12.4	136.1	12.8	136.1	13.2	23	136.1	13.7	136.1	13.7	136.1	13.7	136.1	13.7	136.1	13.7	136.1	13.7	136.1	13.7	136.1	13.7					
	27	146.1	11.1	146.1	11.4	146.1	11.6	146.1	11.8	146.1	12.0	146.1	12.5	146.1	12.9	129.1	12.5	27	146.1	13.7	146.1	13.7	146.1	13.7	146.1	13.7	146.1	13.7	146.1	13.7	146.1	13.7	146.1	13.7					
	31	156.1	11.2	156.1	11.5	156.1	11.7	156.1	11.9	156.1	12.1	156.1	12.6	156.1	13.0	129.1	12.5	31	156.1	13.7	149.1	13.7	149.1	13.7	149.1	13.7	149.1	13.7	149.1	13.7	149.1	13.7	149.1	13.7					
	35	166.1	11.4	166.1	11.7	166.1	11.9	166.1	12.1	166.1	12.2	166.1	12.7	166.1	13.1	129.1	12.6	35	164.1	13.7	149.1	12.9	149.1	13.7	149.1	13.7	149.1	13.7	149.1	13.7	149.1	13.7	149.1	13.7					
	39	177.1	11.5	177.1	11.8	177.1	12.0	177.1	12.2	177.1	12.3	166.1	12.6	147.1	11.6	129.1	11.6	39	164.1	13.4	149.1	12.0	149.1	13.7	149.1	13.7	149.1	13.7	149.1	13.7	149.1	13.7	149.1	13.7					
	43	188.1	11.6	188.1	11.9	188.1	12.1	188.1	12.3	188.1	12.5	166.1	12.6	147.1	11.6	129.1	11.6																						

SELECTION DATA

(H,Y)VAHP144B(3,4,5)2S

Heating Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °FDB																Connection ratio	Outdoor air temp	Indoor air temp. °FDB															
		59		63		66		68		70		74		77		80				59		63		66		68		70		74		77		80	
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP		
%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW		
150	-13	76.2	10.5	76.2	10.8	76.2	11.1	76.2	11.2	76.2	11.3	76.2	11.8	76.2	12.2	76.2	12.6	-9	82.4	13.1	82.4	13.4	82.4	13.7	82.4	14.1	82.4	14.7	82.4	15.1	82.4	15.7			
	-9	82.4	10.7	82.4	11.0	82.4	11.2	82.4	11.3	82.4	11.5	82.4	12.0	82.4	12.3	82.4	12.8	-5	89.0	13.2	89.0	13.6	89.0	13.8	89.0	14.2	89.0	14.8	89.0	15.3	89.0	15.8			
	-5	89.0	10.8	89.0	11.1	89.0	11.3	89.0	11.5	89.0	11.6	89.0	12.1	89.0	12.5	89.0	12.9	-1	96.1	13.3	96.1	13.7	96.1	14.0	96.1	14.4	96.1	15.0	96.1	15.5	96.1	16.0			
	-1	96.1	10.9	96.1	11.2	96.1	11.4	96.1	11.6	96.1	11.7	96.1	12.2	96.1	12.6	96.1	13.1	3	104.1	13.5	104.1	13.9	104.1	14.1	104.1	14.3	104.1	14.9	104.1	15.1	104.1	15.8			
	3	104.1	11.0	104.1	11.3	104.1	11.6	104.1	11.7	104.1	11.9	104.1	12.4	104.1	12.8	104.1	13.2	7	112.1	13.6	112.1	14.0	112.1	14.3	112.1	14.5	112.1	14.7	112.1	15.3	112.1	15.9			
	7	112.1	11.1	112.1	11.4	112.1	11.7	112.1	11.8	112.1	12.0	112.1	12.5	112.1	12.9	112.1	13.4	11	120.1	13.8	120.1	14.2	120.1	14.5	120.1	14.6	120.1	14.8	120.1	15.5	120.1	16.0			
	11	120.1	11.3	120.1	11.6	120.1	11.8	120.1	12.0	120.1	12.1	120.1	12.6	120.1	13.0	120.1	13.5	15	128.1	13.9	128.1	14.3	128.1	14.6	128.1	14.8	128.1	15.0	128.1	15.6	128.1	16.1			
	15	128.1	11.4	128.1	11.7	128.1	11.9	128.1	12.1	128.1	12.2	128.1	12.8	128.1	13.2	128.1	13.6	19	136.1	14.1	136.1	14.5	136.1	14.8	136.1	15.0	136.1	15.2	136.1	15.8	136.1	16.1			
	19	136.1	11.5	136.1	11.8	136.1	12.1	136.1	12.3	136.1	12.4	136.1	13.0	136.1	13.4	136.1	13.9	23	144.1	14.2	144.1	14.6	144.1	14.9	144.1	15.1	144.1	15.3	144.1	15.8	144.1	16.1			
	23	144.1	11.6	144.1	11.9	144.1	12.2	144.1	12.3	144.1	12.5	144.1	13.1	144.1	13.5	144.1	14.0	27	152.1	14.5	152.1	14.9	152.1	15.1	152.1	15.3	152.1	15.5	152.1	16.0	152.1	16.3			
	27	152.1	11.7	152.1	12.1	152.1	12.3	152.1	12.5	152.1	12.6	152.1	13.2	152.1	13.6	152.1	14.1	31	160.1	14.7	160.1	15.1	160.1	15.4	160.1	15.6	160.1	15.8	160.1	16.1	160.1	16.4			
	31	160.1	11.8	160.1	12.2	160.1	12.4	160.1	12.6	160.1	12.7	160.1	13.3	160.1	13.7	160.1	14.2	35	168.1	14.9	168.1	15.3	168.1	15.6	168.1	15.8	168.1	16.0	168.1	16.3	168.1	16.6			
	35	168.1	12.0	168.1	12.3	168.1	12.5	168.1	12.7	168.1	12.8	168.1	13.4	168.1	13.8	168.1	14.3	39	176.1	15.1	176.1	15.5	176.1	15.8	176.1	16.0	176.1	16.2	176.1	16.5	176.1	16.8			
	39	176.1	12.1	176.1	12.4	176.1	12.7	176.1	12.8	176.1	13.0	176.1	13.6	176.1	14.0	176.1	14.5	43	184.1	15.3	184.1	15.7	184.1	16.0	184.1	16.2	184.1	16.4	184.1	16.7	184.1	17.0			
	43	184.1	12.2	184.1	12.5	184.1	12.8	184.1	13.0	184.1	13.1	184.1	13.7	184.1	14.1	184.1	14.6	47	192.1	15.5	192.1	15.9	192.1	16.2	192.1	16.4	192.1	16.6	192.1	16.9	192.1	17.2			
	47	192.1	12.3	192.1	12.6	192.1	12.9	192.1	13.1	192.1	13.2	192.1	13.8	192.1	14.2	192.1	14.7	51	200.1	15.7	200.1	16.1	200.1	16.4	200.1	16.6	200.1	16.8	200.1	17.1	200.1	17.4			
	51	200.1	12.4	200.1	12.7	200.1	13.0	200.1	13.2	200.1	13.3	200.1	13.9	200.1	14.3	200.1	14.8	55	208.1	15.9	208.1	16.3	208.1	16.6	208.1	16.8	208.1	17.0	208.1	17.3	208.1	17.6			
	55	208.1	12.5	208.1	12.8	208.1	13.1	208.1	13.3	208.1	13.4	208.1	14.0	208.1	14.4	208.1	14.9	59	216.1	16.1	216.1	16.5	216.1	16.8	216.1	17.0	216.1	17.2	216.1	17.5	216.1	17.8			
	59	216.1	12.7	216.1	13.0	216.1	13.3	216.1	13.5	216.1	13.6	216.1	14.2	216.1	14.6	216.1	15.1																		
140	-13	76.2	10.5	76.2	10.8	76.2	11.1	76.2	11.2	76.2	11.3	76.2	11.8	76.2	12.2	76.2	12.6	-9	82.4	13.1	82.4	13.4	82.4	13.7	82.4	14.1	82.4	14.7	82.4	15.1	82.4	15.7			
	-9	82.4	10.7	82.4	11.0	82.4	11.2	82.4	11.3	82.4	11.5	82.4	12.0	82.4	12.3	82.4	12.8	-5	89.0	13.2	89.0	13.6	89.0	13.8	89.0	14.2	89.0	14.8	89.0	15.3	89.0	15.8			
	-5	89.0	10.8	89.0	11.1	89.0	11.3	89.0	11.5	89.0	11.6	89.0	12.1	89.0	12.5	89.0	12.9	-1	96.1	13.3	96.1	13.7	96.1	14.0	96.1	14.4	96.1	15.0	96.1	15.5	96.1	16.0			
	-1	96.1	10.9	96.1	11.2	96.1	11.4	96.1	11.6	96.1	11.7	96.1	12.2	96.1	12.6	96.1	13.1	3	104.1	13.5	104.1	13.9	104.1	14.1	104.1	14.3	104.1	14.9	104.1	15.1	104.1	15.8			
	3	104.1	11.0	104.1	11.3	104.1	11.6	104.1	11.7	104.1	11.9	104.1	12.4	104.1	12.8	104.1	13.2	7	112.1	13.6	112.1	14.0	112.1	14.3	112.1	14.5	112.1	14.7	112.1	15.3	112.1	15.9			
	7	112.1	11.1	112.1	11.4	112.1	11.7	112.1	11.8	112.1	12.0	112.1	12.5	112.1	12.9	112.1	13.4	11	120.1	13.8	120.1	14.2	120.1	14.5	120.1	14.6	120.1	14.8	120.1	15.5	120.1	16.0			
	11	120.1	11.3	120.1	11.6	120.1	11.8	120.1	12.0	120.1	12.1	120.1	12.6	120.1	13.0	120.1	13.5	15	128.1	13.9	128.1	14.3	128.1	14.6	128.1	14.8	128.1	15.0	128.1	15.6	128.1	16.1			
	15	128.1	11.4	128.1	11.7	128.1	11.9	128.1	12.1	128.1	12.2	128.1	12.8	128.1	13.2	128.1	13.6	19	136.1	14.1	136.1	14.5	136.1	14.8	136.1	15.0	136.1	15.2	136.1	15.8	136.1	16.1			
	19	136.1	11.5	136.1	11.8	136.1	12.1	136.1	12.3	136.1	12.4	136.1	13.0	136.1	13.4	136.1	13.9	23	144.1	14.2	144.1	14.6	144.1	14.9	144.1	15.1	144.1	15.3	144.1	15.8	144.1	16.1			
	23	144.1	11.6	144.1	11.9	144.1	12.2	144.1	12.3	144.1	12.5	144.1	13.1	144.1	13.5	144.1	14.0	27	152.1	14.5	152.1	14.9	152.1	15.1	152.1	15.3	152.1	15.5	152.1	16.0	152.1	16.3			
	27	152.1	11.7	152.1	12.1	152.1	12.3	152.1	12.5	152.1	12.6	152.1	13.2	152.1	13.6	152.1	14.1	31	160.1	14.7	160.1	15.1	160.1	15.4	160.1	15.6	160.1	15.8	160.1	16.1	160.1	16.4			
	31	160.1	11.8	160.1	12.2	160.1	12.4	160.1	12.6	160.1	12.7	160.1	13.3	160.1	13.7	160.1	14.2	35	168.1	14.9	168.1	15.3	168.1	15.6	168.1	15.8	168.1	16.0	168.1	16.3	168.1	16.6			
	35	168.1	12.0	168.1	12.3	168.1	12.5	168.1	12.7	168.1	12.8	168.1	13.4	168.1	13.8	168.1	14.3	39	176.1	15.1	176.1	15.5	176.1	15.8	176.1	16.0	176.1	16.2	176.1	16.5	176.1	16.8			
	39	176.1	12.1	176.1	12.4	176.1	12.7	176.1	12.8	176.1	13.0	176.1	13.6	176.1	14.0	176.1	14.5	43	184.1	15.3	184.1	15.7	184.1	16.0	184.1	16.2	184.1	16.4	184.1	16.7	184.1	17.0			
	43	184.1	12.2	184.1	12.5	184.1	12.8	184.1	13.0	184.1	13.1	184.1	13.7	184.1	14.1	184.1	14.6	47	192.1	15.5	192.1	15.9	192.1	16.2	192.1	16.4	192.1	16.6	192.1	16.9	192.1	17.2			
	47	192.1	12.3	192.1	12.6	192.1	12.9	192.1	13.1	192.1	13.2	192.1	13.8	192.1	14.2	192.1	14.7	51	200.1	15.7	200.1	16.1	200.1	16.4	200.1	16.6	200.1	16.8	200.1	17.1	200.1	17.4			
	51	200.1	12.4	200.1	12.7	200.1	13.0	200.1	13.2	200.1	13.3	200.1	13.9	200.1	14.3	200.1	14.8	55	208.1	15.9	208.1	16.3	208.1	16.6	208.1	16.8	208.1	17.0	208.1	17.3	208.1	17.6			
	55	208.1	12.5	208.1	12.8	208.1	13.1	208.1	13.3	208.1	13.4	208.1	14.0	208.1	14.4	208.1	14.9	59																	

(H,Y)VAHP168B(3,4,5)2S

Heating Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °F DB																Connection ratio	Outdoor air temp	Indoor air temp. °F DB															
		59				63				66				68						70				74				77				80			
		TC	IP	MH	kW	TC	IP	MH	kW	TC	IP	MH	kW	TC	IP	MH	kW			TC	IP	MH	kW	TC	IP	MH	kW	TC	IP	MH	kW	TC	IP	MH	kW
%	°FW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW		
150	-13	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1		
	-9	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0		
	-5	92.5	12.9	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2		
	-1	99.3	13.7	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1		
	3	107	14.6	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0		
	7	115	15.4	115	15.8	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2		
	11	124	16.3	124	16.7	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1		
	15	134	17.1	134	17.5	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9		
	19	146	18.0	146	18.5	146	18.8	146	19.1	146	19.3	146	19.4	146	19.4	146	19.4	146	19.4	146	19.4	146	19.4	146	19.4	146	19.4	146	19.4	146	19.4	146	19.4		
	23	161	18.8	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4		
	27	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4		
	31	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4		
	35	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4		
	39	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4		
	43	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4		
47	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4			
51	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4			
55	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4			
59	383	19.6	347	17.0	320	15.9	302	16.7	284	15.8	247	13.0	220	12.9	193	11.8	165	10.8	147	10.3	129	9.8	116	9.2	103	8.7	91	8.1	79	7.5	67	6.9			
140	-13	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1		
	-9	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0		
	-5	92.5	12.9	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2		
	-1	99.3	13.7	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1	99.3	14.1		
	3	107	14.6	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0	107	15.0		
	7	115	15.4	115	15.8	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2	115	16.2		
	11	124	16.3	124	16.7	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1	124	17.1		
	15	134	17.1	134	17.5	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9	134	17.9		
	19	146	18.0	146	18.5	146	18.8	146	19.1	146	19.3	146	19.4	146	19.4	146	19.4	146	19.4	146	19.4	146	19.4	146	19.4	146	19.4	146	19.4	146	19.4	146	19.4		
	23	161	18.8	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4	161	19.4		
	27	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4	177	19.4		
	31	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4	197	19.4		
	35	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4	219	19.4		
	39	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4	245	19.4		
	43	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4	274	19.4		
47	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4	307	19.4			
51	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4	345	19.4			
55	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4	383	19.4			
59	383	19.6	347	17.0	320	15.9	302	16.7	284	15.8	247	13.0	220	12.9	193	11.8	165	10.8	147	10.3	129	9.8	116	9.2	103	8.7	91	8.1	79	7.5	67	6.9			
130	-13	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1	79.1	11.1		
	-9	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0	85.9	12.0		
	-5	92.5	12.9	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2	92.5	13.2		
	-1	99.																																	

TC: Total Capacity

IP: Input Power

NOTES:

1. The table shows the normal value of a heating operation.
2. The heating capacity in the table indicates the peak value, which does not include the capacity decrease caused by frost.
3. The value in the table shows when the system is operating under the following conditions.

The total piping length: 24.6ft. (7.5m), The height difference: 0ft (0m)

SELECTION DATA

(H,Y)VAHP192B(3,4,5)2S

Heating Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °FDB																Connection ratio	Outdoor air temp	Indoor air temp. °FDB																			
		59		63		66		68		70		74		77		80				59		63		66		68		70		74		77		80					
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP				
%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW				
150	-13	81.6	11.9	81.6	12.2	81.6	12.5	81.6	12.6	81.6	12.8	81.6	13.3	81.6	13.8	81.6	14.3	-13	81.6	14.6	81.6	15.0	81.6	15.3	81.6	15.7	81.6	16.3	81.6	16.8	81.6	17.5							
	-9	88.8	12.8	88.8	13.2	88.8	13.4	88.8	13.6	88.8	13.8	88.8	14.4	88.8	14.8	88.8	15.3	-9	88.8	15.7	88.8	16.1	88.8	16.4	88.8	16.6	88.8	16.9	88.8	17.6	88.8	18.1							
	-5	95.5	13.7	95.5	14.1	95.5	14.4	95.5	14.6	95.5	14.8	95.5	15.4	95.5	15.9	95.5	16.4	-5	95.5	16.8	95.5	17.3	95.5	17.6	95.5	17.8	95.5	18.1	95.5	18.8	95.5	19.4							
	-1	102	14.6	102	15.0	102	15.3	102	15.5	102	15.7	102	16.4	102	16.9	102	17.5	-1	102	17.9	102	18.4	102	18.8	102	19.0	102	19.3	102	20.1	102	20.7							
	3	110	15.5	110	16.0	110	16.3	110	16.5	110	16.7	110	17.4	110	18.0	110	18.6	3	110	18.0	110	18.5	110	18.9	110	19.2	110	20.0	110	20.5	110	21.4							
	7	116	16.4	116	16.9	116	17.2	116	17.5	116	17.7	116	18.5	116	19.0	116	19.7	7	116	18.9	116	19.4	116	19.8	116	20.1	116	21.0	116	21.8	116	22.7							
	11	121	17.4	121	17.8	121	18.2	121	18.4	121	18.7	121	19.5	121	20.1	121	20.8	11	121	21.3	121	21.8	121	22.3	121	22.6	121	22.7	121	23.2	121	24.1							
	15	125	18.3	125	18.8	125	19.1	125	19.4	125	19.7	125	20.5	125	21.1	125	21.9	15	125	22.4	125	22.9	125	23.4	125	23.7	125	24.2	125	24.8	125	25.7							
	19	129	19.2	129	19.7	129	20.1	129	20.4	129	20.6	129	21.5	129	22.2	129	22.7	19	129	23.3	129	23.8	129	24.3	129	24.6	129	25.1	129	25.8	129	26.7							
	23	133	20.1	133	20.6	133	21.1	133	21.6	133	22.1	133	22.6	133	23.2	133	23.9	23	133	24.2	133	24.7	133	25.2	133	25.5	133	26.0	133	26.7	133	27.6							
	27	137	21.0	137	21.6	137	22.0	137	22.3	137	22.6	137	23.5	137	24.2	137	24.7	27	137	25.1	137	25.6	137	26.1	137	26.4	137	26.9	137	27.6	137	28.5							
	31	140	21.9	140	22.5	140	22.9	140	23.2	140	23.5	140	24.4	140	25.1	140	25.6	31	140	26.0	140	26.5	140	27.0	140	27.3	140	27.8	140	28.5	140	29.4							
	35	143	22.6	143	23.2	143	23.6	143	23.9	143	24.2	143	25.1	143	25.8	143	26.3	35	143	27.4	143	27.9	143	28.4	143	28.7	143	29.2	143	30.0	143	30.9							
	39	146	23.3	146	23.9	146	24.3	146	24.6	146	24.9	146	25.8	146	26.5	146	27.0	39	146	28.1	146	28.6	146	29.1	146	29.4	146	30.0	146	30.8	146	31.7							
	43	149	24.0	149	24.6	149	25.0	149	25.3	149	25.6	149	26.5	149	27.2	149	27.7	43	149	28.8	149	29.3	149	29.8	149	30.1	149	30.7	149	31.5	149	32.4							
	47	152	24.7	152	25.3	152	25.7	152	26.0	152	26.3	152	27.2	152	27.9	152	28.4	47	152	29.5	152	30.0	152	30.5	152	30.8	152	31.4	152	32.2	152	33.1							
	51	155	25.4	155	26.0	155	26.4	155	26.7	155	27.0	155	27.9	155	28.6	155	29.1	51	155	30.2	155	30.7	155	31.2	155	31.5	155	32.1	155	33.0	155	33.9							
	55	158	26.1	158	26.7	158	27.1	158	27.4	158	27.7	158	28.6	158	29.3	158	29.8	55	158	30.9	158	31.4	158	31.9	158	32.2	158	32.8	158	33.7	158	34.6							
	59	161	26.8	161	27.4	161	27.8	161	28.1	161	28.4	161	29.3	161	30.0	161	30.5	59	161	31.6	161	32.1	161	32.6	161	32.9	161	33.5	161	34.4	161	35.3							
140	-13	81.6	12.8	81.6	13.1	81.6	13.4	81.6	13.6	81.6	13.8	81.6	14.3	81.6	14.8	81.6	15.3	-13	81.6	15.3	81.6	15.8	81.6	16.1	81.6	16.3	81.6	16.5	81.6	17.2	81.6	17.8							
	-9	88.8	13.2	88.8	13.6	88.8	13.8	88.8	14.1	88.8	14.3	88.8	14.9	88.8	15.3	88.8	15.9	-9	88.8	15.8	88.8	16.2	88.8	16.5	88.8	16.7	88.8	16.9	88.8	17.6	88.8	18.1							
	-5	95.5	14.2	95.5	14.6	95.5	14.8	95.5	15.1	95.5	15.3	95.5	15.9	95.5	16.4	95.5	17.0	-5	95.5	17.1	95.5	17.6	95.5	18.0	95.5	18.2	95.5	18.5	95.5	19.2	95.5	20.2							
	-1	102	15.1	102	15.5	102	15.7	102	16.0	102	16.2	102	16.9	102	17.4	102	18.0	-1	102	18.1	102	18.6	102	19.0	102	19.2	102	19.5	102	20.2	102	21.2							
	3	110	16.1	110	16.5	110	16.9	110	17.1	110	17.3	110	18.0	110	18.6	110	19.3	3	110	19.0	110	19.5	110	20.0	110	20.3	110	21.0	110	22.5	110	23.2							
	7	116	17.0	116	17.5	116	17.8	116	18.1	116	18.3	116	18.9	116	19.5	116	20.2	7	116	19.6	116	20.1	116	20.6	116	21.1	116	21.8	116	23.3	116	24.2							
	11	121	18.0	121	18.5	121	18.8	121	19.1	121	19.3	121	19.9	121	20.5	121	21.2	11	121	20.6	121	21.1	121	21.6	121	22.1	121	22.8	121	24.3	121	25.2							
	15	125	18.9	125	19.4	125	19.8	125	20.1	125	20.3	125	20.9	125	21.5	125	22.2	15	125	21.6	125	22.1	125	22.6	125	23.1	125	23.8	125	25.3	125	26.2							
	19	129	19.8	129	20.3	129	20.7	129	21.0	129	21.2	129	21.8	129	22.4	129	23.1	19	129	22.5	129	23.0	129	23.5	129	24.0	129	24.7	129	26.2	129	27.1							
	23	133	20.7	133	21.2	133	21.6	133	21.9	133	22.1	133	22.7	133	23.3	133	24.0	23	133	23.4	133	23.9	133	24.4	133	24.9	133	25.6	133	27.1	133	28.0							
	27	137	21.6	137	22.1	137	22.5	137	22.8	137	23.0	137	23.6	137	24.2	137	24.9	27	137	24.3	137	24.8	137	25.3	137	25.8	137	26.5	137	28.0	137	28.9							
	31	140	22.5	140	23.0	140	23.4	140	23.7	140	23.9	140	24.5	140	25.1	140	25.8	31	140	25.2	140	25.7	140	26.2	140	26.7	140	27.4	140	28.9	140	29.8							
	35	143	23.4	143	23.9	143	24.3	143	24.6	143	24.8	143	25.4	143	26.0	143	26.7	35	143	26.1	143	26.6	143	27.1	143	27.6	143	28.3	143	29.8	143	30.7							
	39	146	24.3	146	24.8	146	25.2	146	25.5	146	25.7	146	26.3	146	26.9	146	27.6	39	146	27.0	146	27.5	146	28.0	146	28.5	146	29.2	146	30.7	146	31.6							
	43	149	25.2	149	25.7	149	26.1	149	26.4	149	26.6	149	27.2	149	27.8	149	28.5	43	149	27.9	149	28.4	149	28.9	149	29.4	149	30.1	149	31.6	149	32.5							
	47	152	26.1	152	26.6	152	27.0	152	27.3	152	27.5	152	28.1	152	28.7	152	29.4	47	152	28.8	152	29.3	152	29.8	152	30.3	152	31.0	152	32.5	152	33.4							
	51	155	27.0	155	27.5	155	27.9	155	28.2	155	28.4	155	29.0	155	29.6	155	30.3	51	155	29.7	155	30.2	155	30.7	155	31.2	155	31.9	155	33.4	155	34.3							
	55	158	27.9	158	28.4	158	28.8	158	29.1	158	29.3	158	29.9	158	30.5	158	31.2	55	158	30.6	158	31.1	158	31.6	158	32.1	158	32.8	158	34.3	158	35.2							
	59	161	28.8	161	29.3	161	29.7	161	30.0	161	30.2	161	30.8	161	31.4	161	32.1	59	161	31.5	161	32.0	161	32.5	161	33.0	161	33.7	161	35.2	161	36.1							
130	-13	81.6	12.8	81.6	13.1	81.6	13.4	81.6	13.6	81.6	13.8	81.6	14.3	81.6	14.8	81.6	15.3	-13	81.6	15.3	81.6	15.8	81.6	16.1	81.6	16.3	81.6	16.5	81.6	17.2	81.6	17.8							
	-9	88.8	13.2	88.8	13.6	88.8	13.8	88.8	14.1	88.8	14.3	88.8	14.9	88.8	15.3	88.8																							

(H,Y)VAHP216B(3,4,5)2S

Heating Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °FDB																Connection ratio	Outdoor air temp	Indoor air temp. °FDB																	
		59				63				66				68						70				74				77				80					
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP						
%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW				
150	-13	114	15.8	114	16.2	114	16.6	114	16.8	114	17.0	114	17.8	114	18.3	114	19.0	100	-13	114	19.4	114	19.9	114	20.3	114	20.6	114	20.8	114	21.7	114	22.4	114	23.2		
	-9	124	16.0	124	16.4	124	16.8	124	17.0	124	17.2	124	18.0	124	18.5	124	19.2		-9	124	19.6	124	20.1	124	20.5	124	20.8	124	21.1	124	22.0	124	22.7	124	23.5		
	-5	134	16.2	134	16.6	134	17.0	134	17.2	134	17.4	134	18.2	134	18.7	134	19.4		-5	134	19.8	134	20.4	134	20.8	134	21.0	134	21.3	134	22.2	134	22.9	134	23.7		
	-1	144	16.3	144	16.8	144	17.1	144	17.4	144	17.6	144	18.4	144	18.9	144	19.6		-1	144	20.0	144	20.6	144	21.0	144	21.3	144	21.5	144	22.5	144	23.2	144	24.0		
	3	156	16.5	156	17.0	156	17.3	156	17.6	156	17.8	156	18.6	156	19.1	156	19.8		3	156	20.2	156	20.8	156	21.2	156	21.5	156	21.8	156	22.7	156	23.4	156	24.3		
	7	168	16.7	168	17.2	168	17.5	168	17.7	168	18.0	168	18.8	168	19.3	168	20.0		7	168	20.5	168	21.0	168	21.4	168	21.7	168	22.0	168	22.9	168	23.6	168	24.5		
	11	180	16.9	180	17.4	180	17.7	180	17.9	180	18.2	180	19.0	180	19.5	180	20.2		11	180	20.7	180	21.3	180	21.7	180	22.0	180	22.3	180	23.2	180	23.9	180	24.8		
	15	194	17.1	194	17.5	194	17.9	194	18.1	194	18.4	194	19.2	194	19.8	194	20.5		15	194	20.9	194	21.5	194	21.9	194	22.2	194	22.5	194	23.5	194	24.2	194	25.0		
	19	208	17.2	208	17.7	208	18.1	208	18.3	208	18.6	208	19.4	208	20.0	208	20.7		19	208	21.1	208	21.7	208	22.1	208	22.4	208	22.7	208	23.7	208	24.4	208	25.2		
	23	223	17.4	223	17.9	223	18.3	223	18.5	223	18.7	223	19.6	223	20.2	223	20.9		23	223	21.3	223	21.9	223	22.3	223	22.6	223	23.0	223	24.0	223	24.7	223	25.5		
	27	239	17.6	239	18.1	239	18.5	239	18.7	239	18.9	239	19.8	239	20.4	239	21.1		27	239	21.6	239	22.2	239	22.6	239	22.9	239	23.3	239	24.3	239	25.0	239	25.8		
	31	255	17.8	255	18.3	255	18.6	255	18.9	255	19.1	255	20.0	255	20.6	255	21.3		31	255	21.8	255	22.4	255	22.8	255	23.1	255	23.5	255	24.5	255	25.2	255	26.0		
	35	272	18.0	272	18.5	272	18.8	272	19.1	272	19.3	272	20.2	272	20.8	272	21.5		35	272	22.0	272	22.6	272	23.0	272	23.3	272	23.7	272	24.7	272	25.4	272	26.2		
	39	290	18.1	290	18.6	290	19.0	290	19.3	290	19.5	290	20.4	290	21.0	290	21.7		39	290	22.2	290	22.8	290	23.2	290	23.5	290	23.9	290	24.9	290	25.6	290	26.4		
	43	308	18.3	308	18.8	308	19.2	308	19.5	308	19.7	308	20.6	308	21.2	308	21.9		43	308	22.4	308	23.0	308	23.4	308	23.7	308	24.1	308	25.1	308	25.8	308	26.6		
	47	327	18.5	327	19.0	327	19.4	327	19.7	327	19.9	327	20.8	327	21.4	327	22.1		47	327	22.7	327	23.3	327	23.7	327	24.0	327	24.4	327	25.4	327	26.1	327	26.9		
	51	347	18.7	347	19.2	347	19.6	347	19.9	347	20.1	347	21.0	347	21.6	347	22.3		51	347	22.9	347	23.5	347	23.9	347	24.2	347	24.6	347	25.6	347	26.3	347	27.1		
	55	367	18.9	367	19.4	367	19.8	367	20.1	367	20.3	367	21.2	367	21.8	367	22.5		55	367	23.1	367	23.7	367	24.1	367	24.4	367	24.8	367	25.8	367	26.5	367	27.3		
	59	389	19.0	389	19.6	389	20.0	389	20.2	389	20.5	389	21.4	389	22.0	389	22.7		59	389	23.3	389	23.9	389	24.3	389	24.6	389	25.0	389	26.0	389	26.7	389	27.5		
140	-13	114	15.8	114	16.2	114	16.6	114	16.8	114	17.0	114	17.8	114	18.3	114	19.0	90	-13	114	20.4	114	20.9	114	21.3	114	21.6	114	21.8	114	22.7	114	23.4	114	24.1	114	24.9
	-9	124	16.0	124	16.4	124	16.8	124	17.0	124	17.2	124	18.0	124	18.5	124	19.2		-9	124	20.6	124	21.1	124	21.5	124	21.8	124	22.1	124	22.9	124	23.6	124	24.4		
	-5	134	16.2	134	16.6	134	17.0	134	17.2	134	17.4	134	18.2	134	18.7	134	19.4		-5	134	20.8	134	21.3	134	21.7	134	22.0	134	22.3	134	23.2	134	23.9	134	24.7		
	-1	144	16.3	144	16.8	144	17.1	144	17.4	144	17.6	144	18.4	144	18.9	144	19.6		-1	144	21.0	144	21.6	144	22.0	144	22.3	144	22.6	144	23.6	144	24.3	144	25.1		
	3	156	16.5	156	17.0	156	17.3	156	17.6	156	17.8	156	18.6	156	19.1	156	19.8		3	156	21.2	156	21.8	156	22.2	156	22.5	156	23.4	156	24.1	156	24.9				
	7	168	16.7	168	17.2	168	17.5	168	17.7	168	18.0	168	18.8	168	19.3	168	20.0		7	168	21.4	168	22.0	168	22.4	168	22.7	168	23.6	168	24.3	168	25.1				
	11	180	16.9	180	17.4	180	17.7	180	17.9	180	18.2	180	19.0	180	19.5	180	20.2		11	180	21.6	180	22.2	180	22.6	180	22.9	180	23.8	180	24.5	180	25.3				
	15	194	17.1	194	17.5	194	17.9	194	18.1	194	18.4	194	19.2	194	19.8	194	20.5		15	194	21.8	194	22.4	194	22.8	194	23.1	194	24.0	194	24.7	194	25.5				
	19	208	17.2	208	17.7	208	18.1	208	18.3	208	18.6	208	19.4	208	20.0	208	20.7		19	208	22.0	208	22.6	208	23.0	208	23.3	208	24.2	208	24.9	208	25.7				
	23	223	17.4	223	17.9	223	18.3	223	18.5	223	18.7	223	19.6	223	20.2	223	20.9		23	223	22.2	223	22.8	223	23.2	223	23.5	223	24.4	223	25.1	223	25.9				
	27	239	17.6	239	18.1	239	18.5	239	18.7	239	18.9	239	19.8	239	20.4	239	21.1		27	239	22.4	239	23.0	239	23.4	239	23.7	239	24.6	239	25.3	239	26.1				
	31	255	17.8	255	18.3	255	18.6	255	18.9	255	19.1	255	20.0	255	20.6	255	21.3		31	255	22.6	255	23.2	255	23.6	255	23.9	255	24.8	255	25.5	255	26.3				
	35	272	18.0	272	18.5	272	18.8	272	19.1	272	19.3	272	20.2	272	20.8	272	21.5		35	272	22.8	272	23.4	272	23.8	272	24.1	272	25.0	272	25.7	272	26.5				
	39	290	18.1	290	18.6	290	19.0	290	19.3	290	19.5	290	20.4	290	21.0	290	21.7		39	290	23.0	290	23.6	290	24.0	290	24.3	290	25.2	290	25.9	290	26.7				
	43	308	18.3	308	18.8	308	19.2	308	19.5	308	19.7	308	20.6	308	21.2	308	21.9		43	308	23.2	308	23.8	308	24.2	308	24.5	308	25.4	308	26.1	308	26.9				
	47	327	18.5	327	19.0	327	19.4	327	19.7	327	19.9	327	20.8	327	21.4	327	22.1		47	327	23.4	327	24.0	327	24.4	327	24.7	327	25.6	327	26.3	327	27.1				
	51	347	18.7	347	19.2	347	19.6	347	19.9	347	20.1	347	21.0	347	21.6	347	22.3		51	347	23.6	347	24.2	347	24.6	347	24.9	347	25.8	347	26.5	347	27.3				
	55	367	18.9	367	19.4	367	19.8	367	20.1	367	20.3	367	21.2	367	21.8	367	22.5		55	367	23.8	367	24.4	367	24.8	367	25.1	367	26.0	367	26.7	367	27.5				
	59	389	19.0	389	19.6	389	20.0	389	20.2	389	20.5	389	21.4	389	22.0	389	22.7		59	389	24.0	389	24.6	389	25.0	389	25.3	389	26.2	389	26.9	389	27.7				
130	-13	114	15.8	114	16.2	114	16.6	114	16.8	114	17.0	114	17.8	114	18.3	114	19.0	80	-13	114	21.6	114	22.1	114	22.5	114	22										

SELECTION DATA

(H,Y)VAHP240B(3,4,5)2S

Heating Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °FDB																Connection ratio	Outdoor air temp	Indoor air temp. °FDB															
		59		63		66		68		70		74		77		80				59		63		66		68		70		74		77		80	
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP		
%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW		
150	-13	140	21.1	140	21.7	140	22.1	140	22.4	140	22.7	140	23.7	140	24.4	140	25.3	-13	140	25.8	140	26.5	140	27.1	140	27.3	140	27.3	140	27.3	140	27.3	140	27.3	
	-9	151	21.3	151	21.9	151	22.4	151	22.6	151	22.9	151	23.9	151	24.7	151	25.6	-9	151	26.1	151	26.8	151	27.3	151	27.3	151	27.3	151	27.3	151	27.3	151	27.3	
	-5	163	21.6	163	22.2	163	22.6	163	22.9	163	23.2	163	24.2	163	25.0	163	25.9	-5	163	26.4	163	27.1	163	27.3	163	27.3	163	27.3	163	27.3	163	27.3	163	27.3	
	-1	176	21.8	176	22.4	176	22.9	176	23.2	176	23.5	176	24.5	176	25.2	176	26.1	-1	176	26.7	176	27.3	176	27.3	176	27.3	176	27.3	176	27.3	176	27.3	176	27.3	
	3	190	22.0	190	22.6	190	23.1	190	23.4	190	23.7	190	24.7	190	25.5	190	26.4	3	190	27.0	190	27.3	190	27.3	190	27.3	190	27.3	190	27.3	190	27.3	190	27.3	
	7	205	22.3	205	22.9	205	23.4	205	23.7	205	24.0	205	25.0	205	25.8	205	26.7	7	205	27.3	205	27.3	205	27.3	205	27.3	205	27.3	205	27.3	205	27.3	205	27.3	
	11	220	22.5	220	23.1	220	23.6	220	23.9	220	24.2	220	25.3	220	26.1	220	27.0	11	220	27.3	220	27.3	220	27.3	220	27.3	220	27.3	220	27.3	220	27.3	220	27.3	
	15	237	22.8	237	23.4	237	23.9	237	24.2	237	24.5	237	25.5	237	26.3	237	27.3	15	237	27.3	237	27.3	237	27.3	237	27.3	237	27.3	237	27.3	237	27.3	237	27.3	
	19	254	23.0	254	23.6	254	24.1	254	24.4	254	24.7	254	25.8	254	26.6	254	27.3	19	254	27.3	254	27.3	254	27.3	254	27.3	254	27.3	254	27.3	254	27.3	254	27.3	
	23	272	23.2	272	23.9	272	24.4	272	24.7	272	25.0	272	26.1	272	26.9	272	27.3	23	272	27.3	272	27.3	272	27.3	272	27.3	272	27.3	272	27.3	272	27.3	272	27.3	
	27	292	23.5	292	24.1	292	24.6	292	24.9	292	25.3	292	26.3	292	27.2	292	27.3	27	292	27.3	292	27.3	292	27.3	292	27.3	292	27.3	292	27.3	292	27.3	292	27.3	
	31	311	23.7	311	24.4	311	24.9	311	25.2	311	25.5	311	26.6	311	27.3	311	27.3	31	311	27.3	311	27.3	311	27.3	311	27.3	311	27.3	311	27.3	311	27.3	311	27.3	
	35	332	23.9	332	24.6	332	25.1	332	25.4	332	25.8	332	26.9	332	27.3	332	27.3	35	332	27.3	332	27.3	332	27.3	332	27.3	332	27.3	332	27.3	332	27.3	332	27.3	
	39	354	24.2	354	24.9	354	25.4	354	25.7	354	26.0	354	27.1	354	27.3	354	27.3	39	354	27.3	354	27.3	354	27.3	354	27.3	354	27.3	354	27.3	354	27.3	354	27.3	
	43	376	24.4	376	25.1	376	25.6	376	25.9	376	26.3	376	27.0	376	27.3	376	27.3	43	376	27.3	376	27.3	376	27.3	376	27.3	376	27.3	376	27.3	376	27.3	376	27.3	
	47	400	24.7	400	25.3	400	25.9	400	26.2	400	26.5	400	27.3	400	27.3	400	27.3	47	400	27.3	400	27.3	400	27.3	400	27.3	400	27.3	400	27.3	400	27.3	400	27.3	
	51	424	24.9	424	25.6	424	26.1	424	26.4	424	26.8	424	27.3	424	27.3	424	27.3	51	424	27.3	424	27.3	424	27.3	424	27.3	424	27.3	424	27.3	424	27.3	424	27.3	
	55	448	25.1	448	25.8	448	26.4	448	26.7	448	27.0	448	27.3	448	27.3	448	27.3	55	448	27.3	448	27.3	448	27.3	448	27.3	448	27.3	448	27.3	448	27.3	448	27.3	
	59	475	25.4	475	26.1	475	26.6	475	26.9	475	27.3	475	27.3	475	27.3	475	27.3	59	475	27.3	475	27.3	475	27.3	475	27.3	475	27.3	475	27.3	475	27.3	475	27.3	
140	-13	140	21.1	140	21.4	140	21.9	140	22.3	140	22.7	140	23.5	140	24.5	140	25.3	-13	140	27.2	140	27.3	140	27.3	140	27.3	140	27.3	140	27.3	140	27.3	140	27.3	
	-9	151	21.2	151	21.7	151	22.1	151	22.5	151	22.9	151	23.7	151	24.8	151	25.5	-9	151	27.3	151	27.3	151	27.3	151	27.3	151	27.3	151	27.3	151	27.3	151	27.3	
	-5	163	22.3	163	22.9	163	23.4	163	23.7	163	24.0	163	25.1	163	25.8	163	26.8	-5	163	27.3	163	27.3	163	27.3	163	27.3	163	27.3	163	27.3	163	27.3	163	27.3	
	-1	176	22.4	176	22.9	176	23.3	176	23.7	176	24.0	176	25.1	176	25.8	176	26.7	-1	176	27.3	176	27.3	176	27.3	176	27.3	176	27.3	176	27.3	176	27.3	176	27.3	
	3	190	22.8	190	23.4	190	23.9	190	24.2	190	24.5	190	25.6	190	26.4	190	27.3	3	190	27.3	190	27.3	190	27.3	190	27.3	190	27.3	190	27.3	190	27.3	190	27.3	
	7	205	23.1	205	23.7	205	24.2	205	24.5	205	24.8	205	25.9	205	26.7	205	27.3	7	205	27.3	205	27.3	205	27.3	205	27.3	205	27.3	205	27.3	205	27.3	205	27.3	
	11	220	23.3	220	23.9	220	24.4	220	24.8	220	25.1	220	26.2	220	27.0	220	27.3	11	220	27.3	220	27.3	220	27.3	220	27.3	220	27.3	220	27.3	220	27.3	220	27.3	
	15	237	23.5	237	24.2	237	24.7	237	25.0	237	25.3	237	26.4	237	27.3	237	27.3	15	237	27.3	237	27.3	237	27.3	237	27.3	237	27.3	237	27.3	237	27.3	237	27.3	
	19	254	23.8	254	24.5	254	24.9	254	25.3	254	25.6	254	26.7	254	27.3	254	27.3	19	254	27.3	254	27.3	254	27.3	254	27.3	254	27.3	254	27.3	254	27.3	254	27.3	
	23	272	24.0	272	24.7	272	25.2	272	25.6	272	25.9	272	27.0	272	27.3	272	27.3	23	272	27.3	272	27.3	272	27.3	272	27.3	272	27.3	272	27.3	272	27.3	272	27.3	
	27	292	24.3	292	25.0	292	25.5	292	25.8	292	26.1	292	27.3	292	27.3	292	27.3	27	292	27.3	292	27.3	292	27.3	292	27.3	292	27.3	292	27.3	292	27.3	292	27.3	
	31	311	24.5	311	25.2	311	25.7	311	26.0	311	26.3	311	27.3	311	27.3	311	27.3	31	311	27.3	311	27.3	311	27.3	311	27.3	311	27.3	311	27.3	311	27.3	311	27.3	
	35	332	24.8	332	25.5	332	26.0	332	26.3	332	26.6	332	27.3	332	27.3	332	27.3	35	332	27.3	332	27.3	332	27.3	332	27.3	332	27.3	332	27.3	332	27.3	332	27.3	
	39	354	25.0	354	25.7	354	26.2	354	26.5	354	26.8	354	27.3	354	27.3	354	27.3	39	354	27.3	354	27.3	354	27.3	354	27.3	354	27.3	354	27.3	354	27.3	354	27.3	
	43	376	25.3	376	26.0	376	26.5	376	26.8	376	27.1	376	27.3	376	27.3	376	27.3	43	376	27.3	376	27.3	376	27.3	376	27.3	376	27.3	376	27.3	376	27.3	376	27.3	
	47	400	25.5	400	26.2	400	26.7	400	27.0	400	27.3	400	27.3	400	27.3	400	27.3	47	400	27.3	400	27.3	400	27.3	400	27.3	400	27.3	400	27.3	400	27.3	400	27.3	
	51	424	25.8	424	26.5	424	27.0	424	27.3	424	27.3	424	27.3	424	27.3	424	27.3	51	424	27.3	424	27.3	424	27.3	424	27.3	424	27.3	424	27.3	424	27.3	424	27.3	
	55	448	26.0	448	26.7	448	27.2	448	27.5	448	27.8	448	27.3	448	27.3	448	27.3	55	448	27.3	448	27.3	448	27.3	448	27.3	448	27.3	448	27.3	448	27.3	448	27.3	
	59	475	26.3	475	27.0	475	27.5	475	27.8	475	28.1	475	27.3	475	27.3	475	27.3	59	475	27.3	475	27.3	475	27.3											

SELECTION DATA

(H,Y)VAHP264B(3,4,5)2S

Heating Capacity

[illegible]

TC: Total Capacity

IP: Input Power

NOTES:

1. The table shows the normal value of a heating operation.
2. The heating capacity in the table indicates the peak value, which does not include the capacity decrease caused by frost.
3. The value in the table shows when the system is operating under the following conditions.

The total piping length: 24.6ft. (7.5m), The height difference: 0ft (0m)

SELECTION DATA

(H,Y)VAHP288B(3,4,5)2S

Heating Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °FDB																Connection ratio	Outdoor air temp	Indoor air temp. °FDB																	
		59		63		66		68		70		74		77		80				59		63		66		68		74		77		80					
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP				
%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW				
150	-13	152	21.1	152	21.7	152	22.1	152	22.4	152	22.7	152	23.7	152	24.4	152	25.3	-13	152	25.8	152	26.5	152	27.1	152	27.4	152	27.8	152	28.9	152	29.9	152	31.0			
	-9	165	21.3	165	21.9	165	22.4	165	22.6	165	22.9	165	23.9	165	24.7	165	25.6	-9	165	26.1	165	26.8	165	27.4	165	27.7	165	28.1	165	29.3	165	30.2	165	31.3			
	-5	178	21.6	178	22.2	178	22.6	178	22.9	178	23.2	178	24.2	178	25.0	178	25.9	-5	178	26.4	178	27.1	178	27.7	178	28.0	178	28.4	178	29.6	178	30.6	178	31.7			
	-1	192	21.8	192	22.4	192	22.9	192	23.2	192	23.5	192	24.5	192	25.2	192	26.1	-1	192	26.7	192	27.4	192	28.0	192	28.4	192	28.7	192	30.0	192	30.9	192	32.0			
	3	207	22.0	207	22.6	207	23.1	207	23.4	207	23.7	207	24.7	207	25.5	207	26.4	3	207	27.0	207	27.7	207	28.3	207	28.7	207	29.0	207	30.3	207	31.2	207	32.4			
	7	224	22.3	224	22.9	224	23.4	224	23.7	224	24.0	224	24.2	224	25.3	224	26.2	7	224	27.3	224	28.0	224	28.6	224	29.0	224	29.4	224	30.6	224	31.6	224	32.7			
	11	241	22.5	241	23.1	241	23.6	241	23.9	241	24.2	241	25.3	241	26.1	241	27.0	11	241	27.6	241	28.3	241	28.9	241	29.3	241	29.7	241	31.0	241	31.9	241	32.0			
	15	258	22.8	258	23.4	258	23.9	258	24.2	258	24.5	258	25.5	258	26.3	258	27.3	15	258	27.9	258	28.6	258	29.2	258	29.6	258	30.0	258	31.3	258	32.3	258	30.3			
	19	277	23.0	277	23.6	277	24.1	277	24.4	277	24.7	277	25.8	277	26.6	277	27.6	19	277	28.2	277	28.9	277	29.5	277	29.9	277	30.3	277	31.6	277	32.6	277	28.5			
	23	297	23.2	297	23.9	297	24.4	297	24.7	297	25.0	297	26.1	297	26.9	297	27.9	23	297	28.4	297	29.2	297	29.8	297	30.2	297	30.6	297	31.7	297	32.5	297	26.6			
	27	318	23.5	318	24.1	318	24.6	318	24.9	318	25.3	318	26.3	318	27.2	318	28.1	27	318	28.7	318	29.5	318	30.1	318	30.5	318	30.9	318	32.0	318	32.7	318	24.9			
140	-13	152	21.1	152	21.7	152	22.1	152	22.4	152	22.7	152	23.7	152	24.4	152	25.3	-13	152	25.8	152	26.5	152	27.1	152	27.4	152	27.8	152	28.9	152	29.9	152	31.0			
	-9	165	21.3	165	21.9	165	22.4	165	22.6	165	22.9	165	23.9	165	24.7	165	25.6	-9	165	26.1	165	26.8	165	27.4	165	27.7	165	28.1	165	29.3	165	30.2	165	31.3			
	-5	178	21.6	178	22.2	178	22.6	178	22.9	178	23.2	178	24.2	178	25.0	178	25.9	-5	178	26.4	178	27.1	178	27.7	178	28.0	178	28.4	178	29.6	178	30.6	178	31.7			
	-1	192	21.8	192	22.4	192	22.9	192	23.2	192	23.5	192	24.5	192	25.2	192	26.1	-1	192	26.7	192	27.4	192	28.0	192	28.4	192	28.7	192	30.0	192	30.9	192	32.0			
	3	207	22.0	207	22.6	207	23.1	207	23.4	207	23.7	207	24.7	207	25.5	207	26.4	3	207	27.0	207	27.7	207	28.3	207	28.7	207	29.0	207	30.3	207	31.2	207	32.4			
	7	224	22.3	224	22.9	224	23.4	224	23.7	224	24.0	224	24.2	224	25.3	224	26.2	7	224	27.3	224	28.0	224	28.6	224	29.0	224	29.4	224	30.6	224	31.6	224	32.7			
	11	241	22.5	241	23.1	241	23.6	241	23.9	241	24.2	241	25.3	241	26.1	241	27.0	11	241	27.6	241	28.3	241	28.9	241	29.3	241	29.7	241	31.0	241	31.9	241	32.0			
	15	258	22.8	258	23.4	258	23.9	258	24.2	258	24.5	258	25.5	258	26.3	258	27.3	15	258	27.9	258	28.6	258	29.2	258	29.6	258	30.0	258	31.3	258	32.3	258	30.3			
	19	277	23.0	277	23.6	277	24.1	277	24.4	277	24.7	277	25.8	277	26.6	277	27.6	19	277	28.2	277	28.9	277	29.5	277	29.9	277	30.3	277	31.6	277	32.6	277	28.5			
	23	297	23.2	297	23.9	297	24.4	297	24.7	297	25.0	297	26.1	297	26.9	297	27.9	23	297	28.4	297	29.2	297	29.8	297	30.2	297	30.6	297	31.7	297	32.5	297	26.6			
	27	318	23.5	318	24.1	318	24.6	318	24.9	318	25.3	318	26.3	318	27.2	318	28.1	27	318	28.7	318	29.5	318	30.1	318	30.5	318	30.9	318	32.0	318	32.7	318	24.9			
130	-13	152	21.1	152	21.7	152	22.1	152	22.4	152	22.7	152	23.7	152	24.4	152	25.3	-13	152	25.8	152	26.5	152	27.1	152	27.4	152	27.8	152	28.9	152	29.9	152	31.0			
	-9	165	21.3	165	21.9	165	22.4	165	22.6	165	22.9	165	23.9	165	24.7	165	25.6	-9	165	26.1	165	26.8	165	27.4	165	27.7	165	28.1	165	29.3	165	30.2	165	31.3			
	-5	178	21.6	178	22.2	178	22.6	178	22.9	178	23.2	178	24.2	178	25.0	178	25.9	-5	178	26.4	178	27.1	178	27.7	178	28.0	178	28.4	178	29.6	178	30.6	178	31.7			
	-1	192	21.8	192	22.4	192	22.9	192	23.2	192	23.5	192	24.5	192	25.2	192	26.1	-1	192	26.7	192	27.4	192	28.0	192	28.4	192	28.7	192	30.0	192	30.9	192	32.0			
	3	207	22.0	207	22.6	207	23.1	207	23.4	207	23.7	207	24.7	207	25.5	207	26.4	3	207	27.0	207	27.7	207	28.3	207	28.7	207	29.0	207	30.3	207	31.2	207	32.4			
	7	224	22.3	224	22.9	224	23.4	224	23.7	224	24.0	224	24.2	224	25.3	224	26.2	7	224	27.3	224	28.0	224	28.6	224	29.0	224	29.4	224	30.6	224	31.6	224	32.7			
	11	241	22.5	241	23.1	241	23.6	241	23.9	241	24.2	241	25.3	241	26.1	241	27.0	11	241	27.6	241	28.3	241	28.9	241	29.3	241	29.7	241	31.0	241	31.9	241	32.0			
	15	258	22.8	258	23.4	258	23.9	258	24.2	258	24.5	258	25.5	258	26.3	258	27.3	15	258	27.9	258	28.6	258	29.2	258	29.6	258	30.0	258	31.3	258	32.3	258	30.3			
	19	277	23.0	277	23.6	277	24.1	277	24.4	277	24.7	277	25.8	277	26.6	277	27.6	19	277	28.2	277	28.9	277	29.5	277	29.9	277	30.3	277	31.6	277	32.6	277	28.5			
	23	297	23.2	297	23.9	297	24.4	297	24.7	297	25.0	297	26.1	297	26.9	297	27.9	23	297	28.4	297	29.2	297	29.8	297	30.2	297	30.6	297	31.7	297	32.5	297	26.6			
	27	318	23.5	318	24.1	318	24.6	318	24.9	318	25.3	318	26.3	318	27.2	318	28.1	27	318	28.7	318	29.5	318	30.1	318	30.5	318	30.9	318	32.0	318	32.7	318	24.9			
120	-13	152	21.1	152	21.7	152	22.1	152	22.4	152	22.7	152	23.7	152	24.4	152	25.3	-13	152	25.8	152	26.5	152	27.1	152	27.4	152	27.8	152	28.9	152	29.9	152	31.0			
	-9	165	21.3	165	21.9	165	22.4	165	22.6	165	22.9	165	23.9	165	24.7	165	25.6	-9	165	26.1	165	26.8	165	27.4	165	27.7	165	28.1	165	29.3	165	30.2	165	31.3			
	-5	178	21.6	178	22.2	178	22.6	178	22.9	178	23.2	178	24.2	178	25.0	178	25.9	-5	178	26.4	178	27.1	178	27.7	178	28.0	178	28.4	178	29.6	178	30.6	178	31.7			
	-1	192	21.8	192	22.4	192	22.9	192	23.2	192	23.5	192	24.5	192	25.2	192	26.1	-1	192	26.7	192	27.4	19														

(H,Y)VAHP312B(3,4,5)2S

Heating Capacity

Connection ratio	Outdoor air temp.	Indoor air temp. °FDB																Connection ratio	Outdoor air temp.	Indoor air temp. °FDB															
		59				63				66				68						70				74				77				80			
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP		
%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW		
150	-13	156	21.5	156	22.1	156	22.6	156	22.9	156	23.2	156	24.2	156	24.9	156	25.8	100	-13	156	26.4	156	27.1	156	27.6	156	28.6	156	28.4	156	28.6	156	29.6	156	30.5
	-9	168	21.8	168	22.4	168	22.8	168	23.1	168	23.4	168	24.4	168	25.2	168	26.1		-9	168	26.7	168	27.4	168	27.9	168	28.3	168	28.7	168	29.9	168	30.9	168	32.0
	-5	182	22.0	182	22.6	182	23.1	182	23.4	182	23.7	182	24.7	182	25.5	182	26.4		-5	182	27.0	182	27.7	182	28.3	182	28.6	182	29.0	182	30.3	182	31.2	182	32.3
	-1	196	22.3	196	22.9	196	23.3	196	23.6	196	23.9	196	25.0	196	25.8	196	26.7		-1	196	27.3	196	28.0	196	28.6	196	29.0	196	29.3	196	30.6	196	31.5	196	32.7
	3	212	22.5	212	23.1	212	23.6	212	23.9	212	24.2	212	25.3	212	26.1	212	27.0		3	212	27.5	212	28.3	212	28.9	212	29.3	212	29.6	212	30.9	212	31.9	212	33.0
	7	228	22.7	228	23.4	228	23.8	228	24.2	228	24.5	228	25.5	228	26.3	228	27.3		7	228	27.8	228	28.6	228	29.2	228	29.6	228	30.0	228	31.3	228	32.2	228	33.4
	11	246	23.0	246	23.6	246	24.1	246	24.4	246	24.7	246	25.8	246	26.6	246	27.6		11	246	28.1	246	28.9	246	29.5	246	29.9	246	30.3	246	31.6	246	32.6	246	33.8
	15	264	23.2	264	23.9	264	24.4	264	24.7	264	25.0	264	26.1	264	26.9	264	27.9		15	264	28.4	264	29.2	264	29.8	264	30.2	264	30.6	264	31.9	264	32.9	264	32.9
	19	280	23.5	283	24.1	283	24.6	283	24.9	283	25.3	283	26.3	283	27.2	283	28.1		19	283	28.7	283	29.5	283	30.1	283	30.5	283	30.9	283	32.3	283	33.1	283	31.4
	23	300	23.7	303	24.4	303	24.9	303	25.2	303	25.5	303	26.6	303	27.4	303	28.4		23	303	29.0	303	29.8	303	30.4	303	30.8	303	31.3	303	32.6	303	33.2	303	29.6
	27	320	24.0	325	24.6	325	25.1	325	25.4	325	25.8	325	26.9	325	27.7	325	28.7		27	325	29.3	325	30.2	325	30.8	325	31.2	325	31.6	325	32.4	325	33.7	325	27.7
	31	340	24.2	347	24.9	347	25.4	347	25.7	347	26.0	347	27.2	347	28.0	347	29.0		31	347	29.6	347	30.5	347	31.1	347	31.5	347	31.9	347	33.0	347	29.0	347	25.8
	35	360	24.4	365	25.1	365	25.6	365	25.9	365	26.3	365	27.4	365	28.3	365	29.3		35	360	29.9	360	30.8	360	31.4	360	31.8	360	32.2	360	33.0	360	29.8	360	24.1
	39	394	24.7	394	25.4	394	25.9	394	26.2	394	26.6	394	27.7	394	28.6	394	29.6		39	394	30.2	394	31.1	394	31.7	394	32.1	394	32.5	394	33.4	394	29.4	394	22.6
	43	419	24.9	419	25.6	419	26.1	419	26.5	419	26.8	419	28.0	419	28.8	419	29.8		43	419	30.5	419	31.4	419	32.0	419	32.4	419	32.8	419	33.6	419	30.4	419	21.4
	47	445	25.2	445	25.9	445	26.4	445	26.7	445	27.1	445	28.3	445	29.1	445	30.1		47	445	30.8	445	31.7	445	32.3	445	32.7	445	33.5	445	30.7	445			
	51	470	25.4	472	26.1	472	26.6	472	27.0	472	27.4	472	28.6	472	29.4	472	30.4		51	472	31.1	472	32.0	472	32.6	472	33.0	472	33.8	472	31.6	472			
	55	500	25.7	500	26.4	500	26.9	500	27.3	500	27.6	500	28.9	500	29.7	500	30.7		55	474	30.9	474	31.8	474	32.4	474	32.8	474	33.6	474	31.4	474			
	59	520	25.8	529	26.6	529	27.2	529	27.5	529	27.8	529	29.1	529	29.9	529	30.9		59	474	29.9	474	30.8	474	31.4	474	31.8	474	32.6	474	30.4	474			
140	-13	156	22.3	156	22.9	156	23.4	156	23.7	156	24.0	156	25.0	156	25.8	156	26.7	90	-13	156	27.8	156	28.6	156	29.1	156	29.5	156	29.9	156	31.2	156	32.2	156	33.2
	-9	168	22.5	168	23.2	168	23.6	168	23.9	168	24.2	168	25.3	168	26.1	168	27.0		-9	168	28.1	168	28.9	168	29.5	168	29.8	168	30.2	168	31.5	168	32.5	168	33.7
	-5	182	22.8	182	23.4	182	23.8	182	24.2	182	24.5	182	25.6	182	26.4	182	27.3		-5	182	28.4	182	29.2	182	29.8	182	30.2	182	30.6	182	31.9	182	32.9	182	34.1
	-1	196	23.0	196	23.7	196	24.1	196	24.5	196	24.8	196	25.9	196	26.7	196	27.6		-1	196	28.7	196	29.5	196	30.1	196	30.5	196	30.9	196	32.2	196	33.3	196	34.5
	3	212	23.3	212	23.9	212	24.4	212	24.7	212	25.0	212	26.1	212	27.0	212	27.9		3	212	29.0	212	29.8	212	30.4	212	30.8	212	31.2	212	32.5	212	33.5	212	34.6
	7	228	23.5	228	24.2	228	24.6	228	25.0	228	25.3	228	26.4	228	27.2	228	28.2		7	228	29.3	228	30.2	228	30.8	228	31.2	228	31.6	228	33.0	228	34.0	228	35.1
	11	246	23.8	246	24.4	246	24.9	246	25.3	246	25.6	246	26.7	246	27.5	246	28.5		11	246	29.7	246	30.5	246	31.1	246	31.5	246	31.9	246	33.3	246	34.3	246	35.4
	15	264	24.0	264	24.7	264	25.2	264	25.5	264	25.9	264	27.0	264	27.8	264	28.8		15	264	30.0	264	30.8	264	31.4	264	31.8	264	32.3	264	33.6	264	34.7	264	35.8
	19	283	24.3	283	25.0	283	25.5	283	25.8	283	26.1	283	27.3	283	28.1	283	29.1		19	283	30.3	283	31.1	283	31.7	283	32.2	283	32.6	283	34.0	283	35.1	283	36.2
	23	303	24.5	303	25.2	303	25.7	303	26.1	303	26.4	303	27.6	303	28.4	303	29.4		23	303	30.6	303	31.5	303	32.1	303	32.5	303	32.9	303	34.3	303	35.4	303	36.5
	27	325	24.8	325	25.5	325	26.0	325	26.3	325	26.7	325	27.8	325	28.7	325	29.7		27	325	30.9	325	31.8	325	32.4	325	32.8	325	33.2	325	34.6	325	35.7	325	36.8
	31	347	25.0	347	25.7	347	26.3	347	26.6	347	27.0	347	28.1	347	29.0	347	30.0		31	347	31.2	347	32.1	347	32.7	347	33.1	347	33.5	347	34.9	347	36.0	347	37.1
	35	370	25.3	370	26.0	370	26.5	370	26.8	370	27.2	370	28.3	370	29.2	370	30.2		35	370	31.4	370	32.3	370	32.9	370	33.3	370	33.7	370	35.1	370	36.2	370	37.3
	39	394	25.6	394	26.3	394	26.8	394	27.1	394	27.5	394	28.7	394	29.6	394	30.6		39	394	31.7	394	32.6	394	33.2	394	33.6	394	34.0	394	35.4	394	36.5	394	37.6
	43	419	25.8	419	26.5	419	27.1	419	27.4	419	27.8	419	29.0	419	29.9	419	30.9		43	419	32.0	419	32.9	419	33.5	419	33.9	419	34.3	419	35.7	419	36.8	419	37.9
	47	445	26.1	445	26.8	445	27.3	445	27.7	445	28.0	445	29.2	445	30.1	445	31.1		47	445	32.2	445	33.1	445	33.7	445	34.1	445	34.5	445	35.9	445	37.0	445	38.1
51	472	26.3	472	27.0	472	27.6	472	27.9	472	28.3	472	29.5	472	30.4	472	31.4	51	472	32.3	472	33.2	472	33.8	472	34.2	472	34.6	472	36.0	472	37.1	472	38.2		
55	500	26.6	500	27.3	500	27.8	500	28.2	491	28.6	429	27.5	382	26.5	335	23.5	55	426	29.4	386	28.5	356	26.1	336	24.4	316	22.7	276	19.6	246	17.2	215	16.8		
59	520	26.8	529	27.6	529	28.1	523	28.5	491	28.9	429	28.4	382	27.4	335	22.6	59	426	27.5	386	26.6	356	24.2	336	21.0	316	19.8	276	17.8	246	16.9	215	16.6		
130	-13	156	23.1	156	23.8	156	24.2	156	24.6	156	24.9	156	26.0	156	26.8	156	27.7	80	-13	156	29.5	156	30.6	156	31.3	156	31.7	156	33.1	156	34.1	156	35.1	156	36.2
	-9	</																																	

SELECTION DATA

(H,Y)VAHP336B(3,4,5)2S

Heating Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °FDB																Connection ratio	Outdoor air temp	Indoor air temp. °FDB																	
		59		63		66		68		70		74		77		80				59		63		66		68		70		74		77		80			
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP				
%	°F/WB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°F/WB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW				
150	-13	159	22.0	159	22.6	159	23.0	159	23.3	159	23.6	159	24.7	159	25.4	159	26.3	-9	172	22.2	172	22.8	172	23.3	172	23.6	172	23.9	172	24.9	172	25.7	172	26.6			
	-5	185	22.5	185	23.1	185	23.5	185	23.9	185	24.3	185	25.2	185	26.0	185	26.9	-1	200	22.7	200	23.3	200	23.8	200	24.1	200	24.4	200	25.5	200	26.3	200	27.2			
	3	216	23.0	216	23.6	216	24.1	216	24.4	216	24.7	216	25.8	216	26.6	216	27.5	7	233	23.2	233	23.8	233	24.3	233	24.6	233	25.0	233	26.0	233	26.9	233	27.8			
	11	251	23.5	251	24.1	251	24.6	251	24.9	251	25.2	251	26.3	251	27.1	251	28.1	15	269	23.7	269	24.4	269	24.8	269	25.2	269	25.5	269	26.6	269	27.4	269	28.4			
	19	289	23.9	289	24.6	289	25.1	289	25.4	289	25.8	289	26.9	289	27.7	289	28.7	23	310	24.2	310	24.9	310	25.4	310	25.7	310	26.0	310	27.2	310	28.0	310	29.0			
	27	331	24.4	331	25.1	331	25.6	331	26.0	331	26.3	331	27.4	331	28.3	331	29.3	31	354	24.7	354	25.4	354	25.9	354	26.2	354	26.6	354	27.7	354	28.6	354	29.6			
	35	378	24.9	378	25.6	378	26.2	378	26.5	378	26.8	378	28.0	378	28.9	378	29.8	39	402	25.2	402	25.9	402	26.4	402	26.8	402	27.1	402	28.3	402	29.2	402	30.1	402	31.0	
	43	428	25.4	428	26.1	428	26.6	428	27.0	428	27.4	428	28.6	428	29.4	428	30.4	47	454	25.7	454	26.4	454	26.9	454	27.3	454	27.6	454	28.8	454	29.6	454	30.6			
	51	482	25.9	482	26.7	482	27.2	482	27.6	482	27.9	482	29.1	482	29.9	482	30.9	55	510	26.2	510	26.9	510	27.5	510	27.8	510	28.2	499	29.3	441	28.2	387	26.7			
	59	540	26.4	540	27.2	540	27.7	540	28.1	540	28.4	499	28.8	441	27.1	387	24.0	59	510	31.8	462	30.2	428	28.1	402	26.3	378	24.9	330	22.0	294	20.4	258	19.4			
	140	-13	159	22.0	159	22.6	159	23.0	159	23.3	159	23.6	159	24.7	159	25.4	159	26.3	-9	172	22.2	172	22.8	172	23.3	172	23.6	172	23.9	172	24.9	172	25.7	172	26.6		
		-5	185	22.5	185	23.1	185	23.5	185	23.9	185	24.3	185	25.2	185	26.0	185	26.9	-1	200	22.7	200	23.3	200	23.8	200	24.1	200	24.4	200	25.5	200	26.3	200	27.2		
		3	216	23.0	216	23.6	216	24.1	216	24.4	216	24.7	216	25.8	216	26.6	216	27.5	7	233	23.2	233	23.8	233	24.3	233	24.6	233	25.0	233	26.0	233	26.9	233	27.8		
		11	251	23.5	251	24.1	251	24.6	251	24.9	251	25.2	251	26.3	251	27.1	251	28.1	15	269	23.7	269	24.4	269	24.8	269	25.2	269	25.5	269	26.6	269	27.4	269	28.4		
		19	289	23.9	289	24.6	289	25.1	289	25.4	289	25.8	289	26.9	289	27.7	289	28.7	23	310	24.2	310	24.9	310	25.4	310	25.7	310	26.0	310	27.2	310	28.0	310	29.0		
		27	331	24.4	331	25.1	331	25.6	331	26.0	331	26.3	331	27.4	331	28.3	331	29.3	31	354	24.7	354	25.4	354	25.9	354	26.2	354	26.6	354	27.7	354	28.6	354	29.6		
		35	378	24.9	378	25.6	378	26.2	378	26.5	378	26.8	378	28.0	378	28.9	378	29.8	39	402	25.2	402	25.9	402	26.4	402	26.8	402	27.1	402	28.3	402	29.2	402	30.1	402	31.0
		43	428	25.4	428	26.1	428	26.6	428	27.0	428	27.4	428	28.6	428	29.4	428	30.4	47	454	25.7	454	26.4	454	26.9	454	27.3	454	27.6	454	28.8	454	29.6	454	30.6		
		51	482	25.9	482	26.7	482	27.2	482	27.6	482	27.9	482	29.1	482	29.9	482	30.9	55	510	26.2	510	26.9	510	27.5	510	27.8	510	28.2	499	29.3	441	28.2	387	26.7		
59		540	26.4	540	27.2	540	27.7	540	28.1	540	28.4	499	28.8	441	27.1	387	24.0	59	510	31.8	462	30.2	428	28.1	402	26.3	378	24.9	330	22.0	294	20.4	258	19.4			
130		-13	159	22.0	159	22.6	159	23.0	159	23.3	159	23.6	159	24.7	159	25.4	159	26.3	-9	172	22.2	172	22.8	172	23.3	172	23.6	172	23.9	172	24.9	172	25.7	172	26.6		
		-5	185	22.5	185	23.1	185	23.5	185	23.9	185	24.3	185	25.2	185	26.0	185	26.9	-1	200	22.7	200	23.3	200	23.8	200	24.1	200	24.4	200	25.5	200	26.3	200	27.2		
		3	216	23.0	216	23.6	216	24.1	216	24.4	216	24.7	216	25.8	216	26.6	216	27.5	7	233	23.2	233	23.8	233	24.3	233	24.6	233	25.0	233	26.0	233	26.9	233	27.8		
		11	251	23.5	251	24.1	251	24.6	251	24.9	251	25.2	251	26.3	251	27.1	251	28.1	15	269	23.7	269	24.4	269	24.8	269	25.2	269	25.5	269	26.6	269	27.4	269	28.4		
		19	289	23.9	289	24.6	289	25.1	289	25.4	289	25.8	289	26.9	289	27.7	289	28.7	23	310	24.2	310	24.9	310	25.4	310	25.7	310	26.0	310	27.2	310	28.0	310	29.0		
		27	331	24.4	331	25.1	331	25.6	331	26.0	331	26.3	331	27.4	331	28.3	331	29.3	31	354	24.7	354	25.4	354	25.9	354	26.2	354	26.6	354	27.7	354	28.6	354	29.6		
		35	378	24.9	378	25.6	378	26.2	378	26.5	378	26.8	378	28.0	378	28.9	378	29.8	39	402	25.2	402	25.9	402	26.4	402	26.8	402	27.1	402	28.3	402	29.2	402	30.1	402	31.0
		43	428	25.4	428	26.1	428	26.6	428	27.0	428	27.4	428	28.6	428	29.4	428	30.4	47	454	25.7	454	26.4	454	26.9	454	27.3	454	27.6	454	28.8	454	29.6	454	30.6		
		51	482	25.9	482	26.7	482	27.2	482	27.6	482	27.9	482	29.1	482	29.9	482	30.9	55	510	26.2	510	26.9	510	27.5	510	27.8	510	28.2	499	29.3	441	28.2	387	26.7		
	59	540	26.4	540	27.2	540	27.7	540	28.1	540	28.4	499	28.8	441	27.1	387	24.0	59	510	31.8	462	30.2	428	28.1	402	26.3	378	24.9	330	22.0	294	20.4	258	19.4			
	120	-13	159	22.0	159	22.6	159	23.0	159	23.3	159	23.6	159	24.7	159	25.4	159	26.3	-9	172	22.2	172	22.8	172	23.3	172	23.6	172	23.9	172	24.9	172	25.7	172	26.6		
		-5	185	22.5	185	23.1	185	23.5	185	23.9	185	24.3	185	25.2	185	26.0	185	26.9	-1	200	22.7	200	23.3	200	23.8	200	24.1	200	24.4	200	25.5	200	26.3	200	27.2		
		3	216	23.0	216	23.6	216	24.1	216	24.4	216	24.7	216	25.8	216	26.6	216	27.5	7	233	23.2	233	23.8	233	24.3	233	24.6	233	25.0	233	26.0	233	26.9	233	27.8		
		11	251	23.5	251	24.1	251	24.6	251	24.9	251	25.2	251	26.3	251	27.1	251	28.1	15	269	23.7	269	24.4	269	24.8	269	25.2	269	25.5	269	26.6	269	27.4	269	28.4		
		19	289	23.9	289	24.6	289	25.1	289	25.4	289	25.8	289	26.9	289	27.7	289	28.7	23	310	24.2	310	24.9	310	25.4	310	25.7	310	26.0	310	27.2	310	28.0	310	29.0		
		27	331	24.4	331	25.1	331	25.6	331	26.0	331	26.3	331	27.4	331	28.3	331	29.3	31	354	24.7	354	25.4	354	25.9	354	26.2	354	26.6	354	27.7	354	28.6	354	29.6		
		35	378	24.9	378	25.6	378	26.2	378	26.5	378	26.8	378	28.0	378	28.9	378	29.8	39	402	25.2	402	25.9	402	26.4	402	26.8	402	27.1	402	28.3	402	29.2	402	30.1	402	31.0
		43	428	25.4	428	26.1	428	26.6	428	27.0	428	27.4	428																								

(H,Y)VAHP360B(3,4,5)2S

Heating Capacity

Connection ratio	Outdoor air temp	Indoor air temp °F DB																Connection ratio	Outdoor air temp	Indoor air temp °F DB																
		59		63		66		68		70		74		77		80				59		63		66		68		70		74		77		80		
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			
%	-FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	-FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW					
150	-13	169	23.0	169	23.7	169	24.1	169	24.5	169	24.8	169	25.9	169	26.7	169	27.8	-13	169	28.2	169	29.0	169	29.6	169	30.0	169	30.4	169	31.7	169	32.8	169	33.8		
	-5	176	24.8	176	25.5	176	26.0	176	26.3	176	26.7	176	27.8	176	28.7	176	29.7	-5	176	30.4	176	31.2	176	31.8	176	32.3	176	32.7	176	34.1	176	35.1	176	36.4		
	-9	187	26.6	187	27.3	187	27.8	187	28.2	187	28.6	187	29.8	187	30.7	187	31.9	-9	187	32.5	187	33.4	187	34.1	187	34.6	187	35.0	187	36.5	187	37.7	187	38.8		
	-1	200	28.3	200	29.1	200	29.7	200	30.1	200	30.5	200	31.8	200	32.8	200	34.0	-1	200	34.7	200	35.7	200	36.4	200	36.9	200	37.3	200	38.8	200	39.8	200	40.8		
	3	217	30.1	217	30.9	217	31.5	217	32.0	217	32.4	217	33.8	217	34.8	217	36.1	3	217	36.9	217	37.9	217	38.6	217	38.8	217	38.8	217	38.8	217	38.8	217	38.8		
	7	237	31.9	237	32.7	237	33.4	237	33.8	237	34.3	237	35.8	237	36.9	237	38.2	7	237	38.8	237	38.8	237	38.8	237	38.8	237	38.8	237	38.8	237	38.8	237	38.8	237	38.8
	11	260	33.6	260	34.6	260	35.3	260	35.7	260	36.2	260	37.7	260	38.8	260	39.8	11	260	38.8	260	38.8	260	38.8	260	38.8	260	38.8	260	38.8	260	38.8	260	38.8	260	38.8
	15	286	35.4	286	36.5	286	37.2	286	37.6	286	38.1	286	39.6	286	40.7	286	41.8	15	286	38.8	286	38.8	286	38.8	286	38.8	286	38.8	286	38.8	286	38.8	286	38.8	286	38.8
	19	315	37.2	315	38.2	315	38.8	315	39.3	315	39.8	315	41.3	315	42.4	315	43.5	19	315	38.8	315	38.8	315	38.8	315	38.8	315	38.8	315	38.8	315	38.8	315	38.8	315	38.8
	23	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8	23	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8
	27	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8	27	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8
	31	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8	31	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8
	35	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8	35	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8
	39	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8	39	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8
	43	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8	43	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8
	47	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8	47	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8
51	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	51	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	
55	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	55	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	
59	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	59	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	
140	-13	169	23.8	169	24.5	169	25.0	169	25.3	169	25.7	169	26.8	169	27.6	169	28.6	-13	169	29.7	169	30.6	169	31.2	169	31.6	169	32.0	169	33.4	169	34.4	169	35.7		
	-5	176	25.7	176	26.4	176	26.9	176	27.3	176	27.6	176	28.8	176	29.7	176	30.8	-5	176	32.0	176	32.9	176	33.6	176	34.0	176	34.4	176	35.9	176	37.0	176	38.4		
	-9	187	27.5	187	28.3	187	28.8	187	29.2	187	29.6	187	30.9	187	31.8	187	33.0	-9	187	34.3	187	35.2	187	35.9	187	36.4	187	36.9	187	38.5	187	39.8	187	40.8		
	-1	200	29.3	200	30.1	200	30.7	200	31.1	200	31.5	200	32.8	200	33.8	200	35.0	-1	200	36.8	200	37.8	200	38.5	200	39.0	200	39.4	200	41.0	200	42.3	200	43.5		
	3	217	31.1	217	32.0	217	32.7	217	33.1	217	33.5	217	35.0	217	36.1	217	37.4	3	217	38.8	217	38.8	217	38.8	217	38.8	217	38.8	217	38.8	217	38.8	217	38.8		
	7	237	33.0	237	33.9	237	34.6	237	35.0	237	35.5	237	37.0	237	38.2	237	38.8	7	237	38.8	237	38.8	237	38.8	237	38.8	237	38.8	237	38.8	237	38.8	237	38.8		
	11	260	34.8	260	35.8	260	36.5	260	37.0	260	37.5	260	38.8	260	38.8	260	38.8	11	260	38.8	260	38.8	260	38.8	260	38.8	260	38.8	260	38.8	260	38.8	260	38.8		
	15	286	36.6	286	37.6	286	38.3	286	38.8	286	39.3	286	40.7	286	41.8	286	43.0	15	286	38.8	286	38.8	286	38.8	286	38.8	286	38.8	286	38.8	286	38.8	286	38.8	286	38.8
	19	315	38.5	315	39.5	315	40.2	315	40.8	315	41.3	315	42.8	315	43.9	315	45.1	19	315	38.8	315	38.8	315	38.8	315	38.8	315	38.8	315	38.8	315	38.8	315	38.8	315	38.8
	23	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8	23	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8	347	38.8
	27	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8	27	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8	382	38.8
	31	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8	31	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8	421	38.8
	35	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8	35	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8	462	38.8
	39	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8	39	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8	507	38.8
	43	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8	43	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8	554	38.8
	47	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8	47	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8	605	38.8
51	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	51	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	659	38.8	
55	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	55	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	716	38.8	
59	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	59	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	776	38.8	
130	-13	169	24.7	169	25.4	169	25.9	169	26.3	169	26.6	169	27.8	169	28.6	169	29.7	-13	169	31.1	169	32.0	169	32.6	169	33.0	169	33.4	169	34.9	169	36.0				

TC: Total Capacity

IP: Input Power

NOTES:

1. The table shows the normal value of a heating operation.
2. The heating capacity in the table indicates the peak value, which does not include the capacity decrease caused by frost.
3. The value in the table shows when the system is operating under the following conditions.

The total piping length: 24.6ft. (7.5m). The height difference: 0ft (0m)

SELECTION DATA

(H,Y)VAHP384B(3,4,5)2S

Heating Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °FDB																Connection ratio	Outdoor air temp	Indoor air temp. °FDB																			
		59		63		66		68		70		74		77		80				59		63		66		68		70		74		77		80					
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP				
%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW				
150	-13	216	29.9	216	30.7	216	31.3	216	31.7	216	32.1	216	33.5	216	34.6	216	35.8	100	-13	216	36.6	216	37.6	216	38.3	216	38.9	216	39.4	216	41.0	216	41.0	216	41.0				
	-9	230	30.2	233	31.0	233	31.7	233	32.1	233	32.5	233	33.9	233	35.0	233	36.2		-9	233	37.0	233	38.0	233	38.8	233	39.3	233	39.8	233	41.0	233	41.0	233	41.0				
	-5	252	30.5	252	31.4	252	32.0	252	32.4	252	32.9	252	34.3	252	35.4	252	36.6		-5	252	37.4	252	38.4	252	39.2	252	39.7	252	40.3	252	41.0	252	41.0	252	41.0				
	-1	270	30.9	272	31.7	272	32.4	272	32.8	272	33.2	272	34.7	272	35.7	272	37.0		-1	272	37.8	272	38.9	272	39.7	272	40.2	272	40.7	272	41.0	272	41.0	272	41.0				
	3	294	31.2	294	32.1	294	32.7	294	33.2	294	33.6	294	35.0	294	36.1	294	37.4		3	294	38.2	294	39.3	294	40.1	294	40.6	294	41.0	294	41.0	294	41.0	294	41.0				
	7	317	31.6	317	32.4	317	33.1	317	33.5	317	34.0	317	35.4	317	36.5	317	37.8		7	317	38.6	317	39.7	317	40.5	317	41.0	317	41.0	317	41.0	317	41.0	317	41.0				
	11	341	31.9	341	32.8	341	33.4	341	33.9	341	34.3	341	35.8	341	36.9	341	38.2		11	341	39.1	341	40.1	341	40.5	341	41.0	341	41.0	341	41.0	341	41.0	341	41.0	341	41.0		
	15	366	32.2	366	33.1	366	33.8	366	34.2	366	34.7	366	36.2	366	37.3	366	38.7		15	366	39.5	366	40.6	366	41.0	366	41.0	366	41.0	366	41.0	366	41.0	366	41.0	366	41.0		
	19	393	32.6	393	33.5	393	34.1	393	34.6	393	35.0	393	36.6	393	37.7	393	39.1		19	393	39.9	393	41.0	393	41.0	393	41.0	393	41.0	393	41.0	393	41.0	393	41.0	393	41.0		
	23	421	32.9	421	33.8	421	34.5	421	35.0	421	35.4	421	36.9	421	38.1	421	39.5		23	421	40.3	421	41.0	421	41.0	421	41.0	421	41.0	421	41.0	421	41.0	421	41.0	421	41.0		
27	451	33.2	451	34.2	451	34.9	451	35.3	451	35.8	451	37.3	451	38.5	442	39.9	27	451	40.7	451	41.0	451	41.0	451	41.0	451	41.0	451	41.0	451	41.0	451	41.0	451	41.0				
31	481	33.6	481	34.5	481	35.2	481	35.7	481	36.1	481	37.7	481	38.9	442	39.6	31	481	41.0	481	41.0	481	41.0	481	41.0	481	41.0	481	41.0	481	41.0	481	41.0	481	41.0	481	41.0		
35	513	33.9	513	34.9	513	35.6	513	36.0	513	36.5	513	38.1	513	39.3	442	39.5	35	513	41.0	513	41.0	513	41.0	513	41.0	513	41.0	513	41.0	513	41.0	513	41.0	513	41.0	513	41.0		
39	547	34.3	547	35.2	547	35.9	547	36.4	547	36.9	547	38.5	547	39.7	442	39.2	39	547	41.0	547	41.0	547	41.0	547	41.0	547	41.0	547	41.0	547	41.0	547	41.0	547	41.0	547	41.0		
43	582	34.6	582	35.6	582	36.3	582	36.8	582	37.2	582	38.8	582	40.0	442	38.5	43	582	41.0	582	41.0	582	41.0	582	41.0	582	41.0	582	41.0	582	41.0	582	41.0	582	41.0	582	41.0		
47	618	34.9	618	35.9	618	36.6	618	37.1	618	37.6	618	39.2	618	40.4	442	38.2	47	618	41.0	618	41.0	618	41.0	618	41.0	618	41.0	618	41.0	618	41.0	618	41.0	618	41.0	618	41.0		
51	655	35.3	655	36.2	655	37.0	655	37.5	655	38.0	655	39.6	655	40.8	442	37.9	51	655	41.0	655	41.0	655	41.0	655	41.0	655	41.0	655	41.0	655	41.0	655	41.0	655	41.0	655	41.0		
55	694	35.6	694	36.6	694	37.3	694	37.8	694	38.3	694	39.9	694	41.1	442	37.6	55	694	41.0	694	41.0	694	41.0	694	41.0	694	41.0	694	41.0	694	41.0	694	41.0	694	41.0	694	41.0		
59	734	35.9	734	36.9	734	37.7	734	38.2	734	38.7	734	40.3	734	41.5	442	37.3	59	734	41.0	734	41.0	734	41.0	734	41.0	734	41.0	734	41.0	734	41.0	734	41.0	734	41.0	734	41.0		
140	-13	216	30.9	216	31.8	216	32.4	216	32.8	216	33.3	216	34.7	216	35.8	216	37.1	90	-13	216	36.6	216	36.6	216	36.6	216	36.6	216	36.6	216	36.6	216	36.6	216	36.6				
	-9	230	31.3	233	32.1	233	32.8	233	33.2	233	33.6	233	35.1	233	36.2	233	37.5		-9	233	39.0	233	40.1	233	40.9	233	41.0	233	41.0	233	41.0	233	41.0	233	41.0				
	-5	252	31.6	252	32.5	252	33.1	252	33.5	252	34.0	252	35.5	252	36.6	252	37.9		-5	252	39.4	252	40.5	252	41.0	252	41.0	252	41.0	252	41.0	252	41.0	252	41.0				
	-1	272	32.0	272	32.9	272	33.5	272	34.0	272	34.5	272	36.0	272	37.1	272	38.4		-1	272	40.0	272	41.1	272	41.5	272	41.5	272	41.5	272	41.5	272	41.5	272	41.5				
	3	294	32.3	294	33.2	294	33.9	294	34.3	294	34.8	294	36.3	294	37.4	294	38.8		3	294	40.3	294	41.4	294	41.8	294	41.8	294	41.8	294	41.8	294	41.8	294	41.8				
	7	317	32.7	317	33.6	317	34.2	317	34.7	317	35.1	317	36.6	317	37.7	317	39.2		7	317	40.7	317	41.0	317	41.0	317	41.0	317	41.0	317	41.0	317	41.0	317	41.0	317	41.0		
	11	341	33.0	341	33.9	341	34.6	341	35.1	341	35.5	341	37.0	341	38.2	341	39.6		11	341	41.0	341	41.0	341	41.0	341	41.0	341	41.0	341	41.0	341	41.0	341	41.0	341	41.0		
	15	366	33.3	366	34.3	366	35.0	366	35.5	366	35.9	366	37.4	366	38.6	366	40.0		15	366	41.0	366	41.0	366	41.0	366	41.0	366	41.0	366	41.0	366	41.0	366	41.0	366	41.0		
	19	393	33.7	393	34.6	393	35.3	393	35.8	393	36.3	393	37.8	393	39.0	393	40.4		19	393	41.0	393	41.0	393	41.0	393	41.0	393	41.0	393	41.0	393	41.0	393	41.0	393	41.0		
	23	421	34.1	421	35.0	421	35.7	421	36.2	421	36.7	421	38.2	421	39.4	421	40.8		23	421	41.0	421	41.0	421	41.0	421	41.0	421	41.0	421	41.0	421	41.0	421	41.0	421	41.0		
27	451	34.4	451	35.4	451	36.1	451	36.6	451	37.0	451	38.6	451	39.8	442	39.3	27	451	41.0	451	41.0	451	41.0	451	41.0	451	41.0	451	41.0	451	41.0	451	41.0	451	41.0				
31	481	34.8	481	35.8	481	36.5	481	37.0	481	37.4	481	39.0	481	40.2	442	39.0	31	481	41.0	481	41.0	481	41.0	481	41.0	481	41.0	481	41.0	481	41.0	481	41.0	481	41.0				
35	513	35.1	513	36.1	513	36.8	513	37.3	513	37.8	513	39.4	513	40.6	442	38.7	35	513	41.0	513	41.0	513	41.0	513	41.0	513	41.0	513	41.0	513	41.0	513	41.0	513	41.0				
39	547	35.5	547	36.4	547	37.1	547	37.6	547	38.0	547	39.6	547	40.8	442	38.4	39	547	41.0	547	41.0	547	41.0	547	41.0	547	41.0	547	41.0	547	41.0	547	41.0	547	41.0				
43	582	35.8	582	36.8	582	37.5	582	38.0	582	38.5	582	40.1	582	41.3	442	38.1	43	582	41.0	582	41.0	582	41.0	582	41.0	582	41.0	582	41.0	582	41.0	582	41.0	582	41.0				
47	618	36.2	618	37.2	618	37.9	618	38.4	618	38.9	618	40.5	618	41.7	442	37.8	47	618	41.0	618	41.0	618	41.0	618	41.0	618	41.0	618	41.0	618	41.0	618	41.0	618	41.0				
51	655	36.5	655	37.5	655	38.2	655	38.7	655	39.2	655	40.8	655	42.0	442	37.5	51	655	41.0	655	41.0	655	41.0	655	41.0	655	41.0	655	41.0	655	41.0	655	41.0	655	41.0				
55	694	36.9	694	37.9	694	38.6	694	39.1	694	39.6	694	41.2	694	42.4	442																								

(H,Y)VAHP408B(3,4,5)2S

Heating Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °FDB																Connection ratio	Outdoor air temp	Indoor air temp. °FDB																			
		59		63		66		68		70		74		77		80				59		63		66		68		70		74		77		80					
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP				
%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW				
150	-13	222	30.7	222	31.6	222	32.2	222	32.7	222	33.1	222	34.5	222	35.6	222	36.9	-13	222	37.7	222	38.7	222	39.5	222	40.0	222	40.5	222	41.0	222	41.0	222	41.0	222	41.0			
	-9	240	31.1	240	32.0	240	32.6	240	33.0	240	33.5	240	34.9	240	36.0	240	37.3	-9	240	38.1	240	39.1	240	39.9	240	40.5	240	41.0	240	41.0	240	41.0	240	41.0	240	41.0			
	-5	260	31.4	260	32.3	260	33.0	260	33.4	260	33.8	260	35.3	260	36.4	260	37.7	-5	260	38.5	260	39.6	260	40.4	260	40.9	260	41.0	260	41.0	260	41.0	260	41.0	260	41.0			
	-1	280	31.8	280	32.7	280	33.3	280	33.8	280	34.2	280	35.7	280	36.8	280	38.1	-1	280	38.9	280	40.0	280	40.8	280	41.0	280	41.0	280	41.0	280	41.0	280	41.0	280	41.0			
	3	320	32.1	320	33.0	320	33.7	320	34.1	320	34.5	320	36.0	320	37.2	320	38.5	3	320	39.4	320	40.4	320	41.0	320	41.0	320	41.0	320	41.0	320	41.0	320	41.0	320	41.0			
	7	326	32.5	326	33.4	326	34.1	326	34.5	326	35.0	326	36.5	326	37.5	326	39.0	7	326	39.8	326	40.9	326	41.0	326	41.0	326	41.0	326	41.0	326	41.0	326	41.0	326	41.0			
	11	351	32.8	351	33.7	351	34.4	351	34.9	351	35.3	351	36.9	351	38.0	351	39.4	11	351	40.2	351	41.0	351	41.0	351	41.0	351	41.0	351	41.0	351	41.0	351	41.0	351	41.0			
	15	377	33.2	377	34.1	377	34.8	377	35.2	377	35.7	377	37.2	377	38.4	377	39.8	15	377	40.6	377	41.0	377	41.0	377	41.0	377	41.0	377	41.0	377	41.0	377	41.0	377	41.0			
	19	400	33.5	400	34.5	400	35.1	400	35.6	400	36.1	400	37.6	400	38.8	400	40.2	19	400	41.0	400	41.0	400	41.0	400	41.0	400	41.0	400	41.0	400	41.0	400	41.0	400	41.0	400	41.0	
	23	433	33.9	433	34.8	433	35.5	433	36.0	433	36.5	433	38.0	433	39.2	433	40.6	23	433	41.0	433	41.0	433	41.0	433	41.0	433	41.0	433	41.0	433	41.0	433	41.0	433	41.0	433	41.0	
27	464	34.2	464	35.2	464	35.9	464	36.4	464	36.8	464	38.4	464	39.6	464	41.0	27	464	41.0	464	41.0	464	41.0	464	41.0	464	41.0	464	41.0	464	41.0	464	41.0	464	41.0	464	41.0		
31	494	34.6	494	35.5	494	36.2	494	36.7	494	37.2	494	38.8	494	40.0	494	41.0	31	494	41.0	494	41.0	494	41.0	494	41.0	494	41.0	494	41.0	494	41.0	494	41.0	494	41.0	494	41.0		
35	529	34.9	529	35.9	529	36.6	529	37.1	529	37.6	529	39.2	529	40.4	529	41.0	35	529	41.0	529	41.0	529	41.0	529	41.0	529	41.0	529	41.0	529	41.0	529	41.0	529	41.0	529	41.0		
39	563	35.3	563	36.2	563	37.0	563	37.5	563	38.0	563	39.6	563	40.8	563	41.0	39	563	41.0	563	41.0	563	41.0	563	41.0	563	41.0	563	41.0	563	41.0	563	41.0	563	41.0	563	41.0		
43	599	35.6	599	36.6	599	37.3	599	37.8	599	38.3	599	40.0	599	41.0	599	41.0	43	599	41.0	599	41.0	599	41.0	599	41.0	599	41.0	599	41.0	599	41.0	599	41.0	599	41.0	599	41.0		
47	636	36.0	636	37.0	636	37.7	636	38.2	636	38.7	636	40.3	636	41.0	636	41.0	47	636	41.0	636	41.0	636	41.0	636	41.0	636	41.0	636	41.0	636	41.0	636	41.0	636	41.0	636	41.0		
51	675	36.3	675	37.3	675	38.1	675	38.6	675	39.1	675	40.7	675	41.0	675	41.0	51	675	41.0	675	41.0	675	41.0	675	41.0	675	41.0	675	41.0	675	41.0	675	41.0	675	41.0	675	41.0		
55	714	36.7	714	37.7	714	38.4	714	38.9	714	39.4	714	41.0	714	41.0	714	41.0	55	714	41.0	714	41.0	714	41.0	714	41.0	714	41.0	714	41.0	714	41.0	714	41.0	714	41.0	714	41.0		
59	756	37.0	756	38.0	756	38.8	756	39.3	756	39.8	756	41.0	756	41.0	756	41.0	59	756	41.0	756	41.0	756	41.0	756	41.0	756	41.0	756	41.0	756	41.0	756	41.0	756	41.0	756	41.0		
140	-13	222	31.0	222	32.0	222	33.0	222	33.8	222	34.4	222	35.7	222	36.8	222	38.2	-13	222	39.7	222	40.8	222	41.0	222	41.0	222	41.0	222	41.0	222	41.0	222	41.0	222	41.0			
	-9	240	31.2	240	32.1	240	32.7	240	33.2	240	33.6	240	35.0	240	36.1	240	37.2	-9	240	41.0	240	41.0	240	41.0	240	41.0	240	41.0	240	41.0	240	41.0	240	41.0	240	41.0			
	-5	260	31.5	260	32.4	260	33.1	260	33.5	260	34.0	260	35.5	260	36.6	260	37.7	-5	260	40.6	260	41.0	260	41.0	260	41.0	260	41.0	260	41.0	260	41.0	260	41.0	260	41.0			
	-1	280	31.9	280	32.8	280	33.5	280	34.0	280	34.5	280	36.0	280	37.1	280	38.2	-1	280	41.0	280	41.0	280	41.0	280	41.0	280	41.0	280	41.0	280	41.0	280	41.0	280	41.0			
	3	302	32.3	302	33.2	302	33.9	302	34.5	302	35.0	302	36.5	302	37.6	302	38.7	3	302	41.0	302	41.0	302	41.0	302	41.0	302	41.0	302	41.0	302	41.0	302	41.0	302	41.0			
	7	326	32.6	326	33.6	326	34.3	326	34.8	326	35.3	326	36.8	326	37.9	326	39.0	7	326	41.0	326	41.0	326	41.0	326	41.0	326	41.0	326	41.0	326	41.0	326	41.0	326	41.0			
	11	351	33.0	351	34.0	351	34.7	351	35.2	351	35.7	351	37.2	351	38.3	351	39.4	11	351	41.0	351	41.0	351	41.0	351	41.0	351	41.0	351	41.0	351	41.0	351	41.0	351	41.0			
	15	377	33.4	377	34.3	377	35.0	377	35.5	377	36.0	377	37.5	377	38.6	377	39.7	15	377	41.0	377	41.0	377	41.0	377	41.0	377	41.0	377	41.0	377	41.0	377	41.0	377	41.0			
	19	405	33.7	405	34.7	405	35.4	405	35.9	405	36.4	405	37.9	405	39.0	405	40.1	19	405	41.0	405	41.0	405	41.0	405	41.0	405	41.0	405	41.0	405	41.0	405	41.0	405	41.0			
	23	433	34.1	433	35.1	433	35.8	433	36.3	433	36.8	433	38.3	433	39.4	433	40.5	23	433	41.0	433	41.0	433	41.0	433	41.0	433	41.0	433	41.0	433	41.0	433	41.0	433	41.0			
27	464	34.5	464	35.6	464	36.3	464	36.8	464	37.3	464	38.8	464	40.0	464	41.1	27	464	41.0	464	41.0	464	41.0	464	41.0	464	41.0	464	41.0	464	41.0	464	41.0	464	41.0				
31	495	34.9	495	36.0	495	36.7	495	37.2	495	37.7	495	39.2	495	40.4	495	41.5	31	495	41.0	495	41.0	495	41.0	495	41.0	495	41.0	495	41.0	495	41.0	495	41.0	495	41.0				
35	529	35.3	529	36.3	529	37.0	529	37.5	529	38.0	529	39.6	529	40.8	529	41.0	35	529	41.0	529	41.0	529	41.0	529	41.0	529	41.0	529	41.0	529	41.0	529	41.0	529	41.0				
39	563	35.6	563	36.5	563	37.3	563	37.8	563	38.3	563	39.9	563	41.0	563	41.0	39	563	41.0	563	41.0	563	41.0	563	41.0	563	41.0	563	41.0	563	41.0	563	41.0	563	41.0				
43	599	35.9	599	36.9	599	37.6	599	38.1	599	38.6	599	40.2	599	41.0	599	41.0	43	599	41.0	599	41.0	599	41.0	599	41.0	599	41.0	599	41.0	599	41.0	599	41.0	599	41.0				
47	636	36.2	636	37.2	636	37.9	636	38.4	636	38.9	636	40.5	636	41.0	636	41.0	47	636	41.0	636	41.0	636	41.0	636	41.0	636	41.0	636	41.0	636	41.0	636	41.0	636	41.0				
51	675	36.5	675	37.5	675	38.2	675	38.7	675	39.2	675	40.8	675	41.0	675	41.0	51	675	41.0	675	41.0	675	41.0	675	41.0	675													

SELECTION DATA

(H,Y)VAHP432B(3,4,5)2S

Heating Capacity

Connection ratio	Outdoor air temp	Indoor air temp. °FDB																Connection ratio	Outdoor air temp	Indoor air temp. °FDB															
		59				63				66				68						70				74				77				80			
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP				
%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	%	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW				
150	-13	229	30.7	229	31.6	229	32.2	229	32.7	229	33.1	229	34.5	229	35.6	229	36.9	-13	229	37.7	229	38.7	229	39.5	229	40.0	229	40.5	229	42.3	229	43.6	229	45.2	
	-9	247	31.1	247	32.0	247	32.6	247	33.0	247	33.5	247	34.9	247	36.0	247	37.3	-9	247	38.1	247	39.1	247	39.9	247	40.5	247	41.0	247	42.7	247	44.1	247	45.7	
	-5	267	31.4	267	32.3	267	33.0	267	33.4	267	33.8	267	35.3	267	36.4	267	37.7	-5	267	38.5	267	39.6	267	40.4	267	40.9	267	41.4	267	43.2	267	44.6	267	46.2	
	-1	288	31.8	288	32.7	288	33.3	288	33.8	288	34.2	288	35.7	288	36.8	288	38.1	-1	288	38.9	288	40.0	288	40.8	288	41.4	288	41.9	288	43.7	288	45.1	288	46.7	
	3	311	32.1	311	33.0	311	33.5	311	34.1	311	34.6	311	36.1	311	37.2	311	38.5	3	311	39.4	311	40.4	311	41.3	311	41.8	311	42.4	311	44.2	311	45.6	311	47.2	
	7	335	32.5	335	33.4	335	34.1	335	34.5	335	35.0	335	36.5	335	37.5	335	39.0	7	335	39.8	335	40.9	335	41.7	335	42.3	335	42.8	335	44.6	335	46.0	335	47.7	
	11	361	32.8	361	33.7	361	34.4	361	34.9	361	35.3	361	36.9	361	38.0	361	39.4	11	361	40.2	361	41.3	361	42.2	361	42.7	361	43.3	361	45.1	361	46.5	361	48.1	
	15	389	33.2	389	34.1	389	34.8	389	35.2	389	35.7	389	37.2	389	38.4	389	39.8	15	389	40.6	389	41.8	389	42.6	389	43.2	389	43.7	389	45.6	389	47.0	389	48.5	
	19	416	33.5	416	34.5	416	35.1	416	35.6	416	36.1	416	37.6	416	38.8	416	40.2	19	416	41.1	416	42.2	416	43.0	416	43.6	416	44.2	416	46.1	416	47.5	416	49.0	
	23	446	33.9	446	34.8	446	35.5	446	36.0	446	36.5	446	38.0	446	39.2	446	40.6	23	446	41.5	446	42.6	446	43.5	446	44.1	446	44.6	446	46.5	446	47.9	446	49.4	
	27	477	34.2	477	35.2	477	35.9	477	36.4	477	36.8	477	38.4	477	39.6	477	41.0	27	477	41.9	477	43.1	477	43.9	477	44.5	477	45.1	477	47.0	477	48.4	477	49.9	
	31	510	34.6	510	35.5	510	36.2	510	36.7	510	37.2	510	38.8	510	40.0	510	41.4	31	510	42.3	510	43.5	510	44.4	510	45.0	510	45.6	510	47.5	510	48.9	510	50.4	
	35	549	34.9	549	35.9	549	36.6	549	37.1	549	37.6	549	39.2	549	40.4	549	41.8	35	549	42.6	549	43.8	549	44.7	549	45.3	549	45.9	549	47.8	549	49.2	549	50.7	
	39	579	35.3	579	36.2	579	37.0	579	37.5	579	38.0	579	39.6	579	40.8	579	42.2	39	579	43.2	579	44.4	579	45.3	579	45.9	579	46.5	579	48.4	579	49.8	579	51.3	
	43	616	35.6	616	36.6	616	37.3	616	37.8	616	38.3	616	40.0	616	41.2	616	42.6	43	616	43.6	616	44.8	616	45.7	616	46.3	616	46.9	616	48.8	616	50.2	616	51.7	
	47	654	36.0	654	37.0	654	37.7	654	38.2	654	38.7	654	40.4	654	41.6	654	43.0	47	654	44.0	654	45.2	654	46.1	654	46.7	654	47.3	654	49.2	654	50.6	654	52.1	
	51	694	36.3	694	37.3	694	38.1	694	38.6	694	39.1	694	40.8	694	42.0	694	43.4	51	694	44.3	694	45.5	694	46.4	694	47.0	694	47.6	694	49.5	694	50.9	694	52.4	
	55	736	36.7	736	37.7	736	38.4	736	38.9	736	39.4	736	41.2	736	42.4	736	43.8	55	736	44.6	736	45.8	736	46.7	736	47.3	736	47.9	736	49.8	736	51.2	736	52.7	
	59	777	37.0	777	38.0	777	38.8	777	39.3	777	39.8	777	41.6	777	42.8	777	44.2	59	777	45.1	777	46.3	777	47.2	777	47.8	777	48.4	777	50.3	777	51.7	777	53.2	
140	-13	229	30.7	229	31.6	229	32.2	229	32.7	229	33.1	229	34.5	229	35.6	229	36.9	-13	229	37.7	229	38.7	229	39.5	229	40.0	229	40.5	229	42.3	229	43.6	229	45.2	
	-9	247	31.1	247	32.0	247	32.6	247	33.0	247	33.5	247	34.9	247	36.0	247	37.3	-9	247	38.1	247	39.1	247	39.9	247	40.5	247	41.0	247	42.7	247	44.1	247	45.7	
	-5	267	31.4	267	32.3	267	33.0	267	33.4	267	33.8	267	35.3	267	36.4	267	37.7	-5	267	38.5	267	39.6	267	40.4	267	40.9	267	41.4	267	43.2	267	44.6	267	46.2	
	-1	288	31.8	288	32.7	288	33.3	288	33.8	288	34.2	288	35.7	288	36.8	288	38.1	-1	288	38.9	288	40.0	288	40.8	288	41.4	288	41.9	288	43.7	288	45.1	288	46.7	
	3	311	32.1	311	33.0	311	33.5	311	34.1	311	34.6	311	36.1	311	37.2	311	38.5	3	311	39.4	311	40.4	311	41.3	311	41.8	311	42.4	311	44.2	311	45.6	311	47.2	
	7	335	32.5	335	33.4	335	34.1	335	34.5	335	35.0	335	36.5	335	37.5	335	39.0	7	335	39.8	335	40.9	335	41.7	335	42.3	335	42.8	335	44.6	335	46.0	335	47.7	
	11	361	32.8	361	33.7	361	34.4	361	34.9	361	35.3	361	36.9	361	38.0	361	39.4	11	361	40.2	361	41.3	361	42.2	361	42.7	361	43.3	361	45.1	361	46.5	361	48.1	
	15	389	33.2	389	34.1	389	34.8	389	35.2	389	35.7	389	37.2	389	38.4	389	39.8	15	389	40.6	389	41.8	389	42.6	389	43.2	389	43.7	389	45.6	389	47.0	389	48.5	
	19	416	33.5	416	34.5	416	35.1	416	35.6	416	36.1	416	37.6	416	38.8	416	40.2	19	416	41.1	416	42.2	416	43.0	416	43.6	416	44.2	416	46.1	416	47.5	416	49.0	
	23	446	33.9	446	34.8	446	35.5	446	36.0	446	36.5	446	38.0	446	39.2	446	40.6	23	446	41.5	446	42.6	446	43.5	446	44.1	446	44.6	446	46.5	446	47.9	446	49.4	
	27	477	34.2	477	35.2	477	35.9	477	36.4	477	36.8	477	38.4	477	39.6	477	41.0	27	477	41.9	477	43.1	477	43.9	477	44.5	477	45.1	477	47.0	477	48.4	477	49.9	
	31	510	34.6	510	35.5	510	36.2	510	36.7	510	37.2	510	38.8	510	40.0	510	41.4	31	510	42.3	510	43.5	510	44.4	510	45.0	510	45.6	510	47.5	510	48.9	510	50.4	
	35	549	34.9	549	35.9	549	36.6	549	37.1	549	37.6	549	39.2	549	40.4	549	41.8	35	549	42.6	549	43.8	549	44.7	549	45.3	549	45.9	549	47.8	549	49.2	549	50.7	
	39	579	35.3	579	36.2	579	37.0	579	37.5	579	38.0	579	39.6	579	40.8	579	42.2	39	579	43.2	579	44.4	579	45.3	579	45.9	579	46.5	579	48.4	579	49.8	579	51.3	
	43	616	35.6	616	36.6	616	37.3	616	37.8	616	38.3	616	40.0	616	41.2	616	42.6	43	616	43.6	616	44.8	616	45.7	616	46.3	616	46.9	616	48.8	616	50.2	616	51.7	
	47	654	36.0	654	37.0	654	37.7	654	38.2	654	38.7	654	40.4	654	41.6	654	43.0	47	654	44.0	654	45.2	654	46.1	654	46.7	654	47.3	654	49.2	654	50.6	654	52.1	
	51	694	36.3	694	37.3	694	38.1	694	38.6	694	39.1	694	40.8	694	42.0	694	43.4	51	694	44.3	694	45.5	694	46.4	694	47.0	694	47.6	694	49.5	694	50.9	694	52.4	
	55	736	36.7	736	37.7	736	38.4	736	38.9	736	39.4	736	41.2	736	42.4	736	43.8	55	736	44.6	736	45.8	736	46.7	736	47.3	736	47.9	736	49.8	736	51.2	736	52.7	

4.3 Correction Factor According to Piping Length

Cooling Capacity

Correction Factor for Cooling Capacity According to Piping Length

The cooling capacity must be corrected according to the following formula:

$$CCA = CC \times F$$

CCA: Actual Corrected Cooling Capacity

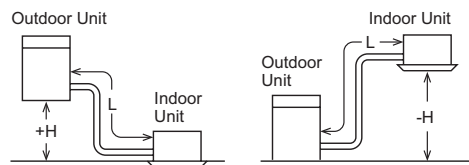
CC: Cooling Capacity in the Capacity Table

F: Correction Factor Based on the Equivalent Piping Length

The correction factors are shown in the figure.

Equivalent Piping Length for

- One 90° Elbow is 1.6ft (0.5m).
- One 180° Bend is 4.9ft (1.5m).
- One Multi-Kit is 1.6ft (0.5m).



H: Height Difference Between Indoor Unit and Outdoor Unit

EL: Equivalent Total Distance Between Indoor Unit and Outdoor Unit (Equivalent One-Way Piping Length)

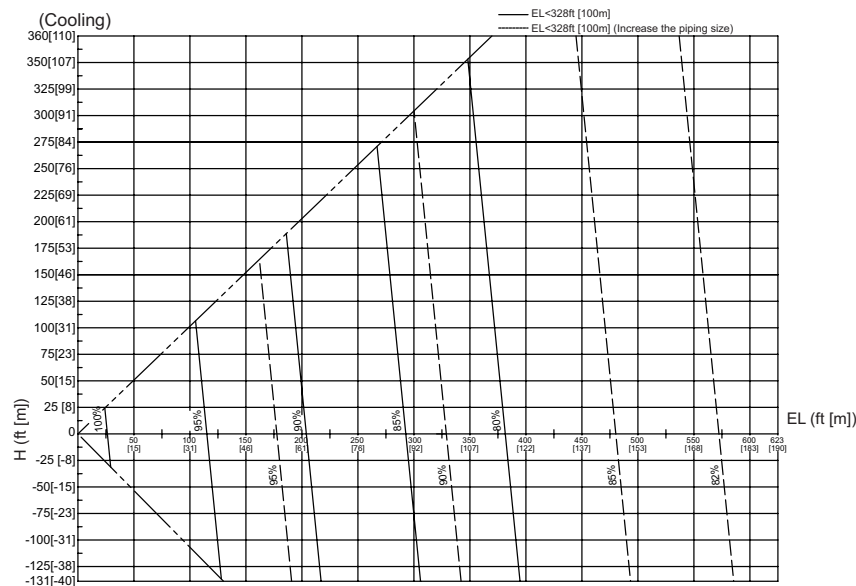
H>0: Position of Outdoor Unit Higher Than Position of Indoor Unit

L: Actual One-Way Piping Length Between Indoor Unit and Outdoor Unit

* Gas piping and liquid piping size for $EL < 328\text{ft}$ (100m) and $EL \geq 328\text{ft}$ (100m) are different.
Refer to Section 2.14.3 "Piping Size and Multi-Kit Selection".

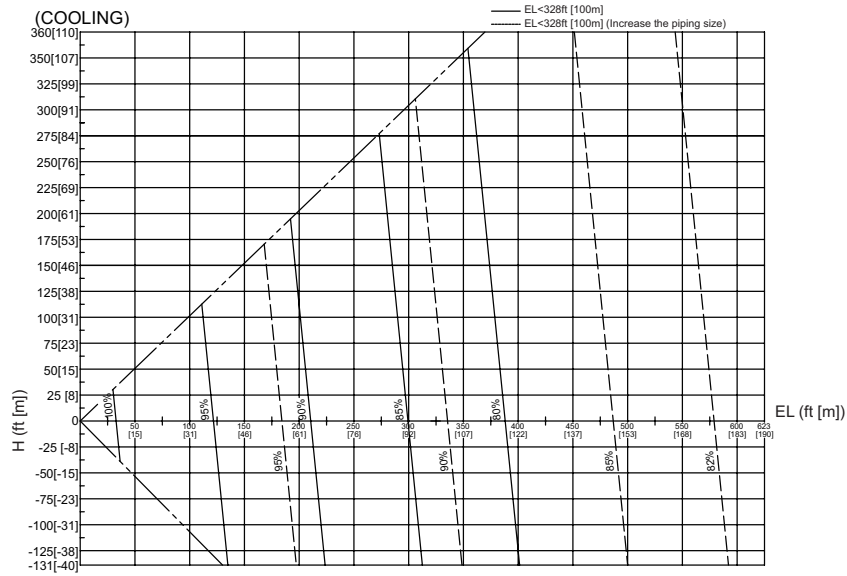
* When Height Difference is longer than 131ft (40m) and up to 360ft (110m) (in case the O.U. is lower), the same correction factor according to piping length "height difference = -131ft (-40m)" must be used.

MODELS: (H,Y)VAHP072B(3,4,5)2S and (H,Y)VAHP096B(3,4,5)2S

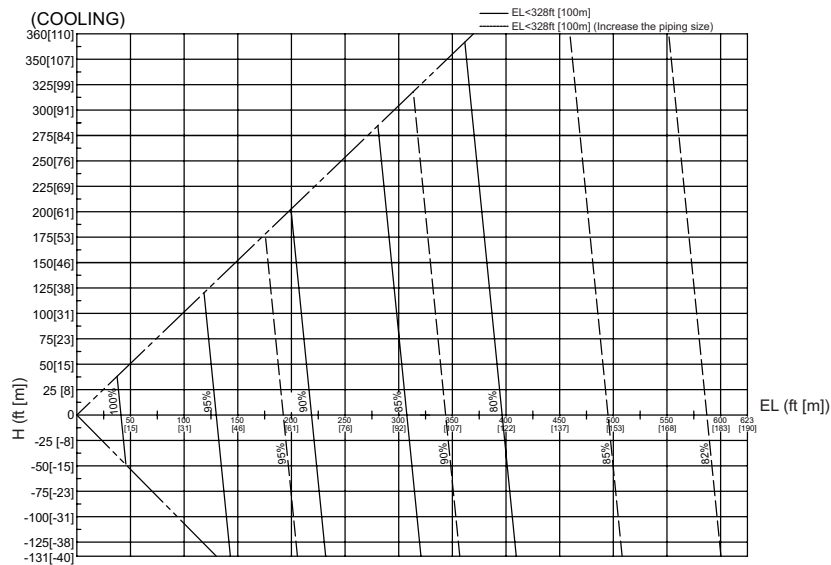


SELECTION DATA

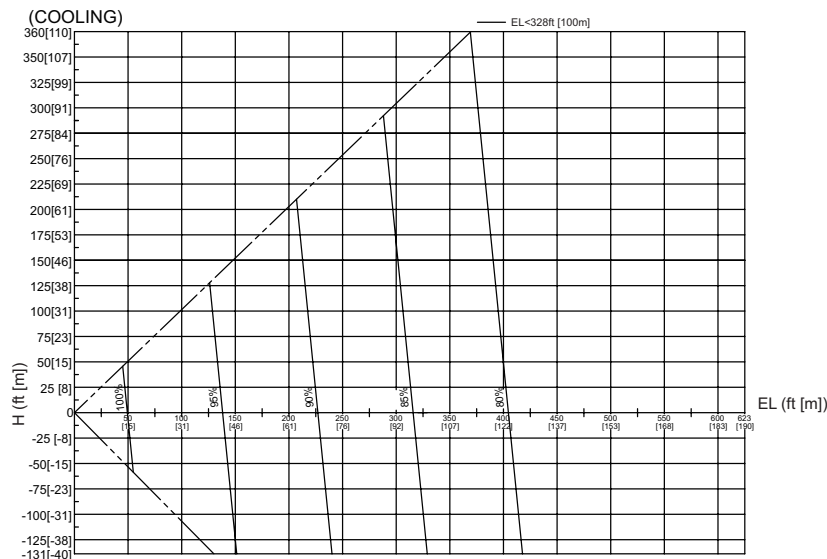
MODELS: (H,Y)VAHP120B(3,4,5)2S, (H,Y)VAHP144B(3,4,5)2S, (H,Y)VAHP168B(3,4,5)2S, (H,Y)VAHP192B(3,4,5)2S and (H,Y)VAHP216B(3,4,5)2S



MODELS: (H,Y)VAHP240B(3,4,5)2S, (H,Y)VAHP264B(3,4,5)2S, (H,Y)VAHP288B(3,4,5)2S, (H,Y)VAHP312B(3,4,5)2S, (H,Y)VAHP336B(3,4,5)2S and (H,Y)VAHP360B(3,4,5)2S



MODELS: (H,Y)VAHP384B(3,4,5)2S, (H,Y)VAHP408B(3,4,5)2S and (H,Y)VAHP432B(3,4,5)2S



Heating Capacity

Correction Factor for Heating Capacity According to Piping Length

The heating capacity must be corrected according to the following formula:

$$HCA = HC \times F$$

HCA: Actual Corrected Heating Capacity

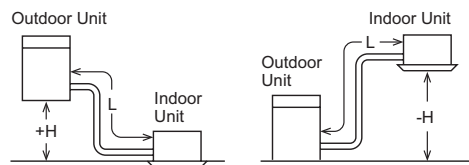
HC: Heating Capacity in the Performance Table

F: Correction Factor Based on the Equivalent Piping Length

The correction factors are shown in the figure.

Equivalent Piping Length for

- One 90° Elbow is 1.6ft (0.5m).
- One 180° Bend is 4.9ft (1.5m).
- One Multi-Kit is 1.6ft (0.5m).



H: Height Difference Between Indoor Unit and Outdoor Unit

EL: Equivalent Total Distance Between Indoor Unit and Outdoor Unit in Meters (Equivalent One-Way Piping Length)

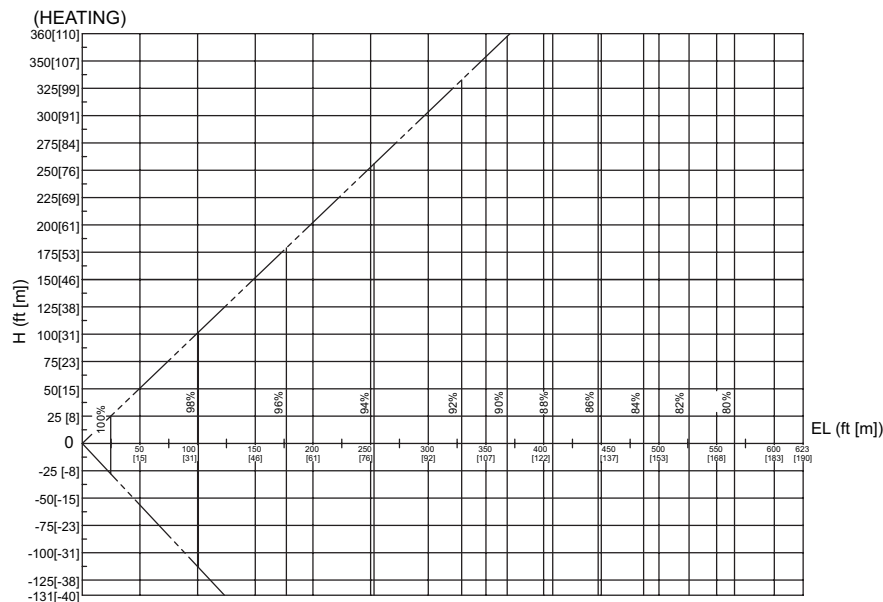
H>0: Position of Outdoor Unit Higher Than Position of Indoor Unit

L: Actual One-Way Piping Length Between Indoor Unit and Outdoor Unit in Meters

* Gas piping and liquid piping size for $EL < 328\text{ft}$ (100m) and $EL \geq 328\text{ft}$ (100m) are different.
Refer to Section 2.14.3 "Piping Size and Multi-Kit Selection".

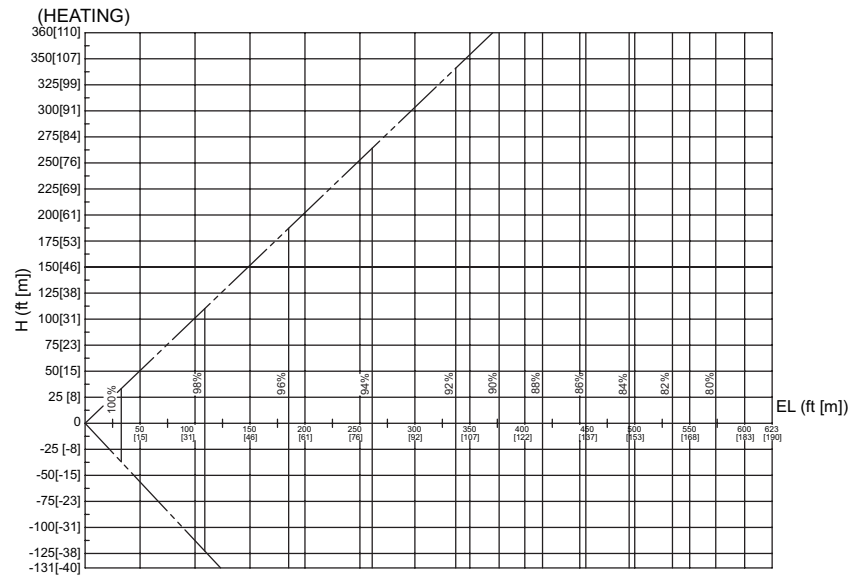
* When Height Difference is longer than 131ft (40m) and up to 360ft (110m) (in case the O.U. is lower), the same correction factor according to piping length "height difference = -131ft (-40m)" must be used.

MODELS: (H,Y)VAHP072B(3,4,5)2S and (H,Y)VAHP096B(3,4,5)2S

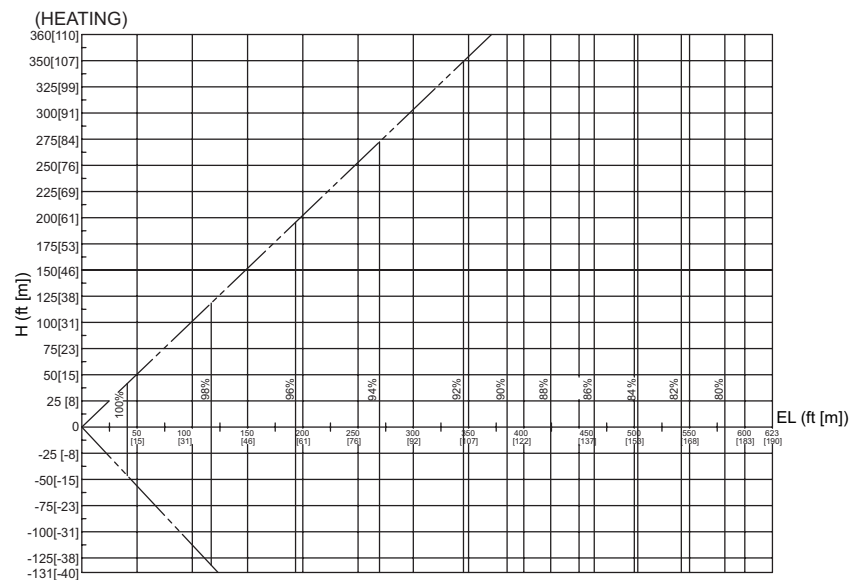


SELECTION DATA

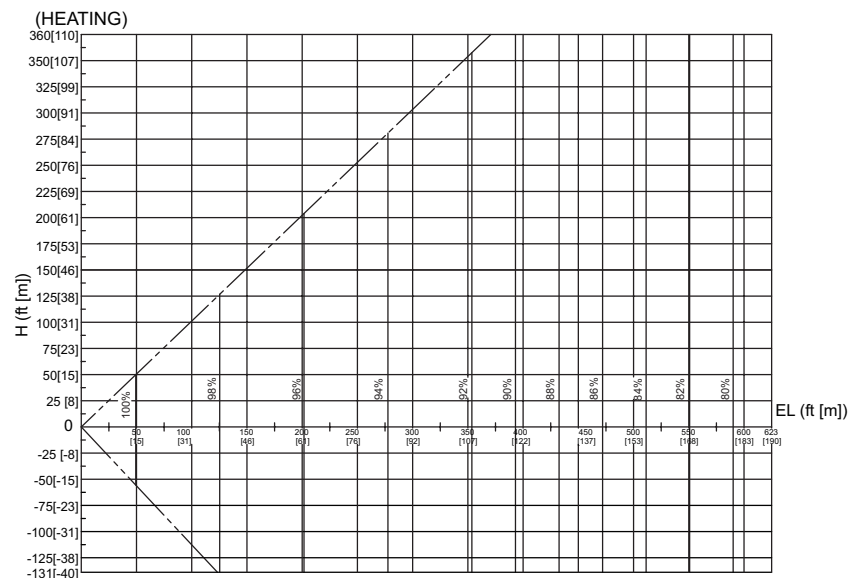
MODELS: (H,Y)VAHP120B(3,4,5)2S, (H,Y)VAHP144B(3,4,5)2S, (H,Y)VAHP168B(3,4,5)2S, (H,Y)VAHP192B(3,4,5)2S and (H,Y)VAHP216B(3,4,5)2S



MODELS: (H,Y)VAHP240B(3,4,5)2S, (H,Y)VAHP264B(3,4,5)2S, (H,Y)VAHP288B(3,4,5)2S, (H,Y)VAHP312B(3,4,5)2S, (H,Y)VAHP336B(3,4,5)2S and (H,Y)VAHP360B(3,4,5)2S



MODELS: (H,Y)VAHP384B(3,4,5)2S, (H,Y)VAHP408B(3,4,5)2S and (H,Y)VAHP432B(3,4,5)2S



4.4 Correction Factor According to Defrosting Operation

The heating capacity in the preceding paragraph does not include defrost operation periods. Therefore, capacity must be corrected as follows:

Corrected Heating Capacity = Correction Factor x Heating Capacity

Outdoor Air Temp. °F DB (°C DB) (Humidity=85% RH)	19 (-7.2)	23 (-5.0)	27 (-2.8)	31 (-0.6)	35 (1.7)	39 (3.9)	41 (5.0)	45 (7.2)	47 (8.3)
Correction Factor	0.95	0.93	0.88	0.85	0.86	0.88	0.90	1.0	1.0

NOTE:

The correction factors in the table are for regular conditions (not snowing, not operating in a transitional stage, etc.)

4.5 Correction Factor According to Altitude

The capacity is impacted by the altitude.

Corrected Capacity = Correction Factor x Capacity

Altitude	ft (m)	0 (0)	1000 (305)	2000 (610)	3000 (914)	4000 (1219)	5000 (1524)	6000 (1829)	7000 (2133)	8000 (2438)	9000 (2743)	10000 (3048)
Correction Factor		1.00	0.97	0.93	0.90	0.87	0.83	0.80	0.77	0.75	0.72	0.69

