

HITACHI
Inspire the Next

HITACHI SET-FREE INVERTER-DRIVEN
MULTI-SPLIT SYSTEM
HEAT PUMP AIR CONDITIONERS

FSXNQ Series Outdoor Units

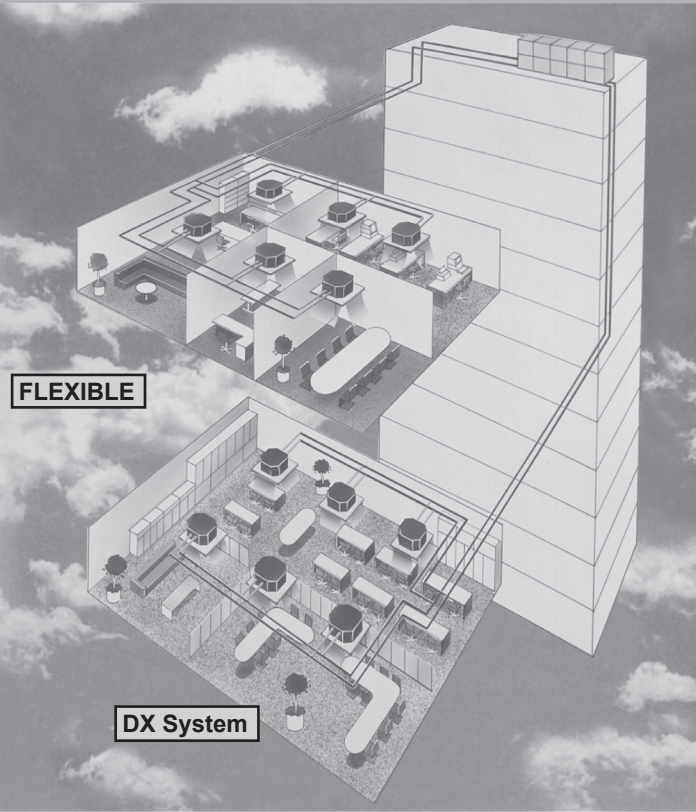
Models

<Outdoor Units>

RAS-8FSXNQ	RAS-24FSXNQ	RAS-40FSXNQ
RAS-10FSXNQ	RAS-26FSXNQ	RAS-42FSXNQ
RAS-12FSXNQ	RAS-28FSXNQ	RAS-44FSXNQ
RAS-14FSXNQ	RAS-30FSXNQ	RAS-46FSXNQ
RAS-16FSXNQ	RAS-32FSXNQ	RAS-48FSXNQ
RAS-18FSXNQ	RAS-34FSXNQ	RAS-50FSXNQ
RAS-20FSXNQ	RAS-36FSXNQ	RAS-52FSXNQ
RAS-22FSXNQ	RAS-38FSXNQ	RAS-54FSXNQ

Technical Catalog

- Technical Data -
- Installation and Operation -



HITACHI
Inspire the Next

Hitachi Appliances, Inc.

URL : <http://www.hitachi-ap.com>

Specifications in this catalog are subject to change without notice, in order that HITACHI may bring the latest innovations to their customers.

Distributed By:

IMPORTANT NOTICE

- HITACHI pursues a policy of continuing improvement in design and performance of products. The right is therefore reserved to vary specifications without notice.
- HITACHI cannot anticipate every possible circumstance that might involve a potential hazard.
- This heat pump air conditioner is designed for standard air conditioning only. Do not use this heat pump air conditioner for other purpose such as drying clothes, refrigerating foods or for any other cooling or heating process.
- Do not install the unit in the following places. It may cause a fire, deformation, corrosion or failure.
 - * Places where oil (including machinery oil).
 - * Places where a lot of sulfide gas drifts such as in hot spring.
 - * Places where inflammable gas may generate or flow.
 - * Places where strong salty wind blows such as coast regions.
 - * Places with an atmosphere of acidity or alkalinity.
- Do not install the unit in the place where silicon gas drifts. If the silicon gas attaches to the surface of heat exchanger, the fin surface repels water. As a result, drain water splashes outside of the drain pan and splashed water runs inside of electrical box. In the end, water leakage or electrical devices failure may occur.
- Pay attention to the following points when the unit is installed in a hospital or other facilities where electromagnetic wave generates from medical equipment.
 - * Do not install the unit in the place where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
 - * Install the unit at least 3 meters away from electromagnetic wave such as a radio.
- Do not install the unit in the place where the breeze directly catches the animals and plants. It could adversely affect the animals and plants.
- The installer and system specialist shall secure against leakage according to local regulations or standards. The following standards may be applicable, if local regulations are not available. International Organization for Standardization, ISO5149 or European Standard, EN378 or Japan Standard, KHK0010.
- No part of this manual may be reproduced without written permission.
- It is assumed that this heat pump air conditioner will be operated and serviced by English speaking people. If this is not the case, the customer should be add safety, caution and operating signs in the native language.
- If you have any questions, contact your distributor or dealer of HITACHI.
- This manual gives a common description and information for this heat pump air conditioner which you operate as well for other models.
- This heat pump air conditioner has been designed for the following temperatures. Operate the heat pump air conditioner within this range.
- This system can provide both Heat Pump System and Heat Recovery System.

Temperature		(°C)	
		Maximum	Minimum
Cooling Operation	Indoor	32 DB/23 WB	21 DB/15 WB
	Outdoor	43 DB *	-5 DB *
Heating Operation	Indoor	27 DB	15 DB
	Outdoor	15 WB *	-20 WB *

DB: Dry Bulb, WB: Wet Bulb

* The temperature may change depending on the outdoor unit.

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

SAFETY SUMMARY

< Signal Words >

- Signal words are used to identify levels of hazard seriousness.
Definitions for identifying hazard levels are provided below with their respective signal words.



: DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.



: WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.



: CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



: NOTICE is used to address practices not related to personal injury.

NOTE

: NOTE is useful information for operation and/or maintenance.

SAFETY SUMMARY

DANGER

- Do not perform installation work, refrigerant piping work, drain pump, drain piping and electrical wiring connection without referring to our installation manual. If the instructions are not followed, it may result in a water leakage, electric shock or a fire.
- Use the specified non-flammable refrigerant (R410A) to the outdoor unit in the refrigerant cycle.
Do not charge material other than R410A into the unit such as hydrocarbon refrigerants (propane or etc.), oxygen, flammable gases (acetylene or etc.) or poisonous gases when installing, maintaining and moving. These flammables are extremely dangerous and may cause an explosion, a fire, and injury.
- Do not pour water into the indoor or outdoor unit. These products are equipped with electrical parts. If poured, it will cause a serious electrical shock.
- Do not open the service cover or access panel for the indoor or outdoor units without turning OFF the main power supply.
- Do not touch or adjust safety devices inside the indoor unit or outdoor units. If these devices are touched or readjusted, it may cause a serious accident.
- Refrigerant leakage can cause difficulty with breathing due to insufficient air. Turn OFF the main switch, extinguish any naked flames and contact your service contractor, if refrigerant leakage occurs.
- Make sure that the refrigerant leakage test should be performed.
Refrigerant (Fluorocarbon) for this unit is incombustible, non-toxic and odorless.
However if the refrigerant is leaked and is contacted with fire, toxic gas will generate.
Also because the fluorocarbon is heavier than air, the floor surface will be filled with it, which could cause suffocation.
- The installer and system specialist shall secure safety against refrigerant leakage according to local regulations or standards.
- Use an ELB (Earth Leakage Breaker).
In the event of fault, there is danger of an electric shock or a fire if it is not used.
- Do not install the outdoor unit where there is high level of oil mist, flammable gases, salty air or harmful gases such as sulfur.
- For installation, firmly connect the refrigerant pipe before the compressor starts operating.
For maintenance, relocation and disposal, remove the refrigerant pipe after the compressor stops.
- Do not perform a short-circuit of the protection device such as a pressure switch when operating.
It may cause a fire and explosion.

SAFETY SUMMARY

! WARNING

- Do not use any sprays such as insecticide, lacquer, hair spray or other flammable gases within approximately one (1) meter from the system.
- If circuit breaker or fuse is often activated, stop the system and contact your service contractor.
- Check that the ground wire is securely connected. If the unit is not correctly grounded, it lead electric shock. Do not connect the ground wiring to gas piping, water piping, lighting conductor or ground wiring for telephone.
- Connect a fuse of specified capacity.
- Before performing any brazing work, check to ensure that there is no flammable material around. When using refrigerant be sure to wear leather gloves to prevent cold injuries.
- Protect the wires, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts and which may lead to a fire.
- Fix the cables securely. External forces on the terminals could lead to a fire.
- Provide a sufficiently strong foundation. If not, the unit may fall down and it may lead to injuries.
- Do not install the unit in a place where oil, vapor, organic solvent and corrosive gas (ammonia, sulfur compound and acid) may be present in quantities. It may cause refrigerant leakage due to corrosion, electrical shock, deteriorated performance and breakage.
- Perform electrical work according to Installation Manual and all the relevant regulation and standards. If the instructions are not followed, an electrical shock and fire may occur due to insufficient capacity and inadequate performance.
- Use specified cables between units and choose the cables correctly. If not, an electrical shock or fire may occur.
- Ensure that the wiring terminals are tightened securely with the specified torques. If not, generating fire or electrical shock at the terminal connection part may occur.

! CAUTION

- Do not step or put any material on the product.
- Do not put any foreign material on the unit or inside the unit.
- Provide a strong and correct foundation so that;
 - a. The outdoor unit is not on an incline.
 - b. Abnormal sound dose not occur.
 - c. The outdoor unit will not fall down due to a strong wind or earthquake.

SAFETY SUMMARY

NOTICE

- Do not install the indoor unit, outdoor unit, remote control switch and cable within approximately 3 meters from strong electromagnetic wave radiators such as medical equipment.
- Supply electrical power to the system to energize the oil heater for 12 hours before startup after a long shutdown.
- Make sure that the outdoor unit is not covered with snow or ice, before operation.
- In some cases, the packaged air conditioner may not be operated normally under the following cases.
 - * In case that electrical power for the packaged air conditioner is supplied from the same power transformer as the device*.
 - * In case that the power source wires for the device* and the packaged air conditioner are located close to each other.

Device*: (Ex) Lift, container crane, rectifier for electric railway, inverter power device, arc furnace, electric furnace, large-sized induction motor and large-sized switch.
It consumes a large quantity of electrical power.

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

Therefore, check the field regulations and standards before performing electrical work in order to protect the power supply for the packaged air conditioner.

NOTE

- It is recommended that the room will be ventilated every 3 to 4 hours.
- The heating capacity of the heat pump unit is decreased according to the outdoor air temperature. Therefore, it is recommended that auxiliary heating equipment be used in the field when the units is installed in a low temperature region.

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1. Features

A Wide Range of Choice

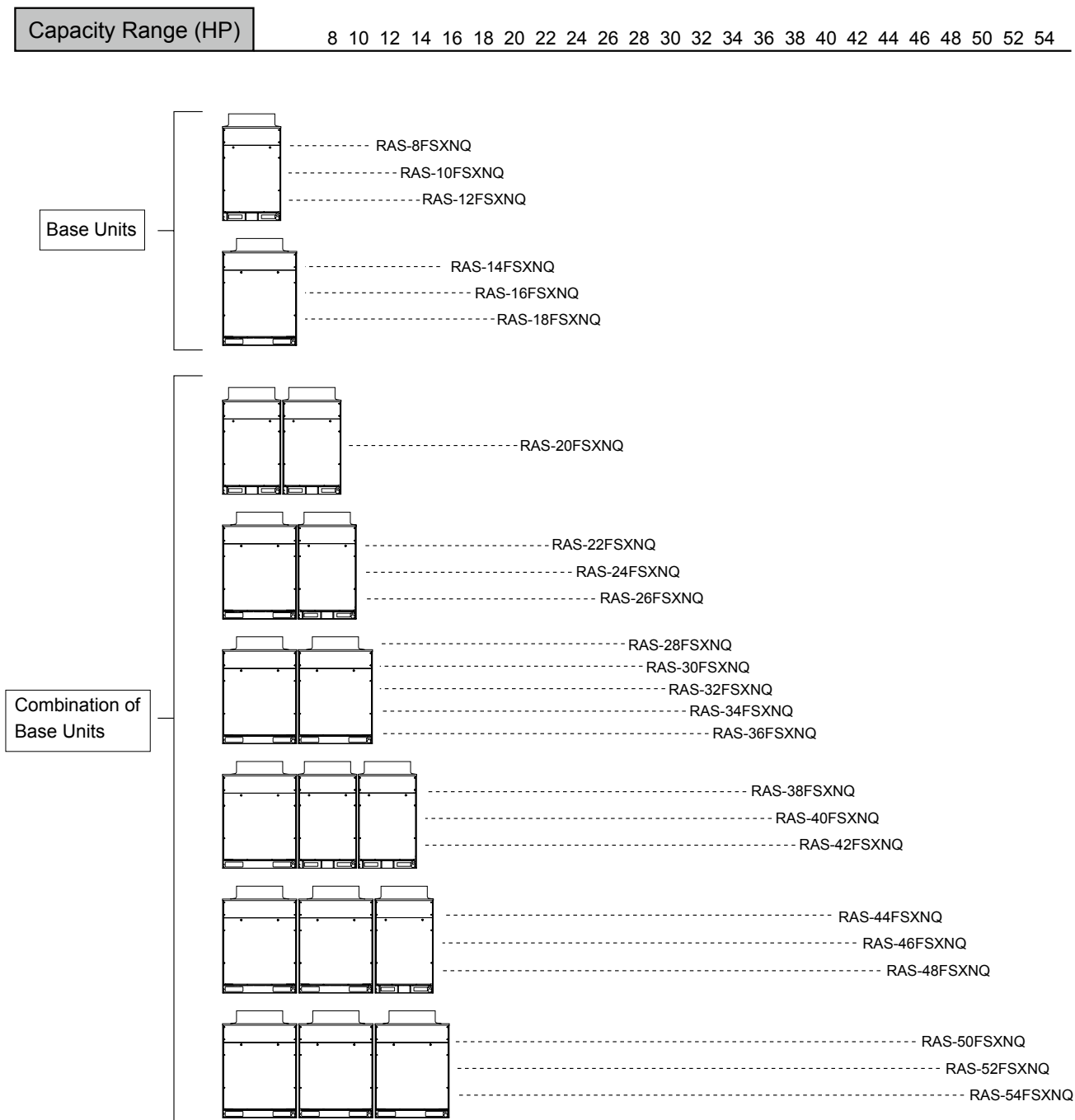
■ Wide Product Range of Outdoor Units

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

HITACHI SET-FREE FSXNQ Series offers 6 types of modular outdoor units.

By combining units from a wide selection of models, you can create a custom air conditioning environment to satisfy your specific building conditions.

Outdoor Units



■ SYSTEM FREE System

HITACHI has developed the SYSTEM FREE system with its customers always in mind.

This system, which is unique in the world, allows the interconnection of the same indoor units for all the HITACHI systems.

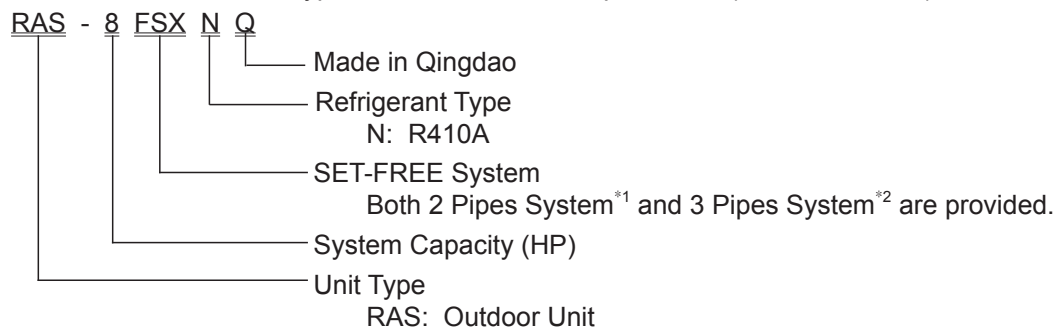
Of this system provides the end user with greater flexibility for installation, which means that the air-conditioning systems will integrate better with the whole of the installations that make up the building.

FEATURES

■ Line-Up

● Outdoor Unit

A wide selection of module type has been extended up to 54HP (Total 24 Models).



*1: 2 Pipes System: Heat Pump System

*2: 3 Pipes System: Heat Recovery System

< Base Unit >

HP	8	10	12	14	16	18
Model	RAS-8FSXNQ	RAS-10FSXNQ	RAS-12FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ

< Combination of Base Units > *

HP	20	22	24	26	28	30
Model	RAS-20FSXNQ	RAS-22FSXNQ	RAS-24FSXNQ	RAS-26FSXNQ	RAS-28FSXNQ	RAS-30FSXNQ
Combination	RAS-8FSXNQ	RAS-8FSXNQ	RAS-10FSXNQ	RAS-12FSXNQ	RAS-14FSXNQ	RAS-14FSXNQ
	RAS-12FSXNQ	RAS-14FSXNQ	RAS-14FSXNQ	RAS-14FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ

HP	32	34	36	38	40	42
Model	RAS-32FSXNQ	RAS-34FSXNQ	RAS-36FSXNQ	RAS-38FSXNQ	RAS-40FSXNQ	RAS-42FSXNQ
Combination	RAS-16FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ
	RAS-16FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ
	-	-	-	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ

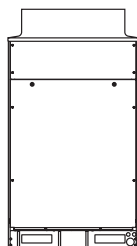
HP	44	46	48	50	52	54
Model	RAS-44FSXNQ	RAS-46FSXNQ	RAS-48FSXNQ	RAS-50FSXNQ	RAS-52FSXNQ	RAS-54FSXNQ
Combination	RAS-12FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ
	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ
	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ

*: Regarding the configuration of outdoor units especially for 20 ~ 54HP, combine the specified based units (2 or 3) as shown in the table above.

< Base Unit >

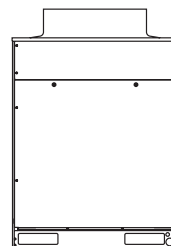
RAS-8 to 12FSXNQ (8 to 12HP)

- Outer Dimension: W950 x D765 x H1720 mm



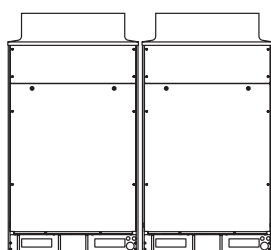
RAS-14 to 18FSXNQ (14 to 18HP)

- Outer Dimension: W1210 x D765 x H1720 mm

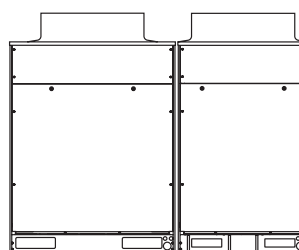


< Combination of Base Units >

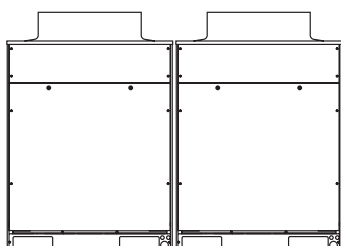
RAS-20FSXNQ (20HP)



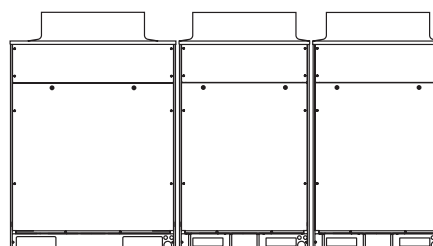
RAS-22 to 26FSXNQ (22 to 26HP)



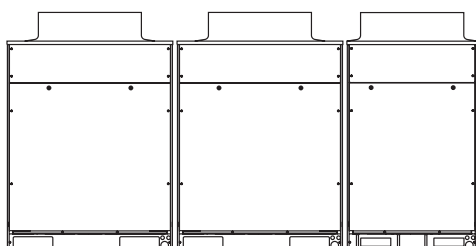
RAS-28 to 36FSXNQ (28 to 36HP)



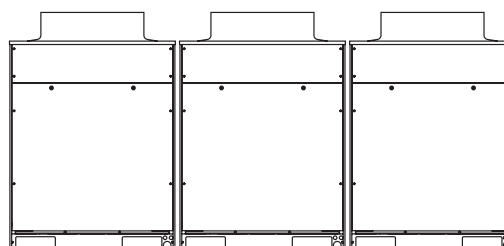
RAS-38 to 42FSXNQ (38 to 42HP)



RAS-44 to 48FSXNQ (44 to 48HP)

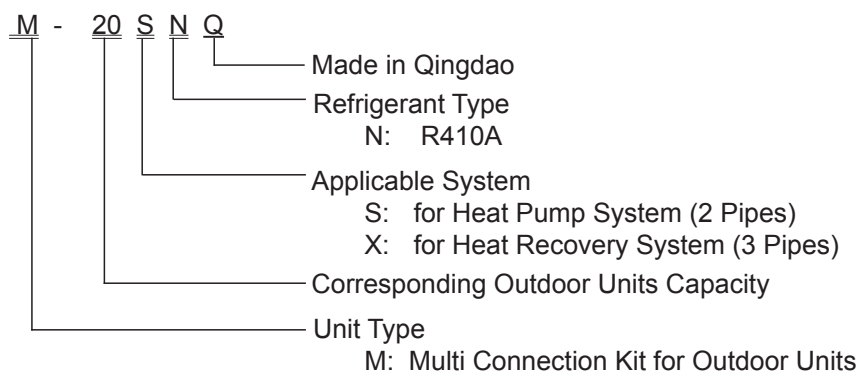


RAS-50 to 54FSXNQ (50 to 54HP)



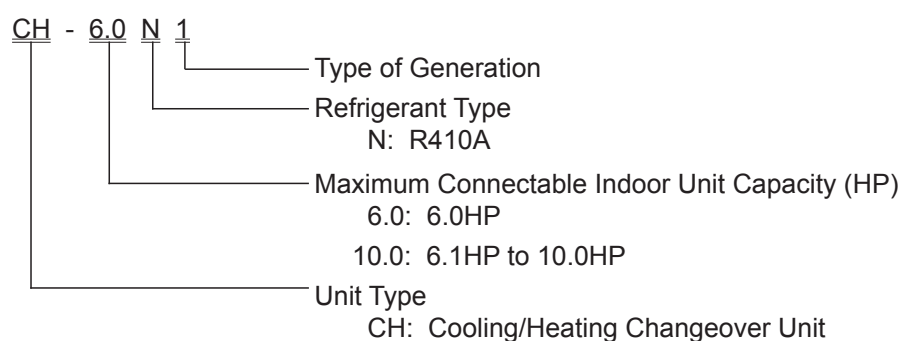
FEATURES

● Piping Connection Kit



Model	8 to 18HP	20 to 24HP	26 to 36HP	38 to 54HP
for Heat Pump Type (2 Pipes)	-	M-20SNQ	M-30SNQ	M-30SNQ M-30SNQ
for Heat Recovery Type (3 Pipes)	-	M-20XNQ	M-21XNQ	M-30XNQ M-30XNQ

● CH Unit



Model	Connectable Indoor Unit Total Capacity	Number of Connectable Indoor Unit *
CH-6.0N1	less than 6.0HP	1 to 7
CH-10.0N1	6.1HP to 10.0HP	1 to 8

* When multiple indoor units are connected to same CH unit, they are controlled with same operation mode.

New SET-FREE FSXNQ Series

HITACHI proudly introduces the New SET-FREE FSXNQ series, the highly-efficient and reliable air conditioning system. Recently, increased numbers of buildings are requiring "Intelligent" facilities - communication networks, office automation, including a comfortable environment. Particularly, comfortable space is required all the day through the year in office buildings.

This multi-split system air conditioner, SET-FREE can meet these requirements. The proven combination of the scroll compressor and the inverter provides the best air conditioning for small/medium office buildings.

Uses of the HFC Series New R410A Refrigerant

HITACHI has developed and introduced the new SET-FREE FSXNQ series to meet the global needs to help protect the Earth's environment by using non-ozone depleting refrigerant, R410A as HITACHI's standard series.

Various Indoor Units and Combinations

The line-up of new SET-FREE series indoor units has been extended up to 82 indoor units in 10 types to meet various building requirements. (0.8HP through 10HP)

Indoor Unit Type	Nominal Capacity (HP)														
	0.8	1.0	1.3	1.5	1.8	2.0	2.3	2.5	3.0	3.3	4.0	5.0	6.0	8.0	10.0
In-the-Ceiling	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
In-the-Ceiling(Low-height)	○	○	○	○	○	○	○	○							
4-Way Cassette		○	○	○	○	○	○	○	○	○	○	○	○		
2-Way Cassette		○		○		○		○	○		○	○			
Wall	○	○	○	○	○	○	○	○							
Floor		○		○											
Floor Concealed		○		○		○		○							
Ceiling				○		○		○	○		○	○	○		
Slim In-the-Ceiling	○	○	○	○											

○ : Available

Able to Connect a Set of Outdoor Unit with up to 64 Indoor Units

Utilizing an inverter control, a wide range of operation capacity control is also available. A maximum total combination horsepower of 130% and a minimum total combination horsepower of 50% can be chosen by combination of the indoor units when compared with the nominal outdoor unit capacity. Therefore, the new system can meet individual air conditioning requirements in most office buildings.

Outdoor Unit Model	Indoor Unit			
	Minimum Combination Capacity (HP)	Maximum Combination Capacity (HP)	Combination Quantity	Minimum Individual Operation Capacity (HP)
RAS-8FSXNQ	4.0	10.4	2 to 13	0.8
RAS-10FSXNQ	5.0	13.0	2 to 16	0.8
RAS-12FSXNQ	6.0	15.6	2 to 19	0.8
RAS-14FSXNQ	7.0	18.2	2 to 23	0.8
RAS-16FSXNQ	8.0	20.8	2 to 26	0.8
RAS-18FSXNQ	9.0	23.4	2 to 26	0.8
RAS-20FSXNQ	10.0	26.0	2 to 33	0.8
RAS-22FSXNQ	11.0	28.6	2 to 36	0.8
RAS-24FSXNQ	12.0	31.2	2 to 40	0.8
RAS-26FSXNQ	13.0	33.8	2 to 43	0.8
RAS-28FSXNQ	14.0	36.4	2 to 47	0.8
RAS-30FSXNQ	15.0	39.0	2 to 50	0.8
RAS-32FSXNQ	16.0	41.6	2 to 53	0.8
RAS-34FSXNQ	17.0	44.2	2 to 56	0.8
RAS-36FSXNQ	18.0	46.8	2 to 59	0.8
RAS-38FSXNQ	19.0	49.4	2 to 64	0.8
RAS-40FSXNQ	20.0	52.0	2 to 64	0.8
RAS-42FSXNQ	21.0	54.6	2 to 64	0.8
RAS-44FSXNQ	22.0	57.2	2 to 64	0.8
RAS-46FSXNQ	23.0	59.8	2 to 64	0.8
RAS-48FSXNQ	24.0	62.4	2 to 64	0.8
RAS-50FSXNQ	25.0	65.0	2 to 64	0.8
RAS-52FSXNQ	26.0	67.6	2 to 64	0.8
RAS-54FSXNQ	27.0	70.2	2 to 64	0.8

Connection Capacity: 50 to 130%

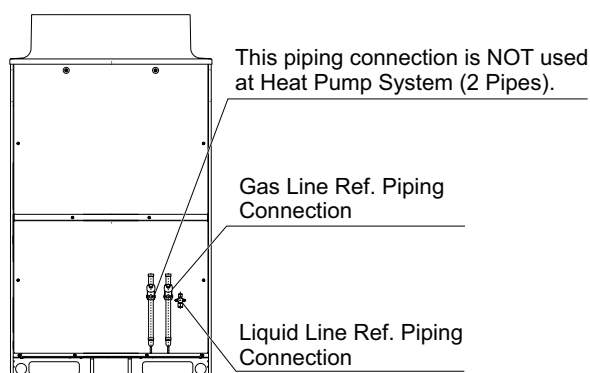
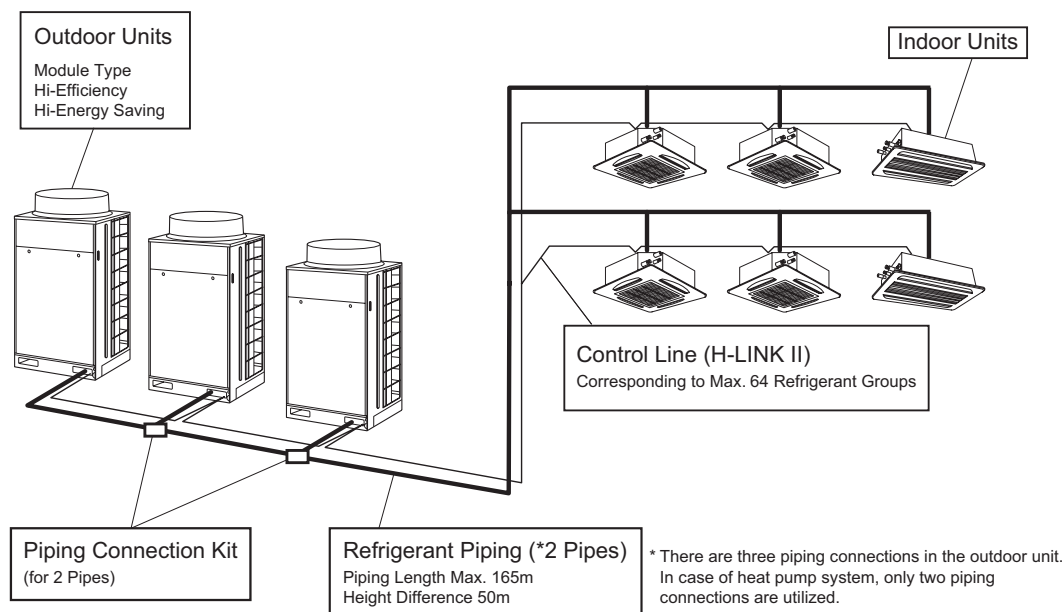
NOTES:

1. For the system which all indoor units are operated simultaneously, the total indoor unit capacity should be less or equal to the outdoor unit capacity. If not, poor performance or narrow operation range at overload may occur.
2. For the system which all indoor units are not operated simultaneously, the total indoor unit capacity is available up to 130% against the outdoor unit capacity.
3. If the system is used in the cold area (ambient temperature becomes under -10°C) or under the high heating load conditions, the total indoor unit capacity should be less than 100% against the outdoor unit and total piping length is less than 300m.
4. 0.8 and 1.0HP of indoor units are set with higher air flow compared to the units over 1.3HP of indoor units. Do not install these units in the place where the cold draft may occur at heating operation. Determine the usage environment and installation carefully.

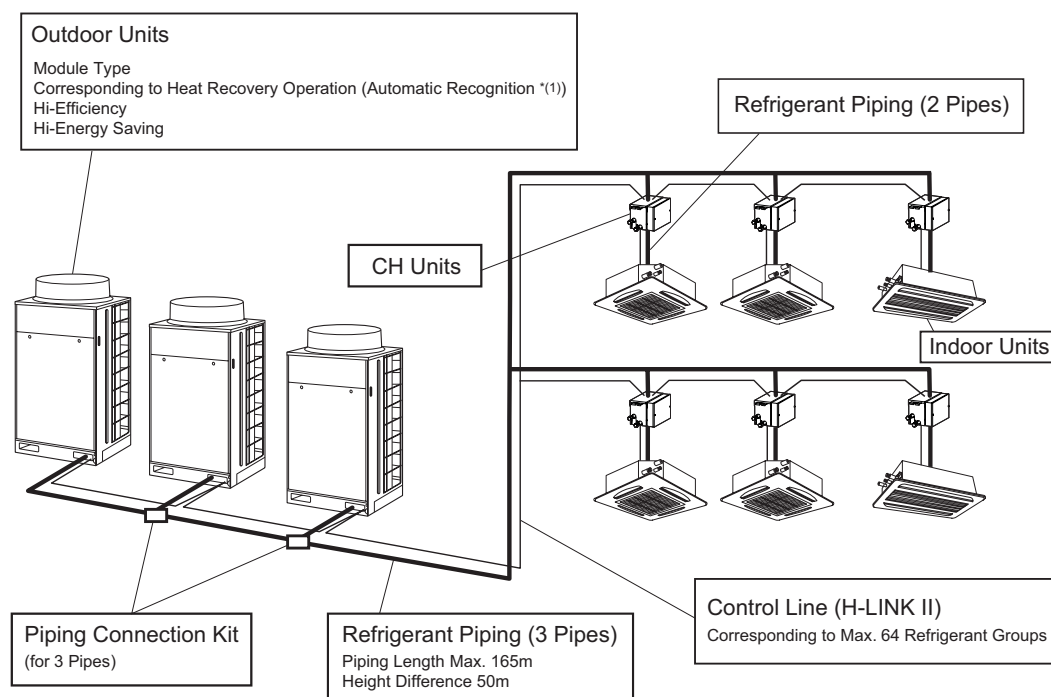
System Configuration / Appearance

Space, structure and necessary functions, in line with to evolution in building design, the requirements for air conditioning have also diversified. HITACHI SET-FREE FSXNQ Series offers 6 types of modular outdoor units. By combining units from a wide selection of models, you can create a custom air conditioning environment to satisfy your specific building conditions. Outdoor unit capacity has been extended up to 54HP by combining the base units (max. 3). This system can provide both Heat Pump System and Heat Recovery System as follows.

< Heat Pump System (2 Pipes) >

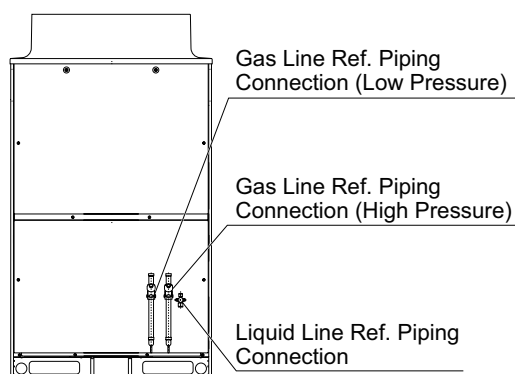


< Heat Recovery System (3 Pipes + CH Units) >

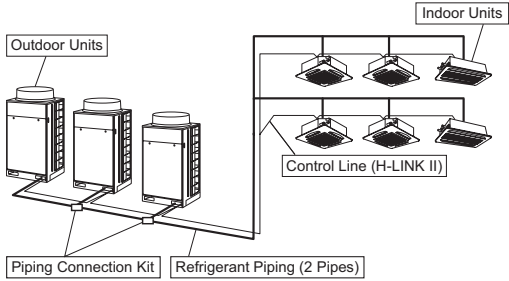
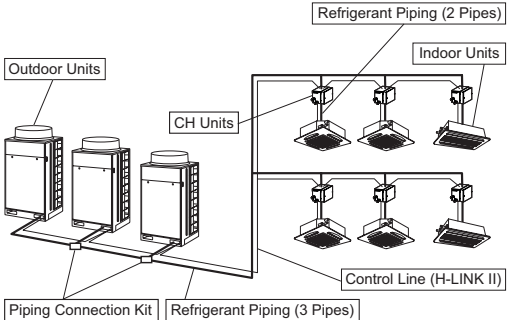


^{*(1)} Automatic Recognition

Transmission signal determines whether or not CH Unit is equipped with the system.
Therefore, setting Heat Pump System and Heat Recovery System are not required.



< System Configuration >

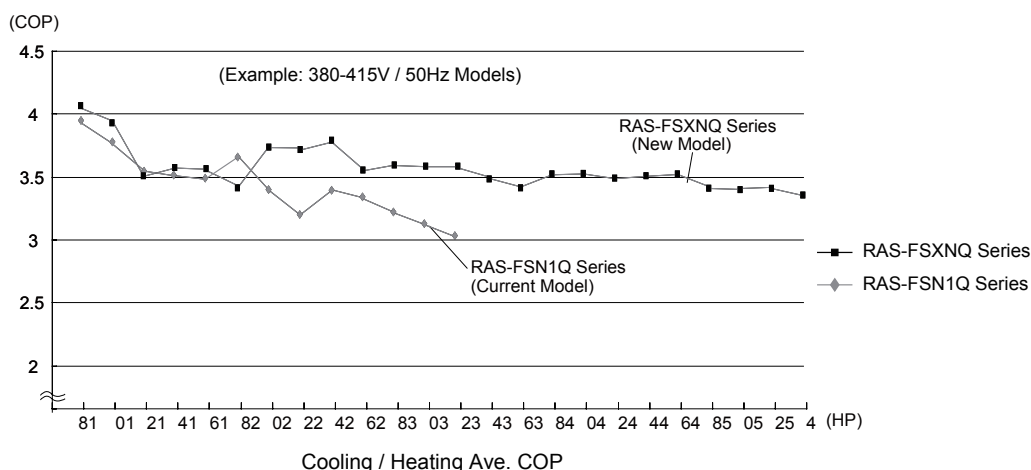
	Heat Pump System	Heat Recovery System
System / Appearance		
System Device	Without	CH Unit
	Indoor Unit + Optional Remote Control Switch + Optional Air Panel for RCI and RCD Type + Other Optional Parts	
	Optional Multi-Kit For Branch Connection of Indoor Units	
	Outdoor Unit + Other Optional Parts (Drain Boss or etc.)	
	Piping Connection Kit For Branch Connection of Outdoor Units Applicable for 20HP to 54HP Outdoor Unit	

: Necessary Equipments for System

: Necessary Equipments depending on Usage Purpose

High Efficiency and Energy Saving

Refrigerant cycle and control have been improved for energy saving.



NOTE:

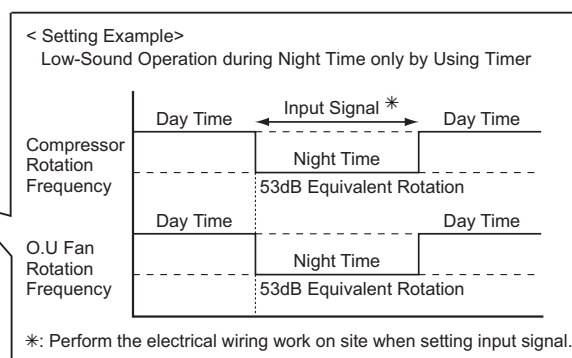
The above values indicate the cooling/heating average COP per outdoor unit when combined with HITACHI designated indoor unit.

Noise Reduction Preference Mode (Optional Function)

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

- Selecting from 3 (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)	56
12	Noise Reduction Setting 2 (Standard Value -5dB)	53
13	Noise Reduction Setting 3 (Standard Value -8dB)	50



NOTE:

*1: A range of performance and operation is restricted because the rotation frequency of 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

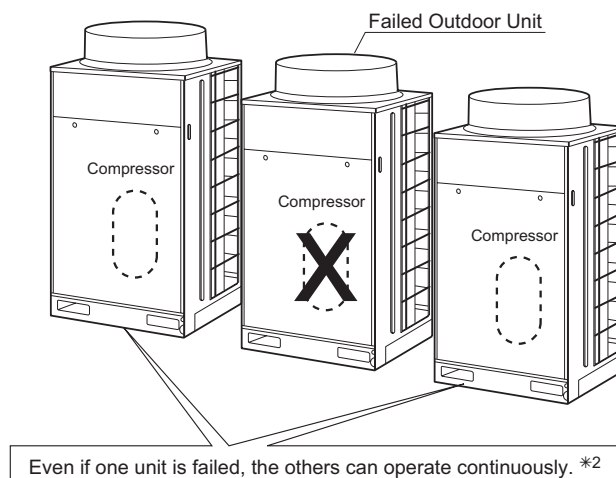
*2: The table above shows approximate value of 10HP.

In some cases, the value may temporarily turn into higher than the approximate value on the table above due to operation control condition.

Backup Operation Function for Emergency

This Backup Operation Function prevents the system from a complete stop when the outdoor unit failure occurs. ^{*1}

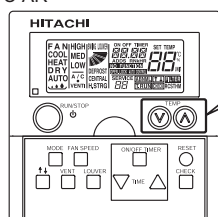
Emergency operation starts with the remote control switch after alarm occurrence. ^{*3}



NOTE:

- *1: At least 2 outdoor units are required for this function.
- *2: Do not perform emergency operation more than 8 hours. If not, the unit may be damaged.
- *3: The emergency operation can be performed when the specified alarm code occurs.
Refer to the following.

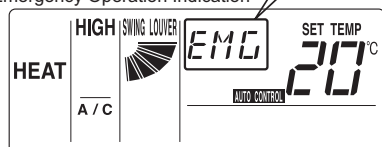
PC-AR



Press "TEMP. V ^" simultaneously for 3 seconds.

[EMG] is indicated on the LCD at the remote control switch and the emergency operation starts.

Emergency Operation Indication



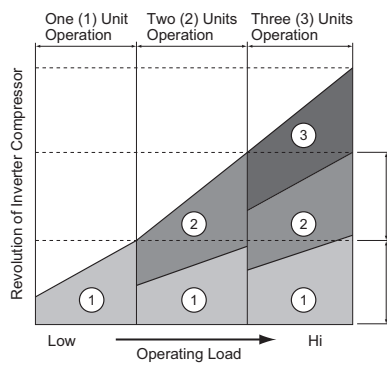
* In case of following alarm code, emergency operation is available.

- (1) 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
- (2) Constant Speed Compressor Failure
 - 23: Abnormality of Discharge Gas Thermistor
 - 39: Abnormality of Running Current at Constant Speed Compressor

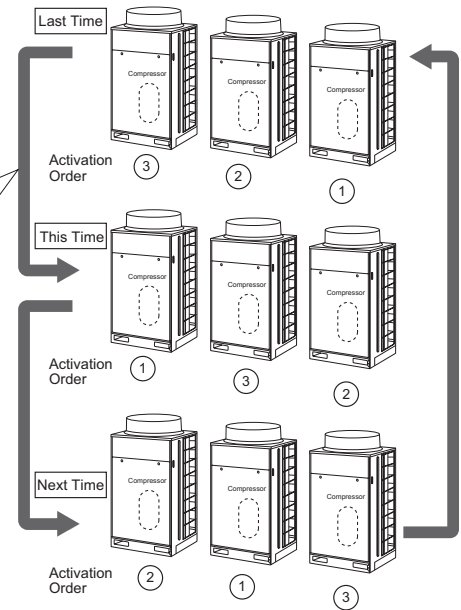
Rotation Operation Function for Outdoor Unit ^{*1}

Regulating the operation time of each outdoor unit leads to the load reduction on compressors. ^{*2}
 During the multiple unit operation, the same rotation frequency of inverter compressor results in the equivalent load on each compressor.
 Therefore it is improved of the outdoor unit endurance.

Inverter Compressor Rotation Frequency Control (Example)



At the time of the compressor start-up or 2 hours has passed from operation starting.
 It is operated so that the revolution of the inverter compressor ① and ② may become the same.



NOTE:

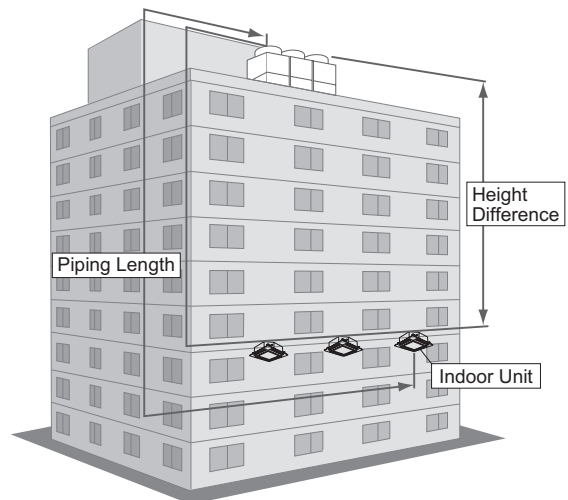
- *1: At least 2 outdoor units are required for this function.
- *2: Comparison between rotation operation function and non-rotation operation function based on the same system.

Control Function of Operation Control Value (Optional Function)

Following settings can meet the air conditioner installation condition and various environment.

< Setting Method > Setting from Outdoor Unit PCB (Example)

Operation Mode	Setting Purpose	Control Item	Adjustment Items
Cooling	Piping length correction between indoor and outdoor unit	Indoor unit expansion valve opening	Indoor unit heat exchanger outlet SH target value
	Capacity priority	Compressor rotation frequency	Compressor suction pressure target value
	Demand		Demand electric power 60/70/80/100%
Heating	Height correction between indoor units	Indoor unit expansion valve opening	Indoor unit heat exchanger outlet SC target value
	Capacity priority	Compressor rotation frequency	Compressor discharge pressure target value
	Start-up priority	Outdoor unit expansion valve opening	



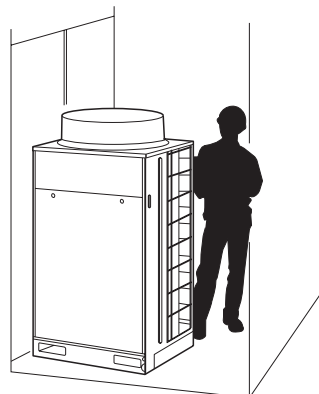
Installation

■ Transportation and Handling using Elevator

The elevator * can be used to transport the base unit respectively.

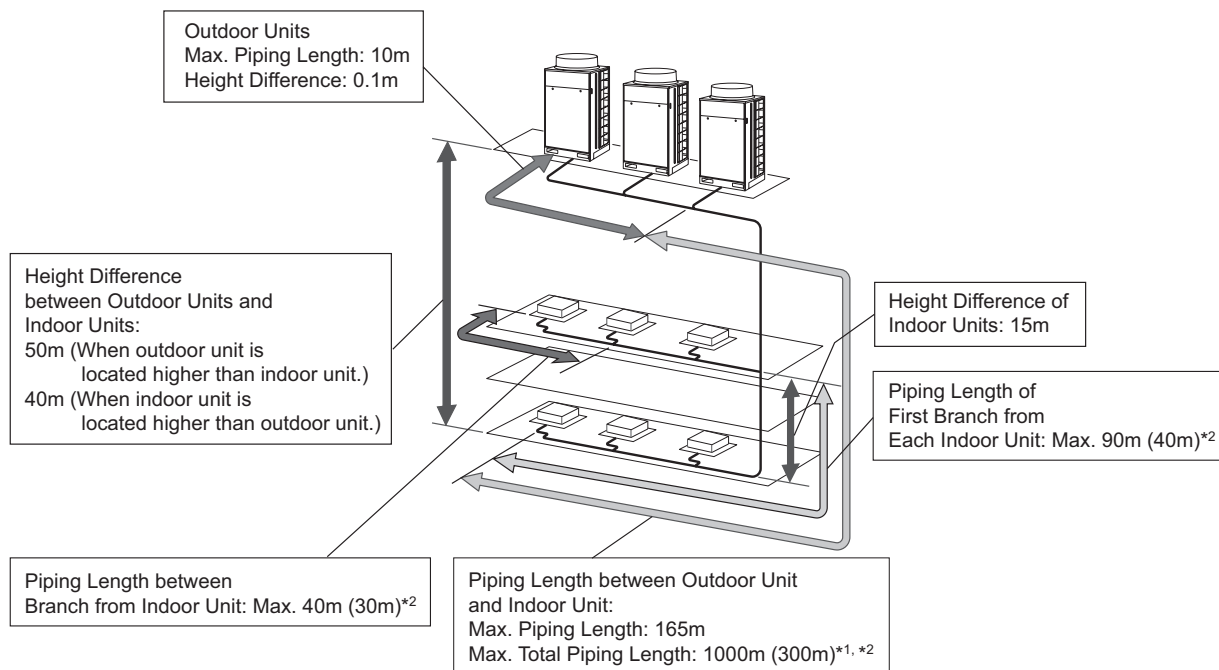
< Elevator * >

Capacity: Max. 11 (Persons)
JIS A 4301
Door Opening: 800 mm
Depth: 1350 mm



■ Expanded Installation Flexibility

Widely improved maximum total piping length 1000m (300m)^{*1, *2} and maximum piping length 90m (40m)^{*2} between multi-kit first branch and each indoor unit facilitate the flexible installation workability.



NOTE:

*1: When the total piping length is over 300m, the maximum additional refrigerant charge is restricted. The maximum additional refrigerant charge (table below) should not exceed the total field additional charge (refrigerant pipe + indoor unit).

HP	8 and 10	12	14 and 16	18	20 to 24	26 to 54
Max. Additional Refrigerant Charge (kg)	28	33	38.5	42	46	52

2: If the piping length exceeds figure in (), the connectable indoor units number should be less than recommended number as shown in the table on the next page.

FEATURES

■ Flexibility for Number of Branches Limitation

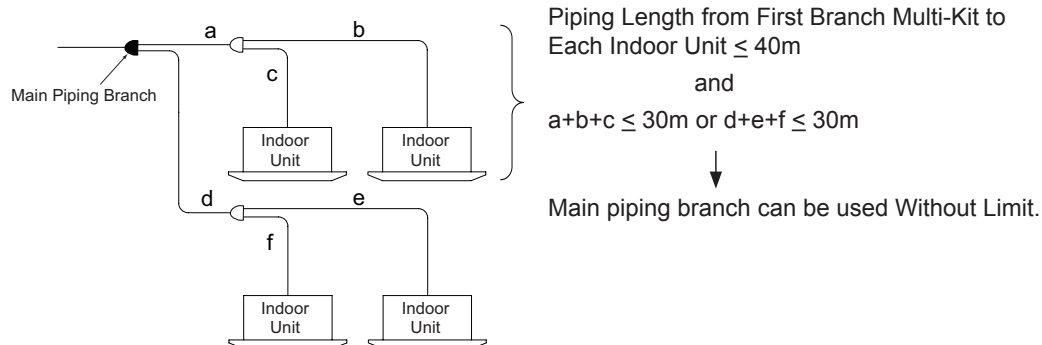
In case of the piping length between first main piping branch multi-kit and each indoor unit is within 40m and the one side total piping length from main piping branch multi-kit to each indoor unit is within 30m, **the number of the main piping branches limitation is not exist.**

(The current model's limitation is within 2 main piping branches.)

If the piping length from first branch multi-kit to each indoor unit is over 40m, the number of the main piping branch should be 1 portion.

Piping Length from First Branch Multi-Kit to Each Indoor Unit	One Side Total Piping Length after *Main Piping Branch to Indoor Unit	Number of Main Piping Branch
$\leq 40\text{m}$	$a+b+c \leq 30\text{m}$ or $d+e+f \leq 30\text{m}$	Without Limit
	$a+b+c > 30\text{m}$ and $d+e+f > 30\text{m}$	within 2
within 41m to 90m	-	within 1

*Main Piping Branch: Distribution from One (1) Multi-Kit to Two (2) Multi-Kits



■ Wide Range of Indoor Unit Connection

Max. number of connectable Indoor Units has been extended to 64, which can meet various building environment and requirements.

HP			8	10	12	14	16	18	20	22	24	26	28	30
Max. Number of Connectable I.U.	Current Models	FSN1Q Series	13	16	16	20	20	20	20	20	27	29	31	32
	New Models		13	16	19	23	26	26	33	36	40	43	47	50
Recommended Number of Connectable I.U. for New Models *			8	10	10	16	16	16	18	20	26	26	32	32

HP			32	34	36	38	40	42	44	46	48	50	52	54
Max. Number of Connectable I.U.	Current Models	FSN1Q Series	32	-	-	-	-	-	-	-	-	-	-	-
	New Models		53	56	59	64	64	64	64	64	64	64	64	64
Recommended Number of Connectable I.U. for New Models *			32	32	32	38	38	38	38	38	38	38	38	38

Connection Capacity: 50 to 130%

*: If the piping length exceeds figure in () * on the previous page, the indoor unit number should be less than recommended number.

NOTE:

- For the system which all I.U. is operated simultaneously, the max. total capacity will be 100%. Determine the number of I.U. carefully so that a problem such as decreased outlet air temperature will not occur.
- Compared to over 1.3HP of indoor units, 0.8 and 1.0HP of indoor units are set with higher air flow. Do not install these units in the place where the cold draft may occur during heating operation. Determine the usage environment and installation location carefully.

Wide Operation Range

This unit has been designed for cooling operation under low ambient temperatures down to -5°C . This feature enables cooling to be obtained even in winter on buildings with high internal heat gains due to lighting, people and machines, particularly in areas such as shops, lecture rooms, data processing areas etc. And the heating operation under low ambient temperature down to -20°C can be also performed.

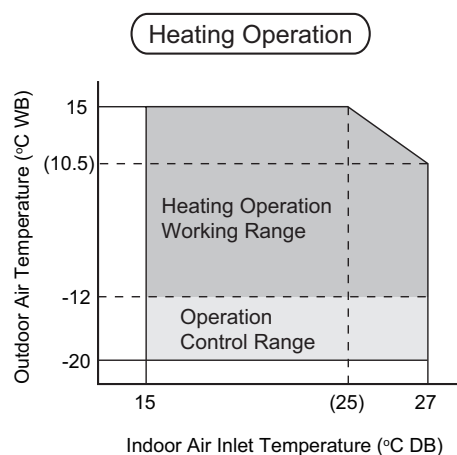
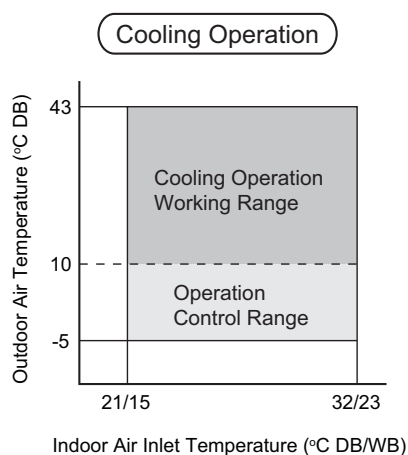
		Cooling Operation	Heating Operation
Indoor Temperature	Minimum	$21^{\circ}\text{C DB} / 15^{\circ}\text{C WB}$	15°C DB
	Maximum	$32^{\circ}\text{C DB} / 23^{\circ}\text{C WB}$	27°C DB
Outdoor Temperature	Minimum	$-5^{\circ}\text{C DB} (*)$	$-20^{\circ}\text{C WB} (**)$
	Maximum	43°C DB	15°C WB

DB: Dry Bulb, WB: Wet Bulb

NOTES:

(*) $10^{\circ}\text{C DB} \sim -5^{\circ}\text{C DB}$, Operation Control Range

(**) $-12^{\circ}\text{C WB} \sim -20^{\circ}\text{C WB}$, Operation Control Range



Automatic Simple Judgement System for Refrigerant Amount

Use this automatic judgement function to check whether or not the refrigerant amount is sufficient in one (1) refrigerant cycle.

< Factor for Judgement >

Appropriate refrigerant amount is calculated based upon the following data.

- (1) Refrigerant Cycle Temperature
- (2) Refrigerant Saturation Temperature
- (3) Outdoor Unit Expansion Valve Data
- (4) Indoor Unit Data

< Procedure for Judgement of Refrigerant Charge Amount >

- (1) Judgement starts by pressing the PSW (for prevention of malfunction) after setting DSW.
- (2) Judgement takes max. 30 minutes.
- (3) Cooling operation automatically starts when judging.
("TEST RUN" will be indicated on the remote control display.)

< Judgement >

Judgement for refrigerant amount is indicated as follows.

In case that refrigerant is excessive or insufficient, calculate the refrigerant amount again.

Result	7-segment Indication	Remarks
Sufficient Refrigerant		The refrigerant amount is sufficient.
Excessive Refrigerant		The refrigerant amount is excessive. Calculate additional refrigerant amount again and collect the refrigerant using the refrigerant collector.
Insufficient Refrigerant		The refrigerant amount is insufficient. Calculate additional refrigerant amount again and charge the refrigerant.

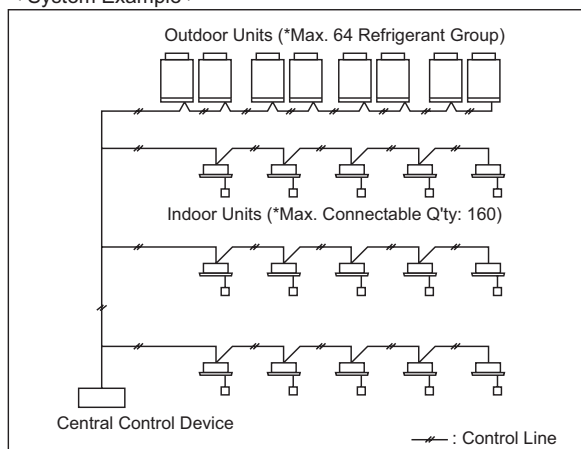
< Caution >

- (1) Excessive or insufficient refrigerant may lead to the short-life of device, frequent occurrence of alarm or insufficient capacity.
- (2) Refrigerant leakage may be one of the causes of the insufficient refrigerant. Use a refrigerant detector to check the leakage portion and take an appropriate measure.

Corresponding to H-LINK II System

This SET-FREE FSXNQ series outdoor units corresponds to the new H-LINK II transmission system improved from current H-LINK system. Maximum 64 refrigerant systems and maximum 160 indoor units are available to control by only one central control device when the equipments (central control device, indoor units, remote control switch) in the same transmission system are all corresponding to H-LINK II.

< System Example >



● Compare with H-LINK System

Item	H-LINK	H-LINK II
Number of Max. Ref. Group / System	16	64
Address Setting Range of Indoor Units / Ref. Group	0 to 15	0 to 63
Number of Max. Indoor Unit / System	128	160
Total Q'ty of Central Control Devices in the same H-LINK	145	200
Max. Wiring Length	Total 1,000m (5,000m*)	

*: In case 4 (four) units of PSC-5HR is used.

● The Mixture of H-LINK and H-LINK II

H-LINK II corresponding models can be mixed with H-LINK corresponding models in the same system without any adaptor.

Control System Device	Outdoor Unit Indoor Unit	1 (One) H-LINK(II) System	
		Outdoor Unit (Number of Ref. Group)	Indoor Unit
H-LINK II	H-LINK II	64	160
	H-LINK II / H-LINK Mixed	64 *1)	128
H-LINK	H-LINK II	16	128
	H-LINK II / H-LINK Mixed	16	128

*1) The maximum 16 refrigerant groups are available in 1 (one) H-LINK system under the following conditions.

* The outdoor unit corresponding to H-LINK

* The outdoor unit corresponding to H-LINK II connected with the indoor unit corresponding to H-LINK

More than 17 indoor units are available to connect with the 1 (one) outdoor unit depending on the outdoor unit capacity. In that case, 2 (two) refrigerant groups are required for 1 (one) outdoor unit.

*2) Refer to the next page for the control function when usage models are H-LINK II mixed with H-LINK.

FEATURES

System Configuration	Outdoor Unit: H-LINK Indoor Unit: H-LINK II and H-LINK Remote Control Switch: H-LINK II and H-LINK			Outdoor Unit: H-LINK II Indoor Unit: H-LINK II and H-LINK Remote Control Switch: H-LINK II and H-LINK		
Outdoor Unit						
Indoor Unit						
Remote Control Switch	 H-LINK			 H-LINK II		
Setting Range of Refrigerant Group *1)	0 to 15			0 to 15		
Setting Range of Address *1)	0 to 15	0 to 15	0 to 15	0 to 15	0 to 15	0 to 63
Automatic Reset of Setting Temperature *2)	X	●	●	X	●	●
Operation Lock *2)	X	●	●	X	●	●
Limitation of Setting Temperature Range *3)	X	●	●	X	●	●
ON / OFF Timer Setting (72Hr.) *2)	X	●	●	X	●	●
Different Operation Mode Indication *3)	X	X	●	X	X	●
Indoor Unit Hot-Start Indication *3)	X	X	●	X	X	●
Change of Indoor Unit Ref. Group No. and Address *2)	X	X	●	X	X	●
Outdoor Unit Comp. Pre-heating Indication / Cancel *2)	X	X	X	X	X	●
Emergency Operation from Remote Control Switch *4)	X	X	X	X	X	●

*1) The range of ref. group setting and address setting is 0 to 15 when H-LINK corresponding central controller is used.

*2) These functions can be set by wired remote control switch (PC-AR) only.

*3) These functions can be set by wired remote control switch (PC-AR) and half size remote control switch (PC-ARH) only.

*4) This function is not available depending on the outdoor unit type.

■ H-LINK II System

The new H-LINK II wiring system requires only two transmission wires connecting each indoor unit and outdoor unit up to 64 refrigerant cycles, and connecting wires for all indoor units and specified outdoor units in series as follows.

<Specifications>

- * Transmission Wire: 2-Wire
- * Polarity of Transmission Wire: Non-Polar Wire
- * Maximum Outdoor Units to be Connected: 64 Units per System
- * Maximum Indoor Units to be Connected: 160 Units per H-LINK II System
- * Maximum Wiring Length: Total 1,000m (including CS-NET)
- * Recommended Cable: Twist-Pair Cable with Shield, over 0.75mm² (Equivalent to KPEV-S)
- * Voltage: DC5V

NOTE:

In case of applying H-LINK II system, the setting of dip switch for outdoor unit and indoor unit is required. If the dip switches are not set or set incorrectly, the alarm may occur due to the transmission failure.

■ H-LINK System

The H-LINK wiring system requires only two transmission wires connecting each indoor unit and outdoor unit up to 16 refrigerant cycles, and connecting wires for all indoor units and specified outdoor units in series as follows.

<Specifications>

- * Transmission Wire: 2-Wire
- * Polarity of Transmission Wire: Non-Polar Wire
- * Maximum Outdoor Units to be Connected: 16 Units per System
- * Maximum Indoor Units to be Connected: 128 Units per H-LINK System
- * Maximum Wiring Length: Total 1,000m (including CS-NET)
- * Recommended Cable: Twist-Pair Cable with Shield, over 0.75mm² (Equivalent to KPEV-S)
- * Voltage: DC5V

NOTE:

In case of applying H-LINK system, the setting of dip switch for outdoor unit and indoor unit is required. If the dip switches are not set or set incorrectly, the alarm may occur due to the transmission failure.

Corresponding Outdoor Units for H-LINK or H-LINK II

Outdoor Unit Model					
Set-Free					
FSN6Q Series			FSXNQ Series		
RAS-8FSN6Q	RAS-24FSN6Q	RAS-40FSN6Q	RAS-8FSXNQ	RAS-24FSXNQ	RAS-40FSXNQ
RAS-10FSN6Q	RAS-26FSN6Q	RAS-42FSN6Q	RAS-10FSXNQ	RAS-26FSXNQ	RAS-42FSXNQ
RAS-12FSN6Q	RAS-28FSN6Q	RAS-44FSN6Q	RAS-12FSXNQ	RAS-28FSXNQ	RAS-44FSXNQ
RAS-14FSN6Q	RAS-30FSN6Q	RAS-46FSN6Q	RAS-14FSXNQ	RAS-30FSXNQ	RAS-46FSXNQ
RAS-16FSN6Q	RAS-32FSN6Q	RAS-48FSN6Q	RAS-16FSXNQ	RAS-32FSXNQ	RAS-48FSXNQ
RAS-18FSN6Q	RAS-34FSN6Q	RAS-50FSN6Q	RAS-18FSXNQ	RAS-34FSXNQ	RAS-50FSXNQ
RAS-20FSN6Q	RAS-36FSN6Q	RAS-52FSN6Q	RAS-20FSXNQ	RAS-36FSXNQ	RAS-52FSXNQ
RAS-22FSN6Q	RAS-38FSN6Q	RAS-54FSN6Q	RAS-22FSXNQ	RAS-38FSXNQ	RAS-54FSXNQ
H-LINK II			H-LINK II		

Outdoor Unit Model					
Set-Free					
FSNA6Q Series			FSNY8Q Series		
RAS-8FSNA6Q	RAS-24FSNA6Q	RAS-40FSNA6Q	RAS-8FSNY8Q	RAS-24FSNY8Q	RAS-40FSNY8Q
RAS-10FSNA6Q	RAS-26FSNA6Q	RAS-42FSNA6Q	RAS-10FSNY8Q	RAS-26FSNY8Q	RAS-42FSNY8Q
RAS-12FSNA6Q	RAS-28FSNA6Q	RAS-44FSNA6Q	RAS-12FSNY8Q	RAS-28FSNY8Q	RAS-44FSNY8Q
RAS-14FSNA6Q	RAS-30FSNA6Q	RAS-46FSNA6Q	RAS-14FSNY8Q	RAS-30FSNY8Q	RAS-46FSNY8Q
RAS-16FSNA6Q	RAS-32FSNA6Q	RAS-48FSNA6Q	RAS-16FSNY8Q	RAS-32FSNY8Q	RAS-48FSNY8Q
RAS-18FSNA6Q	RAS-34FSNA6Q	RAS-50FSNA6Q	RAS-18FSNY8Q	RAS-34FSNY8Q	RAS-50FSNY8Q
RAS-20FSNA6Q	RAS-36FSNA6Q	RAS-52FSNA6Q	RAS-20FSNY8Q	RAS-36FSNY8Q	RAS-52FSNY8Q
RAS-22FSNA6Q	RAS-38FSNA6Q	RAS-54FSNA6Q	RAS-22FSNY8Q	RAS-38FSNY8Q	RAS-54FSNY8Q
H-LINK II			H-LINK II		

FEATURES

Outdoor Unit Model				
Set-Free			IVX	
FSN1Q Series		mini Series	Front Flow Series	mini Series
RAS-8FSN1Q	RAS-18FSN1Q	RAS-4FSVN1Q	RAS-8FSNMQ	RAS-3HRNM1Q
RAS-10FSN1Q	RAS-20FSN1Q	RAS-5FSVN1Q	RAS-10FSNMQ	RAS-4HRNM1Q
RAS-12FSN1Q		RAS-6FSVN1Q	RAS-12FSNMQ	RAS-5HRNM1Q
RAS-14FSN1Q		RAS-5FSYN1Q		RAS-5HYNM1Q
RAS-16FSN1Q		RAS-6FSYN1Q		
H-LINK		H-LINK II		

Indoor Unit Model				
In-the-Ceiling Type				Ceiling Type
RPI-0.8FSNQL	RPI-0.8FSNQH	RPIZ-0.8FSN1Q	RPIZ-0.8FSNQS	
RPI-1.0FSNQL	RPI-1.0FSNQH	RPIZ-1.0FSN1Q	RPIZ-1.0FSNQS	
RPI-1.3FSNQL	RPI-1.3FSNQH	RPIZ-1.3FSN1Q	RPIZ-1.3FSNQS	
RPI-1.5FSNQL	RPI-1.5FSNQH	RPIZ-1.5FSN1Q	RPIZ-1.5FSNQS	RPC-1.5FSN3
RPI-1.8FSNQL	RPI-1.8FSNQH	RPIZ-1.8FSN1Q		
RPI-2.0FSNQL	RPI-2.0FSNQH	RPIZ-2.0FSN1Q		RPC-2.0FSN3
RPI-2.3FSNQL	RPI-2.3FSNQH	RPIZ-2.3FSN1Q		
RPI-2.5FSNQL	RPI-2.5FSNQH	RPIZ-2.5FSN1Q		RPC-2.5FSN3
RPI-3.0FSNQL	RPI-3.0FSNQH	-		RPC-3.0FSN3
RPI-3.3FSNQL	RPI-3.3FSNQH	-		RPC-4.0FSN3
RPI-4.0FSNQL	RPI-4.0FSNQH	-		RPC-5.0FSN3
RPI-5.0FSNQL	RPI-5.0FSNQH	-		RPC-6.0FSN3
RPI-6.0FSNQL	RPI-6.0FSNQH	-		
RPI-8.0FSN3Q	RPI-8.0FSNQ	-		
RPI-10.0FSN3Q	RPI-10.0FSNQ	-		
H-LINK II				

Indoor Unit Model				
4-Way Cassette Type	2-Way Cassette Type	Wall Type	Floor Type	Floor Concealed Type
-	-	RPK-0.8FSNQS		
RCI-1.0FSN1Q	RCD-1.0FSN2	RPK-1.0FSNQS	RPF-1.0FSN2E	RPFI-1.0FSNQ
RCI-1.3FSN1Q	-	RPK-1.3FSNQS		
RCI-1.5FSN1Q	RCD-1.5FSN2	RPK-1.5FSNQS	RPF-1.5FSN2E	RPFI-1.5FSNQ
RCI-1.8FSN1Q	-	RPK-1.8FSNQS		
RCI-2.0FSN1Q	RCD-2.0FSN2	RPK-2.0FSNQS		RPFI-2.0FSNQ
RCI-2.3FSN1Q	-	RPK-2.3FSNQS		
RCI-2.5FSN1Q	RCD-2.5FSN2	RPK-2.5FSNQS		RPFI-2.5FSNQ
RCI-3.0FSN1Q	RCD-3.0FSN2	-		-
RCI-3.3FSN1Q	-			
RCI-4.0FSN1Q	RCD-4.0FSN2	-		-
RCI-5.0FSN1Q	RCD-5.0FSN2	-		-
RCI-6.0FSN1Q	-			
H-LINK II				

■ Setting of End Terminal Resistance

Before shipment, set No.1 pin of DSW10 at the "ON" side.

In the case that the outdoor units quantity in the same H-LINK is 2 or more, set No.1 pin of DSW10 at the "OFF" side from the 2nd unit.

If only one outdoor unit is used, no setting is required.

Setting of End Terminal Resistance

DSW10

Before Shipment Cancellation



New Transmission System

A non-polar 2-wire cable is applied for the transmission wires connecting indoor units and outdoor unit. Miswiring by inverting connections 1 and 2 is eliminated.

2. General Data

2.1 Outdoor Units

Model		RAS-8FSXNQ	RAS-10FSXNQ	RAS-12FSXNQ
Power Supply		AC 3 ϕ , 380-415V/50Hz, 380V/60Hz, 220V/60Hz		
Nominal Cooling Capacity	kW	22.4	28.0	33.5
Nominal Heating Capacity	kW	25.0	31.5	37.5
EER [Cooling COP] (50/60Hz)		3.96/3.96	3.66/3.66	3.29/3.29
COP [Heating COP] (50/60Hz)		4.30/4.30	4.06/4.06	3.71/3.71
Cabinet Color (Munsell Code)		Ivory White		
Sound Pressure Level		Maximum		
[Overall A Scale] (Night-Shift)	dB	58 (53)	58 (53)	60 (55)
Outer Dimensions				
Height x Width x Depth	mm	1,720 x 950 x 765	1,720 x 950 x 765	1,720 x 950 x 765
Net Weight	kg	209	211	229
Gross Weight	kg	228	230	251
Refrigerant		R410A		
Flow Control		Micro-Computer Control Expansion Valve		
Compressor		Hermetic (Scroll)		
Model		E656DHD	E656DHD	E656DHD
Quantity		1	1	1
Motor Output (Pole)	kW	4.8 (4)	6.0 (4)	7.2 (4)
Refrigeration Oil		FVC68D		
Type				
Charge	L/Unit	5.0	5.0	6.0
Heat Exchanger		Multi-Pass Cross-Finned Tube		
Condenser Fan		Propeller Fan		
Quantity		1	1	1
Air Flow Rate	m ³ /min.	155	170	175
Motor Output (Pole)	kW	0.33 (8)	0.44 (8)	0.49 (8)
Main Refrigerant Piping				
Heat Pump System (2 Pipes)				
Liquid Line	mm (in.)	ϕ 9.53 (3/8)	ϕ 9.53 (3/8)	ϕ 12.7 (1/2)
Gas Line	mm (in.)	ϕ 19.05 (3/4)	ϕ 22.2 (7/8)	ϕ 25.4 (1)
Main Refrigerant Piping				
Heat Recovery System (3 Pipes)				
Liquid Line	mm (in.)	ϕ 9.53 (3/8)	ϕ 9.53 (3/8)	ϕ 12.7 (1/2)
Gas Line				
Low Pressure	mm (in.)	ϕ 19.05 (3/4)	ϕ 22.2 (7/8)	ϕ 25.4 (1)
High Pressure	mm (in.)	ϕ 15.88 (5/8)	ϕ 19.05 (3/4)	ϕ 22.2 (7/8)
Refrigerant Charge	kg	6.5	6.5	9.9
Packing Dimensions				
Height x Width x Depth	mm	1,828 x 1,018 x 824	1,828 x 1,018 x 824	1,828 x 1,018 x 824
Approximate				
Packing Measurement	m ³	1.58	1.58	1.58

NOTES:

1. The cooling and heating performances are the values when combined with our specified indoor units.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
19.0°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 35°C DB (95°F DB)
Piping Length: 7.5 Meters Piping Lift: 0 Meter

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
6°C WB (43°F WB)

2. The sound pressure is based on the following conditions.

1 Meter from the unit service cover surface, and 1.5 Meters from floor level.

The above data is based on the cooling mode. In case of heating mode, the sound pressure level increases by approximately 1~2 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

GENERAL DATA

Model		RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ
Power Supply		AC 3 ϕ , 380-415V/50Hz, 380V/60Hz, 220V/60Hz		
Nominal Cooling Capacity	kW	40.0	45.0	50.0
Nominal Heating Capacity	kW	45.0	50.0	56.0
EER [Cooling COP] (50/60Hz)		3.27/3.23	3.28/3.24	3.01/2.99
COP [Heating COP] (50/60Hz)		3.98/3.99	3.97/4.00	3.66/3.71
Cabinet Color (Munsell Code)		Ivory White		
Sound Pressure Level [Overall A Scale] (Night-Shift)	dB	62 (57)	62 (57)	63 (58)
Outer Dimensions				
Height x Width x Depth	mm	1,720 x 1,210 x 765	1,720 x 1,210 x 765	1,720 x 1,210 x 765
Net Weight	kg	294	308	314
Gross Weight	kg	319	334	340
Refrigerant		R410A		
Flow Control		Micro-Computer Control Expansion Valve		
Compressor		Hermetic (Scroll)		
Model		E656DHD + E655DH	E656DHD + E655DH	E656DHD + E855DH
Quantity		1 + 1	1 + 1	1 + 1
Motor Output (Pole)	kW	4.8 (4) + 4.4 (2)	6.0 (4) + 4.4 (2)	6.0 (4) + 5.6 (2)
Refrigeration Oil		FVC68D		
Type		FVC68D		
Charge	L/Unit	7.9	7.9	7.9
Heat Exchanger		Multi-Pass Cross-Finned Tube		
Condenser Fan		Propeller Fan		
Quantity		1	1	1
Air Flow Rate	m ³ /min.	195	195	195
Motor Output (Pole)	kW	0.66 (8)	0.66 (8)	0.66 (8)
Main Refrigerant Piping				
Heat Pump System (2 Pipes)	mm (in.)	ϕ 12.7 (1/2)	ϕ 12.7 (1/2)	ϕ 15.88 (5/8)
Liquid Line				
Gas Line	mm (in.)	ϕ 25.4 (1)	ϕ 28.6 (1-1/8)	ϕ 28.6 (1-1/8)
Main Refrigerant Piping				
Heat Recovery System (3 Pipes)	mm (in.)	ϕ 12.7 (1/2)	ϕ 12.7 (1/2)	ϕ 15.88 (5/8)
Liquid Line				
Gas Line	mm (in.)	ϕ 25.4 (1)	ϕ 28.6 (1-1/8)	ϕ 28.6 (1-1/8)
Low Pressure				
High Pressure	mm (in.)	ϕ 22.2 (7/8)	ϕ 22.2 (7/8)	ϕ 22.2 (7/8)
Refrigerant Charge	kg	9.0	10.5	10.5
Packing Dimensions				
Height x Width x Depth	mm	1,882 x 1,278 x 824	1,882 x 1,278 x 824	1,882 x 1,278 x 824
Approximate Packing Measurement	m ³	1.98	1.98	1.98

NOTES:

1. The cooling and heating performances are the values when combined with our specified indoor units.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
19.0°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 35°C DB (95°F DB)
Piping Length: 7.5 Meters Piping Lift: 0 Meter

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
7°C DB (45°F DB)
Outdoor Air Inlet Temperature: 6°C WB (43°F WB)

2. The sound pressure is based on the following conditions.

1 Meter from the unit service cover surface, and 1.5 Meters from floor level.

The above data is based on the cooling mode. In case of heating mode, the sound pressure level increases by approximately 1~2 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

Model		RAS-20FSXNQ	RAS-22FSXNQ	RAS-24FSXNQ
Combination of Base Unit		RAS-8FSXNQ RAS-12FSXNQ	RAS-8FSXNQ RAS-14FSXNQ	RAS-10FSXNQ RAS-14FSXNQ
Power Supply		AC 3 ϕ , 380-415V/50Hz, 380V/60Hz, 220V/60Hz		
Nominal Cooling Capacity	kW	56.0	61.5	69.0
Nominal Heating Capacity	kW	63.0	69.0	77.5
EER [Cooling COP] (50/60Hz)		3.54/3.54	3.44/3.41	3.47/3.44
COP [Heating COP] (50/60Hz)		3.95/3.95	4.03/4.04	4.07/4.07
Cabinet Color (Munsell Code)		Ivory White		
Sound Pressure Level		Maximum		
[Overall A Scale] (Night-Shift)	dB	62 (57)	63 (58)	63 (58)
Outer Dimensions				
Height x Width x Depth	mm	1,720 x 1,920 x 765	1,720 x 2,180 x 765	1,720 x 2,180 x 765
Net Weight	kg	209 + 229	209 + 294	211 + 294
Gross Weight	kg	228 + 251	228 + 319	230 + 319
Refrigerant		R410A		
Flow Control		Micro-Computer Control Expansion Valve		
Compressor		Hermetic (Scroll)		
Model		E656DHD + E656DHD	E656DHD + E656DHD + E655DH	E656DHD + E656DHD + E655DH
Quantity		1 + 1	1 + 1 + 1	1 + 1 + 1
Motor Output (Pole)	kW	4.8 (4) + 7.2 (4)	4.8 (4) + 4.8 (4) + 4.4 (2)	6.0 (4) + 4.8 (4) + 4.4 (2)
Refrigeration Oil		FVC68D		
Type				
Charge	L/Unit	11.0	12.9	12.9
Heat Exchanger		Multi-Pass Cross-Finned Tube		
Condenser Fan		Propeller Fan		
Quantity		2	2	2
Air Flow Rate	m ³ /min.	155 + 175	155 + 195	170 + 195
Motor Output (Pole)	kW	0.33 (8) + 0.49 (8)	0.33 (8) + 0.66 (8)	0.44 (8) + 0.66 (8)
Main Refrigerant Piping				
Heat Pump System (2 Pipes)				
Liquid Line	mm (in.)	φ15.88 (5/8)	φ15.88 (5/8)	φ15.88 (5/8)
Gas Line	mm (in.)	φ28.6 (1-1/8)	φ28.6 (1-1/8)	φ28.6 (1-1/8)
Main Refrigerant Piping				
Heat Recovery System (3 Pipes)				
Liquid Line	mm (in.)	φ15.88 (5/8)	φ15.88 (5/8)	φ15.88 (5/8)
Gas Line				
Low Pressure	mm (in.)	φ28.6 (1-1/8)	φ28.6 (1-1/8)	φ28.6 (1-1/8)
High Pressure	mm (in.)	φ22.2 (7/8)	φ25.4 (1)	φ25.4 (1)
Refrigerant Charge	kg	16.4	15.5	15.5
Approximate Packing Measurement	m ³	-	-	-

NOTES:

1. The cooling and heating performances are the values when combined with our specified indoor units.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
19.0°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 35°C DB (95°F DB)
Piping Length: 7.5 Meters Piping Lift: 0 Meter

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
6°C WB (43°F WB)

2. The sound pressure is based on the following conditions.

1 Meter from the unit service cover surface, and 1.5 Meters from floor level.

The above data is based on the cooling mode. In case of heating mode, the sound pressure level increases by approximately 1~2 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

3. Except for the specified combination in the table (20~54HP), there is no other combination of the base unit.

4. The width of outer dimension, it is the value when each distance between the base outdoor units is specified to 20mm.

GENERAL DATA

Model		RAS-26FSXNQ	RAS-28FSXNQ	RAS-30FSXNQ
Combination of Base Unit		RAS-12FSXNQ RAS-14FSXNQ	RAS-14FSXNQ RAS-14FSXNQ	RAS-14FSXNQ RAS-16FSXNQ
Power Supply		AC 3 ϕ , 380-415V/50Hz, 380V/60Hz, 220V/60Hz		
Nominal Cooling Capacity	kW	73.0	80.0	85.0
Nominal Heating Capacity	kW	82.5	90.0	95.0
EER [Cooling COP] (50/60Hz)		3.25/3.23	3.27/3.23	3.28/3.23
COP [Heating COP] (50/60Hz)		3.85/3.86	3.97/4.00	3.97/4.00
Cabinet Color (Munsell Code)		Ivory White		
Sound Pressure Level		Maximum		
[Overall A Scale] (Night-Shift)	dB	64 (59)	65 (60)	65 (60)
Outer Dimensions				
Height x Width x Depth	mm	1,720 x 2,180 x 765	1,720 x 2,440 x 765	1,720 x 2,440 x 765
Net Weight	kg	229 + 294	294 + 294	294 + 308
Gross Weight	kg	251 + 319	319 + 319	319 + 334
Refrigerant		R410A		
Flow Control		Micro-Computer Control Expansion Valve		
Compressor		Hermetic (Scroll)		
Model		E656DHD + E656DHD + E655DH	E656DHD + E655DH + E656DHD + E655DH	E656DHD + E655DH + E656DHD + E655DH
Quantity		1 + 1 + 1	1 + 1 + 1 + 1	1 + 1 + 1 + 1
Motor Output (Pole)	kW	7.2 (4) + 4.8 (4) + 4.4 (2)	4.8 (4) + 4.4 (2) + 4.8 (4) + 4.4 (2)	4.8 (4) + 4.4 (2) + 6.0 (4) + 4.4 (2)
Refrigeration Oil		FVC68D		
Type				
Charge	L/Unit	13.9	15.8	15.8
Heat Exchanger		Multi-Pass Cross-Finned Tube		
Condenser Fan		Propeller Fan		
Quantity		2	2	2
Air Flow Rate	m ³ /min.	175 + 195	195 + 195	195 + 195
Motor Output (Pole)	kW	0.49 (8) + 0.66 (8)	0.66 (8) + 0.66 (8)	0.66 (8) + 0.66 (8)
Main Refrigerant Piping				
Heat Pump System (2 Pipes)				
Liquid Line	mm (in.)	ϕ 19.05 (3/4)	ϕ 19.05 (3/4)	ϕ 19.05 (3/4)
Gas Line	mm (in.)	ϕ 31.75 (1-1/4)	ϕ 31.75 (1-1/4)	ϕ 31.75 (1-1/4)
Main Refrigerant Piping				
Heat Recovery System (3 Pipes)				
Liquid Line	mm (in.)	ϕ 19.05 (3/4)	ϕ 19.05 (3/4)	ϕ 19.05 (3/4)
Gas Line				
Low Pressure	mm (in.)	ϕ 31.75 (1-1/4)	ϕ 31.75 (1-1/4)	ϕ 31.75 (1-1/4)
High Pressure	mm (in.)	ϕ 25.4 (1)	ϕ 28.6 (1-1/8)	ϕ 28.6 (1-1/8)
Refrigerant Charge	kg	18.9	18.0	19.5
Approximate Packing Measurement	m ³	-	-	-

NOTES:

- The cooling and heating performances are the values when combined with our specified indoor units.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
19.0°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 35°C DB (95°F DB)
Piping Length: 7.5 Meters Piping Lift: 0 Meter

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
7°C DB (45°F DB)
Outdoor Air Inlet Temperature: 6°C WB (43°F WB)

- The sound pressure is based on the following conditions.
1 Meter from the unit service cover surface, and 1.5 Meters from floor level.
The above data is based on the cooling mode. In case of heating mode, the sound pressure level increases by approximately 1~2 dB.
The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.
- Except for the specified combination in the table (20~54HP), there is no other combination of the base unit.
- The width of outer dimension, it is the value when each distance between the base outdoor units is specified to 20mm.

Model		RAS-32FSXNQ	RAS-34FSXNQ	RAS-36FSXNQ
Combination of Base Unit		RAS-16FSXNQ RAS-16FSXNQ	RAS-16FSXNQ RAS-18FSXNQ	RAS-18FSXNQ RAS-18FSXNQ
Power Supply		AC 3 ϕ , 380-415V/50Hz, 380V/60Hz, 220V/60Hz		
Nominal Cooling Capacity	kW	90.0	95.0	100.0
Nominal Heating Capacity	kW	100.0	106.0	112.0
EER [Cooling COP] (50/60Hz)		3.28/3.24	3.13/3.10	3.01/3.00
COP [Heating COP] (50/60Hz)		3.97/4.00	3.80/3.84	3.66/3.71
Cabinet Color (Munsell Code)		Ivory White		
Sound Pressure Level		Maximum		
[Overall A Scale] (Night-Shift)	dB	65 (60)	66 (61)	66 (61)
Outer Dimensions				
Height x Width x Depth	mm	1,720 x 2,440 x 765	1,720 x 2,440 x 765	1,720 x 2,440 x 765
Net Weight	kg	308 + 308	308 + 314	314 + 314
Gross Weight	kg	334 + 334	334 + 340	340 + 340
Refrigerant		R410A		
Flow Control		Micro-Computer Control Expansion Valve		
Compressor		Hermetic (Scroll)		
Model		E656DHD + E655DH + E656DHD + E655DH	E656DHD + E655DH + E656DHD + E655DH	E656DHD + E655DH + E656DHD + E655DH
Quantity		1 + 1 + 1 + 1	1 + 1 + 1 + 1	1 + 1 + 1 + 1
Motor Output (Pole)	kW	6.0 (4) + 4.4 (2) + 6.0 (4) + 4.4 (2)	6.0 (4) + 4.4 (2) + 6.0 (4) + 5.6 (2)	6.0 (4) + 5.6 (2) + 6.0 (4) + 5.6 (2)
Refrigeration Oil		FVC68D		
Type				
Charge	L/Unit	15.8	15.8	15.8
Heat Exchanger		Multi-Pass Cross-Finned Tube		
Condenser Fan		Propeller Fan		
Quantity		2	2	2
Air Flow Rate	m ³ /min.	195 + 195	195 + 195	195 + 195
Motor Output (Pole)	kW	0.66 (8) + 0.66 (8)	0.66 (8) + 0.66 (8)	0.66 (8) + 0.66 (8)
Main Refrigerant Piping				
Heat Pump System (2 Pipes)				
Liquid Line	mm (in.)	φ19.05 (3/4)	φ19.05 (3/4)	φ19.05 (3/4)
Gas Line	mm (in.)	φ31.75 (1-1/4)	φ31.75 (1-1/4)	φ38.1 (1-1/2)
Main Refrigerant Piping				
Heat Recovery System (3 Pipes)				
Liquid Line	mm (in.)	φ19.05 (3/4)	φ19.05 (3/4)	φ19.05 (3/4)
Gas Line				
Low Pressure	mm (in.)	φ31.75 (1-1/4)	φ31.75 (1-1/4)	φ31.75 (1-1/4)
High Pressure	mm (in.)	φ28.6 (1-1/8)	φ28.6 (1-1/8)	φ28.6 (1-1/8)
Refrigerant Charge	kg	21.0	21.0	21.0
Approximate Packing Measurement	m ³	-	-	-

NOTES:

1. The cooling and heating performances are the values when combined with our specified indoor units.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
 19.0°C WB (66.2°F WB)
 Outdoor Air Inlet Temperature: 35°C DB (95°F DB)
 Piping Length: 7.5 Meters Piping Lift: 0 Meter

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
 Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
 6°C WB (43°F WB)

2. The sound pressure is based on the following conditions.
 1 Meter from the unit service cover surface, and 1.5 Meters from floor level.
 The above data is based on the cooling mode. In case of heating mode, the sound pressure level increases by approximately 1~2 dB.
 The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.
3. Except for the specified combination in the table (20~54HP), there is no other combination of the base unit.
4. The width of outer dimension, it is the value when each distance between the base outdoor units is specified to 20mm.

GENERAL DATA

Model		RAS-38FSXNQ	RAS-40FSXNQ	RAS-42FSXNQ
Combination of Base Unit		RAS-12FSXNQ RAS-12FSXNQ RAS-14FSXNQ	RAS-12FSXNQ RAS-12FSXNQ RAS-16FSXNQ	RAS-12FSXNQ RAS-12FSXNQ RAS-18FSXNQ
Power Supply		AC 3φ, 380-415V/50Hz, 380V/60Hz, 220V/60Hz		
Nominal Cooling Capacity	kW	109.0	112.0	118.0
Nominal Heating Capacity	kW	118.0	125.0	132.0
EER [Cooling COP] (50/60Hz)		3.34/3.33	3.28/3.27	3.19/3.18
COP [Heating COP] (50/60Hz)		3.74/3.74	3.81/3.82	3.72/3.74
Cabinet Color (Munsell Code)		Ivory White		
Sound Pressure Level		Maximum		
[Overall A Scale] (Night-Shift)	dB	66 (61)	66 (61)	66 (61)
Outer Dimensions				
Height x Width x Depth	mm	1,720 x 3,150 x 765	1,720 x 3,150 x 765	1,720 x 3,150 x 765
Net Weight	kg	229 + 229 + 294	229 + 229 + 308	229 + 229 + 314
Gross Weight	kg	251 + 251 + 319	251 + 251 + 334	251 + 251 + 340
Refrigerant		R410A		
Flow Control		Micro-Computer Control Expansion Valve		
Compressor		Hermetic (Scroll)		
Model		E656DHD + E656DHD + E656DHD + E655DH	E656DHD + E656DHD + E656DHD + E655DH	E656DHD + E656DHD + E656DHD + E655DH
Quantity		1 + 1 + 1 + 1	1 + 1 + 1 + 1	1 + 1 + 1 + 1
Motor Output (Pole)	kW	7.2 (4) + 7.2 (4) + 4.8 (4) + 4.4 (2)	7.2 (4) + 7.2 (4) + 6.0 (4) + 4.4 (2)	7.2 (4) + 7.2 (4) + 6.0 (4) + 5.6 (2)
Refrigeration Oil		FVC68D		
Type				
Charge	L/Unit	19.9	19.9	19.9
Heat Exchanger		Multi-Pass Cross-Finned Tube		
Condenser Fan		Propeller Fan		
Quantity		3	3	3
Air Flow Rate	m ³ /min.	175 + 175 + 195	175 + 175 + 195	175 + 175 + 195
Motor Output (Pole)	kW	0.49 (8) + 0.49 (8) + 0.66 (8)	0.49 (8) + 0.49 (8) + 0.66 (8)	0.49 (8) + 0.49 (8) + 0.66 (8)
Main Refrigerant Piping				
Heat Pump System (2 Pipes)				
Liquid Line	mm (in.)	φ19.05 (3/4)	φ19.05 (3/4)	φ19.05 (3/4)
Gas Line	mm (in.)	φ38.1 (1-1/2)	φ38.1 (1-1/2)	φ38.1 (1-1/2)
Main Refrigerant Piping				
Heat Recovery System (3 Pipes)				
Liquid Line	mm (in.)	φ19.05 (3/4)	φ19.05 (3/4)	φ19.05 (3/4)
Gas Line				
Low Pressure	mm (in.)	φ38.1 (1-1/2)	φ38.1 (1-1/2)	φ38.1 (1-1/2)
High Pressure	mm (in.)	φ31.75 (1-1/4)	φ31.75 (1-1/4)	φ31.75 (1-1/4)
Refrigerant Charge	kg	28.8	30.3	30.3
Approximate				
Packing Measurement	m ³	-	-	-

NOTES:

1. The cooling and heating performances are the values when combined with our specified indoor units.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
19.0°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 35°C DB (95°F DB)
Piping Length: 7.5 Meters Piping Lift: 0 Meter

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
6°C WB (43°F WB)

2. The sound pressure is based on the following conditions.

1 Meter from the unit service cover surface, and 1.5 Meters from floor level.

The above data is based on the cooling mode. In case of heating mode, the sound pressure level increases by approximately 1~2 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

3. Except for the specified combination in the table (20~54HP), there is no other combination of the base unit.

4. The width of outer dimension, it is the value when each distance between the base outdoor units is specified to 20mm.

Model		RAS-44FSXNQ	RAS-46FSXNQ	RAS-48FSXNQ
Combination of Base Unit		RAS-12FSXNQ RAS-16FSXNQ RAS-18FSXNQ	RAS-12FSXNQ RAS-16FSXNQ RAS-18FSXNQ	RAS-12FSXNQ RAS-18FSXNQ RAS-18FSXNQ
Power Supply		AC 3φ, 380-415V/50Hz, 380V/60Hz, 220V/60Hz		
Nominal Cooling Capacity	kW	125.0	132.0	136.0
Nominal Heating Capacity	kW	140.0	145.0	150.0
EER [Cooling COP] (50/60Hz)		3.20/3.18	3.26/3.24	3.14/3.12
COP [Heating COP] (50/60Hz)		3.81/3.84	3.81/3.84	3.68/3.72
Cabinet Color (Munsell Code)		Ivory White		
Sound Pressure Level		Maximum		
[Overall A Scale] (Night-Shift)	dB	67 (62)	67 (62)	67 (62)
Outer Dimensions				
Height x Width x Depth	mm	1,720 x 3,410 x 765	1,720 x 3,410 x 765	1,720 x 3,410 x 765
Net Weight	kg	229 + 294 + 314	229 + 308 + 314	229 + 314 + 314
Gross Weight	kg	251 + 319 + 340	251 + 334 + 340	251 + 340 + 340
Refrigerant		R410A		
Flow Control		Micro-Computer Control Expansion Valve		
Compressor		Hermetic (Scroll)		
Model		E656DHD + E656DHD + E655DH + E656DHD + E855DH	E656DHD + E656DHD + E655DH + E656DHD + E855DH	E656DHD + E656DHD + E855DH + E656DHD + E855DH
Quantity		1 + 1 + 1 + 1 + 1	1 + 1 + 1 + 1 + 1	1 + 1 + 1 + 1 + 1
Motor Output (Pole)	kW	7.2 (4) + 4.8 (4) + 4.4 (2) + 6.0 (4) + 5.6 (2)	7.2 (4) + 6.0 (4) + 4.4 (2) + 6.0 (4) + 5.6 (2)	7.2 (4) + 6.0 (4) + 5.6 (2) + 6.0 (4) + 5.6 (2)
Refrigeration Oil		FVC68D		
Type				
Charge	L/Unit	21.8	21.8	21.8
Heat Exchanger		Multi-Pass Cross-Finned Tube		
Condenser Fan		Propeller Fan		
Quantity		3	3	3
Air Flow Rate	m ³ /min.	175 + 195 + 195	175 + 195 + 195	175 + 195 + 195
Motor Output (Pole)	kW	0.49 (8) + 0.66 (8) + 0.66 (8)	0.49 (8) + 0.66 (8) + 0.66 (8)	0.49 (8) + 0.66 (8) + 0.66 (8)
Main Refrigerant Piping				
Heat Pump System (2 Pipes)				
Liquid Line	mm (in.)	φ19.05 (3/4)	φ19.05 (3/4)	φ19.05 (3/4)
Gas Line	mm (in.)	φ38.1 (1-1/2)	φ38.1 (1-1/2)	φ38.1 (1-1/2)
Main Refrigerant Piping				
Heat Recovery System (3 Pipes)				
Liquid Line	mm (in.)	φ19.05 (3/4)	φ19.05 (3/4)	φ19.05 (3/4)
Gas Line				
Low Pressure	mm (in.)	φ38.1 (1-1/2)	φ38.1 (1-1/2)	φ38.1 (1-1/2)
High Pressure	mm (in.)	φ31.75 (1-1/4)	φ31.75 (1-1/4)	φ31.75 (1-1/4)
Refrigerant Charge	kg	29.4	30.9	30.9
Approximate Packing Measurement	m ³	-	-	-

NOTES:

1. The cooling and heating performances are the values when combined with our specified indoor units.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)

19.0°C WB (66.2°F WB)

Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Piping Length: 7.5 Meters

Piping Lift: 0 Meter

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)

7°C DB (45°F DB)

6°C WB (43°F WB)

2. The sound pressure is based on the following conditions.

1 Meter from the unit service cover surface, and 1.5 Meters from floor level.

The above data is based on the cooling mode. In case of heating mode, the sound pressure level increases by approximately 1~2 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

3. Except for the specified combination in the table (20~54HP), there is no other combination of the base unit.

4. The width of outer dimension, it is the value when each distance between the base outdoor units is specified to 20mm.

GENERAL DATA

Model		RAS-50FSXNQ	RAS-52FSXNQ	RAS-54FSXNQ
Combination of Base Unit		RAS-14FSXNQ RAS-18FSXNQ RAS-18FSXNQ	RAS-16FSXNQ RAS-18FSXNQ RAS-18FSXNQ	RAS-18FSXNQ RAS-18FSXNQ RAS-18FSXNQ
Power Supply		AC 3 ϕ , 380-415V/50Hz, 380V/60Hz, 220V/60Hz		
Nominal Cooling Capacity	kW	140.0	145.0	150.0
Nominal Heating Capacity	kW	155.0	160.0	165.0
EER [Cooling COP] (50/60Hz)		3.08/3.06	3.09/3.07	3.01/3.00
COP [Heating COP] (50/60Hz)		3.70/3.74	3.70/3.75	3.59/3.64
Cabinet Color (Munsell Code)		Ivory White		
Sound Pressure Level [Overall A Scale] (Night-Shift)	dB	67 (62)	67 (62)	68 (63)
Outer Dimensions				
Height x Width x Depth	mm	1,720 x 3,670 x 765	1,720 x 3,670 x 765	1,720 x 3,670 x 765
Net Weight	kg	294 + 314 + 314	308 + 314 + 314	314 + 314 + 314
Gross Weight	kg	319 + 340 + 340	334 + 340 + 340	340 + 340 + 340
Refrigerant		R410A		
Flow Control		Micro-Computer Control Expansion Valve		
Compressor		Hermetic (Scroll)		
Model		E656DHD + E655DH + E656DHD + E855DH + E656DHD + E855DH	E656DHD + E655DH + E656DHD + E855DH + E656DHD + E855DH	E656DHD + E855DH + E656DHD + E855DH + E656DHD + E855DH
Quantity		1 + 1 + 1 + 1 + 1 + 1	1 + 1 + 1 + 1 + 1 + 1	1 + 1 + 1 + 1 + 1 + 1
Motor Output (Pole)	kW	4.8 (4) + 4.4 (2) + 6.0 (4) + 5.6 (2) + 6.0 (4) + 5.6 (2)	6.0 (4) + 4.4 (2) + 6.0 (4) + 5.6 (2) + 6.0 (4) + 5.6 (2)	6.0 (4) + 5.6 (2) + 6.0 (4) + 5.6 (2) + 6.0 (4) + 5.6 (2)
Refrigeration Oil		FVC68D		
Type				
Charge	L/Unit	23.7	23.7	23.7
Heat Exchanger		Multi-Pass Cross-Finned Tube		
Condenser Fan		Propeller Fan		
Quantity		3	3	3
Air Flow Rate	m ³ /min.	195 + 195 + 195	195 + 195 + 195	195 + 195 + 195
Motor Output (Pole)	kW	0.66 (8) + 0.66 (8) + 0.66 (8)	0.66 (8) + 0.66 (8) + 0.66 (8)	0.66 (8) + 0.66 (8) + 0.66 (8)
Main Refrigerant Piping				
Heat Pump System (2 Pipes)				
Liquid Line	mm (in.)	φ19.05 (3/4)	φ19.05 (3/4)	φ19.05 (3/4)
Gas Line	mm (in.)	φ38.1 (1-1/2)	φ38.1 (1-1/2)	φ38.1 (1-1/2)
Main Refrigerant Piping				
Heat Recovery System (3 Pipes)				
Liquid Line	mm (in.)	φ19.05 (3/4)	φ19.05 (3/4)	φ19.05 (3/4)
Gas Line				
Low Pressure	mm (in.)	φ38.1 (1-1/2)	φ38.1 (1-1/2)	φ38.1 (1-1/2)
High Pressure	mm (in.)	φ31.75 (1-1/4)	φ31.75 (1-1/4)	φ31.75 (1-1/4)
Refrigerant Charge	kg	30.0	31.5	31.5
Approximate Packing Measurement	m ³	-	-	-

NOTES:

1. The cooling and heating performances are the values when combined with our specified indoor units.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
19.0°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 35°C DB (95°F DB)
Piping Length: 7.5 Meters Piping Lift: 0 Meter

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
7°C DB (45°F DB)
Outdoor Air Inlet Temperature: 6°C WB (43°F WB)

2. The sound pressure is based on the following conditions.

1 Meter from the unit service cover surface, and 1.5 Meters from floor level.

The above data is based on the cooling mode. In case of heating mode, the sound pressure level increases by approximately 1~2 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

3. Except for the specified combination in the table (20~54HP), there is no other combination of the base unit.

4. The width of outer dimension, it is the value when each distance between the base outdoor units is specified to 20mm.

2.2 CH Units

Model		CH-6.0N1	CH-10.0N1
Nominal Capacity	HP	HP ≤ 6	6 < HP ≤ 10
No. Max. of Indoor Unit	-	7	8
Electrical Consumption	W	20	20
Outer Dimensions			
Height	mm	191	191
Width	mm	301	301
Depth	mm	214	214
Net Weight	kg	7	7
Refrigerant	-	R410A (Nitrogen Charged in Factory for Corrosion-Resistance)	
Refrigerant Piping Connections	-	Flare Nut and/or Flange Connection (Factory Supplied)	
Refrigerant Piping from Outdoor Unit *		Flare-Nut Connection (with Flare Nuts)	
Liquid Line	-	-	
Gas Line			
Low Pressure	mm (in.)	φ15.88 (5/8) - φ19.05 (3/4)	φ19.05 (3/4) - φ22.2 (7/8)
High Pressure	mm (in.)	φ12.7 (1/2) - φ15.88 (5/8)	φ15.88 (5/8) - φ19.05 (3/4)
Refrigerant Piping from Indoor Unit *			
Liquid Line	-	-	
Gas Line	mm (in.)	φ12.7 (1/2) - φ15.88 (5/8)	φ19.05 (3/4) - φ22.2 (7/8)

* The refrigerant piping size depends on the indoor unit total capacity connected downstream of the CH unit.

3. Component Data

Outdoor Heat Exchanger and Fan

Model		RAS-8FSXNQ	RAS-10FSXNQ	RAS-12FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ
Heat Exchanger Type		Multi-Pass Cross Finned Tube					
Tube Material		Copper Tube					
Outer Diameter	φmm	7.0	7.0	7.0	7.0	7.0	7.0
Rows		2	2	3	2	3	3
Number of Tube/Coil		136	136	204	136	204	204
Fin Material		Aluminum					
Pitch	mm	1.7	1.7	1.7	1.7	1.7	1.7
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15	4.15	4.15
Total Face Area	m ²	2.44	2.44	2.44	2.80	2.80	2.80
Number of Coil/Unit		1	1	1	1	1	1
Outdoor Fan		Large Diameter Fan (Propeller Fan)					
Number/Unit		1	1	1	1	1	1
Outer Diameter	mm	644	644	644	644	644	644
Revolution	rpm	750	825	850	930	930	930
Nominal Air Flow	m ³ /min.	155	170	175	195	195	195
Outdoor Fan Motor		Drip-Proof Type Enclosure					
Starting Method		DC Motor					
Nominal Output	W	330	440	490	660	660	660
Quantity		1	1	1	1	1	1
Insulation Class		E	E	E	E	E	E

Model		RAS-20FSXNQ	RAS-22FSXNQ	RAS-24FSXNQ	RAS-26FSXNQ	RAS-28FSXNQ	RAS-30FSXNQ
Heat Exchanger Type		Multi-Pass Cross Finned Tube					
Tube Material		Copper Tube					
Outer Diameter	φmm	7.0	7.0	7.0	7.0	7.0	7.0
Rows		2 + 3	2 + 2	2 + 2	3 + 2	2 + 2	2 + 3
Number of Tube/Coil		136 + 204	136 + 136	136 + 136	204 + 136	136 + 136	136 + 204
Fin Material		Aluminum					
Pitch	mm	1.7	1.7	1.7	1.7	1.7	1.7
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15	4.15	4.15
Total Face Area	m ²	2.44 + 2.44	2.44 + 2.80	2.44 + 2.80	2.44 + 2.80	2.80 + 2.80	2.80 + 2.80
Number of Coil/Unit		2	2	2	2	2	2
Outdoor Fan		Large Diameter Fan (Propeller Fan)					
Number/Unit		2	2	2	2	2	2
Outer Diameter	mm	644 + 644	644 + 644	644 + 644	644 + 644	644 + 644	644 + 644
Revolution	rpm	750 + 850	750 + 930	825 + 930	850 + 930	930 + 930	930 + 930
Nominal Air Flow	m ³ /min.	155 + 175	155 + 195	170 + 195	175 + 195	195 + 195	195 + 195
Outdoor Fan Motor		Drip-Proof Type Enclosure					
Starting Method		DC Motor					
Nominal Output	W	330 + 490	330 + 660	440 + 660	490 + 660	660 + 660	660 + 660
Quantity		2	2	2	2	2	2
Insulation Class		E + E	E + E	E + E	E + E	E + E	E + E

Outdoor Heat Exchanger and Fan

Model		RAS-32FSXNQ	RAS-34FSXNQ	RAS-36FSXNQ	RAS-38FSXNQ	RAS-40FSXNQ	RAS-42FSXNQ
Heat Exchanger Type		Multi-Pass Cross Finned Tube					
Tube Material		Copper Tube					
Outer Diameter	φmm	7.0	7.0	7.0	7.0	7.0	7.0
Rows		2 + 2	2 + 3	3 + 3	3 + 3 + 2	3 + 3 + 3	3 + 3 + 3
Number of Tube/Coil		136 + 136	136 + 204	204 + 204	204 + 204 + 136	204 + 204 + 204	204 + 204 + 204
Fin Material		Aluminum					
Pitch	mm	1.7	1.7	1.7	1.7	1.7	1.7
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15	4.15	4.15
Total Face Area	m ²	2.80 + 2.80	2.80 + 2.80	2.80 + 2.80	2.44 + 2.44 + 2.80	2.44 + 2.44 + 2.80	2.44 + 2.44 + 2.80
Number of Coil/Unit		2	2	2	3	3	3
Outdoor Fan		Large diameter Fan (Propeller Fan)					
Number/Unit		2	2	2	3	3	3
Outer Diameter	mm	644 + 644	644 + 644	644 + 644	644 + 644 + 644	644 + 644 + 644	644 + 644 + 644
Revolution	rpm	930 + 930	930 + 930	930 + 930	850 + 850 + 930	850 + 850 + 930	850 + 850 + 930
Nominal Air Flow	m ³ /min.	195 + 195	195 + 195	195 + 195	175 + 175 + 195	175 + 175 + 195	175 + 175 + 195
Outdoor Fan Motor		Drip-Proof Type Enclosure					
Starting Method		DC Motor					
Nominal Output	W	660 + 660	660 + 660	660 + 660	490 + 490 + 660	490 + 490 + 660	490 + 490 + 660
Quantity		2	2	2	3	3	3
Insulation Class		E + E	E + E	E + E	E + E + E	E + E + E	E + E + E

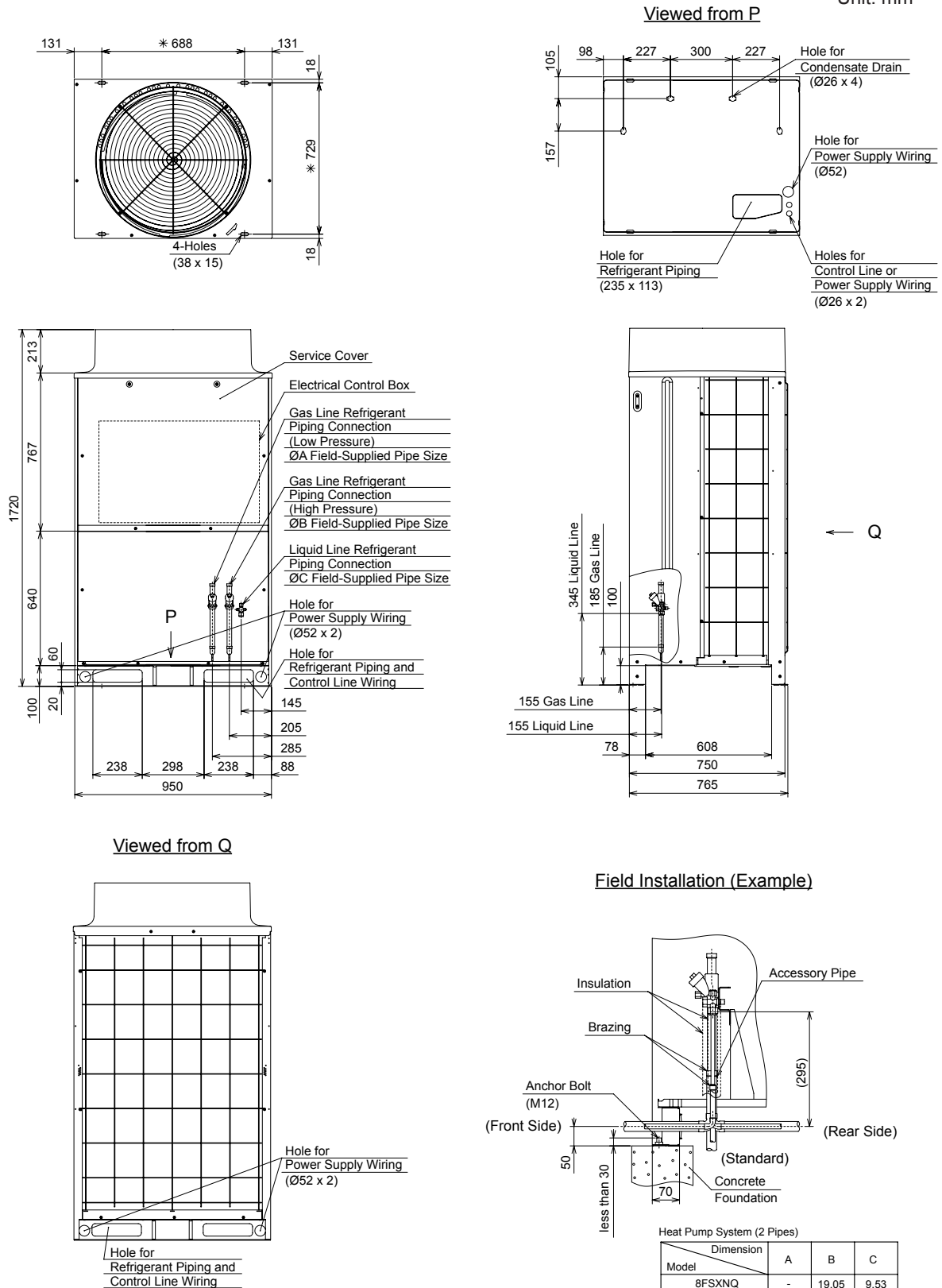
Model		RAS-44FSXNQ	RAS-46FSXNQ	RAS-48FSXNQ	RAS-50FSXNQ	RAS-52FSXNQ	RAS-54FSXNQ
Heat Exchanger Type		Multi-Pass Cross Finned Tube					
Tube Material		Copper Tube					
Outer Diameter	φmm	7.0	7.0	7.0	7.0	7.0	7.0
Rows		3 + 2 + 3	3 + 3 + 3	3 + 3 + 3	2 + 3 + 3	3 + 3 + 3	3 + 3 + 3
Number of Tube/Coil		204 + 136 + 204	204 + 204 + 204	204 + 204 + 204	136 + 204 + 204	204 + 204 + 204	204 + 204 + 204
Fin Material		Aluminum					
Pitch	mm	1.7	1.7	1.7	1.7	1.7	1.7
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15	4.15	4.15
Total Face Area	m ²	2.44 + 2.80 + 2.80	2.44 + 2.80 + 2.80	2.44 + 2.80 + 2.80	2.80 + 2.80 + 2.80	2.80 + 2.80 + 2.80	2.80 + 2.80 + 2.80
Number of Coil/Unit		3	3	3	3	3	3
Outdoor Fan		Large diameter Fan (Propeller Fan)					
Number/Unit		3	3	3	3	3	3
Outer Diameter	mm	644 + 644 + 644	644 + 644 + 644	644 + 644 + 644	644 + 644 + 644	644 + 644 + 644	644 + 644 + 644
Revolution	rpm	850 + 930 + 930	850 + 930 + 930	850 + 930 + 930	930 + 930 + 930	930 + 930 + 930	930 + 930 + 930
Nominal Air Flow	m ³ /min.	175 + 195 + 195	175 + 195 + 195	175 + 195 + 195	195 + 195 + 195	195 + 195 + 195	195 + 195 + 195
Outdoor Fan Motor		Drip-Proof Type Enclosure					
Starting Method		DC Motor					
Nominal Output	W	490 + 660 + 660	490 + 660 + 660	490 + 660 + 660	660 + 660 + 660	660 + 660 + 660	660 + 660 + 660
Quantity		3	3	3	3	3	3
Insulation Class		E + E + E	E + E + E	E + E + E	E + E + E	E + E + E	E + E + E

4. Dimensional Data

4.1 Outdoor Units

Model: RAS-8FSXNQ, RAS-10FSXNQ and RAS-12FSXNQ

Unit: mm



NOTES:

- Drain water is discharged from the unit during the operation.
 - Choose a place where well drainage is available. Provide a groove for drain.
 - Do not provide an upward slope from the unit to avoid reverse flow of the drain. Provide a second drain pan under the outdoor unit, to collect drain water securely.
 - Do not use the drain boss (optional) in a cold area. (Drain water in the drain pipe may be frozen and the drain pipe may crack.)
- The dimensions marked with * indicates the mounting pitch dimension for anchor bolts.

Heat Pump System (2 Pipes)

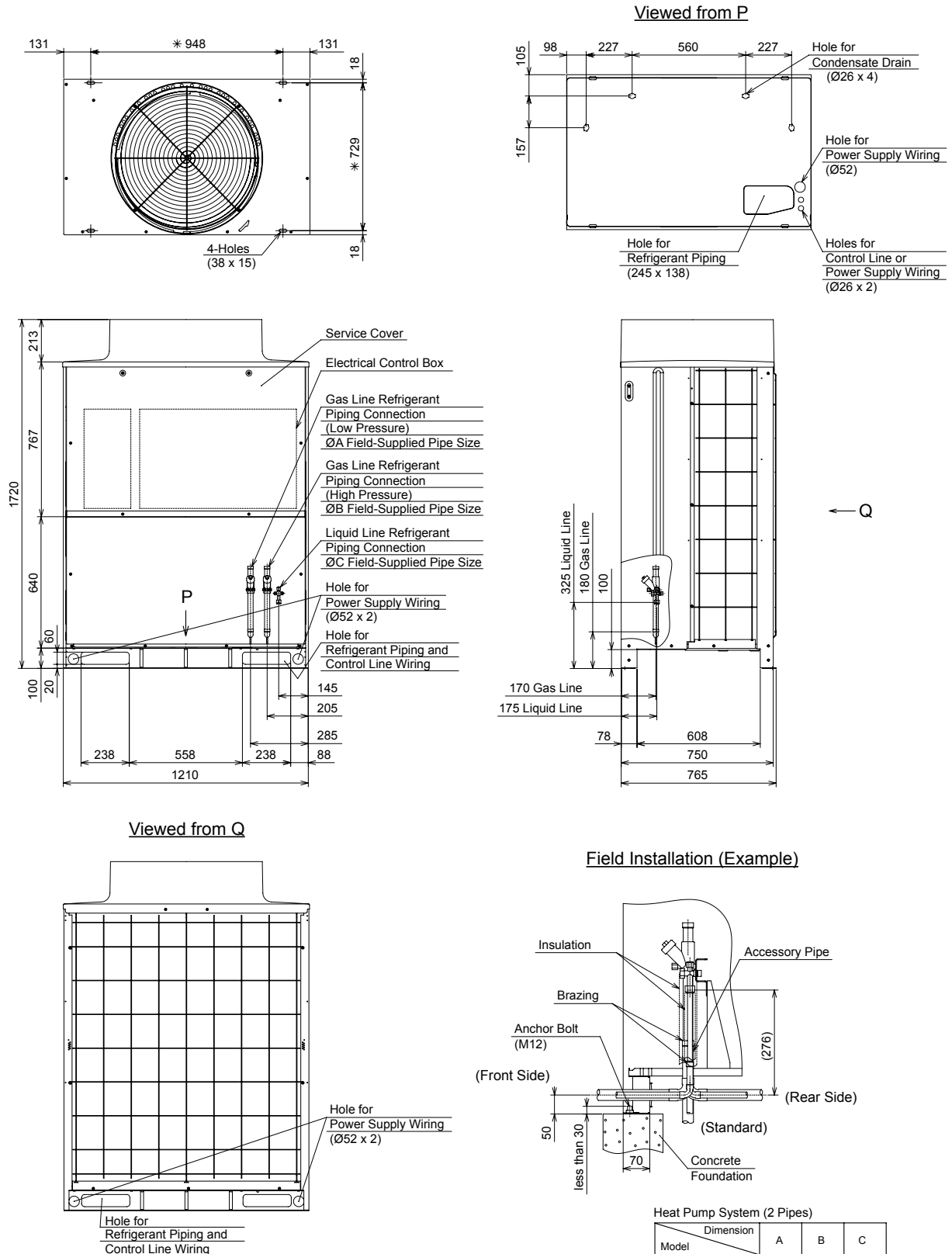
Model	Dimension	A	B	C
8FSXNQ	-	19.05	9.53	
10FSXNQ	-	22.2	9.53	
12FSXNQ	-	25.4	12.7	

Heat Recovery System (3 Pipes)

Model	Dimension	A	B	C
8FSXNQ	19.05	15.88	9.53	
10FSXNQ	22.2	19.05	9.53	
12FSXNQ	25.4	22.2	12.7	

Model: RAS-14FSXNQ, RAS-16FSXNQ and RAS-18FSXNQ

Unit: mm



NOTES:

- Drain water is discharged from the unit during the operation.
 - Choose a place where well drainage is available. Provide a groove for drain.
 - Do not provide an upward slope from the unit to avoid reverse flow of the drain. Provide a second drain pan under the outdoor unit, to collect drain water securely.
 - Do not use the drain boss (optional) in a cold area. (Drain water in the drain pipe may be frozen and the drain pipe may crack.)
- The dimensions marked with * indicates the mounting pitch dimension for anchor bolts.

Heat Pump System (2 Pipes)

Model	Dimension	A	B	C
14FSXNQ	-	25.4	12.7	
16FSXNQ	-	28.6	12.7	
18FSXNQ	-	28.6	15.88	

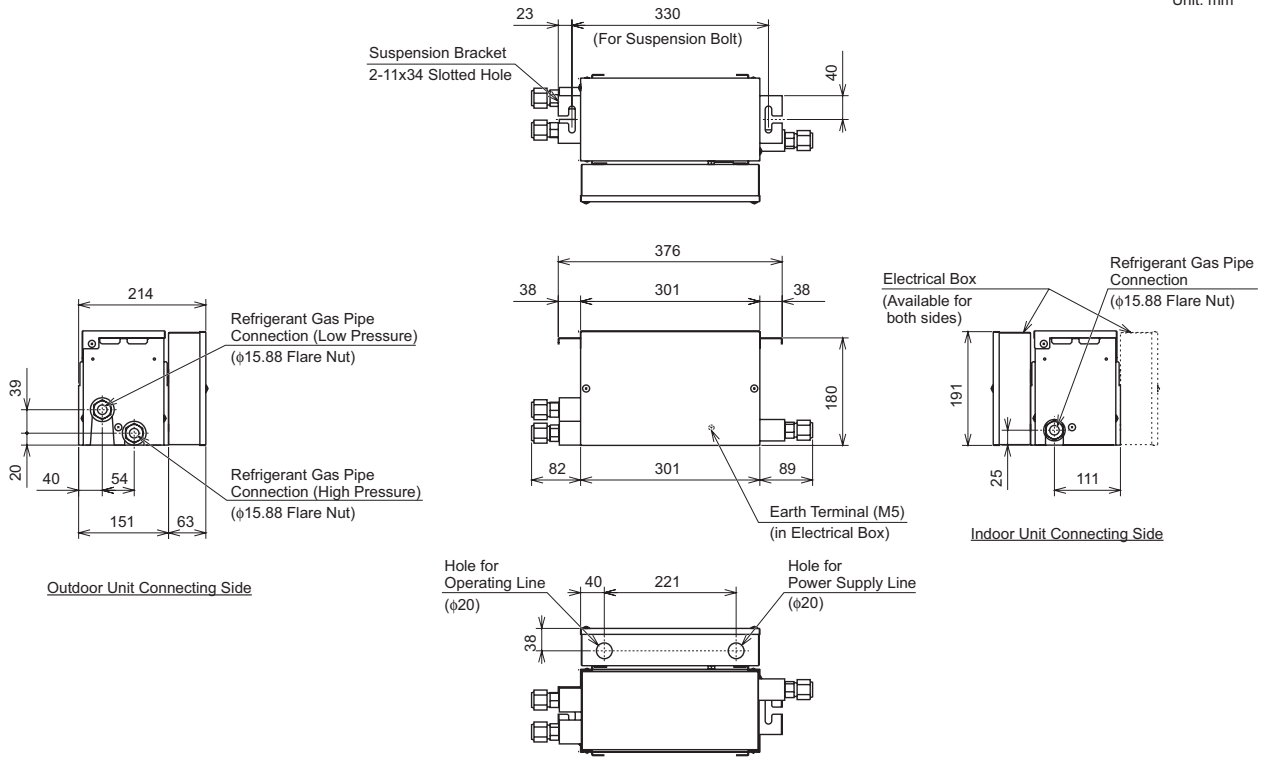
Heat Recovery System (3 Pipes)

Model	Dimension	A	B	C
14FSXNQ	25.4	22.2	12.7	
16FSXNQ	28.6	22.2	12.7	
18FSXNQ	28.6	22.2	15.88	

4.2 CH Units

Model: CH-6.0N1

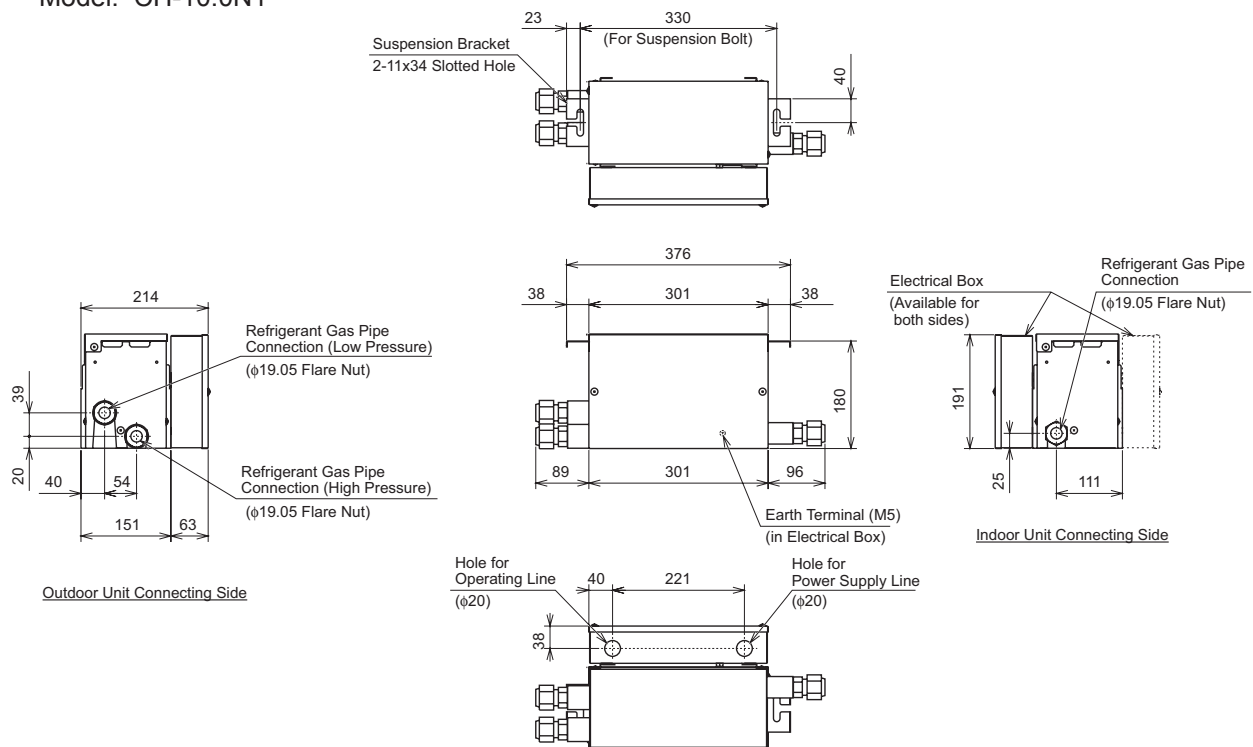
Unit: mm



Specification

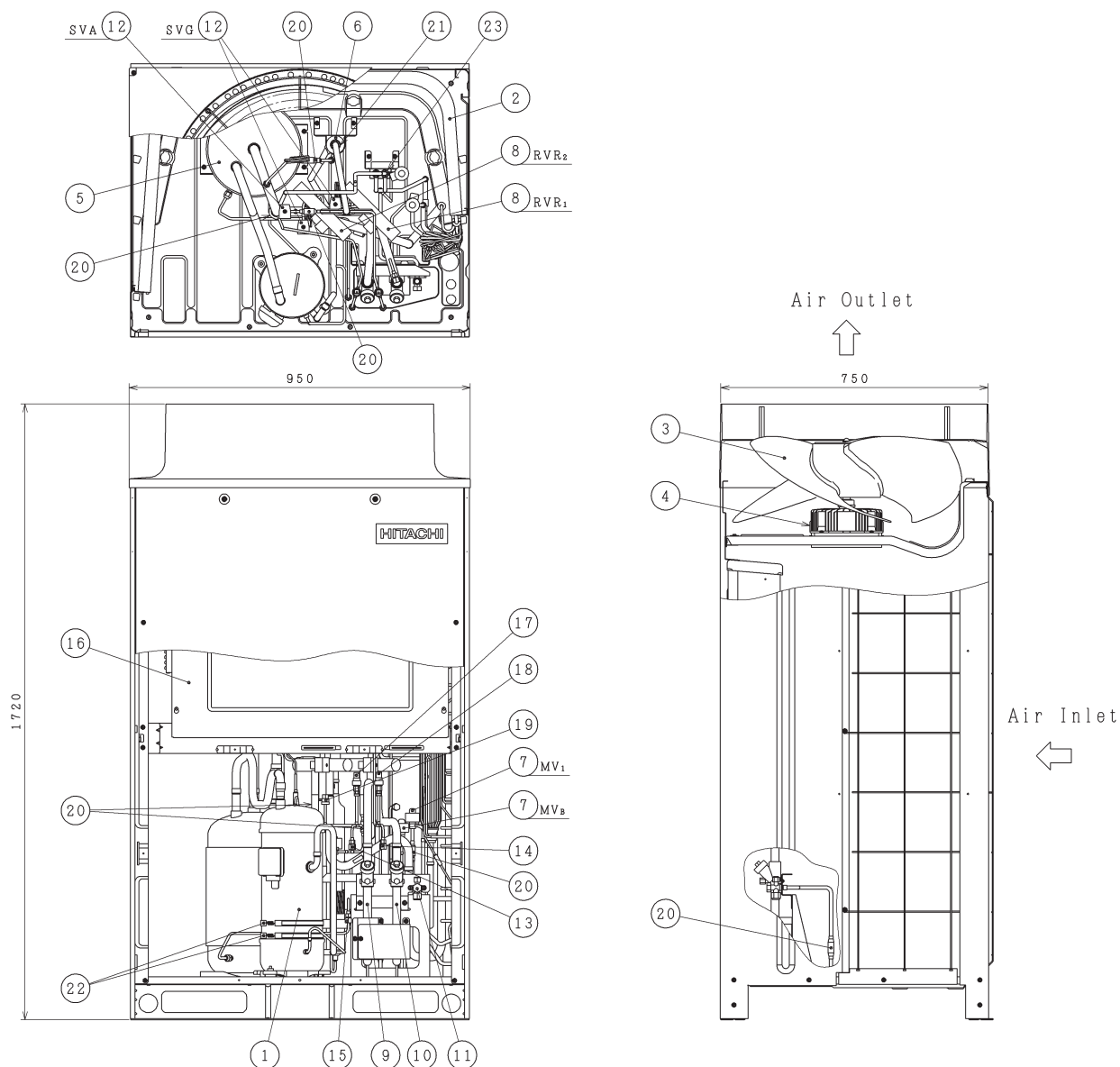
Model	CH-6.0N1	CH-10.0N1
Power Supply	AC 1 Φ 220-240V 50/60Hz	
Refrigerant	R410A	
Input (W)	20	
Connectable Indoor Unit Total Capacity	less than 6.0HP	6.1 to 10.0HP
Number of Connectable Indoor Unit	1 to 7	1 to 8
Net Weight (kg)	7	

Model: CH-10.0N1



5. Structure

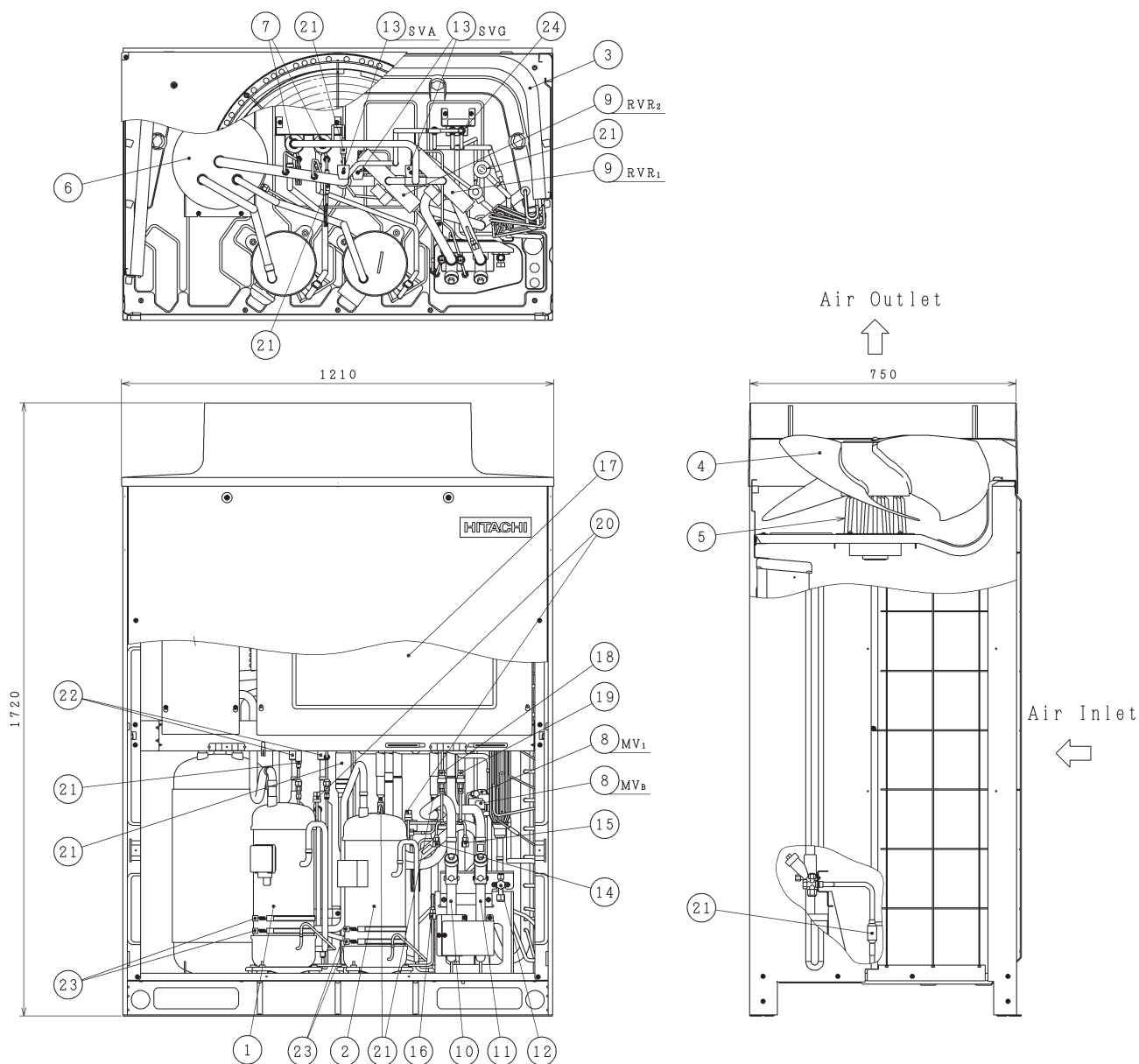
Model: RAS-8FSXNQ, RAS-10FSXNQ and RAS-12FSXNQ



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

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

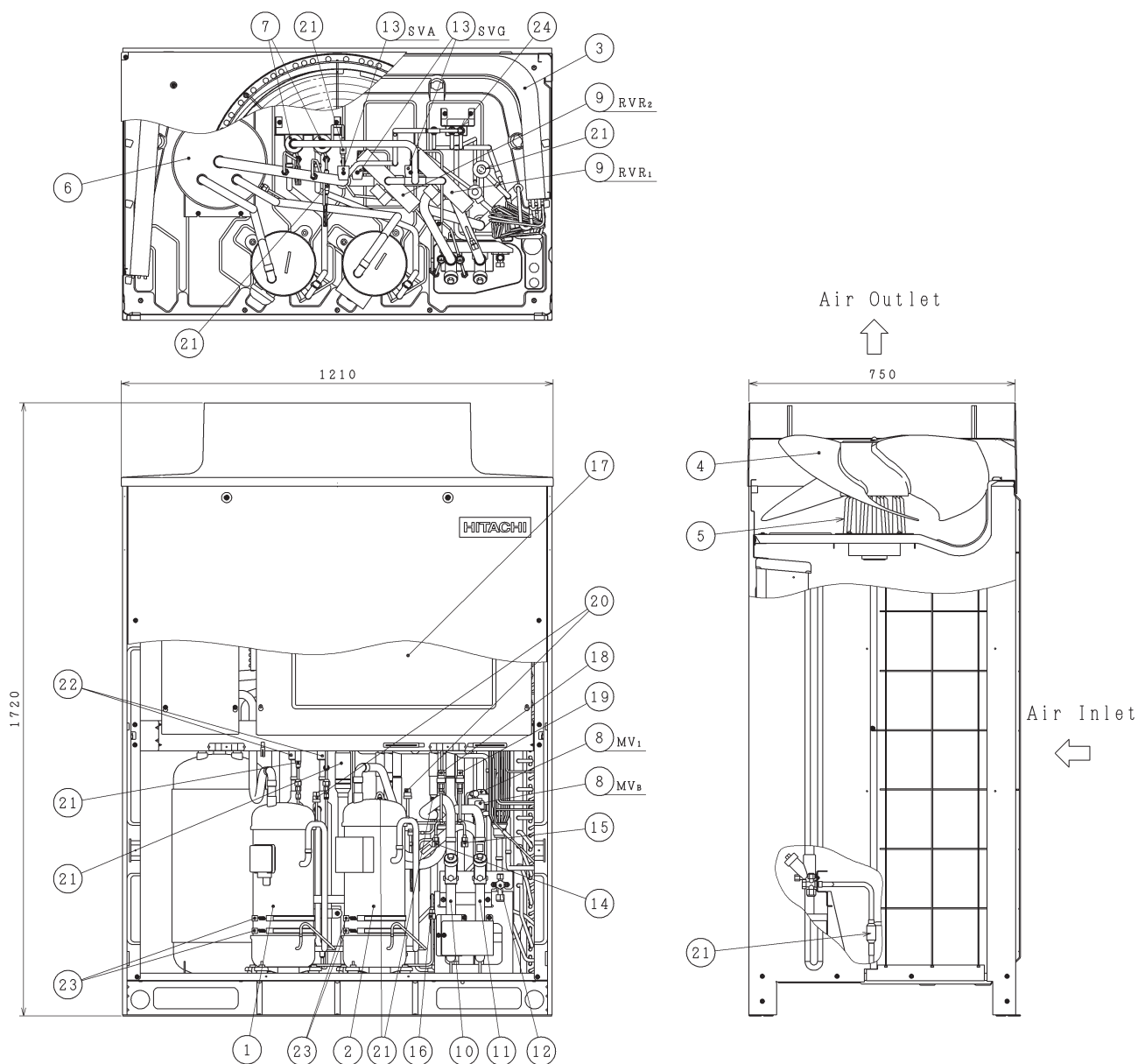
Model: RAS-14FSXNQ and RAS-16FSXNQ



No.	Part Name
1	Compressor (Inverter)
2	Compressor (Constant Speed)
3	Heat Exchanger
4	Propeller Fan
5	Fan Motor
6	Accumulator
7	Oil Separator
8	Micro-Computer Control Expansion Valve (2pcs.)
9	Reversing Valve (2pcs.)
10	Stop Valve (Low Pressure Gas)
11	Stop Valve (High Pressure Gas)
12	Stop Valve (Liquid)

No.	Part Name
13	Solenoid Valve (3pcs.)
14	Check Joint (Low)
15	Check Joint (High)
16	Check Joint (for Oil)
17	Electrical Box
18	Low Pressure Sensor
19	High Pressure Sensor
20	High Pressure Switch for Protection (2pcs.)
21	Strainer (8pcs.)
22	Check Valve (2pcs.)
23	Crankcase Heater (4pcs.)
24	Double Tube Type Heat Exchanger

Model: RAS-18FSXNQ



No.	Part Name
1	Compressor (Inverter)
2	Compressor (Constant Speed)
3	Heat Exchanger
4	Propeller Fan
5	Fan Motor
6	Accumulator
7	Oil Separator
8	Micro-Computer Control Expansion Valve (2pcs.)
9	Reversing Valve (2pcs.)
10	Stop Valve (Low Pressure Gas)
11	Stop Valve (High Pressure Gas)
12	Stop Valve (Liquid)

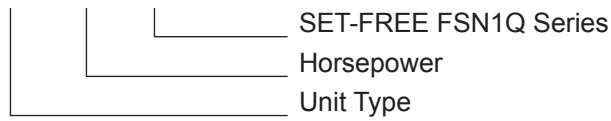
No.	Part Name
13	Solenoid Valve (3pcs.)
14	Check Joint (Low)
15	Check Joint (High)
16	Check Joint (for Oil)
17	Electrical Box
18	Low Pressure Sensor
19	High Pressure Sensor
20	High Pressure Switch for Protection (2pcs.)
21	Strainer (8pcs.)
22	Check Valve (2pcs.)
23	Crankcase Heater (4pcs.)
24	Double Tube Type Heat Exchanger

6. Selection Data

6.1 Selection Guide

(1) Meaning of Model Name of Indoor Unit

Example: RCI - 1.5 FSN1Q



In-the-Ceiling Type	RPI
Low-Height In-the-Ceiling Type	RPIZ
4-Way Cassette Type	RCI
2-Way Cassette Type	RCD
Wall Type	RPK
Floor Concealed Type	RPFI

NOTE:

Select the indoor units and outdoor unit so as the total indoor horsepower is near to the outdoor horsepower.

(2) Nominal Capacity of Indoor Units

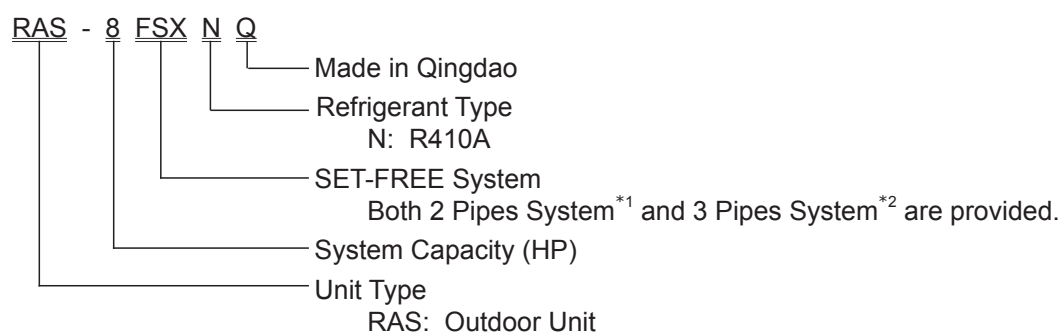
Horsepower(HP) Capacity		0.8	1.0	1.3	1.5	1.8	2.0	2.3	2.5
Cooling Capacity	kW	2.2	2.8	3.6	4.3	5.0	5.6	6.3	7.1
	kcal/h	1,900	2,400	3,100	3,700	4,300	4,800	5,400	6,100
	Btu/h	7,500	9,600	12,300	14,700	17,000	19,100	21,500	24,200
Heating Capacity	kW	2.5	3.3	4.2	4.9	5.6	6.5	7.5	8.5
	kcal/h	2,100	2,800	3,600	4,200	4,800	5,600	6,500	7,300
	Btu/h	8,500	11,100	14,300	16,700	19,100	22,200	25,600	29,000

Horsepower(HP) Capacity		3.0	3.3	4.0	5.0	6.0	8.0	10.0
Cooling Capacity	kW	8.4	9.0	11.2	14.2	16.0	22.4	28.0
	kcal/h	7,200	7,700	9,600	12,200	13,800	19,300	24,100
	Btu/h	28,700	31,700	38,000	48,400	54,600	76,400	95,500
Heating Capacity	kW	9.6	10.0	13.0	16.3	18.0	25.0	31.5
	kcal/h	8,300	8,600	11,200	14,000	15,500	21,500	27,100
	Btu/h	32,800	34,100	44,400	55,500	61,400	85,300	107,500

Capacity Adjustment by Dip Switch Setting

Horsepower (HP)		1.3	1.8	2.3
Variable Capacity		1.3 ← 1.5	1.8 ← 2.0	2.3 ← 2.5
Cooling Capacity	kW	3.8	5.2	6.7
	kcal/h	3,300	4,500	5,800
	Btu/h	13,000	17,800	22,900
Heating Capacity	kW	4.2	5.6	7.5
	kcal/h	3,600	4,800	6,500
	Btu/h	14,300	19,100	25,600
Applicable Model		RPI, RPIZ, RCI RCD, RPK, RPFI	RPI, RPIZ, RCI RCD, RPK	RPI, RPI RCI RCD,
Indoor Unit Dip Switch Setting (DSW3)		1.3HP ← 1.5HP Lowered Standard	1.8HP ← 2.0HP Lowered Standard	2.3HP ← 2.5HP Lowered Standard

(3) Meaning of Model Name of Outdoor Unit



(4) Nominal Capacity of Outdoor Unit

Model		RAS-8FSXNQ	RAS-10FSXNQ	RAS-12FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ
Horsepower (HP)		8	10	12	14	16	18
Cooling Capacity	kW	22.4	28.0	33.5	40.0	45.0	50.0
	kcal/h	19,300	24,100	28,800	34,400	38,700	42,900
	Btu/h	76,400	95,500	114,300	136,500	153,500	170,000
Heating Capacity	kW	25.0	31.5	37.5	45.0	50.0	56.0
	kcal/h	21,500	27,100	32,200	38,700	43,000	48,100
	Btu/h	85,300	107,500	128,000	153,500	170,600	191,100

Model		RAS-20FSXNQ	RAS-22FSXNQ	RAS-24FSXNQ	RAS-26FSXNQ	RAS-28FSXNQ	RAS-30FSXNQ
Horsepower (HP)		20	22	24	26	28	30
Cooling Capacity	kW	56.0	61.5	69.0	73.0	80.0	85.0
	kcal/h	48,100	52,800	59,300	62,700	68,800	73,100
	Btu/h	191,100	210,000	235,400	249,100	273,000	290,000
Heating Capacity	kW	63.0	69.0	77.5	82.5	90.0	95.0
	kcal/h	54,100	59,300	66,600	70,900	77,400	81,700
	Btu/h	215,000	235,000	264,400	281,500	307,100	324,100

Model		RAS-32FSXNQ	RAS-34FSXNQ	RAS-36FSXNQ	RAS-38FSXNQ	RAS-40FSXNQ	RAS-42FSXNQ
Horsepower (HP)		32	34	36	38	40	42
Cooling Capacity	kW	90.0	95.0	100.0	109.0	112.0	118.0
	kcal/h	77,400	81,700	86,000	93,800	96,300	101,600
	Btu/h	307,100	324,200	341,200	371,900	382,200	402,600
Heating Capacity	kW	100.0	106.0	112.0	118.0	125.0	132.0
	kcal/h	86,000	91,200	96,300	101,500	107,600	113,600
	Btu/h	341,200	361,700	382,200	402,600	426,500	450,400

Model		RAS-44FSXNQ	RAS-46FSXNQ	RAS-48FSXNQ	RAS-50FSXNQ	RAS-52FSXNQ	RAS-54FSXNQ
Horsepower (HP)		44	46	48	50	52	54
Cooling Capacity	kW	125.0	132.0	136.0	140.0	145.0	150.0
	kcal/h	107,500	113,500	117,000	120,400	124,700	129,000
	Btu/h	426,500	450,400	464,000	477,700	494,700	511,800
Heating Capacity	kW	140.0	145.0	150.0	155.0	160.0	165.0
	kcal/h	120,400	124,700	129,000	133,300	137,600	141,900
	Btu/h	477,700	494,700	511,800	528,800	545,900	563,000

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

(5) Outdoor Unit Capacity at Nominal Temperature

If the total indoor unit horsepower is not same to the outdoor unit horsepower, refer to the item 6.2 "Capacity Characteristic Curve".

SELECTION DATA

(6) Given Condition (Example)

Total Load for Each Room

Item		Room (1)	Room (2)	Room (3)	Room (4)
Estimated Cooling Load	kW	4.24	5.35	5.35	6.36
	kcal/h	3,650	4,600	4,600	5,472
Estimated Heating Load	kW	4.77	6.00	6.00	7.16
	kcal/h	4,100	5,160	5,160	6,160

Item		Room (5)	Room (6)	Room (7)
Estimated Cooling Load	kW	8.48	10.6	10.6
	kcal/h	7,295	9,119	9,119
Estimated Heating Load	kW	9.54	11.9	11.9
	kcal/h	8,207	10,238	10,238

Temperature Condition

Cooling	Heating
Outdoor Coil Air Inlet Dry Bulb: 30°C	Outdoor Coil Air Inlet Dry Bulb: 1°C
Indoor Coil Air Inlet Dry Bulb: 27°C	Indoor Coil Air Inlet Wet Bulb: 0°C
Wet Bulb: 19°C	Dry Bulb: 20°C

< Heat Pump System (2 Pipes) >

Equivalent Piping Length between Indoor Units and Outdoor Unit: 60m

Piping Lift: 20m

(Gas Piping Size: Normal, Refer to the item 6.7 "Correction Factor According to Piping Length")

Correction Factor of Cooling Capacity = 0.90

Correction Factor of Heating Capacity = 0.96

Power Source: 50Hz

(7) Selecting Matching Indoor Units and Nominal Capacity

Select In-the-Ceiling Type Indoor Units (Example)

Item		Room (1)	Room (2)	Room (3)	Room (4)	Room (5)
Selected Model		RPI-2.0FSNQL	RPI-2.5FSNQL	RPI-2.5FSNQL	RPI-3.0FSNQL	RPI-4.0FSNQL
Nominal Cooling Capacity	kW	5.6	7.1	7.1	8.4	11.2
	kcal/h	4,800	6,100	6,100	7,200	9,600
Nominal Heating Capacity	kW	6.5	8.5	8.5	9.6	13.0
	kcal/h	5,600	7,300	7,300	8,300	11,200

Item		Room (6)	Room (7)	(1)+(2)+(3)+(4) +(5)+(6)+(7)	Outdoor Unit
Selected Model		RPI-5.0FSNQL	RPI-5.0FSNQL	-	RAS-22FSXNQ
Nominal Cooling Capacity	kW	14.2	14.2	67.8	61.5
	kcal/h	12,200	12,200	58,200	52,800
Nominal Heating Capacity	kW	16.3	16.3	78.7	69.0
	kcal/h	14,000	14,000	67,700	59,300

(8) Actual Capacity

In the case of the example, the total indoor horsepower is 24HP

(=2.0HP+2.5HP×2+3.0HP+4.0HP+5.0HP×2).

Therefore, the outdoor unit capacity at the nominal temperature which is selected from the "Capacity Characteristic Curve" is 61.5kW (52,890kcal/h) at the cooling operation, 69.0kW (59,340kcal/h) at the heating operation under nominal conditions.

a) Actual Capacity of Outdoor Unit

Maximum Actual Capacity of Outdoor Unit

$$= [\text{Outdoor Unit Capacity at Nominal Temperature} \\ \times \text{Correction Factor According to Total Indoor Unit Capacity} \\ \times \text{Correction Factor According to Piping Length and Lift} \\ \times \text{Correction Factor According to Temperature Condition}]$$

Refer to the table in item 6.3, 6.4, 6.5 and 6.6 for Correction Factor according to the temperature condition.

Cooling: $[61.5\text{kW} (52,890\text{kcal/h})] \times 0.90 \times 1.00 = 55.4\text{kW} (47,600\text{kcal/h})$

Heating: $[69.0\text{kW} (59,340\text{kcal/h})] \times 0.96 \times 0.90 = 59.6\text{kW} (51,270\text{kcal/h})$

b) Actual Capacity of Each Indoor Unit

Actual Capacity of Each Indoor Unit

$$= \text{Actual Capacity of Outdoor Unit} \\ \times [\text{Each Indoor Unit's Horsepower} \\ \div \text{Summation of Each Indoor Unit Horsepower}]$$

ex.

<RPI-2.0FSNQL>

Cooling Capacity: $55.4 \times (2.0[\text{HP}] \div (2.0[\text{HP}] + 2.5[\text{HP}] \times 2 + 3.0[\text{HP}] + 4.0[\text{HP}] + 5.0[\text{HP}] \times 2)) = 4.62\text{kW} (3,967\text{kcal/h})$

Heating Capacity: $59.6 \times (2.0[\text{HP}] \div (2.0[\text{HP}] + 2.5[\text{HP}] \times 2 + 3.0[\text{HP}] + 4.0[\text{HP}] + 5.0[\text{HP}] \times 2)) = 4.97\text{kW} (4,273\text{kcal/h})$

<RPI-2.5FSNQL>

Cooling Capacity: $55.4 \times (2.5[\text{HP}] \div (2.0[\text{HP}] + 2.5[\text{HP}] \times 2 + 3.0[\text{HP}] + 4.0[\text{HP}] + 5.0[\text{HP}] \times 2)) = 5.77\text{kW} (4,958\text{kcal/h})$

Heating Capacity: $59.6 \times (2.5[\text{HP}] \div (2.0[\text{HP}] + 2.5[\text{HP}] \times 2 + 3.0[\text{HP}] + 4.0[\text{HP}] + 5.0[\text{HP}] \times 2)) = 6.21\text{kW} (5,341\text{kcal/h})$

<RPI-3.0FSNQL>

Cooling Capacity: $55.4 \times (3.0[\text{HP}] \div (2.0[\text{HP}] + 2.5[\text{HP}] \times 2 + 3.0[\text{HP}] + 4.0[\text{HP}] + 5.0[\text{HP}] \times 2)) = 6.93\text{kW} (5,950\text{kcal/h})$

Heating Capacity: $59.6 \times (3.0[\text{HP}] \div (2.0[\text{HP}] + 2.5[\text{HP}] \times 2 + 3.0[\text{HP}] + 4.0[\text{HP}] + 5.0[\text{HP}] \times 2)) = 7.45\text{kW} (6,409\text{kcal/h})$

<RPI-4.0FSNQL>

Cooling Capacity: $55.4 \times (4.0[\text{HP}] \div (2.0[\text{HP}] + 2.5[\text{HP}] \times 2 + 3.0[\text{HP}] + 4.0[\text{HP}] + 5.0[\text{HP}] \times 2)) = 9.23\text{kW} (7,933\text{kcal/h})$

Heating Capacity: $59.6 \times (4.0[\text{HP}] \div (2.0[\text{HP}] + 2.5[\text{HP}] \times 2 + 3.0[\text{HP}] + 4.0[\text{HP}] + 5.0[\text{HP}] \times 2)) = 9.93\text{kW} (8,545\text{kcal/h})$

<RPI-5.0FSNQL>

Cooling Capacity: $55.4 \times (5.0[\text{HP}] \div (2.0[\text{HP}] + 2.5[\text{HP}] \times 2 + 3.0[\text{HP}] + 4.0[\text{HP}] + 5.0[\text{HP}] \times 2)) = 11.54\text{kW} (9,917\text{kcal/h})$

Heating Capacity: $59.6 \times (5.0[\text{HP}] \div (2.0[\text{HP}] + 2.5[\text{HP}] \times 2 + 3.0[\text{HP}] + 4.0[\text{HP}] + 5.0[\text{HP}] \times 2)) = 12.42\text{kW} (10,681\text{kcal/h})$

< Result >

Item			Room (1)	Room (2)	Room (3)	Room (4)
Selected Model			RPI-2.0FSNQL	RPI-2.5FSNQL	RPI-2.5FSNQL	RPI-3.0FSNQL
Actual Capacity	Actual Maximum	kW	4.62	5.77	5.77	6.93
	Cooling Capacity	kcal/h	3,967	4,958	4,958	5,950
	Actual Maximum	kW	4.97	6.21	6.21	7.45
	Heating Capacity	kcal/h	4,273	5,341	5,341	6,409
Design Load	Estimated	kW	4.24	5.35	5.35	6.36
	Cooling Load	kcal/h	3,650	4,600	4,600	5,472
	Estimated	kW	4.77	6.00	6.00	7.16
	Heating Load	kcal/h	4,100	5,160	5,160	6,160

Item			Room (5)	Room (6)	Room (7)	(1)+(2)+(3)+(4) +(5)+(6)+(7)
Selected Model			RPI-4.0FSNQL	RPI-5.0FSNQL	RPI-5.0FSNQL	-
Actual Capacity	Actual Maximum	kW	9.23	11.54	11.54	55.40
	Cooling Capacity	kcal/h	7,933	9,917	9,917	47,600
	Actual Maximum	kW	9.93	12.42	12.42	59.61
	Heating Capacity	kcal/h	8,545	10,681	10,681	51,271
Design Load	Estimated	kW	8.48	10.6	10.6	50.98
	Cooling Load	kcal/h	7,295	9,119	9,119	43,855
	Estimated	kW	9.54	11.9	11.9	57.27
	Heating Load	kcal/h	8,207	10,238	10,238	49,263

6.2 Capacity Characteristic Curve

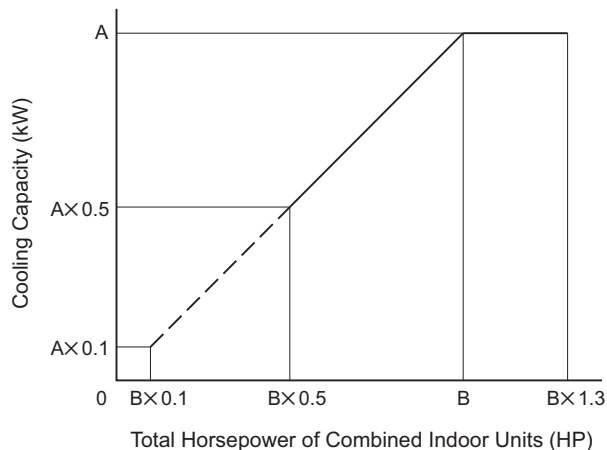
The following charts show the characteristics of outdoor unit capacity which corresponds with total horsepower of combined indoor unit, on standard condition with refrigerant piping of horizontal and 7.5m at length.

< Cooling Capacity >

• Condition

Indoor Air Inlet Temperature: 27.0°C DB (80.0°F DB), 19.0°C WB (66.2°F WB)

Outdoor Air Inlet Temperature: 35.0°C DB (95.0°F DB)



Model	A (kW)	B (HP)
RAS-8FSXNQ	22.4	8
RAS-10FSXNQ	28.0	10
RAS-12FSXNQ	33.5	12
RAS-14FSXNQ	40.0	14
RAS-16FSXNQ	45.0	16
RAS-18FSXNQ	50.0	18
RAS-20FSXNQ	56.0	20
RAS-22FSXNQ	61.5	22

Model	A (kW)	B (HP)
RAS-24FSXNQ	69.0	24
RAS-26FSXNQ	73.0	26
RAS-28FSXNQ	80.0	28
RAS-30FSXNQ	85.0	30
RAS-32FSXNQ	90.0	32
RAS-34FSXNQ	95.0	34
RAS-36FSXNQ	100.0	36
RAS-38FSXNQ	109.0	38

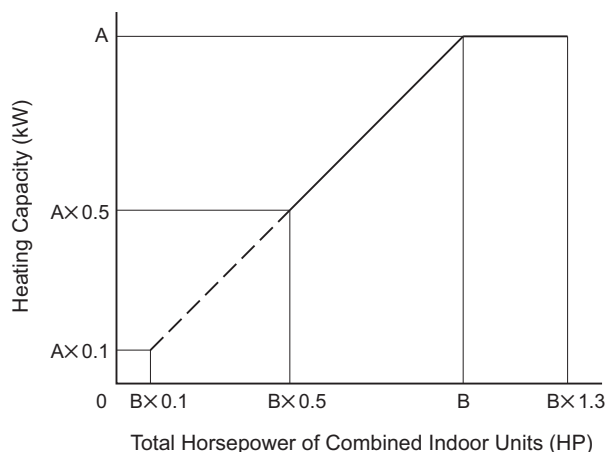
Model	A (kW)	B (HP)
RAS-40FSXNQ	112.0	40
RAS-42FSXNQ	118.0	42
RAS-44FSXNQ	125.0	44
RAS-46FSXNQ	132.0	46
RAS-48FSXNQ	136.0	48
RAS-50FSXNQ	140.0	50
RAS-52FSXNQ	145.0	52
RAS-54FSXNQ	150.0	54

< Heating Capacity >

• Condition

Indoor Air Inlet Temperature: 20.0°C DB (68.0°F DB)

Outdoor Air Inlet Temperature: 7.0°C DB (45.0°F DB), 6.0°C WB (43.0°F WB)



Model	A (kW)	B (HP)
RAS-8FSXNQ	25.0	8
RAS-10FSXNQ	31.5	10
RAS-12FSXNQ	37.5	12
RAS-14FSXNQ	45.0	14
RAS-16FSXNQ	50.0	16
RAS-18FSXNQ	56.0	18
RAS-20FSXNQ	63.0	20
RAS-22FSXNQ	69.0	22

Model	A (kW)	B (HP)
RAS-24FSXNQ	77.5	24
RAS-26FSXNQ	82.5	26
RAS-28FSXNQ	90.0	28
RAS-30FSXNQ	95.0	30
RAS-32FSXNQ	100.0	32
RAS-34FSXNQ	106.0	34
RAS-36FSXNQ	112.0	36
RAS-38FSXNQ	118.0	38

Model	A (kW)	B (HP)
RAS-40FSXNQ	125.0	40
RAS-42FSXNQ	132.0	42
RAS-44FSXNQ	140.0	44
RAS-46FSXNQ	145.0	46
RAS-48FSXNQ	150.0	48
RAS-50FSXNQ	155.0	50
RAS-52FSXNQ	160.0	52
RAS-54FSXNQ	165.0	54

The following 41 tables show the examples of outdoor unit capacity which corresponds with total horsepower of combined indoor unit, according to the "Capacity Characteristic Curve " on the previous page.

Table 1. Outdoor Unit Capacity (8, 10, 12HP) with Total Horsepower of Combined Indoor Unit (1)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)											
	RAS-8FSXNQ				RAS-10FSXNQ				RAS-12FSXNQ			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
4.0	11.20	(9.63)	12.50	(10.75)								
4.1	11.48	(9.87)	12.81	(11.02)								
4.2	11.76	(10.11)	13.13	(11.29)								
4.3	12.04	(10.35)	13.44	(11.56)								
4.4	12.32	(10.60)	13.75	(11.83)								
4.5	12.60	(10.84)	14.06	(12.09)								
4.6	12.88	(11.08)	14.38	(12.36)								
4.7	13.16	(11.32)	14.69	(12.63)								
4.8	13.44	(11.56)	15.00	(12.90)								
4.9	13.72	(11.80)	15.31	(13.17)								
5.0	14.00	(12.04)	15.63	(13.44)	14.00	(12.04)	15.75	(13.55)				
5.1	14.28	(12.28)	15.94	(13.71)	14.28	(12.28)	16.07	(13.82)				
5.2	14.56	(12.52)	16.25	(13.98)	14.56	(12.52)	16.38	(14.09)				
5.3	14.84	(12.76)	16.56	(14.24)	14.84	(12.76)	16.70	(14.36)				
5.4	15.12	(13.00)	16.88	(14.51)	15.12	(13.00)	17.01	(14.63)				
5.5	15.40	(13.24)	17.19	(14.78)	15.40	(13.24)	17.33	(14.90)				
5.6	15.68	(13.48)	17.50	(15.05)	15.68	(13.48)	17.64	(15.17)				
5.7	15.96	(13.73)	17.81	(15.32)	15.96	(13.73)	17.96	(15.44)				
5.8	16.24	(13.97)	18.13	(15.59)	16.24	(13.97)	18.27	(15.71)				
5.9	16.52	(14.21)	18.44	(15.86)	16.52	(14.21)	18.59	(15.98)				
6.0	16.80	(14.45)	18.75	(16.13)	16.80	(14.45)	18.90	(16.25)	16.75	(14.41)	18.75	(16.13)
6.1	17.08	(14.69)	19.06	(16.39)	17.08	(14.69)	19.22	(16.52)	17.03	(14.65)	19.06	(16.39)
6.2	17.36	(14.93)	19.38	(16.66)	17.36	(14.93)	19.53	(16.80)	17.31	(14.89)	19.38	(16.66)
6.3	17.64	(15.17)	19.69	(16.93)	17.64	(15.17)	19.85	(17.07)	17.59	(15.13)	19.69	(16.93)
6.4	17.92	(15.41)	20.00	(17.20)	17.92	(15.41)	20.16	(17.34)	17.87	(15.37)	20.00	(17.20)
6.5	18.20	(15.65)	20.31	(17.47)	18.20	(15.65)	20.48	(17.61)	18.15	(15.61)	20.31	(17.47)
6.6	18.48	(15.89)	20.63	(17.74)	18.48	(15.89)	20.79	(17.88)	18.43	(15.85)	20.63	(17.74)
6.7	18.76	(16.13)	20.94	(18.01)	18.76	(16.13)	21.11	(18.15)	18.71	(16.09)	20.94	(18.01)
6.8	19.04	(16.37)	21.25	(18.28)	19.04	(16.37)	21.42	(18.42)	18.99	(16.33)	21.25	(18.28)
6.9	19.32	(16.62)	21.56	(18.54)	19.32	(16.62)	21.74	(18.69)	19.26	(16.57)	21.56	(18.54)
7.0	19.60	(16.86)	21.87	(18.81)	19.60	(16.86)	22.05	(18.96)	19.54	(16.81)	21.87	(18.81)
7.1	19.88	(17.10)	22.19	(19.08)	19.88	(17.10)	22.36	(19.23)	19.82	(17.05)	22.19	(19.08)
7.2	20.16	(17.34)	22.50	(19.35)	20.16	(17.34)	22.68	(19.50)	20.10	(17.29)	22.50	(19.35)
7.3	20.44	(17.58)	22.81	(19.62)	20.44	(17.58)	22.99	(19.78)	20.38	(17.53)	22.81	(19.62)
7.4	20.72	(17.82)	23.12	(19.89)	20.72	(17.82)	23.31	(20.05)	20.66	(17.77)	23.12	(19.89)
7.5	21.00	(18.06)	23.44	(20.16)	21.00	(18.06)	23.62	(20.32)	20.94	(18.01)	23.44	(20.16)
7.6	21.28	(18.30)	23.75	(20.42)	21.28	(18.30)	23.94	(20.59)	21.22	(18.25)	23.75	(20.42)
7.7	21.56	(18.54)	24.06	(20.69)	21.56	(18.54)	24.25	(20.86)	21.50	(18.49)	24.06	(20.69)
7.8	21.84	(18.78)	24.37	(20.96)	21.84	(18.78)	24.57	(21.13)	21.78	(18.73)	24.37	(20.96)
7.9	22.12	(19.02)	24.69	(21.23)	22.12	(19.02)	24.88	(21.40)	22.06	(18.97)	24.69	(21.23)
8.0	22.40	(19.26)	25.00	(21.50)	22.40	(19.26)	25.20	(21.67)	22.34	(19.21)	25.00	(21.50)
8.1	22.40	(19.26)	25.00	(21.50)	22.68	(19.50)	25.51	(21.94)	22.62	(19.45)	25.31	(21.77)
8.2	22.40	(19.26)	25.00	(21.50)	22.96	(19.75)	25.83	(22.21)	22.89	(19.69)	25.62	(22.04)
8.3	22.40	(19.26)	25.00	(21.50)	23.24	(19.99)	26.14	(22.48)	23.17	(19.93)	25.94	(22.31)
8.4	22.40	(19.26)	25.00	(21.50)	23.52	(20.23)	26.46	(22.76)	23.45	(20.17)	26.25	(22.57)
8.5	22.40	(19.26)	25.00	(21.50)	23.80	(20.47)	26.77	(23.03)	23.73	(20.41)	26.56	(22.84)
8.6	22.40	(19.26)	25.00	(21.50)	24.08	(20.71)	27.09	(23.30)	24.01	(20.65)	26.87	(23.11)
8.7	22.40	(19.26)	25.00	(21.50)	24.36	(20.95)	27.40	(23.57)	24.29	(20.89)	27.19	(23.38)
8.8	22.40	(19.26)	25.00	(21.50)	24.64	(21.19)	27.72	(23.84)	24.57	(21.13)	27.50	(23.65)
8.9	22.40	(19.26)	25.00	(21.50)	24.92	(21.43)	28.03	(24.11)	24.85	(21.37)	27.81	(23.92)
9.0	22.40	(19.26)	25.00	(21.50)	25.20	(21.67)	28.35	(24.38)	25.13	(21.61)	28.12	(24.19)
9.1	22.40	(19.26)	25.00	(21.50)	25.48	(21.91)	28.66	(24.65)	25.41	(21.85)	28.44	(24.46)
9.2	22.40	(19.26)	25.00	(21.50)	25.76	(22.15)	28.98	(24.92)	25.69	(22.09)	28.75	(24.72)
9.3	22.40	(19.26)	25.00	(21.50)	26.04	(22.39)	29.29	(25.19)	25.97	(22.33)	29.06	(24.99)
9.4	22.40	(19.26)	25.00	(21.50)	26.32	(22.64)	29.61	(25.46)	26.24	(22.57)	29.37	(25.26)
9.5	22.40	(19.26)	25.00	(21.50)	26.60	(22.88)	29.92	(25.74)	26.52	(22.81)	29.69	(25.53)
9.6	22.40	(19.26)	25.00	(21.50)	26.88	(23.12)	30.24	(26.01)	26.80	(23.05)	30.00	(25.80)
9.7	22.40	(19.26)	25.00	(21.50)	27.16	(23.36)	30.55	(26.28)	27.08	(23.29)	30.31	(26.07)
9.8	22.40	(19.26)	25.00	(21.50)	27.44	(23.60)	30.87	(26.55)	27.36	(23.53)	30.62	(26.34)
9.9	22.40	(19.26)	25.00	(21.50)	27.72	(23.84)	31.18	(26.82)	27.64	(23.77)	30.94	(26.61)

Table 2. Outdoor Unit Capacity (8, 10, 12HP) with Total Horsepower of Combined Indoor Unit (2)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)															
	RAS-8FSXNQ				RAS-10FSXNQ				RAS-12FSXNQ							
	Cooling		Heating		Cooling		Heating		Cooling		Heating					
10.0	22.40	(19.26)	25.00	(21.50)	28.00	(24.08)	31.50	(27.09)	27.92	(24.01)	31.25	(26.87)				
10.1	22.40	(19.26)	25.00	(21.50)	28.00	(24.08)	31.50	(27.09)	28.20	(24.25)	31.56	(27.14)				
10.2	22.40	(19.26)	25.00	(21.50)	28.00	(24.08)	31.50	(27.09)	28.48	(24.49)	31.88	(27.41)				
10.3	22.40	(19.26)	25.00	(21.50)	28.00	(24.08)	31.50	(27.09)	28.76	(24.73)	32.19	(27.68)				
10.4	22.40	(19.26)	25.00	(21.50)	28.00	(24.08)	31.50	(27.09)	29.04	(24.97)	32.50	(27.95)				
10.5					28.00	(24.08)	31.50	(27.09)	29.32	(25.21)	32.81	(28.22)				
10.6					28.00	(24.08)	31.50	(27.09)	29.60	(25.45)	33.13	(28.49)				
10.7					28.00	(24.08)	31.50	(27.09)	29.87	(25.69)	33.44	(28.76)				
10.8					28.00	(24.08)	31.50	(27.09)	30.15	(25.93)	33.75	(29.03)				
10.9					28.00	(24.08)	31.50	(27.09)	30.43	(26.17)	34.06	(29.29)				
11.0					28.00	(24.08)	31.50	(27.09)	30.71	(26.41)	34.38	(29.56)				
11.1					28.00	(24.08)	31.50	(27.09)	30.99	(26.65)	34.69	(29.83)				
11.2					28.00	(24.08)	31.50	(27.09)	31.27	(26.89)	35.00	(30.10)				
11.3					28.00	(24.08)	31.50	(27.09)	31.55	(27.13)	35.31	(30.37)				
11.4					28.00	(24.08)	31.50	(27.09)	31.83	(27.37)	35.63	(30.64)				
11.5					28.00	(24.08)	31.50	(27.09)	32.11	(27.61)	35.94	(30.91)				
11.6					28.00	(24.08)	31.50	(27.09)	32.39	(27.85)	36.25	(31.18)				
11.7					28.00	(24.08)	31.50	(27.09)	32.67	(28.09)	36.56	(31.44)				
11.8					28.00	(24.08)	31.50	(27.09)	32.95	(28.33)	36.88	(31.71)				
11.9					28.00	(24.08)	31.50	(27.09)	33.22	(28.57)	37.19	(31.98)				
12.0					28.00	(24.08)	31.50	(27.09)	33.50	(28.81)	37.50	(32.25)				
12.1					28.00	(24.08)	31.50	(27.09)	33.50	(28.81)	37.50	(32.25)				
12.2					28.00	(24.08)	31.50	(27.09)	33.50	(28.81)	37.50	(32.25)				
12.3					28.00	(24.08)	31.50	(27.09)	33.50	(28.81)	37.50	(32.25)				
12.4					28.00	(24.08)	31.50	(27.09)	33.50	(28.81)	37.50	(32.25)				
12.5					28.00	(24.08)	31.50	(27.09)	33.50	(28.81)	37.50	(32.25)				
12.6					28.00	(24.08)	31.50	(27.09)	33.50	(28.81)	37.50	(32.25)				
12.7					28.00	(24.08)	31.50	(27.09)	33.50	(28.81)	37.50	(32.25)				
12.8					28.00	(24.08)	31.50	(27.09)	33.50	(28.81)	37.50	(32.25)				
12.9					28.00	(24.08)	31.50	(27.09)	33.50	(28.81)	37.50	(32.25)				
13.0					28.00	(24.08)	31.50	(27.09)	33.50	(28.81)	37.50	(32.25)				
13.1													33.50	(28.81)	37.50	(32.25)
13.2													33.50	(28.81)	37.50	(32.25)
13.3	33.50	(28.81)	37.50	(32.25)												
13.4	33.50	(28.81)	37.50	(32.25)												
13.5	33.50	(28.81)	37.50	(32.25)												
13.6	33.50	(28.81)	37.50	(32.25)												
13.7	33.50	(28.81)	37.50	(32.25)												
13.8	33.50	(28.81)	37.50	(32.25)												
13.9	33.50	(28.81)	37.50	(32.25)												
14.0	33.50	(28.81)	37.50	(32.25)												
14.1	33.50	(28.81)	37.50	(32.25)												
14.2	33.50	(28.81)	37.50	(32.25)												
14.3	33.50	(28.81)	37.50	(32.25)												
14.4	33.50	(28.81)	37.50	(32.25)												
14.5	33.50	(28.81)	37.50	(32.25)												
14.6	33.50	(28.81)	37.50	(32.25)												
14.7	33.50	(28.81)	37.50	(32.25)												
14.8	33.50	(28.81)	37.50	(32.25)												
14.9	33.50	(28.81)	37.50	(32.25)												
15.0	33.50	(28.81)	37.50	(32.25)												
15.1	33.50	(28.81)	37.50	(32.25)												
15.2	33.50	(28.81)	37.50	(32.25)												
15.3	33.50	(28.81)	37.50	(32.25)												
15.4	33.50	(28.81)	37.50	(32.25)												
15.5	33.50	(28.81)	37.50	(32.25)												
15.6	33.50	(28.81)	37.50	(32.25)												

Table 3. Outdoor Unit Capacity (14, 16, 18HP) with Total Horsepower of Combined Indoor Unit (1)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)											
	RAS-14FSXNQ				RAS-16FSXNQ				RAS-18FSXNQ			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
7.0	20.00	(17.20)	22.50	(19.35)								
7.1	20.28	(17.44)	22.82	(19.62)								
7.2	20.57	(17.69)	23.14	(19.90)								
7.3	20.86	(17.94)	23.46	(20.18)								
7.4	21.14	(18.18)	23.78	(20.45)								
7.5	21.43	(18.43)	24.10	(20.73)								
7.6	21.71	(18.67)	24.43	(21.01)								
7.7	22.00	(18.92)	24.75	(21.28)								
7.8	22.28	(19.16)	25.07	(21.56)								
7.9	22.57	(19.41)	25.39	(21.84)								
8.0	22.86	(19.66)	25.71	(22.11)	22.50	(19.35)	25.00	(21.50)				
8.1	23.14	(19.90)	26.03	(22.39)	22.78	(19.59)	25.31	(21.77)				
8.2	23.43	(20.15)	26.35	(22.67)	23.06	(19.83)	25.62	(22.04)				
8.3	23.71	(20.39)	26.68	(22.94)	23.34	(20.08)	25.94	(22.31)				
8.4	24.00	(20.64)	27.00	(23.22)	23.62	(20.32)	26.25	(22.57)				
8.5	24.28	(20.88)	27.32	(23.49)	23.91	(20.56)	26.56	(22.84)				
8.6	24.57	(21.13)	27.64	(23.77)	24.19	(20.80)	26.87	(23.11)				
8.7	24.86	(21.38)	27.96	(24.05)	24.47	(21.04)	27.19	(23.38)				
8.8	25.14	(21.62)	28.28	(24.32)	24.75	(21.29)	27.50	(23.65)				
8.9	25.43	(21.87)	28.60	(24.60)	25.03	(21.53)	27.81	(23.92)				
9.0	25.71	(22.11)	28.93	(24.88)	25.31	(21.77)	28.12	(24.19)	25.00	(21.50)	28.00	(24.08)
9.1	26.00	(22.36)	29.25	(25.15)	25.59	(22.01)	28.44	(24.46)	25.28	(21.74)	28.31	(24.35)
9.2	26.28	(22.60)	29.57	(25.43)	25.87	(22.25)	28.75	(24.72)	25.56	(21.98)	28.62	(24.61)
9.3	26.57	(22.85)	29.89	(25.71)	26.16	(22.49)	29.06	(24.99)	25.84	(22.22)	28.93	(24.88)
9.4	26.86	(23.10)	30.21	(25.98)	26.44	(22.74)	29.37	(25.26)	26.11	(22.46)	29.24	(25.15)
9.5	27.14	(23.34)	30.53	(26.26)	26.72	(22.98)	29.69	(25.53)	26.39	(22.70)	29.55	(25.42)
9.6	27.43	(23.59)	30.85	(26.53)	27.00	(23.22)	30.00	(25.80)	26.67	(22.94)	29.87	(25.68)
9.7	27.71	(23.83)	31.18	(26.81)	27.28	(23.46)	30.31	(26.07)	26.95	(23.17)	30.18	(25.95)
9.8	28.00	(24.08)	31.50	(27.09)	27.56	(23.70)	30.62	(26.34)	27.22	(23.41)	30.49	(26.22)
9.9	28.28	(24.32)	31.82	(27.36)	27.84	(23.95)	30.94	(26.61)	27.50	(23.65)	30.80	(26.49)
10.0	28.57	(24.57)	32.14	(27.64)	28.12	(24.19)	31.25	(26.87)	27.78	(23.89)	31.11	(26.75)
10.1	28.86	(24.82)	32.46	(27.92)	28.41	(24.43)	31.56	(27.14)	28.06	(24.13)	31.42	(27.02)
10.2	29.14	(25.06)	32.78	(28.19)	28.69	(24.67)	31.88	(27.41)	28.34	(24.37)	31.73	(27.29)
10.3	29.43	(25.31)	33.10	(28.47)	28.97	(24.91)	32.19	(27.68)	28.61	(24.61)	32.04	(27.56)
10.4	29.71	(25.55)	33.43	(28.75)	29.25	(25.16)	32.50	(27.95)	28.89	(24.85)	32.35	(27.82)
10.5	30.00	(25.80)	33.75	(29.02)	29.53	(25.40)	32.81	(28.22)	29.17	(25.09)	32.67	(28.09)
10.6	30.28	(26.04)	34.07	(29.30)	29.81	(25.64)	33.13	(28.49)	29.45	(25.32)	32.98	(28.36)
10.7	30.57	(26.29)	34.39	(29.58)	30.09	(25.88)	33.44	(28.76)	29.72	(25.56)	33.29	(28.63)
10.8	30.86	(26.54)	34.71	(29.85)	30.38	(26.12)	33.75	(29.03)	30.00	(25.80)	33.60	(28.89)
10.9	31.14	(26.78)	35.03	(30.13)	30.66	(26.36)	34.06	(29.29)	30.28	(26.04)	33.91	(29.16)
11.0	31.43	(27.03)	35.35	(30.40)	30.94	(26.61)	34.38	(29.56)	30.56	(26.28)	34.22	(29.43)
11.1	31.71	(27.27)	35.68	(30.68)	31.22	(26.85)	34.69	(29.83)	30.84	(26.52)	34.53	(29.70)
11.2	32.00	(27.52)	36.00	(30.96)	31.50	(27.09)	35.00	(30.10)	31.11	(26.76)	34.84	(29.97)
11.3	32.28	(27.76)	36.32	(31.23)	31.78	(27.33)	35.31	(30.37)	31.39	(27.00)	35.15	(30.23)
11.4	32.57	(28.01)	36.64	(31.51)	32.06	(27.57)	35.63	(30.64)	31.67	(27.24)	35.47	(30.50)
11.5	32.86	(28.26)	36.96	(31.79)	32.34	(27.82)	35.94	(30.91)	31.95	(27.47)	35.78	(30.77)
11.6	33.14	(28.50)	37.28	(32.06)	32.63	(28.06)	36.25	(31.18)	32.22	(27.71)	36.09	(31.04)
11.7	33.43	(28.75)	37.60	(32.34)	32.91	(28.30)	36.56	(31.44)	32.50	(27.95)	36.40	(31.30)
11.8	33.71	(28.99)	37.93	(32.62)	33.19	(28.54)	36.88	(31.71)	32.78	(28.19)	36.71	(31.57)
11.9	34.00	(29.24)	38.25	(32.89)	33.47	(28.78)	37.19	(31.98)	33.06	(28.43)	37.02	(31.84)
12.0	34.28	(29.48)	38.57	(33.17)	33.75	(29.03)	37.50	(32.25)	33.34	(28.67)	37.33	(32.11)
12.1	34.57	(29.73)	38.89	(33.44)	34.03	(29.27)	37.81	(32.52)	33.61	(28.91)	37.64	(32.37)
12.2	34.86	(29.98)	39.21	(33.72)	34.31	(29.51)	38.13	(32.79)	33.89	(29.15)	37.95	(32.64)
12.3	35.14	(30.22)	39.53	(34.00)	34.59	(29.75)	38.44	(33.06)	34.17	(29.39)	38.27	(32.91)
12.4	35.43	(30.47)	39.85	(34.27)	34.88	(29.99)	38.75	(33.33)	34.45	(29.62)	38.58	(33.18)
12.5	35.71	(30.71)	40.18	(34.55)	35.16	(30.23)	39.06	(33.59)	34.73	(29.86)	38.89	(33.44)
12.6	36.00	(30.96)	40.50	(34.83)	35.44	(30.48)	39.38	(33.86)	35.00	(30.10)	39.20	(33.71)
12.7	36.28	(31.20)	40.82	(35.10)	35.72	(30.72)	39.69	(34.13)	35.28	(30.34)	39.51	(33.98)
12.8	36.57	(31.45)	41.14	(35.38)	36.00	(30.96)	40.00	(34.40)	35.56	(30.58)	39.82	(34.25)
12.9	36.86	(31.70)	41.46	(35.66)	36.28	(31.20)	40.31	(34.67)	35.84	(30.82)	40.13	(34.51)

Table 4. Outdoor Unit Capacity (14, 16, 18HP) with Total Horsepower of Combined Indoor Unit (2)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)											
	RAS-14FSXNQ				RAS-16FSXNQ				RAS-18FSXNQ			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
13.0	37.14	(31.94)	41.78	(35.93)	36.56	(31.44)	40.63	(34.94)	36.11	(31.06)	40.44	(34.78)
13.1	37.43	(32.19)	42.10	(36.21)	36.84	(31.69)	40.94	(35.21)	36.39	(31.30)	40.75	(35.05)
13.2	37.71	(32.43)	42.42	(36.49)	37.13	(31.93)	41.25	(35.48)	36.67	(31.54)	41.07	(35.32)
13.3	38.00	(32.68)	42.75	(36.76)	37.41	(32.17)	41.56	(35.74)	36.95	(31.77)	41.38	(35.58)
13.4	38.28	(32.92)	43.07	(37.04)	37.69	(32.41)	41.88	(36.01)	37.23	(32.01)	41.69	(35.85)
13.5	38.57	(33.17)	43.39	(37.31)	37.97	(32.65)	42.19	(36.28)	37.50	(32.25)	42.00	(36.12)
13.6	38.86	(33.42)	43.71	(37.59)	38.25	(32.90)	42.50	(36.55)	37.78	(32.49)	42.31	(36.39)
13.7	39.14	(33.66)	44.03	(37.87)	38.53	(33.14)	42.81	(36.82)	38.06	(32.73)	42.62	(36.65)
13.8	39.43	(33.91)	44.35	(38.14)	38.81	(33.38)	43.13	(37.09)	38.34	(32.97)	42.93	(36.92)
13.9	39.71	(34.15)	44.67	(38.42)	39.09	(33.62)	43.44	(37.36)	38.61	(33.21)	43.24	(37.19)
14.0	40.00	(34.40)	45.00	(38.70)	39.38	(33.86)	43.75	(37.63)	38.89	(33.45)	43.55	(37.46)
14.1	40.00	(34.40)	45.00	(38.70)	39.66	(34.10)	44.06	(37.89)	39.17	(33.69)	43.87	(37.72)
14.2	40.00	(34.40)	45.00	(38.70)	39.94	(34.35)	44.38	(38.16)	39.45	(33.92)	44.18	(37.99)
14.3	40.00	(34.40)	45.00	(38.70)	40.22	(34.59)	44.69	(38.43)	39.73	(34.16)	44.49	(38.26)
14.4	40.00	(34.40)	45.00	(38.70)	40.50	(34.83)	45.00	(38.70)	40.00	(34.40)	44.80	(38.53)
14.5	40.00	(34.40)	45.00	(38.70)	40.78	(35.07)	45.31	(38.97)	40.28	(34.64)	45.11	(38.79)
14.6	40.00	(34.40)	45.00	(38.70)	41.06	(35.31)	45.63	(39.24)	40.56	(34.88)	45.42	(39.06)
14.7	40.00	(34.40)	45.00	(38.70)	41.34	(35.56)	45.94	(39.51)	40.84	(35.12)	45.73	(39.33)
14.8	40.00	(34.40)	45.00	(38.70)	41.63	(35.80)	46.25	(39.78)	41.11	(35.36)	46.04	(39.60)
14.9	40.00	(34.40)	45.00	(38.70)	41.91	(36.04)	46.56	(40.04)	41.39	(35.60)	46.35	(39.86)
15.0	40.00	(34.40)	45.00	(38.70)	42.19	(36.28)	46.88	(40.31)	41.67	(35.84)	46.67	(40.13)
15.1	40.00	(34.40)	45.00	(38.70)	42.47	(36.52)	47.19	(40.58)	41.95	(36.08)	46.98	(40.40)
15.2	40.00	(34.40)	45.00	(38.70)	42.75	(36.77)	47.50	(40.85)	42.23	(36.31)	47.29	(40.67)
15.3	40.00	(34.40)	45.00	(38.70)	43.03	(37.01)	47.81	(41.12)	42.50	(36.55)	47.60	(40.93)
15.4	40.00	(34.40)	45.00	(38.70)	43.31	(37.25)	48.13	(41.39)	42.78	(36.79)	47.91	(41.20)
15.5	40.00	(34.40)	45.00	(38.70)	43.59	(37.49)	48.44	(41.66)	43.06	(37.03)	48.22	(41.47)
15.6	40.00	(34.40)	45.00	(38.70)	43.88	(37.73)	48.75	(41.93)	43.34	(37.27)	48.53	(41.74)
15.7	40.00	(34.40)	45.00	(38.70)	44.16	(37.97)	49.06	(42.19)	43.61	(37.51)	48.84	(42.00)
15.8	40.00	(34.40)	45.00	(38.70)	44.44	(38.22)	49.38	(42.46)	43.89	(37.75)	49.15	(42.27)
15.9	40.00	(34.40)	45.00	(38.70)	44.72	(38.46)	49.69	(42.73)	44.17	(37.99)	49.46	(42.54)
16.0	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	44.45	(38.23)	49.78	(42.81)
16.1	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	44.73	(38.46)	50.09	(43.07)
16.2	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	45.00	(38.70)	50.40	(43.34)
16.3	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	45.28	(38.94)	50.71	(43.61)
16.4	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	45.56	(39.18)	51.02	(43.88)
16.5	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	45.84	(39.42)	51.33	(44.15)
16.6	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	46.11	(39.66)	51.64	(44.41)
16.7	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	46.39	(39.90)	51.95	(44.68)
16.8	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	46.67	(40.14)	52.26	(44.95)
16.9	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	46.95	(40.38)	52.58	(45.22)
17.0	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	47.23	(40.61)	52.89	(45.48)
17.1	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	47.50	(40.85)	53.20	(45.75)
17.2	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	47.78	(41.09)	53.51	(46.02)
17.3	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	48.06	(41.33)	53.82	(46.29)
17.4	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	48.34	(41.57)	54.13	(46.55)
17.5	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	48.61	(41.81)	54.44	(46.82)
17.6	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	48.89	(42.05)	54.75	(47.09)
17.7	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	49.17	(42.29)	55.06	(47.36)
17.8	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	49.45	(42.53)	55.38	(47.62)
17.9	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	49.73	(42.76)	55.69	(47.89)
18.0	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	50.00	(43.00)	56.00	(48.16)
18.1	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	50.00	(43.00)	56.00	(48.16)
18.2	40.00	(34.40)	45.00	(38.70)	45.00	(38.70)	50.00	(43.00)	50.00	(43.00)	56.00	(48.16)
18.3					45.00	(38.70)	50.00	(43.00)	50.00	(43.00)	56.00	(48.16)
18.4					45.00	(38.70)	50.00	(43.00)	50.00	(43.00)	56.00	(48.16)
18.5					45.00	(38.70)	50.00	(43.00)	50.00	(43.00)	56.00	(48.16)
18.6					45.00	(38.70)	50.00	(43.00)	50.00	(43.00)	56.00	(48.16)
18.7					45.00	(38.70)	50.00	(43.00)	50.00	(43.00)	56.00	(48.16)
18.8					45.00	(38.70)	50.00	(43.00)	50.00	(43.00)	56.00	(48.16)
18.9					45.00	(38.70)	50.00	(43.00)	50.00	(43.00)	56.00	(48.16)

Table 5. Outdoor Unit Capacity (14, 16, 18HP) with Total Horsepower of Combined Indoor Unit (3)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)							
	RAS-14FSXNQ		RAS-16FSXNQ		RAS-18FSXNQ			
	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
19.0			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
19.1			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
19.2			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
19.3			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
19.4			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
19.5			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
19.6			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
19.7			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
19.8			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
19.9			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
20.0			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
20.1			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
20.2			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
20.3			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
20.4			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
20.5			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
20.6			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
20.7			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
20.8			45.00 (38.70)	50.00 (43.00)	50.00 (43.00)	56.00 (48.16)		
20.9					50.00 (43.00)	56.00 (48.16)		
21.0					50.00 (43.00)	56.00 (48.16)		
21.1					50.00 (43.00)	56.00 (48.16)		
21.2					50.00 (43.00)	56.00 (48.16)		
21.3					50.00 (43.00)	56.00 (48.16)		
21.4					50.00 (43.00)	56.00 (48.16)		
21.5					50.00 (43.00)	56.00 (48.16)		
21.6					50.00 (43.00)	56.00 (48.16)		
21.7					50.00 (43.00)	56.00 (48.16)		
21.8					50.00 (43.00)	56.00 (48.16)		
21.9					50.00 (43.00)	56.00 (48.16)		
22.0					50.00 (43.00)	56.00 (48.16)		
22.1					50.00 (43.00)	56.00 (48.16)		
22.2					50.00 (43.00)	56.00 (48.16)		
22.3					50.00 (43.00)	56.00 (48.16)		
22.4					50.00 (43.00)	56.00 (48.16)		
22.5					50.00 (43.00)	56.00 (48.16)		
22.6					50.00 (43.00)	56.00 (48.16)		
22.7					50.00 (43.00)	56.00 (48.16)		
22.8					50.00 (43.00)	56.00 (48.16)		
22.9					50.00 (43.00)	56.00 (48.16)		
23.0					50.00 (43.00)	56.00 (48.16)		
23.1					50.00 (43.00)	56.00 (48.16)		
23.2					50.00 (43.00)	56.00 (48.16)		
23.3					50.00 (43.00)	56.00 (48.16)		
23.4					50.00 (43.00)	56.00 (48.16)		

Table 6. Outdoor Unit Capacity (20, 22, 24HP) with Total Horsepower of Combined Indoor Unit (1)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)									
	RAS-20FSXNQ				RAS-22FSXNQ				RAS-24FSXNQ	
	Cooling		Heating		Cooling		Heating		Cooling	Heating
10.0	28.00	(24.08)	31.50	(27.09)						
10.1	28.28	(24.32)	31.82	(27.36)						
10.2	28.56	(24.56)	32.13	(27.63)						
10.3	28.84	(24.80)	32.45	(27.90)						
10.4	29.12	(25.04)	32.76	(28.17)						
10.5	29.40	(25.28)	33.08	(28.44)						
10.6	29.68	(25.52)	33.39	(28.72)						
10.7	29.96	(25.77)	33.71	(28.99)						
10.8	30.24	(26.01)	34.02	(29.26)						
10.9	30.52	(26.25)	34.34	(29.53)						
11.0	30.80	(26.49)	34.65	(29.80)	30.75	(26.45)	34.50	(29.67)		
11.1	31.08	(26.73)	34.97	(30.07)	31.03	(26.69)	34.81	(29.94)		
11.2	31.36	(26.97)	35.28	(30.34)	31.31	(26.93)	35.13	(30.21)		
11.3	31.64	(27.21)	35.60	(30.61)	31.59	(27.17)	35.44	(30.48)		
11.4	31.92	(27.45)	35.91	(30.88)	31.87	(27.41)	35.75	(30.75)		
11.5	32.20	(27.69)	36.23	(31.15)	32.15	(27.65)	36.07	(31.02)		
11.6	32.48	(27.93)	36.54	(31.42)	32.43	(27.89)	36.38	(31.29)		
11.7	32.76	(28.17)	36.86	(31.70)	32.71	(28.13)	36.69	(31.56)		
11.8	33.04	(28.41)	37.17	(31.97)	32.99	(28.37)	37.01	(31.83)		
11.9	33.32	(28.66)	37.49	(32.24)	33.27	(28.61)	37.32	(32.10)		
12.0	33.60	(28.90)	37.80	(32.51)	33.55	(28.85)	37.64	(32.37)	34.50	(29.67)
12.1	33.88	(29.14)	38.12	(32.78)	33.83	(29.09)	37.95	(32.64)	34.79	(29.92)
12.2	34.16	(29.38)	38.43	(33.05)	34.11	(29.33)	38.26	(32.91)	35.08	(30.16)
12.3	34.44	(29.62)	38.75	(33.32)	34.38	(29.57)	38.58	(33.18)	35.36	(30.41)
12.4	34.72	(29.86)	39.06	(33.59)	34.66	(29.81)	38.89	(33.45)	35.65	(30.66)
12.5	35.00	(30.10)	39.38	(33.86)	34.94	(30.05)	39.20	(33.72)	35.94	(30.91)
12.6	35.28	(30.34)	39.69	(34.13)	35.22	(30.29)	39.52	(33.98)	36.23	(31.15)
12.7	35.56	(30.58)	40.01	(34.40)	35.50	(30.53)	39.83	(34.25)	36.51	(31.40)
12.8	35.84	(30.82)	40.32	(34.68)	35.78	(30.77)	40.14	(34.52)	36.80	(31.65)
12.9	36.12	(31.06)	40.64	(34.95)	36.06	(31.01)	40.46	(34.79)	37.09	(31.90)
13.0	36.40	(31.30)	40.95	(35.22)	36.34	(31.25)	40.77	(35.06)	37.38	(32.14)
13.1	36.68	(31.54)	41.27	(35.49)	36.62	(31.49)	41.09	(35.33)	37.66	(32.39)
13.2	36.96	(31.79)	41.58	(35.76)	36.90	(31.73)	41.40	(35.60)	37.95	(32.64)
13.3	37.24	(32.03)	41.90	(36.03)	37.18	(31.97)	41.71	(35.87)	38.24	(32.88)
13.4	37.52	(32.27)	42.21	(36.30)	37.46	(32.22)	42.03	(36.14)	38.53	(33.13)
13.5	37.80	(32.51)	42.53	(36.57)	37.74	(32.46)	42.34	(36.41)	38.81	(33.38)
13.6	38.08	(32.75)	42.84	(36.84)	38.02	(32.70)	42.65	(36.68)	39.10	(33.63)
13.7	38.36	(32.99)	43.16	(37.11)	38.30	(32.94)	42.97	(36.95)	39.39	(33.87)
13.8	38.64	(33.23)	43.47	(37.38)	38.58	(33.18)	43.28	(37.22)	39.68	(34.12)
13.9	38.92	(33.47)	43.79	(37.66)	38.86	(33.42)	43.59	(37.49)	39.96	(34.37)
14.0	39.20	(33.71)	44.10	(37.93)	39.14	(33.66)	43.91	(37.76)	40.25	(34.62)
14.1	39.48	(33.95)	44.42	(38.20)	39.42	(33.90)	44.22	(38.03)	40.54	(34.86)
14.2	39.76	(34.19)	44.73	(38.47)	39.70	(34.14)	44.54	(38.30)	40.83	(35.11)
14.3	40.04	(34.43)	45.05	(38.74)	39.98	(34.38)	44.85	(38.57)	41.11	(35.36)
14.4	40.32	(34.68)	45.36	(39.01)	40.26	(34.62)	45.16	(38.84)	41.40	(35.60)
14.5	40.60	(34.92)	45.68	(39.28)	40.53	(34.86)	45.48	(39.11)	41.69	(35.85)
14.6	40.88	(35.16)	45.99	(39.55)	40.81	(35.10)	45.79	(39.38)	41.98	(36.10)
14.7	41.16	(35.40)	46.31	(39.82)	41.09	(35.34)	46.10	(39.65)	42.26	(36.35)
14.8	41.44	(35.64)	46.62	(40.09)	41.37	(35.58)	46.42	(39.92)	42.55	(36.59)
14.9	41.72	(35.88)	46.94	(40.36)	41.65	(35.82)	46.73	(40.19)	42.84	(36.84)
15.0	42.00	(36.12)	47.25	(40.64)	41.93	(36.06)	47.04	(40.46)	43.13	(37.09)
15.1	42.28	(36.36)	47.57	(40.91)	42.21	(36.30)	47.36	(40.73)	43.41	(37.33)
15.2	42.56	(36.60)	47.88	(41.18)	42.49	(36.54)	47.67	(41.00)	43.70	(37.58)
15.3	42.84	(36.84)	48.20	(41.45)	42.77	(36.78)	47.99	(41.27)	43.99	(37.83)
15.4	43.12	(37.08)	48.51	(41.72)	43.05	(37.02)	48.30	(41.54)	44.28	(38.08)
15.5	43.40	(37.32)	48.83	(41.99)	43.33	(37.26)	48.61	(41.81)	44.56	(38.32)
15.6	43.68	(37.56)	49.14	(42.26)	43.61	(37.50)	48.93	(42.08)	44.85	(38.57)
15.7	43.96	(37.81)	49.46	(42.53)	43.89	(37.74)	49.24	(42.35)	45.14	(38.82)
15.8	44.24	(38.05)	49.77	(42.80)	44.17	(37.99)	49.55	(42.62)	45.43	(39.07)
15.9	44.52	(38.29)	50.09	(43.07)	44.45	(38.23)	49.87	(42.89)	45.71	(39.31)

Table 7. Outdoor Unit Capacity (20, 22, 24HP) with Total Horsepower of Combined Indoor Unit (2)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)											
	RAS-20FSXNQ				RAS-22FSXNQ				RAS-24FSXNQ			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
16.0	44.80	(38.53)	50.40	(43.34)	44.73	(38.47)	50.18	(43.16)	46.00	(39.56)	51.66	(44.43)
16.1	45.08	(38.77)	50.72	(43.61)	45.01	(38.71)	50.49	(43.43)	46.29	(39.81)	51.99	(44.71)
16.2	45.36	(39.01)	51.03	(43.89)	45.29	(38.95)	50.81	(43.69)	46.58	(40.05)	52.31	(44.99)
16.3	45.64	(39.25)	51.35	(44.16)	45.57	(39.19)	51.12	(43.96)	46.86	(40.30)	52.63	(45.26)
16.4	45.92	(39.49)	51.66	(44.43)	45.85	(39.43)	51.44	(44.23)	47.15	(40.55)	52.96	(45.54)
16.5	46.20	(39.73)	51.98	(44.70)	46.13	(39.67)	51.75	(44.50)	47.44	(40.80)	53.28	(45.82)
16.6	46.48	(39.97)	52.29	(44.97)	46.41	(39.91)	52.06	(44.77)	47.73	(41.04)	53.60	(46.10)
16.7	46.76	(40.21)	52.61	(45.24)	46.68	(40.15)	52.38	(45.04)	48.01	(41.29)	53.92	(46.37)
16.8	47.04	(40.45)	52.92	(45.51)	46.96	(40.39)	52.69	(45.31)	48.30	(41.54)	54.25	(46.65)
16.9	47.32	(40.70)	53.23	(45.78)	47.24	(40.63)	53.00	(45.58)	48.59	(41.79)	54.57	(46.93)
17.0	47.60	(40.94)	53.55	(46.05)	47.52	(40.87)	53.32	(45.85)	48.87	(42.03)	54.89	(47.21)
17.1	47.88	(41.18)	53.86	(46.32)	47.80	(41.11)	53.63	(46.12)	49.16	(42.28)	55.22	(47.49)
17.2	48.16	(41.42)	54.18	(46.59)	48.08	(41.35)	53.94	(46.39)	49.45	(42.53)	55.54	(47.76)
17.3	48.44	(41.66)	54.49	(46.87)	48.36	(41.59)	54.26	(46.66)	49.74	(42.77)	55.86	(48.04)
17.4	48.72	(41.90)	54.81	(47.14)	48.64	(41.83)	54.57	(46.93)	50.02	(43.02)	56.18	(48.32)
17.5	49.00	(42.14)	55.12	(47.41)	48.92	(42.07)	54.89	(47.20)	50.31	(43.27)	56.51	(48.60)
17.6	49.28	(42.38)	55.44	(47.68)	49.20	(42.31)	55.20	(47.47)	50.60	(43.52)	56.83	(48.87)
17.7	49.56	(42.62)	55.75	(47.95)	49.48	(42.55)	55.51	(47.74)	50.89	(43.76)	57.15	(49.15)
17.8	49.84	(42.86)	56.07	(48.22)	49.76	(42.79)	55.83	(48.01)	51.17	(44.01)	57.48	(49.43)
17.9	50.12	(43.10)	56.38	(48.49)	50.04	(43.03)	56.14	(48.28)	51.46	(44.26)	57.80	(49.71)
18.0	50.40	(43.34)	56.70	(48.76)	50.32	(43.27)	56.45	(48.55)	51.75	(44.50)	58.12	(49.98)
18.1	50.68	(43.58)	57.01	(49.03)	50.60	(43.51)	56.77	(48.82)	52.04	(44.75)	58.44	(50.26)
18.2	50.96	(43.83)	57.33	(49.30)	50.88	(43.76)	57.08	(49.09)	52.32	(45.00)	58.77	(50.54)
18.3	51.24	(44.07)	57.64	(49.57)	51.16	(44.00)	57.39	(49.36)	52.61	(45.25)	59.09	(50.82)
18.4	51.52	(44.31)	57.96	(49.85)	51.44	(44.24)	57.71	(49.63)	52.90	(45.49)	59.41	(51.10)
18.5	51.80	(44.55)	58.27	(50.12)	51.72	(44.48)	58.02	(49.90)	53.19	(45.74)	59.74	(51.37)
18.6	52.08	(44.79)	58.59	(50.39)	52.00	(44.72)	58.34	(50.17)	53.47	(45.99)	60.06	(51.65)
18.7	52.36	(45.03)	58.90	(50.66)	52.28	(44.96)	58.65	(50.44)	53.76	(46.24)	60.38	(51.93)
18.8	52.64	(45.27)	59.22	(50.93)	52.56	(45.20)	58.96	(50.71)	54.05	(46.48)	60.71	(52.21)
18.9	52.92	(45.51)	59.53	(51.20)	52.83	(45.44)	59.28	(50.98)	54.34	(46.73)	61.03	(52.48)
19.0	53.20	(45.75)	59.85	(51.47)	53.11	(45.68)	59.59	(51.25)	54.62	(46.98)	61.35	(52.76)
19.1	53.48	(45.99)	60.16	(51.74)	53.39	(45.92)	59.90	(51.52)	54.91	(47.22)	61.67	(53.04)
19.2	53.76	(46.23)	60.48	(52.01)	53.67	(46.16)	60.22	(51.79)	55.20	(47.47)	62.00	(53.32)
19.3	54.04	(46.47)	60.79	(52.28)	53.95	(46.40)	60.53	(52.06)	55.49	(47.72)	62.32	(53.59)
19.4	54.32	(46.72)	61.11	(52.55)	54.23	(46.64)	60.84	(52.33)	55.77	(47.97)	62.64	(53.87)
19.5	54.60	(46.96)	61.42	(52.83)	54.51	(46.88)	61.16	(52.60)	56.06	(48.21)	62.97	(54.15)
19.6	54.88	(47.20)	61.74	(53.10)	54.79	(47.12)	61.47	(52.87)	56.35	(48.46)	63.29	(54.43)
19.7	55.16	(47.44)	62.05	(53.37)	55.07	(47.36)	61.79	(53.14)	56.64	(48.71)	63.61	(54.71)
19.8	55.44	(47.68)	62.37	(53.64)	55.35	(47.60)	62.10	(53.40)	56.92	(48.96)	63.93	(54.98)
19.9	55.72	(47.92)	62.68	(53.91)	55.63	(47.84)	62.41	(53.67)	57.21	(49.20)	64.26	(55.26)
20.0	56.00	(48.16)	63.00	(54.18)	55.91	(48.08)	62.73	(53.94)	57.50	(49.45)	64.58	(55.54)
20.1	56.00	(48.16)	63.00	(54.18)	56.19	(48.32)	63.04	(54.21)	57.79	(49.70)	64.90	(55.82)
20.2	56.00	(48.16)	63.00	(54.18)	56.47	(48.56)	63.35	(54.48)	58.07	(49.94)	65.23	(56.09)
20.3	56.00	(48.16)	63.00	(54.18)	56.75	(48.80)	63.67	(54.75)	58.36	(50.19)	65.55	(56.37)
20.4	56.00	(48.16)	63.00	(54.18)	57.03	(49.04)	63.98	(55.02)	58.65	(50.44)	65.87	(56.65)
20.5	56.00	(48.16)	63.00	(54.18)	57.31	(49.28)	64.29	(55.29)	58.94	(50.69)	66.19	(56.93)
20.6	56.00	(48.16)	63.00	(54.18)	57.59	(49.53)	64.61	(55.56)	59.22	(50.93)	66.52	(57.20)
20.7	56.00	(48.16)	63.00	(54.18)	57.87	(49.77)	64.92	(55.83)	59.51	(51.18)	66.84	(57.48)
20.8	56.00	(48.16)	63.00	(54.18)	58.15	(50.01)	65.24	(56.10)	59.80	(51.43)	67.16	(57.76)
20.9	56.00	(48.16)	63.00	(54.18)	58.43	(50.25)	65.55	(56.37)	60.09	(51.68)	67.49	(58.04)
21.0	56.00	(48.16)	63.00	(54.18)	58.71	(50.49)	65.86	(56.64)	60.37	(51.92)	67.81	(58.32)
21.1	56.00	(48.16)	63.00	(54.18)	58.99	(50.73)	66.18	(56.91)	60.66	(52.17)	68.13	(58.59)
21.2	56.00	(48.16)	63.00	(54.18)	59.26	(50.97)	66.49	(57.18)	60.95	(52.42)	68.45	(58.87)
21.3	56.00	(48.16)	63.00	(54.18)	59.54	(51.21)	66.80	(57.45)	61.24	(52.66)	68.78	(59.15)
21.4	56.00	(48.16)	63.00	(54.18)	59.82	(51.45)	67.12	(57.72)	61.52	(52.91)	69.10	(59.43)
21.5	56.00	(48.16)	63.00	(54.18)	60.10	(51.69)	67.43	(57.99)	61.81	(53.16)	69.42	(59.70)
21.6	56.00	(48.16)	63.00	(54.18)	60.38	(51.93)	67.74	(58.26)	62.10	(53.41)	69.75	(59.98)
21.7	56.00	(48.16)	63.00	(54.18)	60.66	(52.17)	68.06	(58.53)	62.39	(53.65)	70.07	(60.26)
21.8	56.00	(48.16)	63.00	(54.18)	60.94	(52.41)	68.37	(58.80)	62.67	(53.90)	70.39	(60.54)
21.9	56.00	(48.16)	63.00	(54.18)	61.22	(52.65)	68.68	(59.07)	62.96	(54.15)	70.72	(60.81)

Table 8. Outdoor Unit Capacity (20, 22, 24HP) with Total Horsepower of Combined Indoor Unit (3)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)											
	RAS-20FSXNQ				RAS-22FSXNQ				RAS-24FSXNQ			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
22.0	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	63.25	(54.39)	71.04	(61.09)
22.1	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	63.54	(54.64)	71.36	(61.37)
22.2	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	63.82	(54.89)	71.68	(61.65)
22.3	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	64.11	(55.14)	72.01	(61.93)
22.4	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	64.40	(55.38)	72.33	(62.20)
22.5	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	64.69	(55.63)	72.65	(62.48)
22.6	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	64.97	(55.88)	72.98	(62.76)
22.7	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	65.26	(56.13)	73.30	(63.04)
22.8	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	65.55	(56.37)	73.62	(63.31)
22.9	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	65.84	(56.62)	73.94	(63.59)
23.0	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	66.12	(56.87)	74.27	(63.87)
23.1	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	66.41	(57.11)	74.59	(64.15)
23.2	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	66.70	(57.36)	74.91	(64.43)
23.3	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	66.99	(57.61)	75.24	(64.70)
23.4	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	67.27	(57.86)	75.56	(64.98)
23.5	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	67.56	(58.10)	75.88	(65.26)
23.6	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	67.85	(58.35)	76.20	(65.54)
23.7	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	68.14	(58.60)	76.53	(65.81)
23.8	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	68.42	(58.85)	76.85	(66.09)
23.9	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	68.71	(59.09)	77.17	(66.37)
24.0	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
24.1	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
24.2	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
24.3	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
24.4	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
24.5	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
24.6	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
24.7	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
24.8	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
24.9	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
25.0	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
25.1	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
25.2	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
25.3	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
25.4	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
25.5	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
25.6	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
25.7	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
25.8	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
25.9	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
26.0	56.00	(48.16)	63.00	(54.18)	61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
26.1					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
26.2					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
26.3					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
26.4					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
26.5					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
26.6					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
26.7					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
26.8					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
26.9					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
27.0					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
27.1					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
27.2					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
27.3					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
27.4					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
27.5					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
27.6					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
27.7					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
27.8					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)
27.9					61.50	(52.89)	69.00	(59.34)	69.00	(59.34)	77.50	(66.65)

Table 9. Outdoor Unit Capacity (20, 22, 24HP) with Total Horsepower of Combined Indoor Unit (4)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)							
	RAS-20FSXNQ		RAS-22FSXNQ				RAS-24FSXNQ	
	Cooling	Heating	Cooling		Heating		Cooling	Heating
28.0			61.50	(52.89)	69.00	(59.34)	69.00	(59.34)
28.1			61.50	(52.89)	69.00	(59.34)	69.00	(59.34)
28.2			61.50	(52.89)	69.00	(59.34)	69.00	(59.34)
28.3			61.50	(52.89)	69.00	(59.34)	69.00	(59.34)
28.4			61.50	(52.89)	69.00	(59.34)	69.00	(59.34)
28.5			61.50	(52.89)	69.00	(59.34)	69.00	(59.34)
28.6			61.50	(52.89)	69.00	(59.34)	69.00	(59.34)
28.7							69.00	(59.34)
28.8							69.00	(59.34)
28.9							69.00	(59.34)
29.0							69.00	(59.34)
29.1							69.00	(59.34)
29.2							69.00	(59.34)
29.3							69.00	(59.34)
29.4							69.00	(59.34)
29.5							69.00	(59.34)
29.6							69.00	(59.34)
29.7							69.00	(59.34)
29.8							69.00	(59.34)
29.9							69.00	(59.34)
30.0							69.00	(59.34)
30.1							69.00	(59.34)
30.2							69.00	(59.34)
30.3							69.00	(59.34)
30.4							69.00	(59.34)
30.5							69.00	(59.34)
30.6							69.00	(59.34)
30.7							69.00	(59.34)
30.8							69.00	(59.34)
30.9							69.00	(59.34)
31.0							69.00	(59.34)
31.1							69.00	(59.34)
31.2							69.00	(59.34)

SELECTION DATA

Table 10. Outdoor Unit Capacity (26, 28, 30HP) with Total Horsepower of Combined Indoor Unit (1)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)											
	RAS-26FSXNQ				RAS-28FSXNQ				RAS-30FSXNQ			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
13.0	36.50	(31.39)	41.25	(35.47)								
13.1	36.78	(31.63)	41.57	(35.75)								
13.2	37.06	(31.87)	41.88	(36.02)								
13.3	37.34	(32.11)	42.20	(36.29)								
13.4	37.62	(32.36)	42.52	(36.57)								
13.5	37.90	(32.60)	42.84	(36.84)								
13.6	38.18	(32.84)	43.15	(37.11)								
13.7	38.47	(33.08)	43.47	(37.38)								
13.8	38.75	(33.32)	43.79	(37.66)								
13.9	39.03	(33.56)	44.10	(37.93)								
14.0	39.31	(33.80)	44.42	(38.20)	40.00	(34.40)	45.00	(38.70)				
14.1	39.59	(34.05)	44.74	(38.48)	40.28	(34.64)	45.32	(38.98)				
14.2	39.87	(34.29)	45.06	(38.75)	40.57	(34.89)	45.64	(39.25)				
14.3	40.15	(34.53)	45.37	(39.02)	40.86	(35.14)	45.96	(39.53)				
14.4	40.43	(34.77)	45.69	(39.29)	41.14	(35.38)	46.29	(39.81)				
14.5	40.71	(35.01)	46.01	(39.57)	41.43	(35.63)	46.61	(40.08)				
14.6	40.99	(35.25)	46.33	(39.84)	41.71	(35.87)	46.93	(40.36)				
14.7	41.27	(35.49)	46.64	(40.11)	42.00	(36.12)	47.25	(40.64)				
14.8	41.55	(35.74)	46.96	(40.39)	42.28	(36.36)	47.57	(40.91)				
14.9	41.83	(35.98)	47.28	(40.66)	42.57	(36.61)	47.89	(41.19)				
15.0	42.12	(36.22)	47.60	(40.93)	42.86	(36.86)	48.21	(41.46)	42.50	(36.55)	47.50	(40.85)
15.1	42.40	(36.46)	47.91	(41.20)	43.14	(37.10)	48.54	(41.74)	42.78	(36.79)	47.82	(41.12)
15.2	42.68	(36.70)	48.23	(41.48)	43.43	(37.35)	48.86	(42.02)	43.07	(37.04)	48.13	(41.40)
15.3	42.96	(36.94)	48.55	(41.75)	43.71	(37.59)	49.18	(42.29)	43.35	(37.28)	48.45	(41.67)
15.4	43.24	(37.19)	48.86	(42.02)	44.00	(37.84)	49.50	(42.57)	43.63	(37.52)	48.77	(41.94)
15.5	43.52	(37.43)	49.18	(42.30)	44.28	(38.08)	49.82	(42.85)	43.92	(37.77)	49.08	(42.21)
15.6	43.80	(37.67)	49.50	(42.57)	44.57	(38.33)	50.14	(43.12)	44.20	(38.01)	49.40	(42.48)
15.7	44.08	(37.91)	49.82	(42.84)	44.85	(38.58)	50.46	(43.40)	44.48	(38.26)	49.72	(42.76)
15.8	44.36	(38.15)	50.13	(43.11)	45.14	(38.82)	50.79	(43.68)	44.77	(38.50)	50.03	(43.03)
15.9	44.64	(38.39)	50.45	(43.39)	45.43	(39.07)	51.11	(43.95)	45.05	(38.74)	50.35	(43.30)
16.0	44.92	(38.63)	50.77	(43.66)	45.71	(39.31)	51.43	(44.23)	45.33	(38.99)	50.67	(43.57)
16.1	45.20	(38.88)	51.09	(43.93)	46.00	(39.56)	51.75	(44.51)	45.62	(39.23)	50.98	(43.85)
16.2	45.48	(39.12)	51.40	(44.21)	46.28	(39.80)	52.07	(44.78)	45.90	(39.47)	51.30	(44.12)
16.3	45.77	(39.36)	51.72	(44.48)	46.57	(40.05)	52.39	(45.06)	46.18	(39.72)	51.62	(44.39)
16.4	46.05	(39.60)	52.04	(44.75)	46.85	(40.30)	52.71	(45.33)	46.47	(39.96)	51.93	(44.66)
16.5	46.33	(39.84)	52.35	(45.02)	47.14	(40.54)	53.04	(45.61)	46.75	(40.20)	52.25	(44.94)
16.6	46.61	(40.08)	52.67	(45.30)	47.43	(40.79)	53.36	(45.89)	47.03	(40.45)	52.57	(45.21)
16.7	46.89	(40.32)	52.99	(45.57)	47.71	(41.03)	53.68	(46.16)	47.32	(40.69)	52.88	(45.48)
16.8	47.17	(40.57)	53.31	(45.84)	48.00	(41.28)	54.00	(46.44)	47.60	(40.94)	53.20	(45.75)
16.9	47.45	(40.81)	53.62	(46.12)	48.28	(41.52)	54.32	(46.72)	47.88	(41.18)	53.52	(46.02)
17.0	47.73	(41.05)	53.94	(46.39)	48.57	(41.77)	54.64	(46.99)	48.17	(41.42)	53.83	(46.30)
17.1	48.01	(41.29)	54.26	(46.66)	48.85	(42.02)	54.96	(47.27)	48.45	(41.67)	54.15	(46.57)
17.2	48.29	(41.53)	54.58	(46.94)	49.14	(42.26)	55.29	(47.55)	48.73	(41.91)	54.47	(46.84)
17.3	48.57	(41.77)	54.89	(47.21)	49.43	(42.51)	55.61	(47.82)	49.02	(42.15)	54.78	(47.11)
17.4	48.85	(42.01)	55.21	(47.48)	49.71	(42.75)	55.93	(48.10)	49.30	(42.40)	55.10	(47.39)
17.5	49.13	(42.26)	55.53	(47.75)	50.00	(43.00)	56.25	(48.38)	49.58	(42.64)	55.42	(47.66)
17.6	49.42	(42.50)	55.84	(48.03)	50.28	(43.24)	56.57	(48.65)	49.87	(42.88)	55.73	(47.93)
17.7	49.70	(42.74)	56.16	(48.30)	50.57	(43.49)	56.89	(48.93)	50.15	(43.13)	56.05	(48.20)
17.8	49.98	(42.98)	56.48	(48.57)	50.85	(43.73)	57.21	(49.20)	50.43	(43.37)	56.37	(48.48)
17.9	50.26	(43.22)	56.80	(48.85)	51.14	(43.98)	57.54	(49.48)	50.72	(43.62)	56.68	(48.75)
18.0	50.54	(43.46)	57.11	(49.12)	51.43	(44.23)	57.86	(49.76)	51.00	(43.86)	57.00	(49.02)
18.1	50.82	(43.70)	57.43	(49.39)	51.71	(44.47)	58.18	(50.03)	51.28	(44.10)	57.32	(49.29)
18.2	51.10	(43.95)	57.75	(49.66)	52.00	(44.72)	58.50	(50.31)	51.57	(44.35)	57.63	(49.57)
18.3	51.38	(44.19)	58.07	(49.94)	52.28	(44.96)	58.82	(50.59)	51.85	(44.59)	57.95	(49.84)
18.4	51.66	(44.43)	58.38	(50.21)	52.57	(45.21)	59.14	(50.86)	52.13	(44.83)	58.27	(50.11)
18.5	51.94	(44.67)	58.70	(50.48)	52.85	(45.45)	59.46	(51.14)	52.42	(45.08)	58.58	(50.38)
18.6	52.22	(44.91)	59.02	(50.76)	53.14	(45.70)	59.79	(51.42)	52.70	(45.32)	58.90	(50.65)
18.7	52.50	(45.15)	59.34	(51.03)	53.43	(45.95)	60.11	(51.69)	52.98	(45.57)	59.22	(50.93)
18.8	52.78	(45.39)	59.65	(51.30)	53.71	(46.19)	60.43	(51.97)	53.27	(45.81)	59.53	(51.20)
18.9	53.07	(45.64)	59.97	(51.57)	54.00	(46.44)	60.75	(52.25)	53.55	(46.05)	59.85	(51.47)

Table 11. Outdoor Unit Capacity (26, 28, 30HP) with Total Horsepower of Combined Indoor Unit (2)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)											
	RAS-26FSXNQ				RAS-28FSXNQ				RAS-30FSXNQ			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
19.0	53.35	(45.88)	60.29	(51.85)	54.28	(46.68)	61.07	(52.52)	53.83	(46.30)	60.17	(51.74)
19.1	53.63	(46.12)	60.60	(52.12)	54.57	(46.93)	61.39	(52.80)	54.12	(46.54)	60.48	(52.02)
19.2	53.91	(46.36)	60.92	(52.39)	54.85	(47.17)	61.71	(53.07)	54.40	(46.78)	60.80	(52.29)
19.3	54.19	(46.60)	61.24	(52.67)	55.14	(47.42)	62.04	(53.35)	54.68	(47.03)	61.12	(52.56)
19.4	54.47	(46.84)	61.56	(52.94)	55.43	(47.67)	62.36	(53.63)	54.97	(47.27)	61.43	(52.83)
19.5	54.75	(47.09)	61.87	(53.21)	55.71	(47.91)	62.68	(53.90)	55.25	(47.51)	61.75	(53.11)
19.6	55.03	(47.33)	62.19	(53.48)	56.00	(48.16)	63.00	(54.18)	55.53	(47.76)	62.07	(53.38)
19.7	55.31	(47.57)	62.51	(53.76)	56.28	(48.40)	63.32	(54.46)	55.82	(48.00)	62.38	(53.65)
19.8	55.59	(47.81)	62.83	(54.03)	56.57	(48.65)	63.64	(54.73)	56.10	(48.25)	62.70	(53.92)
19.9	55.87	(48.05)	63.14	(54.30)	56.85	(48.89)	63.96	(55.01)	56.38	(48.49)	63.02	(54.19)
20.0	56.15	(48.29)	63.46	(54.58)	57.14	(49.14)	64.29	(55.29)	56.67	(48.73)	63.33	(54.47)
20.1	56.43	(48.53)	63.78	(54.85)	57.43	(49.39)	64.61	(55.56)	56.95	(48.98)	63.65	(54.74)
20.2	56.72	(48.78)	64.09	(55.12)	57.71	(49.63)	64.93	(55.84)	57.23	(49.22)	63.97	(55.01)
20.3	57.00	(49.02)	64.41	(55.39)	58.00	(49.88)	65.25	(56.12)	57.52	(49.46)	64.28	(55.28)
20.4	57.28	(49.26)	64.73	(55.67)	58.28	(50.12)	65.57	(56.39)	57.80	(49.71)	64.60	(55.56)
20.5	57.56	(49.50)	65.05	(55.94)	58.57	(50.37)	65.89	(56.67)	58.08	(49.95)	64.92	(55.83)
20.6	57.84	(49.74)	65.36	(56.21)	58.85	(50.61)	66.21	(56.94)	58.37	(50.19)	65.23	(56.10)
20.7	58.12	(49.98)	65.68	(56.49)	59.14	(50.86)	66.54	(57.22)	58.65	(50.44)	65.55	(56.37)
20.8	58.40	(50.22)	66.00	(56.76)	59.43	(51.11)	66.86	(57.50)	58.93	(50.68)	65.87	(56.65)
20.9	58.68	(50.47)	66.32	(57.03)	59.71	(51.35)	67.18	(57.77)	59.22	(50.93)	66.18	(56.92)
21.0	58.96	(50.71)	66.63	(57.30)	60.00	(51.60)	67.50	(58.05)	59.50	(51.17)	66.50	(57.19)
21.1	59.24	(50.95)	66.95	(57.58)	60.28	(51.84)	67.82	(58.33)	59.78	(51.41)	66.82	(57.46)
21.2	59.52	(51.19)	67.27	(57.85)	60.57	(52.09)	68.14	(58.60)	60.07	(51.66)	67.13	(57.74)
21.3	59.80	(51.43)	67.58	(58.12)	60.85	(52.33)	68.46	(58.88)	60.35	(51.90)	67.45	(58.01)
21.4	60.08	(51.67)	67.90	(58.40)	61.14	(52.58)	68.79	(59.16)	60.63	(52.14)	67.77	(58.28)
21.5	60.37	(51.91)	68.22	(58.67)	61.43	(52.83)	69.11	(59.43)	60.92	(52.39)	68.08	(58.55)
21.6	60.65	(52.16)	68.54	(58.94)	61.71	(53.07)	69.43	(59.71)	61.20	(52.63)	68.40	(58.82)
21.7	60.93	(52.40)	68.85	(59.21)	62.00	(53.32)	69.75	(59.99)	61.48	(52.88)	68.72	(59.10)
21.8	61.21	(52.64)	69.17	(59.49)	62.28	(53.56)	70.07	(60.26)	61.77	(53.12)	69.03	(59.37)
21.9	61.49	(52.88)	69.49	(59.76)	62.57	(53.81)	70.39	(60.54)	62.05	(53.36)	69.35	(59.64)
22.0	61.77	(53.12)	69.81	(60.03)	62.85	(54.05)	70.71	(60.81)	62.33	(53.61)	69.67	(59.91)
22.1	62.05	(53.36)	70.12	(60.31)	63.14	(54.30)	71.04	(61.09)	62.62	(53.85)	69.98	(60.19)
22.2	62.33	(53.60)	70.44	(60.58)	63.43	(54.55)	71.36	(61.37)	62.90	(54.09)	70.30	(60.46)
22.3	62.61	(53.85)	70.76	(60.85)	63.71	(54.79)	71.68	(61.64)	63.18	(54.34)	70.62	(60.73)
22.4	62.89	(54.09)	71.08	(61.12)	64.00	(55.04)	72.00	(61.92)	63.47	(54.58)	70.93	(61.00)
22.5	63.17	(54.33)	71.39	(61.40)	64.28	(55.28)	72.32	(62.20)	63.75	(54.82)	71.25	(61.28)
22.6	63.45	(54.57)	71.71	(61.67)	64.57	(55.53)	72.64	(62.47)	64.03	(55.07)	71.57	(61.55)
22.7	63.73	(54.81)	72.03	(61.94)	64.85	(55.77)	72.96	(62.75)	64.32	(55.31)	71.88	(61.82)
22.8	64.02	(55.05)	72.34	(62.22)	65.14	(56.02)	73.29	(63.03)	64.60	(55.56)	72.20	(62.09)
22.9	64.30	(55.29)	72.66	(62.49)	65.43	(56.27)	73.61	(63.30)	64.88	(55.80)	72.52	(62.36)
23.0	64.58	(55.54)	72.98	(62.76)	65.71	(56.51)	73.93	(63.58)	65.17	(56.04)	72.83	(62.64)
23.1	64.86	(55.78)	73.30	(63.03)	66.00	(56.76)	74.25	(63.86)	65.45	(56.29)	73.15	(62.91)
23.2	65.14	(56.02)	73.61	(63.31)	66.28	(57.00)	74.57	(64.13)	65.73	(56.53)	73.47	(63.18)
23.3	65.42	(56.26)	73.93	(63.58)	66.57	(57.25)	74.89	(64.41)	66.02	(56.77)	73.78	(63.45)
23.4	65.70	(56.50)	74.25	(63.85)	66.85	(57.49)	75.21	(64.68)	66.30	(57.02)	74.10	(63.73)
23.5	65.98	(56.74)	74.57	(64.13)	67.14	(57.74)	75.54	(64.96)	66.58	(57.26)	74.42	(64.00)
23.6	66.26	(56.99)	74.88	(64.40)	67.43	(57.99)	75.86	(65.24)	66.87	(57.50)	74.73	(64.27)
23.7	66.54	(57.23)	75.20	(64.67)	67.71	(58.23)	76.18	(65.51)	67.15	(57.75)	75.05	(64.54)
23.8	66.82	(57.47)	75.52	(64.94)	68.00	(58.48)	76.50	(65.79)	67.43	(57.99)	75.37	(64.82)
23.9	67.10	(57.71)	75.83	(65.22)	68.28	(58.72)	76.82	(66.07)	67.72	(58.24)	75.68	(65.09)
24.0	67.38	(57.95)	76.15	(65.49)	68.57	(58.97)	77.14	(66.34)	68.00	(58.48)	76.00	(65.36)
24.1	67.67	(58.19)	76.47	(65.76)	68.85	(59.21)	77.46	(66.62)	68.28	(58.72)	76.32	(65.63)
24.2	67.95	(58.43)	76.79	(66.04)	69.14	(59.46)	77.79	(66.90)	68.57	(58.97)	76.63	(65.91)
24.3	68.23	(58.68)	77.10	(66.31)	69.43	(59.71)	78.11	(67.17)	68.85	(59.21)	76.95	(66.18)
24.4	68.51	(58.92)	77.42	(66.58)	69.71	(59.95)	78.43	(67.45)	69.13	(59.45)	77.27	(66.45)
24.5	68.79	(59.16)	77.74	(66.86)	70.00	(60.20)	78.75	(67.73)	69.42	(59.70)	77.58	(66.72)
24.6	69.07	(59.40)	78.06	(67.13)	70.28	(60.44)	79.07	(68.00)	69.70	(59.94)	77.90	(66.99)
24.7	69.35	(59.64)	78.37	(67.40)	70.57	(60.69)	79.39	(68.28)	69.98	(60.18)	78.22	(67.27)
24.8	69.63	(59.88)	78.69	(67.67)	70.85	(60.93)	79.71	(68.55)	70.27	(60.43)	78.53	(67.54)
24.9	69.91	(60.12)	79.01	(67.95)	71.14	(61.18)	80.04	(68.83)	70.55	(60.67)	78.85	(67.81)

Table 12. Outdoor Unit Capacity (26, 28, 30HP) with Total Horsepower of Combined Indoor Unit (3)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)											
	RAS-26FSXNQ				RAS-28FSXNQ				RAS-30FSXNQ			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
25.0	70.19	(60.37)	79.32	(68.22)	71.42	(61.43)	80.36	(69.11)	70.83	(60.92)	79.17	(68.08)
25.1	70.47	(60.61)	79.64	(68.49)	71.71	(61.67)	80.68	(69.38)	71.12	(61.16)	79.48	(68.36)
25.2	70.75	(60.85)	79.96	(68.77)	72.00	(61.92)	81.00	(69.66)	71.40	(61.40)	79.80	(68.63)
25.3	71.03	(61.09)	80.28	(69.04)	72.28	(62.16)	81.32	(69.94)	71.68	(61.65)	80.12	(68.90)
25.4	71.32	(61.33)	80.59	(69.31)	72.57	(62.41)	81.64	(70.21)	71.97	(61.89)	80.43	(69.17)
25.5	71.60	(61.57)	80.91	(69.58)	72.85	(62.65)	81.96	(70.49)	72.25	(62.13)	80.75	(69.45)
25.6	71.88	(61.81)	81.23	(69.86)	73.14	(62.90)	82.29	(70.77)	72.53	(62.38)	81.07	(69.72)
25.7	72.16	(62.06)	81.55	(70.13)	73.42	(63.15)	82.61	(71.04)	72.82	(62.62)	81.38	(69.99)
25.8	72.44	(62.30)	81.86	(70.40)	73.71	(63.39)	82.93	(71.32)	73.10	(62.87)	81.70	(70.26)
25.9	72.72	(62.54)	82.18	(70.68)	74.00	(63.64)	83.25	(71.60)	73.38	(63.11)	82.02	(70.54)
26.0	73.00	(62.78)	82.50	(70.95)	74.28	(63.88)	83.57	(71.87)	73.67	(63.35)	82.33	(70.81)
26.1	73.00	(62.78)	82.50	(70.95)	74.57	(64.13)	83.89	(72.15)	73.95	(63.60)	82.65	(71.08)
26.2	73.00	(62.78)	82.50	(70.95)	74.85	(64.37)	84.21	(72.42)	74.23	(63.84)	82.97	(71.35)
26.3	73.00	(62.78)	82.50	(70.95)	75.14	(64.62)	84.54	(72.70)	74.52	(64.08)	83.28	(71.62)
26.4	73.00	(62.78)	82.50	(70.95)	75.42	(64.87)	84.86	(72.98)	74.80	(64.33)	83.60	(71.90)
26.5	73.00	(62.78)	82.50	(70.95)	75.71	(65.11)	85.18	(73.25)	75.08	(64.57)	83.92	(72.17)
26.6	73.00	(62.78)	82.50	(70.95)	76.00	(65.36)	85.50	(73.53)	75.37	(64.81)	84.23	(72.44)
26.7	73.00	(62.78)	82.50	(70.95)	76.28	(65.60)	85.82	(73.81)	75.65	(65.06)	84.55	(72.71)
26.8	73.00	(62.78)	82.50	(70.95)	76.57	(65.85)	86.14	(74.08)	75.93	(65.30)	84.87	(72.99)
26.9	73.00	(62.78)	82.50	(70.95)	76.85	(66.09)	86.46	(74.36)	76.22	(65.55)	85.18	(73.26)
27.0	73.00	(62.78)	82.50	(70.95)	77.14	(66.34)	86.79	(74.64)	76.50	(65.79)	85.50	(73.53)
27.1	73.00	(62.78)	82.50	(70.95)	77.42	(66.59)	87.11	(74.91)	76.78	(66.03)	85.82	(73.80)
27.2	73.00	(62.78)	82.50	(70.95)	77.71	(66.83)	87.43	(75.19)	77.07	(66.28)	86.13	(74.08)
27.3	73.00	(62.78)	82.50	(70.95)	78.00	(67.08)	87.75	(75.47)	77.35	(66.52)	86.45	(74.35)
27.4	73.00	(62.78)	82.50	(70.95)	78.28	(67.32)	88.07	(75.74)	77.63	(66.76)	86.77	(74.62)
27.5	73.00	(62.78)	82.50	(70.95)	78.57	(67.57)	88.39	(76.02)	77.92	(67.01)	87.08	(74.89)
27.6	73.00	(62.78)	82.50	(70.95)	78.85	(67.81)	88.71	(76.29)	78.20	(67.25)	87.40	(75.16)
27.7	73.00	(62.78)	82.50	(70.95)	79.14	(68.06)	89.04	(76.57)	78.48	(67.49)	87.72	(75.44)
27.8	73.00	(62.78)	82.50	(70.95)	79.42	(68.31)	89.36	(76.85)	78.77	(67.74)	88.03	(75.71)
27.9	73.00	(62.78)	82.50	(70.95)	79.71	(68.55)	89.68	(77.12)	79.05	(67.98)	88.35	(75.98)
28.0	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	79.33	(68.23)	88.67	(76.25)
28.1	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	79.62	(68.47)	88.98	(76.53)
28.2	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	79.90	(68.71)	89.30	(76.80)
28.3	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	80.18	(68.96)	89.62	(77.07)
28.4	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	80.47	(69.20)	89.93	(77.34)
28.5	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	80.75	(69.44)	90.25	(77.62)
28.6	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	81.03	(69.69)	90.57	(77.89)
28.7	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	81.32	(69.93)	90.88	(78.16)
28.8	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	81.60	(70.18)	91.20	(78.43)
28.9	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	81.88	(70.42)	91.52	(78.71)
29.0	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	82.17	(70.66)	91.83	(78.98)
29.1	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	82.45	(70.91)	92.15	(79.25)
29.2	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	82.73	(71.15)	92.47	(79.52)
29.3	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	83.02	(71.39)	92.78	(79.79)
29.4	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	83.30	(71.64)	93.10	(80.07)
29.5	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	83.58	(71.88)	93.42	(80.34)
29.6	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	83.87	(72.12)	93.73	(80.61)
29.7	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	84.15	(72.37)	94.05	(80.88)
29.8	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	84.43	(72.61)	94.37	(81.16)
29.9	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	84.72	(72.86)	94.68	(81.43)
30.0	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	85.00	(73.10)	95.00	(81.70)
30.1	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	85.00	(73.10)	95.00	(81.70)
30.2	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	85.00	(73.10)	95.00	(81.70)
30.3	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	85.00	(73.10)	95.00	(81.70)
30.4	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	85.00	(73.10)	95.00	(81.70)
30.5	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	85.00	(73.10)	95.00	(81.70)
30.6	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	85.00	(73.10)	95.00	(81.70)
30.7	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	85.00	(73.10)	95.00	(81.70)
30.8	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	85.00	(73.10)	95.00	(81.70)
30.9	73.00	(62.78)	82.50	(70.95)	80.00	(68.80)	90.00	(77.40)	85.00	(73.10)	95.00	(81.70)

Table 13. Outdoor Unit Capacity (26, 28, 30HP) with Total Horsepower of Combined Indoor Unit (4)

[illegible]

Table 14. Outdoor Unit Capacity (26, 28, 30HP) with Total Horsepower of Combined Indoor Unit (5)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)					
	RAS-26FSXNQ		RAS-28FSXNQ		RAS-30FSXNQ	
	Cooling	Heating	Cooling	Heating	Cooling	Heating
37.0					85.00 (73.10)	95.00 (81.70)
37.1					85.00 (73.10)	95.00 (81.70)
37.2					85.00 (73.10)	95.00 (81.70)
37.3					85.00 (73.10)	95.00 (81.70)
37.4					85.00 (73.10)	95.00 (81.70)
37.5					85.00 (73.10)	95.00 (81.70)
37.6					85.00 (73.10)	95.00 (81.70)
37.7					85.00 (73.10)	95.00 (81.70)
37.8					85.00 (73.10)	95.00 (81.70)
37.9					85.00 (73.10)	95.00 (81.70)
38.0	-		-		85.00 (73.10)	95.00 (81.70)
38.1					85.00 (73.10)	95.00 (81.70)
38.2					85.00 (73.10)	95.00 (81.70)
38.3					85.00 (73.10)	95.00 (81.70)
38.4					85.00 (73.10)	95.00 (81.70)
38.5					85.00 (73.10)	95.00 (81.70)
38.6					85.00 (73.10)	95.00 (81.70)
38.7					85.00 (73.10)	95.00 (81.70)
38.8					85.00 (73.10)	95.00 (81.70)
38.9					85.00 (73.10)	95.00 (81.70)
39.0					85.00 (73.10)	95.00 (81.70)

Table 15. Outdoor Unit Capacity (32, 34, 36HP) with Total Horsepower of Combined Indoor Unit (1)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)											
	RAS-32FSXNQ				RAS-34FSXNQ				RAS-36FSXNQ			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
16.0	45.00	(38.70)	50.00	(43.00)								
16.1	45.28	(38.94)	50.31	(43.27)								
16.2	45.56	(39.18)	50.63	(43.54)								
16.3	45.84	(39.43)	50.94	(43.81)								
16.4	46.13	(39.67)	51.25	(44.08)								
16.5	46.41	(39.91)	51.56	(44.34)								
16.6	46.69	(40.15)	51.88	(44.61)								
16.7	46.97	(40.39)	52.19	(44.88)								
16.8	47.25	(40.63)	52.50	(45.15)								
16.9	47.53	(40.88)	52.81	(45.42)								
17.0	47.81	(41.12)	53.12	(45.69)	47.50	(40.85)	53.00	(45.58)				
17.1	48.09	(41.36)	53.44	(45.96)	47.78	(41.09)	53.31	(45.85)				
17.2	48.37	(41.60)	53.75	(46.22)	48.06	(41.33)	53.62	(46.12)				
17.3	48.66	(41.84)	54.06	(46.49)	48.34	(41.57)	53.93	(46.38)				
17.4	48.94	(42.09)	54.37	(46.76)	48.62	(41.81)	54.25	(46.65)				
17.5	49.22	(42.33)	54.69	(47.03)	48.89	(42.05)	54.56	(46.92)				
17.6	49.50	(42.57)	55.00	(47.30)	49.17	(42.29)	54.87	(47.19)				
17.7	49.78	(42.81)	55.31	(47.57)	49.45	(42.53)	55.18	(47.46)				
17.8	50.06	(43.05)	55.62	(47.84)	49.73	(42.77)	55.49	(47.72)				
17.9	50.34	(43.30)	55.94	(48.11)	50.01	(43.01)	55.81	(47.99)				
18.0	50.62	(43.54)	56.25	(48.37)	50.29	(43.25)	56.12	(48.26)	50.00	(43.00)	56.00	(48.16)
18.1	50.91	(43.78)	56.56	(48.64)	50.57	(43.49)	56.43	(48.53)	50.28	(43.24)	56.31	(48.43)
18.2	51.19	(44.02)	56.87	(48.91)	50.85	(43.73)	56.74	(48.80)	50.56	(43.48)	56.62	(48.69)
18.3	51.47	(44.26)	57.19	(49.18)	51.13	(43.97)	57.05	(49.06)	50.83	(43.72)	56.93	(48.96)
18.4	51.75	(44.50)	57.50	(49.45)	51.41	(44.21)	57.36	(49.33)	51.11	(43.96)	57.24	(49.23)
18.5	52.03	(44.75)	57.81	(49.72)	51.69	(44.45)	57.68	(49.60)	51.39	(44.19)	57.55	(49.50)
18.6	52.31	(44.99)	58.12	(49.99)	51.97	(44.69)	57.99	(49.87)	51.67	(44.43)	57.86	(49.76)
18.7	52.59	(45.23)	58.44	(50.26)	52.25	(44.93)	58.30	(50.14)	51.94	(44.67)	58.18	(50.03)
18.8	52.87	(45.47)	58.75	(50.52)	52.53	(45.17)	58.61	(50.41)	52.22	(44.91)	58.49	(50.30)
18.9	53.16	(45.71)	59.06	(50.79)	52.81	(45.41)	58.92	(50.67)	52.50	(45.15)	58.80	(50.57)
19.0	53.44	(45.96)	59.37	(51.06)	53.09	(45.65)	59.23	(50.94)	52.78	(45.39)	59.11	(50.83)
19.1	53.72	(46.20)	59.69	(51.33)	53.37	(45.89)	59.55	(51.21)	53.06	(45.63)	59.42	(51.10)
19.2	54.00	(46.44)	60.00	(51.60)	53.64	(46.13)	59.86	(51.48)	53.33	(45.87)	59.73	(51.37)
19.3	54.28	(46.68)	60.31	(51.87)	53.92	(46.37)	60.17	(51.75)	53.61	(46.11)	60.04	(51.64)
19.4	54.56	(46.92)	60.62	(52.14)	54.20	(46.62)	60.48	(52.01)	53.89	(46.34)	60.35	(51.90)
19.5	54.84	(47.17)	60.94	(52.41)	54.48	(46.86)	60.79	(52.28)	54.17	(46.58)	60.66	(52.17)
19.6	55.12	(47.41)	61.25	(52.67)	54.76	(47.10)	61.10	(52.55)	54.44	(46.82)	60.98	(52.44)
19.7	55.41	(47.65)	61.56	(52.94)	55.04	(47.34)	61.42	(52.82)	54.72	(47.06)	61.29	(52.71)
19.8	55.69	(47.89)	61.87	(53.21)	55.32	(47.58)	61.73	(53.09)	55.00	(47.30)	61.60	(52.97)
19.9	55.97	(48.13)	62.19	(53.48)	55.60	(47.82)	62.04	(53.35)	55.28	(47.54)	61.91	(53.24)
20.0	56.25	(48.37)	62.50	(53.75)	55.88	(48.06)	62.35	(53.62)	55.56	(47.78)	62.22	(53.51)
20.1	56.53	(48.62)	62.81	(54.02)	56.16	(48.30)	62.66	(53.89)	55.83	(48.02)	62.53	(53.78)
20.2	56.81	(48.86)	63.12	(54.29)	56.44	(48.54)	62.98	(54.16)	56.11	(48.26)	62.84	(54.04)
20.3	57.09	(49.10)	63.44	(54.56)	56.72	(48.78)	63.29	(54.43)	56.39	(48.49)	63.15	(54.31)
20.4	57.37	(49.34)	63.75	(54.82)	57.00	(49.02)	63.60	(54.70)	56.67	(48.73)	63.46	(54.58)
20.5	57.66	(49.58)	64.06	(55.09)	57.28	(49.26)	63.91	(54.96)	56.94	(48.97)	63.78	(54.85)
20.6	57.94	(49.83)	64.37	(55.36)	57.56	(49.50)	64.22	(55.23)	57.22	(49.21)	64.09	(55.11)
20.7	58.22	(50.07)	64.69	(55.63)	57.84	(49.74)	64.53	(55.50)	57.50	(49.45)	64.40	(55.38)
20.8	58.50	(50.31)	65.00	(55.90)	58.12	(49.98)	64.85	(55.77)	57.78	(49.69)	64.71	(55.65)
20.9	58.78	(50.55)	65.31	(56.17)	58.39	(50.22)	65.16	(56.04)	58.06	(49.93)	65.02	(55.92)
21.0	59.06	(50.79)	65.62	(56.44)	58.67	(50.46)	65.47	(56.30)	58.33	(50.17)	65.33	(56.18)
21.1	59.34	(51.04)	65.94	(56.71)	58.95	(50.70)	65.78	(56.57)	58.61	(50.41)	65.64	(56.45)
21.2	59.62	(51.28)	66.25	(56.97)	59.23	(50.94)	66.09	(56.84)	58.89	(50.64)	65.95	(56.72)
21.3	59.91	(51.52)	66.56	(57.24)	59.51	(51.18)	66.40	(57.11)	59.17	(50.88)	66.26	(56.99)
21.4	60.19	(51.76)	66.87	(57.51)	59.79	(51.42)	66.72	(57.38)	59.44	(51.12)	66.58	(57.25)
21.5	60.47	(52.00)	67.19	(57.78)	60.07	(51.66)	67.03	(57.64)	59.72	(51.36)	66.89	(57.52)
21.6	60.75	(52.24)	67.50	(58.05)	60.35	(51.90)	67.34	(57.91)	60.00	(51.60)	67.20	(57.79)
21.7	61.03	(52.49)	67.81	(58.32)	60.63	(52.14)	67.65	(58.18)	60.28	(51.84)	67.51	(58.06)
21.8	61.31	(52.73)	68.12	(58.59)	60.91	(52.38)	67.96	(58.45)	60.56	(52.08)	67.82	(58.33)
21.9	61.59	(52.97)	68.44	(58.86)	61.19	(52.62)	68.28	(58.72)	60.83	(52.32)	68.13	(58.59)

Table 16. Outdoor Unit Capacity (32, 34, 36HP) with Total Horsepower of Combined Indoor Unit (2)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)											
	RAS-32FSXNQ				RAS-34FSXNQ				RAS-36FSXNQ			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
22.0	61.87	(53.21)	68.75	(59.12)	61.47	(52.86)	68.59	(58.98)	61.11	(52.56)	68.44	(58.86)
22.1	62.16	(53.45)	69.06	(59.39)	61.75	(53.10)	68.90	(59.25)	61.39	(52.79)	68.75	(59.13)
22.2	62.44	(53.70)	69.37	(59.66)	62.03	(53.34)	69.21	(59.52)	61.67	(53.03)	69.06	(59.40)
22.3	62.72	(53.94)	69.69	(59.93)	62.31	(53.58)	69.52	(59.79)	61.94	(53.27)	69.38	(59.66)
22.4	63.00	(54.18)	70.00	(60.20)	62.59	(53.82)	69.83	(60.06)	62.22	(53.51)	69.69	(59.93)
22.5	63.28	(54.42)	70.31	(60.47)	62.86	(54.06)	70.15	(60.33)	62.50	(53.75)	70.00	(60.20)
22.6	63.56	(54.66)	70.62	(60.74)	63.14	(54.30)	70.46	(60.59)	62.78	(53.99)	70.31	(60.47)
22.7	63.84	(54.91)	70.94	(61.01)	63.42	(54.54)	70.77	(60.86)	63.06	(54.23)	70.62	(60.73)
22.8	64.12	(55.15)	71.25	(61.27)	63.70	(54.78)	71.08	(61.13)	63.33	(54.47)	70.93	(61.00)
22.9	64.41	(55.39)	71.56	(61.54)	63.98	(55.03)	71.39	(61.40)	63.61	(54.71)	71.24	(61.27)
23.0	64.69	(55.63)	71.87	(61.81)	64.26	(55.27)	71.70	(61.67)	63.89	(54.94)	71.55	(61.54)
23.1	64.97	(55.87)	72.19	(62.08)	64.54	(55.51)	72.02	(61.93)	64.17	(55.18)	71.86	(61.80)
23.2	65.25	(56.11)	72.50	(62.35)	64.82	(55.75)	72.33	(62.20)	64.44	(55.42)	72.18	(62.07)
23.3	65.53	(56.36)	72.81	(62.62)	65.10	(55.99)	72.64	(62.47)	64.72	(55.66)	72.49	(62.34)
23.4	65.81	(56.60)	73.12	(62.89)	65.38	(56.23)	72.95	(62.74)	65.00	(55.90)	72.80	(62.61)
23.5	66.09	(56.84)	73.44	(63.16)	65.66	(56.47)	73.26	(63.01)	65.28	(56.14)	73.11	(62.87)
23.6	66.37	(57.08)	73.75	(63.42)	65.94	(56.71)	73.58	(63.27)	65.56	(56.38)	73.42	(63.14)
23.7	66.66	(57.32)	74.06	(63.69)	66.22	(56.95)	73.89	(63.54)	65.83	(56.62)	73.73	(63.41)
23.8	66.94	(57.57)	74.37	(63.96)	66.50	(57.19)	74.20	(63.81)	66.11	(56.86)	74.04	(63.68)
23.9	67.22	(57.81)	74.69	(64.23)	66.78	(57.43)	74.51	(64.08)	66.39	(57.09)	74.35	(63.94)
24.0	67.50	(58.05)	75.00	(64.50)	67.06	(57.67)	74.82	(64.35)	66.67	(57.33)	74.66	(64.21)
24.1	67.78	(58.29)	75.31	(64.77)	67.34	(57.91)	75.13	(64.62)	66.94	(57.57)	74.98	(64.48)
24.2	68.06	(58.53)	75.62	(65.04)	67.61	(58.15)	75.45	(64.88)	67.22	(57.81)	75.29	(64.75)
24.3	68.34	(58.78)	75.94	(65.31)	67.89	(58.39)	75.76	(65.15)	67.50	(58.05)	75.60	(65.01)
24.4	68.62	(59.02)	76.25	(65.57)	68.17	(58.63)	76.07	(65.42)	67.78	(58.29)	75.91	(65.28)
24.5	68.91	(59.26)	76.56	(65.84)	68.45	(58.87)	76.38	(65.69)	68.06	(58.53)	76.22	(65.55)
24.6	69.19	(59.50)	76.87	(66.11)	68.73	(59.11)	76.69	(65.96)	68.33	(58.77)	76.53	(65.82)
24.7	69.47	(59.74)	77.19	(66.38)	69.01	(59.35)	77.00	(66.22)	68.61	(59.01)	76.84	(66.08)
24.8	69.75	(59.98)	77.50	(66.65)	69.29	(59.59)	77.32	(66.49)	68.89	(59.24)	77.15	(66.35)
24.9	70.03	(60.23)	77.81	(66.92)	69.57	(59.83)	77.63	(66.76)	69.17	(59.48)	77.46	(66.62)
25.0	70.31	(60.47)	78.12	(67.19)	69.85	(60.07)	77.94	(67.03)	69.44	(59.72)	77.77	(66.89)
25.1	70.59	(60.71)	78.44	(67.46)	70.13	(60.31)	78.25	(67.30)	69.72	(59.96)	78.09	(67.15)
25.2	70.87	(60.95)	78.75	(67.72)	70.41	(60.55)	78.56	(67.56)	70.00	(60.20)	78.40	(67.42)
25.3	71.16	(61.19)	79.06	(67.99)	70.69	(60.79)	78.88	(67.83)	70.28	(60.44)	78.71	(67.69)
25.4	71.44	(61.44)	79.37	(68.26)	70.97	(61.03)	79.19	(68.10)	70.56	(60.68)	79.02	(67.96)
25.5	71.72	(61.68)	79.69	(68.53)	71.25	(61.27)	79.50	(68.37)	70.83	(60.92)	79.33	(68.22)
25.6	72.00	(61.92)	80.00	(68.80)	71.53	(61.51)	79.81	(68.64)	71.11	(61.16)	79.64	(68.49)
25.7	72.28	(62.16)	80.31	(69.07)	71.81	(61.75)	80.12	(68.91)	71.39	(61.39)	79.95	(68.76)
25.8	72.56	(62.40)	80.62	(69.34)	72.09	(61.99)	80.43	(69.17)	71.67	(61.63)	80.26	(69.03)
25.9	72.84	(62.65)	80.94	(69.61)	72.36	(62.23)	80.75	(69.44)	71.95	(61.87)	80.57	(69.29)
26.0	73.12	(62.89)	81.25	(69.87)	72.64	(62.47)	81.06	(69.71)	72.22	(62.11)	80.89	(69.56)
26.1	73.41	(63.13)	81.56	(70.14)	72.92	(62.71)	81.37	(69.98)	72.50	(62.35)	81.20	(69.83)
26.2	73.69	(63.37)	81.87	(70.41)	73.20	(62.95)	81.68	(70.25)	72.78	(62.59)	81.51	(70.10)
26.3	73.97	(63.61)	82.19	(70.68)	73.48	(63.19)	81.99	(70.51)	73.06	(62.83)	81.82	(70.36)
26.4	74.25	(63.85)	82.50	(70.95)	73.76	(63.43)	82.30	(70.78)	73.33	(63.07)	82.13	(70.63)
26.5	74.53	(64.10)	82.81	(71.22)	74.04	(63.68)	82.62	(71.05)	73.61	(63.31)	82.44	(70.90)
26.6	74.81	(64.34)	83.12	(71.49)	74.32	(63.92)	82.93	(71.32)	73.89	(63.54)	82.75	(71.17)
26.7	75.09	(64.58)	83.44	(71.76)	74.60	(64.16)	83.24	(71.59)	74.17	(63.78)	83.06	(71.43)
26.8	75.37	(64.82)	83.75	(72.02)	74.88	(64.40)	83.55	(71.85)	74.45	(64.02)	83.37	(71.70)
26.9	75.66	(65.06)	84.06	(72.29)	75.16	(64.64)	83.86	(72.12)	74.72	(64.26)	83.69	(71.97)
27.0	75.94	(65.31)	84.37	(72.56)	75.44	(64.88)	84.18	(72.39)	75.00	(64.50)	84.00	(72.24)
27.1	76.22	(65.55)	84.69	(72.83)	75.72	(65.12)	84.49	(72.66)	75.28	(64.74)	84.31	(72.50)
27.2	76.50	(65.79)	85.00	(73.10)	76.00	(65.36)	84.80	(72.93)	75.56	(64.98)	84.62	(72.77)
27.3	76.78	(66.03)	85.31	(73.37)	76.28	(65.60)	85.11	(73.20)	75.83	(65.22)	84.93	(73.04)
27.4	77.06	(66.27)	85.62	(73.64)	76.56	(65.84)	85.42	(73.46)	76.11	(65.46)	85.24	(73.31)
27.5	77.34	(66.52)	85.94	(73.91)	76.83	(66.08)	85.73	(73.73)	76.39	(65.69)	85.55	(73.58)
27.6	77.62	(66.76)	86.25	(74.17)	77.11	(66.32)	86.05	(74.00)	76.67	(65.93)	85.86	(73.84)
27.7	77.91	(67.00)	86.56	(74.44)	77.39	(66.56)	86.36	(74.27)	76.95	(66.17)	86.17	(74.11)
27.8	78.19	(67.24)	86.87	(74.71)	77.67	(66.80)	86.67	(74.54)	77.22	(66.41)	86.49	(74.38)
27.9	78.47	(67.48)	87.19	(74.98)	77.95	(67.04)	86.98	(74.80)	77.50	(66.65)	86.80	(74.65)

Table 17. Outdoor Unit Capacity (32, 34, 36HP) with Total Horsepower of Combined Indoor Unit (3)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)									
	RAS-32FSXNQ				RAS-34FSXNQ				RAS-36FSXNQ	
	Cooling	Heating			Cooling	Heating			Cooling	Heating
28.0	78.75 (67.72)	87.50 (75.25)			78.23 (67.28)	87.29 (75.07)			77.78 (66.89)	87.11 (74.91)
28.1	79.03 (67.97)	87.81 (75.52)			78.51 (67.52)	87.60 (75.34)			78.06 (67.13)	87.42 (75.18)
28.2	79.31 (68.21)	88.12 (75.79)			78.79 (67.76)	87.92 (75.61)			78.33 (67.37)	87.73 (75.45)
28.3	79.59 (68.45)	88.44 (76.06)			79.07 (68.00)	88.23 (75.88)			78.61 (67.61)	88.04 (75.72)
28.4	79.87 (68.69)	88.75 (76.32)			79.35 (68.24)	88.54 (76.14)			78.89 (67.84)	88.35 (75.98)
28.5	80.16 (68.93)	89.06 (76.59)			79.63 (68.48)	88.85 (76.41)			79.17 (68.08)	88.66 (76.25)
28.6	80.44 (69.18)	89.37 (76.86)			79.91 (68.72)	89.16 (76.68)			79.45 (68.32)	88.97 (76.52)
28.7	80.72 (69.42)	89.69 (77.13)			80.19 (68.96)	89.48 (76.95)			79.72 (68.56)	89.29 (76.79)
28.8	81.00 (69.66)	90.00 (77.40)			80.47 (69.20)	89.79 (77.22)			80.00 (68.80)	89.60 (77.05)
28.9	81.28 (69.90)	90.31 (77.67)			80.75 (69.44)	90.10 (77.48)			80.28 (69.04)	89.91 (77.32)
29.0	81.56 (70.14)	90.62 (77.94)			81.03 (69.68)	90.41 (77.75)			80.56 (69.28)	90.22 (77.59)
29.1	81.84 (70.39)	90.94 (78.21)			81.31 (69.92)	90.72 (78.02)			80.83 (69.52)	90.53 (77.86)
29.2	82.12 (70.63)	91.25 (78.47)			81.58 (70.16)	91.03 (78.29)			81.11 (69.76)	90.84 (78.12)
29.3	82.41 (70.87)	91.56 (78.74)			81.86 (70.40)	91.35 (78.56)			81.39 (70.00)	91.15 (78.39)
29.4	82.69 (71.11)	91.87 (79.01)			82.14 (70.64)	91.66 (78.83)			81.67 (70.23)	91.46 (78.66)
29.5	82.97 (71.35)	92.19 (79.28)			82.42 (70.88)	91.97 (79.09)			81.95 (70.47)	91.77 (78.93)
29.6	83.25 (71.59)	92.50 (79.55)			82.70 (71.12)	92.28 (79.36)			82.22 (70.71)	92.09 (79.19)
29.7	83.53 (71.84)	92.81 (79.82)			82.98 (71.36)	92.59 (79.63)			82.50 (70.95)	92.40 (79.46)
29.8	83.81 (72.08)	93.12 (80.09)			83.26 (71.60)	92.90 (79.90)			82.78 (71.19)	92.71 (79.73)
29.9	84.09 (72.32)	93.44 (80.36)			83.54 (71.84)	93.22 (80.17)			83.06 (71.43)	93.02 (80.00)
30.0	84.37 (72.56)	93.75 (80.62)			83.82 (72.09)	93.53 (80.43)			83.33 (71.67)	93.33 (80.26)
30.1	84.66 (72.80)	94.06 (80.89)			84.10 (72.33)	93.84 (80.70)			83.61 (71.91)	93.64 (80.53)
30.2	84.94 (73.05)	94.37 (81.16)			84.38 (72.57)	94.15 (80.97)			83.89 (72.15)	93.95 (80.80)
30.3	85.22 (73.29)	94.69 (81.43)			84.66 (72.81)	94.46 (81.24)			84.17 (72.38)	94.26 (81.07)
30.4	85.50 (73.53)	95.00 (81.70)			84.94 (73.05)	94.78 (81.51)			84.45 (72.62)	94.57 (81.33)
30.5	85.78 (73.77)	95.31 (81.97)			85.22 (73.29)	95.09 (81.77)			84.72 (72.86)	94.89 (81.60)
30.6	86.06 (74.01)	95.62 (82.24)			85.50 (73.53)	95.40 (82.04)			85.00 (73.10)	95.20 (81.87)
30.7	86.34 (74.26)	95.94 (82.51)			85.78 (73.77)	95.71 (82.31)			85.28 (73.34)	95.51 (82.14)
30.8	86.62 (74.50)	96.25 (82.77)			86.06 (74.01)	96.02 (82.58)			85.56 (73.58)	95.82 (82.40)
30.9	86.91 (74.74)	96.56 (83.04)			86.33 (74.25)	96.33 (82.85)			85.83 (73.82)	96.13 (82.67)
31.0	87.19 (74.98)	96.87 (83.31)			86.61 (74.49)	96.65 (83.12)			86.11 (74.06)	96.44 (82.94)
31.1	87.47 (75.22)	97.19 (83.58)			86.89 (74.73)	96.96 (83.38)			86.39 (74.30)	96.75 (83.21)
31.2	87.75 (75.46)	97.50 (83.85)			87.17 (74.97)	97.27 (83.65)			86.67 (74.53)	97.06 (83.47)
31.3	88.03 (75.71)	97.81 (84.12)			87.45 (75.21)	97.58 (83.92)			86.95 (74.77)	97.37 (83.74)
31.4	88.31 (75.95)	98.12 (84.39)			87.73 (75.45)	97.89 (84.19)			87.22 (75.01)	97.69 (84.01)
31.5	88.59 (76.19)	98.44 (84.66)			88.01 (75.69)	98.20 (84.46)			87.50 (75.25)	98.00 (84.28)
31.6	88.87 (76.43)	98.75 (84.92)			88.29 (75.93)	98.52 (84.72)			87.78 (75.49)	98.31 (84.54)
31.7	89.16 (76.67)	99.06 (85.19)			88.57 (76.17)	98.83 (84.99)			88.06 (75.73)	98.62 (84.81)
31.8	89.44 (76.92)	99.37 (85.46)			88.85 (76.41)	99.14 (85.26)			88.33 (75.97)	98.93 (85.08)
31.9	89.72 (77.16)	99.69 (85.73)			89.13 (76.65)	99.45 (85.53)			88.61 (76.21)	99.24 (85.35)
32.0	90.00 (77.40)	100.00 (86.00)			89.41 (76.89)	99.76 (85.80)			88.89 (76.45)	99.55 (85.61)
32.1	90.00 (77.40)	100.00 (86.00)			89.69 (77.13)	100.07 (86.06)			89.17 (76.68)	99.86 (85.88)
32.2	90.00 (77.40)	100.00 (86.00)			89.97 (77.37)	100.39 (86.33)			89.45 (76.92)	100.17 (86.15)
32.3	90.00 (77.40)	100.00 (86.00)			90.25 (77.61)	100.70 (86.60)			89.72 (77.16)	100.49 (86.42)
32.4	90.00 (77.40)	100.00 (86.00)			90.53 (77.85)	101.01 (86.87)			90.00 (77.40)	100.80 (86.68)
32.5	90.00 (77.40)	100.00 (86.00)			90.80 (78.09)	101.32 (87.14)			90.28 (77.64)	101.11 (86.95)
32.6	90.00 (77.40)	100.00 (86.00)			91.08 (78.33)	101.63 (87.41)			90.56 (77.88)	101.42 (87.22)
32.7	90.00 (77.40)	100.00 (86.00)			91.36 (78.57)	101.95 (87.67)			90.83 (78.12)	101.73 (87.49)
32.8	90.00 (77.40)	100.00 (86.00)			91.64 (78.81)	102.26 (87.94)			91.11 (78.36)	102.04 (87.76)
32.9	90.00 (77.40)	100.00 (86.00)			91.92 (79.05)	102.57 (88.21)			91.39 (78.60)	102.35 (88.02)
33.0	90.00 (77.40)	100.00 (86.00)			92.20 (79.29)	102.88 (88.48)			91.67 (78.83)	102.66 (88.29)
33.1	90.00 (77.40)	100.00 (86.00)			92.48 (79.53)	103.19 (88.75)			91.95 (79.07)	102.97 (88.56)
33.2	90.00 (77.40)	100.00 (86.00)			92.76 (79.77)	103.50 (89.01)			92.22 (79.31)	103.29 (88.83)
33.3	90.00 (77.40)	100.00 (86.00)			93.04 (80.01)	103.82 (89.28)			92.50 (79.55)	103.60 (89.09)
33.4	90.00 (77.40)	100.00 (86.00)			93.32 (80.25)	104.13 (89.55)			92.78 (79.79)	103.91 (89.36)
33.5	90.00 (77.40)	100.00 (86.00)			93.60 (80.50)	104.44 (89.82)			93.06 (80.03)	104.22 (89.63)
33.6	90.00 (77.40)	100.00 (86.00)			93.88 (80.74)	104.75 (90.09)			93.33 (80.27)	104.53 (89.90)
33.7	90.00 (77.40)	100.00 (86.00)			94.16 (80.98)	105.06 (90.35)			93.61 (80.51)	104.84 (90.16)
33.8	90.00 (77.40)	100.00 (86.00)			94.44 (81.22)	105.37 (90.62)			93.89 (80.75)	105.15 (90.43)
33.9	90.00 (77.40)	100.00 (86.00)			94.72 (81.46)	105.69 (90.89)			94.17 (80.98)	105.46 (90.70)

SELECTION DATA

Table 18. Outdoor Unit Capacity (32, 34, 36HP) with Total Horsepower of Combined Indoor Unit (4)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)											
	RAS-32FSXNQ				RAS-34FSXNQ				RAS-36FSXNQ			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
34.0	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	94.45	(81.22)	105.77	(90.97)
34.1	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	94.72	(81.46)	106.09	(91.23)
34.2	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	95.00	(81.70)	106.40	(91.50)
34.3	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	95.28	(81.94)	106.71	(91.77)
34.4	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	95.56	(82.18)	107.02	(92.04)
34.5	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	95.83	(82.42)	107.33	(92.30)
34.6	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	96.11	(82.66)	107.64	(92.57)
34.7	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	96.39	(82.90)	107.95	(92.84)
34.8	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	96.67	(83.13)	108.26	(93.11)
34.9	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	96.95	(83.37)	108.57	(93.37)
35.0	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	97.22	(83.61)	108.89	(93.64)
35.1	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	97.50	(83.85)	109.20	(93.91)
35.2	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	97.78	(84.09)	109.51	(94.18)
35.3	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	98.06	(84.33)	109.82	(94.44)
35.4	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	98.33	(84.57)	110.13	(94.71)
35.5	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	98.61	(84.81)	110.44	(94.98)
35.6	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	98.89	(85.05)	110.75	(95.25)
35.7	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	99.17	(85.28)	111.06	(95.51)
35.8	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	99.45	(85.52)	111.37	(95.78)
35.9	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	99.72	(85.76)	111.68	(96.05)
36.0	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
36.1	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
36.2	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
36.3	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
36.4	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
36.5	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
36.6	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
36.7	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
36.8	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
36.9	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
37.0	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
37.1	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
37.2	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
37.3	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
37.4	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
37.5	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
37.6	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
37.7	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
37.8	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
37.9	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
38.0	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
38.1	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
38.2	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
38.3	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
38.4	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
38.5	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
38.6	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
38.7	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
38.8	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
38.9	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
39.0	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
39.1	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
39.2	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
39.3	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
39.4	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
39.5	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
39.6	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
39.7	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
39.8	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)
39.9	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)

Table 19. Outdoor Unit Capacity (32, 34, 36HP) with Total Horsepower of Combined Indoor Unit (5)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)															
	RAS-32FSXNQ				RAS-34FSXNQ				RAS-36FSXNQ							
	Cooling		Heating		Cooling		Heating		Cooling		Heating					
40.0	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
40.1	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
40.2	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
40.3	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
40.4	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
40.5	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
40.6	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
40.7	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
40.8	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
40.9	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
41.0	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
41.1	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
41.2	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
41.3	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
41.4	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
41.5	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
41.6	90.00	(77.40)	100.00	(86.00)	95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
41.7					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
41.8					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
41.9					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
42.0					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
42.1					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
42.2					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
42.3					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
42.4					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
42.5					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
42.6					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
42.7					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
42.8					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
42.9					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
43.0					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
43.1					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
43.2					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
43.3					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
43.4					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
43.5					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
43.6					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
43.7					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
43.8					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
43.9					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
44.0					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
44.1					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
44.2					95.00	(81.70)	106.00	(91.16)	100.00	(86.00)	112.00	(96.32)				
44.3													100.00	(86.00)	112.00	(96.32)
44.4													100.00	(86.00)	112.00	(96.32)
44.5													100.00	(86.00)	112.00	(96.32)
44.6													100.00	(86.00)	112.00	(96.32)
44.7													100.00	(86.00)	112.00	(96.32)
44.8													100.00	(86.00)	112.00	(96.32)
44.9									100.00	(86.00)	112.00	(96.32)				
45.0									100.00	(86.00)	112.00	(96.32)				
45.1									100.00	(86.00)	112.00	(96.32)				
45.2									100.00	(86.00)	112.00	(96.32)				
45.3									100.00	(86.00)	112.00	(96.32)				
45.4									100.00	(86.00)	112.00	(96.32)				
45.5									100.00	(86.00)	112.00	(96.32)				
45.6									100.00	(86.00)	112.00	(96.32)				
45.7									100.00	(86.00)	112.00	(96.32)				
45.8									100.00	(86.00)	112.00	(96.32)				
45.9					100.00	(86.00)	112.00	(96.32)								

Table 20. Outdoor Unit Capacity (32, 34, 36HP) with Total Horsepower of Combined Indoor Unit (6)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)							
	RAS-32FSXNQ		RAS-34FSXNQ		RAS-36FSXNQ			
	Cooling	Heating	Cooling	Heating	Cooling		Heating	
46.0	-	-	-	-	100.00	(86.00)	112.00	(96.32)
46.1					100.00	(86.00)	112.00	(96.32)
46.2					100.00	(86.00)	112.00	(96.32)
46.3					100.00	(86.00)	112.00	(96.32)
46.4					100.00	(86.00)	112.00	(96.32)
46.5					100.00	(86.00)	112.00	(96.32)
46.6					100.00	(86.00)	112.00	(96.32)
46.7					100.00	(86.00)	112.00	(96.32)
46.8					100.00	(86.00)	112.00	(96.32)

Table 21. Outdoor Unit Capacity (38, 40, 42HP) with Total Horsepower of Combined Indoor Unit (1)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)											
	RAS-38FSXNQ				RAS-40FSXNQ				RAS-42FSXNQ			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
19.0	54.50	(46.87)	59.00	(50.74)								
19.1	54.79	(47.12)	59.31	(51.01)								
19.2	55.07	(47.36)	59.62	(51.27)								
19.3	55.36	(47.61)	59.93	(51.54)								
19.4	55.65	(47.86)	60.24	(51.81)								
19.5	55.93	(48.10)	60.55	(52.08)								
19.6	56.22	(48.35)	60.86	(52.34)								
19.7	56.51	(48.60)	61.17	(52.61)								
19.8	56.79	(48.84)	61.48	(52.88)								
19.9	57.08	(49.09)	61.80	(53.14)								
20.0	57.37	(49.34)	62.11	(53.41)	56.00	(48.16)	62.50	(53.75)				
20.1	57.65	(49.58)	62.42	(53.68)	56.28	(48.40)	62.81	(54.02)				
20.2	57.94	(49.83)	62.73	(53.95)	56.56	(48.64)	63.12	(54.29)				
20.3	58.23	(50.08)	63.04	(54.21)	56.84	(48.88)	63.44	(54.56)				
20.4	58.52	(50.32)	63.35	(54.48)	57.12	(49.12)	63.75	(54.82)				
20.5	58.80	(50.57)	63.66	(54.75)	57.40	(49.36)	64.06	(55.09)				
20.6	59.09	(50.82)	63.97	(55.01)	57.68	(49.60)	64.37	(55.36)				
20.7	59.38	(51.06)	64.28	(55.28)	57.96	(49.85)	64.69	(55.63)				
20.8	59.66	(51.31)	64.59	(55.55)	58.24	(50.09)	65.00	(55.90)				
20.9	59.95	(51.56)	64.90	(55.81)	58.52	(50.33)	65.31	(56.17)				
21.0	60.24	(51.80)	65.21	(56.08)	58.80	(50.57)	65.62	(56.44)	59.00	(50.74)	66.00	(56.76)
21.1	60.52	(52.05)	65.52	(56.35)	59.08	(50.81)	65.94	(56.71)	59.28	(50.98)	66.32	(57.03)
21.2	60.81	(52.30)	65.83	(56.62)	59.36	(51.05)	66.25	(56.97)	59.56	(51.22)	66.63	(57.30)
21.3	61.10	(52.54)	66.14	(56.88)	59.64	(51.29)	66.56	(57.24)	59.84	(51.46)	66.94	(57.57)
21.4	61.38	(52.79)	66.45	(57.15)	59.92	(51.53)	66.87	(57.51)	60.12	(51.71)	67.26	(57.84)
21.5	61.67	(53.04)	66.76	(57.42)	60.20	(51.77)	67.19	(57.78)	60.40	(51.95)	67.57	(58.11)
21.6	61.96	(53.28)	67.07	(57.68)	60.48	(52.01)	67.50	(58.05)	60.69	(52.19)	67.89	(58.38)
21.7	62.24	(53.53)	67.39	(57.95)	60.76	(52.25)	67.81	(58.32)	60.97	(52.43)	68.20	(58.65)
21.8	62.53	(53.78)	67.70	(58.22)	61.04	(52.49)	68.12	(58.59)	61.25	(52.67)	68.52	(58.92)
21.9	62.82	(54.02)	68.01	(58.49)	61.32	(52.74)	68.44	(58.86)	61.53	(52.91)	68.83	(59.19)
22.0	63.10	(54.27)	68.32	(58.75)	61.60	(52.98)	68.75	(59.12)	61.81	(53.16)	69.14	(59.46)
22.1	63.39	(54.52)	68.63	(59.02)	61.88	(53.22)	69.06	(59.39)	62.09	(53.40)	69.46	(59.73)
22.2	63.68	(54.76)	68.94	(59.29)	62.16	(53.46)	69.37	(59.66)	62.37	(53.64)	69.77	(60.00)
22.3	63.97	(55.01)	69.25	(59.55)	62.44	(53.70)	69.69	(59.93)	62.65	(53.88)	70.09	(60.27)
22.4	64.25	(55.26)	69.56	(59.82)	62.72	(53.94)	70.00	(60.20)	62.93	(54.12)	70.40	(60.54)
22.5	64.54	(55.50)	69.87	(60.09)	63.00	(54.18)	70.31	(60.47)	63.21	(54.36)	70.72	(60.82)
22.6	64.83	(55.75)	70.18	(60.35)	63.28	(54.42)	70.62	(60.74)	63.49	(54.61)	71.03	(61.09)
22.7	65.11	(56.00)	70.49	(60.62)	63.56	(54.66)	70.94	(61.01)	63.78	(54.85)	71.34	(61.36)
22.8	65.40	(56.24)	70.80	(60.89)	63.84	(54.90)	71.25	(61.27)	64.06	(55.09)	71.66	(61.63)
22.9	65.69	(56.49)	71.11	(61.16)	64.12	(55.14)	71.56	(61.54)	64.34	(55.33)	71.97	(61.90)
23.0	65.97	(56.74)	71.42	(61.42)	64.40	(55.38)	71.87	(61.81)	64.62	(55.57)	72.29	(62.17)
23.1	66.26	(56.98)	71.73	(61.69)	64.68	(55.62)	72.19	(62.08)	64.90	(55.81)	72.60	(62.44)
23.2	66.55	(57.23)	72.04	(61.96)	64.96	(55.87)	72.50	(62.35)	65.18	(56.06)	72.92	(62.71)
23.3	66.83	(57.48)	72.35	(62.22)	65.24	(56.11)	72.81	(62.62)	65.46	(56.30)	73.23	(62.98)
23.4	67.12	(57.72)	72.66	(62.49)	65.52	(56.35)	73.12	(62.89)	65.74	(56.54)	73.54	(63.25)
23.5	67.41	(57.97)	72.97	(62.76)	65.80	(56.59)	73.44	(63.16)	66.02	(56.78)	73.86	(63.52)
23.6	67.69	(58.22)	73.29	(63.03)	66.08	(56.83)	73.75	(63.42)	66.30	(57.02)	74.17	(63.79)
23.7	67.98	(58.46)	73.60	(63.29)	66.36	(57.07)	74.06	(63.69)	66.59	(57.26)	74.49	(64.06)
23.8	68.27	(58.71)	73.91	(63.56)	66.64	(57.31)	74.37	(63.96)	66.87	(57.50)	74.80	(64.33)
23.9	68.55	(58.96)	74.22	(63.83)	66.92	(57.55)	74.69	(64.23)	67.15	(57.75)	75.12	(64.60)
24.0	68.84	(59.20)	74.53	(64.09)	67.20	(57.79)	75.00	(64.50)	67.43	(57.99)	75.43	(64.87)
24.1	69.13	(59.45)	74.84	(64.36)	67.48	(58.03)	75.31	(64.77)	67.71	(58.23)	75.74	(65.14)
24.2	69.42	(59.70)	75.15	(64.63)	67.76	(58.27)	75.62	(65.04)	67.99	(58.47)	76.06	(65.41)
24.3	69.70	(59.94)	75.46	(64.89)	68.04	(58.51)	75.94	(65.31)	68.27	(58.71)	76.37	(65.68)
24.4	69.99	(60.19)	75.77	(65.16)	68.32	(58.76)	76.25	(65.57)	68.55	(58.95)	76.69	(65.95)
24.5	70.28	(60.44)	76.08	(65.43)	68.60	(59.00)	76.56	(65.84)	68.83	(59.20)	77.00	(66.22)
24.6	70.56	(60.68)	76.39	(65.70)	68.88	(59.24)	76.87	(66.11)	69.11	(59.44)	77.32	(66.49)
24.7	70.85	(60.93)	76.70	(65.96)	69.16	(59.48)	77.19	(66.38)	69.39	(59.68)	77.63	(66.76)
24.8	71.14	(61.18)	77.01	(66.23)	69.44	(59.72)	77.50	(66.65)	69.68	(59.92)	77.94	(67.03)
24.9	71.42	(61.42)	77.32	(66.50)	69.72	(59.96)	77.81	(66.92)	69.96	(60.16)	78.26	(67.30)

Table 22. Outdoor Unit Capacity (38, 40, 42HP) with Total Horsepower of Combined Indoor Unit (2)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)									
	RAS-38FSXNQ				RAS-40FSXNQ				RAS-42FSXNQ	
	Cooling		Heating		Cooling		Heating		Cooling	Heating
25.0	71.71	(61.67)	77.63	(66.76)	70.00	(60.20)	78.12	(67.19)	70.24	(60.40)
25.1	72.00	(61.92)	77.94	(67.03)	70.28	(60.44)	78.44	(67.46)	70.52	(60.65)
25.2	72.28	(62.16)	78.25	(67.30)	70.56	(60.68)	78.75	(67.72)	70.80	(60.89)
25.3	72.57	(62.41)	78.56	(67.57)	70.84	(60.92)	79.06	(67.99)	71.08	(61.13)
25.4	72.86	(62.66)	78.87	(67.83)	71.12	(61.16)	79.37	(68.26)	71.36	(61.37)
25.5	73.14	(62.90)	79.19	(68.10)	71.40	(61.40)	79.69	(68.53)	71.64	(61.61)
25.6	73.43	(63.15)	79.50	(68.37)	71.68	(61.64)	80.00	(68.80)	71.92	(61.85)
25.7	73.72	(63.40)	79.81	(68.63)	71.96	(61.89)	80.31	(69.07)	72.20	(62.10)
25.8	74.00	(63.64)	80.12	(68.90)	72.24	(62.13)	80.62	(69.34)	72.49	(62.34)
25.9	74.29	(63.89)	80.43	(69.17)	72.52	(62.37)	80.94	(69.61)	72.77	(62.58)
26.0	74.58	(64.14)	80.74	(69.43)	72.80	(62.61)	81.25	(69.87)	73.05	(62.82)
26.1	74.87	(64.38)	81.05	(69.70)	73.08	(62.85)	81.56	(70.14)	73.33	(63.06)
26.2	75.15	(64.63)	81.36	(69.97)	73.36	(63.09)	81.87	(70.41)	73.61	(63.30)
26.3	75.44	(64.88)	81.67	(70.24)	73.64	(63.33)	82.19	(70.68)	73.89	(63.55)
26.4	75.73	(65.12)	81.98	(70.50)	73.92	(63.57)	82.50	(70.95)	74.17	(63.79)
26.5	76.01	(65.37)	82.29	(70.77)	74.20	(63.81)	82.81	(71.22)	74.45	(64.03)
26.6	76.30	(65.62)	82.60	(71.04)	74.48	(64.05)	83.12	(71.49)	74.73	(64.27)
26.7	76.59	(65.86)	82.91	(71.30)	74.76	(64.29)	83.44	(71.76)	75.01	(64.51)
26.8	76.87	(66.11)	83.22	(71.57)	75.04	(64.53)	83.75	(72.02)	75.29	(64.75)
26.9	77.16	(66.36)	83.53	(71.84)	75.32	(64.78)	84.06	(72.29)	75.58	(64.99)
27.0	77.45	(66.60)	83.84	(72.11)	75.60	(65.02)	84.37	(72.56)	75.86	(65.24)
27.1	77.73	(66.85)	84.15	(72.37)	75.88	(65.26)	84.69	(72.83)	76.14	(65.48)
27.2	78.02	(67.10)	84.46	(72.64)	76.16	(65.50)	85.00	(73.10)	76.42	(65.72)
27.3	78.31	(67.34)	84.77	(72.91)	76.44	(65.74)	85.31	(73.37)	76.70	(65.96)
27.4	78.59	(67.59)	85.09	(73.17)	76.72	(65.98)	85.62	(73.64)	76.98	(66.20)
27.5	78.88	(67.84)	85.40	(73.44)	77.00	(66.22)	85.94	(73.91)	77.26	(66.44)
27.6	79.17	(68.08)	85.71	(73.71)	77.28	(66.46)	86.25	(74.17)	77.54	(66.69)
27.7	79.45	(68.33)	86.02	(73.97)	77.56	(66.70)	86.56	(74.44)	77.82	(66.93)
27.8	79.74	(68.58)	86.33	(74.24)	77.84	(66.94)	86.87	(74.71)	78.10	(67.17)
27.9	80.03	(68.82)	86.64	(74.51)	78.12	(67.18)	87.19	(74.98)	78.39	(67.41)
28.0	80.32	(69.07)	86.95	(74.78)	78.40	(67.42)	87.50	(75.25)	78.67	(67.65)
28.1	80.60	(69.32)	87.26	(75.04)	78.68	(67.66)	87.81	(75.52)	78.95	(67.89)
28.2	80.89	(69.56)	87.57	(75.31)	78.96	(67.91)	88.12	(75.79)	79.23	(68.14)
28.3	81.18	(69.81)	87.88	(75.58)	79.24	(68.15)	88.44	(76.06)	79.51	(68.38)
28.4	81.46	(70.06)	88.19	(75.84)	79.52	(68.39)	88.75	(76.32)	79.79	(68.62)
28.5	81.75	(70.30)	88.50	(76.11)	79.80	(68.63)	89.06	(76.59)	80.07	(68.86)
28.6	82.04	(70.55)	88.81	(76.38)	80.08	(68.87)	89.37	(76.86)	80.35	(69.10)
28.7	82.32	(70.80)	89.12	(76.65)	80.36	(69.11)	89.69	(77.13)	80.63	(69.34)
28.8	82.61	(71.04)	89.43	(76.91)	80.64	(69.35)	90.00	(77.40)	80.91	(69.59)
28.9	82.90	(71.29)	89.74	(77.18)	80.92	(69.59)	90.31	(77.67)	81.19	(69.83)
29.0	83.18	(71.54)	90.05	(77.45)	81.20	(69.83)	90.62	(77.94)	81.48	(70.07)
29.1	83.47	(71.78)	90.36	(77.71)	81.48	(70.07)	90.94	(78.21)	81.76	(70.31)
29.2	83.76	(72.03)	90.67	(77.98)	81.76	(70.31)	91.25	(78.47)	82.04	(70.55)
29.3	84.04	(72.28)	90.99	(78.25)	82.04	(70.55)	91.56	(78.74)	82.32	(70.79)
29.4	84.33	(72.52)	91.30	(78.51)	82.32	(70.80)	91.87	(79.01)	82.60	(71.04)
29.5	84.62	(72.77)	91.61	(78.78)	82.60	(71.04)	92.19	(79.28)	82.88	(71.28)
29.6	84.90	(73.02)	91.92	(79.05)	82.88	(71.28)	92.50	(79.55)	83.16	(71.52)
29.7	85.19	(73.26)	92.23	(79.32)	83.16	(71.52)	92.81	(79.82)	83.44	(71.76)
29.8	85.48	(73.51)	92.54	(79.58)	83.44	(71.76)	93.12	(80.09)	83.72	(72.00)
29.9	85.77	(73.76)	92.85	(79.85)	83.72	(72.00)	93.44	(80.36)	84.00	(72.24)
30.0	86.05	(74.00)	93.16	(80.12)	84.00	(72.24)	93.75	(80.62)	84.28	(72.49)
30.1	86.34	(74.25)	93.47	(80.38)	84.28	(72.48)	94.06	(80.89)	84.57	(72.73)
30.2	86.63	(74.50)	93.78	(80.65)	84.56	(72.72)	94.37	(81.16)	84.85	(72.97)
30.3	86.91	(74.74)	94.09	(80.92)	84.84	(72.96)	94.69	(81.43)	85.13	(73.21)
30.4	87.20	(74.99)	94.40	(81.18)	85.12	(73.20)	95.00	(81.70)	85.41	(73.45)
30.5	87.49	(75.24)	94.71	(81.45)	85.40	(73.44)	95.31	(81.97)	85.69	(73.69)
30.6	87.77	(75.48)	95.02	(81.72)	85.68	(73.68)	95.62	(82.24)	85.97	(73.93)
30.7	88.06	(75.73)	95.33	(81.99)	85.96	(73.93)	95.94	(82.51)	86.25	(74.18)
30.8	88.35	(75.98)	95.64	(82.25)	86.24	(74.17)	96.25	(82.77)	86.53	(74.42)
30.9	88.63	(76.22)	95.95	(82.52)	86.52	(74.41)	96.56	(83.04)	86.81	(74.66)

Table 23. Outdoor Unit Capacity (38, 40, 42HP) with Total Horsepower of Combined Indoor Unit (3)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)									
	RAS-38FSXNQ				RAS-40FSXNQ				RAS-42FSXNQ	
	Cooling		Heating		Cooling		Heating		Cooling	Heating
31.0	88.92	(76.47)	96.26	(82.79)	86.80	(74.65)	96.87	(83.31)	87.09	(74.90)
31.1	89.21	(76.72)	96.57	(83.05)	87.08	(74.89)	97.19	(83.58)	87.38	(75.14)
31.2	89.49	(76.96)	96.89	(83.32)	87.36	(75.13)	97.50	(83.85)	87.66	(75.38)
31.3	89.78	(77.21)	97.20	(83.59)	87.64	(75.37)	97.81	(84.12)	87.94	(75.63)
31.4	90.07	(77.46)	97.51	(83.86)	87.92	(75.61)	98.12	(84.39)	88.22	(75.87)
31.5	90.35	(77.70)	97.82	(84.12)	88.20	(75.85)	98.44	(84.66)	88.50	(76.11)
31.6	90.64	(77.95)	98.13	(84.39)	88.48	(76.09)	98.75	(84.92)	88.78	(76.35)
31.7	90.93	(78.20)	98.44	(84.66)	88.76	(76.33)	99.06	(85.19)	89.06	(76.59)
31.8	91.22	(78.45)	98.75	(84.92)	89.04	(76.57)	99.37	(85.46)	89.34	(76.83)
31.9	91.50	(78.69)	99.06	(85.19)	89.32	(76.82)	99.69	(85.73)	89.62	(77.08)
32.0	91.79	(78.94)	99.37	(85.46)	89.60	(77.06)	100.00	(86.00)	89.90	(77.32)
32.1	92.08	(79.19)	99.68	(85.72)	89.88	(77.30)	100.31	(86.27)	90.18	(77.56)
32.2	92.36	(79.43)	99.99	(85.99)	90.16	(77.54)	100.63	(86.54)	90.47	(77.80)
32.3	92.65	(79.68)	100.30	(86.26)	90.44	(77.78)	100.94	(86.81)	90.75	(78.04)
32.4	92.94	(79.93)	100.61	(86.53)	90.72	(78.02)	101.25	(87.07)	91.03	(78.28)
32.5	93.22	(80.17)	100.92	(86.79)	91.00	(78.26)	101.56	(87.34)	91.31	(78.53)
32.6	93.51	(80.42)	101.23	(87.06)	91.28	(78.50)	101.88	(87.61)	91.59	(78.77)
32.7	93.80	(80.67)	101.54	(87.33)	91.56	(78.74)	102.19	(87.88)	91.87	(79.01)
32.8	94.08	(80.91)	101.85	(87.59)	91.84	(78.98)	102.50	(88.15)	92.15	(79.25)
32.9	94.37	(81.16)	102.16	(87.86)	92.12	(79.22)	102.81	(88.42)	92.43	(79.49)
33.0	94.66	(81.41)	102.47	(88.13)	92.40	(79.46)	103.13	(88.69)	92.71	(79.73)
33.1	94.94	(81.65)	102.79	(88.40)	92.68	(79.70)	103.44	(88.96)	92.99	(79.98)
33.2	95.23	(81.90)	103.10	(88.66)	92.96	(79.95)	103.75	(89.22)	93.28	(80.22)
33.3	95.52	(82.15)	103.41	(88.93)	93.24	(80.19)	104.06	(89.49)	93.56	(80.46)
33.4	95.80	(82.39)	103.72	(89.20)	93.52	(80.43)	104.38	(89.76)	93.84	(80.70)
33.5	96.09	(82.64)	104.03	(89.46)	93.80	(80.67)	104.69	(90.03)	94.12	(80.94)
33.6	96.38	(82.89)	104.34	(89.73)	94.08	(80.91)	105.00	(90.30)	94.40	(81.18)
33.7	96.67	(83.13)	104.65	(90.00)	94.36	(81.15)	105.31	(90.57)	94.68	(81.42)
33.8	96.95	(83.38)	104.96	(90.26)	94.64	(81.39)	105.63	(90.84)	94.96	(81.67)
33.9	97.24	(83.63)	105.27	(90.53)	94.92	(81.63)	105.94	(91.11)	95.24	(81.91)
34.0	97.53	(83.87)	105.58	(90.80)	95.20	(81.87)	106.25	(91.37)	95.52	(82.15)
34.1	97.81	(84.12)	105.89	(91.07)	95.48	(82.11)	106.56	(91.64)	95.80	(82.39)
34.2	98.10	(84.37)	106.20	(91.33)	95.76	(82.35)	106.88	(91.91)	96.08	(82.63)
34.3	98.39	(84.61)	106.51	(91.60)	96.04	(82.59)	107.19	(92.18)	96.37	(82.87)
34.4	98.67	(84.86)	106.82	(91.87)	96.32	(82.84)	107.50	(92.45)	96.65	(83.12)
34.5	98.96	(85.11)	107.13	(92.13)	96.60	(83.08)	107.81	(92.72)	96.93	(83.36)
34.6	99.25	(85.35)	107.44	(92.40)	96.88	(83.32)	108.13	(92.99)	97.21	(83.60)
34.7	99.53	(85.60)	107.75	(92.67)	97.16	(83.56)	108.44	(93.26)	97.49	(83.84)
34.8	99.82	(85.85)	108.06	(92.94)	97.44	(83.80)	108.75	(93.52)	97.77	(84.08)
34.9	100.11	(86.09)	108.37	(93.20)	97.72	(84.04)	109.06	(93.79)	98.05	(84.32)
35.0	100.39	(86.34)	108.69	(93.47)	98.00	(84.28)	109.38	(94.06)	98.33	(84.57)
35.1	100.68	(86.59)	109.00	(93.74)	98.28	(84.52)	109.69	(94.33)	98.61	(84.81)
35.2	100.97	(86.83)	109.31	(94.00)	98.56	(84.76)	110.00	(94.60)	98.89	(85.05)
35.3	101.25	(87.08)	109.62	(94.27)	98.84	(85.00)	110.31	(94.87)	99.18	(85.29)
35.4	101.54	(87.33)	109.93	(94.54)	99.12	(85.24)	110.63	(95.14)	99.46	(85.53)
35.5	101.83	(87.57)	110.24	(94.80)	99.40	(85.48)	110.94	(95.41)	99.74	(85.77)
35.6	102.12	(87.82)	110.55	(95.07)	99.68	(85.72)	111.25	(95.67)	100.02	(86.02)
35.7	102.40	(88.07)	110.86	(95.34)	99.96	(85.97)	111.56	(95.94)	100.30	(86.26)
35.8	102.69	(88.31)	111.17	(95.61)	100.24	(86.21)	111.88	(96.21)	100.58	(86.50)
35.9	102.98	(88.56)	111.48	(95.87)	100.52	(86.45)	112.19	(96.48)	100.86	(86.74)
36.0	103.26	(88.81)	111.79	(96.14)	100.80	(86.69)	112.50	(96.75)	101.14	(86.98)
36.1	103.55	(89.05)	112.10	(96.41)	101.08	(86.93)	112.81	(97.02)	101.42	(87.22)
36.2	103.84	(89.30)	112.41	(96.67)	101.36	(87.17)	113.13	(97.29)	101.70	(87.47)
36.3	104.12	(89.55)	112.72	(96.94)	101.64	(87.41)	113.44	(97.56)	101.98	(87.71)
36.4	104.41	(89.79)	113.03	(97.21)	101.92	(87.65)	113.75	(97.82)	102.27	(87.95)
36.5	104.70	(90.04)	113.34	(97.48)	102.20	(87.89)	114.06	(98.09)	102.55	(88.19)
36.6	104.98	(90.29)	113.65	(97.74)	102.48	(88.13)	114.38	(98.36)	102.83	(88.43)
36.7	105.27	(90.53)	113.96	(98.01)	102.76	(88.37)	114.69	(98.63)	103.11	(88.67)
36.8	105.56	(90.78)	114.28	(98.28)	103.04	(88.61)	115.00	(98.90)	103.39	(88.92)
36.9	105.84	(91.03)	114.59	(98.54)	103.32	(88.86)	115.31	(99.17)	103.67	(89.16)

Table 24. Outdoor Unit Capacity (38, 40, 42HP) with Total Horsepower of Combined Indoor Unit (4)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)									
	RAS-38FSXNQ				RAS-40FSXNQ				RAS-42FSXNQ	
	Cooling	Heating			Cooling	Heating			Cooling	Heating
37.0	106.13 (91.27)	114.90 (98.81)			103.60 (89.10)	115.63 (99.44)			103.95 (89.40)	116.29 (100.01)
37.1	106.42 (91.52)	115.21 (99.08)			103.88 (89.34)	115.94 (99.71)			104.23 (89.64)	116.60 (100.28)
37.2	106.70 (91.77)	115.52 (99.34)			104.16 (89.58)	116.25 (99.97)			104.51 (89.88)	116.92 (100.55)
37.3	106.99 (92.01)	115.83 (99.61)			104.44 (89.82)	116.56 (100.24)			104.79 (90.12)	117.23 (100.82)
37.4	107.28 (92.26)	116.14 (99.88)			104.72 (90.06)	116.88 (100.51)			105.08 (90.36)	117.54 (101.09)
37.5	107.57 (92.51)	116.45 (100.15)			105.00 (90.30)	117.19 (100.78)			105.36 (90.61)	117.86 (101.36)
37.6	107.85 (92.75)	116.76 (100.41)			105.28 (90.54)	117.50 (101.05)			105.64 (90.85)	118.17 (101.63)
37.7	108.14 (93.00)	117.07 (100.68)			105.56 (90.78)	117.81 (101.32)			105.92 (91.09)	118.49 (101.90)
37.8	108.43 (93.25)	117.38 (100.95)			105.84 (91.02)	118.13 (101.59)			106.20 (91.33)	118.80 (102.17)
37.9	108.71 (93.49)	117.69 (101.21)			106.12 (91.26)	118.44 (101.86)			106.48 (91.57)	119.12 (102.44)
38.0	109.00 (93.74)	118.00 (101.48)			106.40 (91.50)	118.75 (102.13)			106.76 (91.81)	119.43 (102.71)
38.1	109.00 (93.74)	118.00 (101.48)			106.68 (91.74)	119.06 (102.39)			107.04 (92.06)	119.74 (102.98)
38.2	109.00 (93.74)	118.00 (101.48)			106.96 (91.99)	119.38 (102.66)			107.32 (92.30)	120.06 (103.25)
38.3	109.00 (93.74)	118.00 (101.48)			107.24 (92.23)	119.69 (102.93)			107.60 (92.54)	120.37 (103.52)
38.4	109.00 (93.74)	118.00 (101.48)			107.52 (92.47)	120.00 (103.20)			107.88 (92.78)	120.69 (103.79)
38.5	109.00 (93.74)	118.00 (101.48)			107.80 (92.71)	120.31 (103.47)			108.17 (93.02)	121.00 (104.06)
38.6	109.00 (93.74)	118.00 (101.48)			108.08 (92.95)	120.63 (103.74)			108.45 (93.26)	121.32 (104.33)
38.7	109.00 (93.74)	118.00 (101.48)			108.36 (93.19)	120.94 (104.01)			108.73 (93.51)	121.63 (104.60)
38.8	109.00 (93.74)	118.00 (101.48)			108.64 (93.43)	121.25 (104.28)			109.01 (93.75)	121.94 (104.87)
38.9	109.00 (93.74)	118.00 (101.48)			108.92 (93.67)	121.56 (104.54)			109.29 (93.99)	122.26 (105.14)
39.0	109.00 (93.74)	118.00 (101.48)			109.20 (93.91)	121.88 (104.81)			109.57 (94.23)	122.57 (105.41)
39.1	109.00 (93.74)	118.00 (101.48)			109.48 (94.15)	122.19 (105.08)			109.85 (94.47)	122.89 (105.68)
39.2	109.00 (93.74)	118.00 (101.48)			109.76 (94.39)	122.50 (105.35)			110.13 (94.71)	123.20 (105.95)
39.3	109.00 (93.74)	118.00 (101.48)			110.04 (94.63)	122.81 (105.62)			110.41 (94.96)	123.52 (106.22)
39.4	109.00 (93.74)	118.00 (101.48)			110.32 (94.88)	123.13 (105.89)			110.69 (95.20)	123.83 (106.49)
39.5	109.00 (93.74)	118.00 (101.48)			110.60 (95.12)	123.44 (106.16)			110.98 (95.44)	124.14 (106.76)
39.6	109.00 (93.74)	118.00 (101.48)			110.88 (95.36)	123.75 (106.43)			111.26 (95.68)	124.46 (107.03)
39.7	109.00 (93.74)	118.00 (101.48)			111.16 (95.60)	124.06 (106.69)			111.54 (95.92)	124.77 (107.30)
39.8	109.00 (93.74)	118.00 (101.48)			111.44 (95.84)	124.38 (106.96)			111.82 (96.16)	125.09 (107.58)
39.9	109.00 (93.74)	118.00 (101.48)			111.72 (96.08)	124.69 (107.23)			112.10 (96.41)	125.40 (107.85)
40.0	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			112.38 (96.65)	125.72 (108.12)
40.1	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			112.66 (96.89)	126.03 (108.39)
40.2	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			112.94 (97.13)	126.34 (108.66)
40.3	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			113.22 (97.37)	126.66 (108.93)
40.4	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			113.50 (97.61)	126.97 (109.20)
40.5	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			113.78 (97.85)	127.29 (109.47)
40.6	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			114.07 (98.10)	127.60 (109.74)
40.7	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			114.35 (98.34)	127.92 (110.01)
40.8	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			114.63 (98.58)	128.23 (110.28)
40.9	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			114.91 (98.82)	128.54 (110.55)
41.0	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			115.19 (99.06)	128.86 (110.82)
41.1	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			115.47 (99.30)	129.17 (111.09)
41.2	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			115.75 (99.55)	129.49 (111.36)
41.3	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			116.03 (99.79)	129.80 (111.63)
41.4	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			116.31 (100.03)	130.12 (111.90)
41.5	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			116.59 (100.27)	130.43 (112.17)
41.6	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			116.88 (100.51)	130.74 (112.44)
41.7	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			117.16 (100.75)	131.06 (112.71)
41.8	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			117.44 (101.00)	131.37 (112.98)
41.9	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			117.72 (101.24)	131.69 (113.25)
42.0	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			118.00 (101.48)	132.00 (113.52)
42.1	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			118.00 (101.48)	132.00 (113.52)
42.2	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			118.00 (101.48)	132.00 (113.52)
42.3	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			118.00 (101.48)	132.00 (113.52)
42.4	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			118.00 (101.48)	132.00 (113.52)
42.5	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			118.00 (101.48)	132.00 (113.52)
42.6	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			118.00 (101.48)	132.00 (113.52)
42.7	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			118.00 (101.48)	132.00 (113.52)
42.8	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			118.00 (101.48)	132.00 (113.52)
42.9	109.00 (93.74)	118.00 (101.48)			112.00 (96.32)	125.00 (107.50)			118.00 (101.48)	132.00 (113.52)

Table 25. Outdoor Unit Capacity (38, 40, 42HP) with Total Horsepower of Combined Indoor Unit (5)

[illegible]

Table 26. Outdoor Unit Capacity (38, 40, 42HP) with Total Horsepower of Combined Indoor Unit (6)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)									
	RAS-38FSXNQ				RAS-40FSXNQ				RAS-42FSXNQ	
	Cooling		Heating		Cooling		Heating		Cooling	Heating
49.0	109.00	(93.74)	118.00	(101.48)	112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
49.1	109.00	(93.74)	118.00	(101.48)	112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
49.2	109.00	(93.74)	118.00	(101.48)	112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
49.3	109.00	(93.74)	118.00	(101.48)	112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
49.4	109.00	(93.74)	118.00	(101.48)	112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
49.5					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
49.6					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
49.7					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
49.8					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
49.9					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
50.0					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
50.1					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
50.2					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
50.3					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
50.4					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
50.5					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
50.6					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
50.7					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
50.8					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
50.9					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
51.0					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
51.1					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
51.2					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
51.3					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
51.4					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
51.5					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
51.6					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
51.7					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
51.8					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
51.9					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
52.0					112.00	(96.32)	125.00	(107.50)	118.00	(101.48)
52.1									118.00	(101.48)
52.2									118.00	(101.48)
52.3									118.00	(101.48)
52.4									118.00	(101.48)
52.5									118.00	(101.48)
52.6									118.00	(101.48)
52.7									118.00	(101.48)
52.8									118.00	(101.48)
52.9									118.00	(101.48)
53.0									118.00	(101.48)
53.1									118.00	(101.48)
53.2									118.00	(101.48)
53.3									118.00	(101.48)
53.4									118.00	(101.48)
53.5									118.00	(101.48)
53.6									118.00	(101.48)
53.7									118.00	(101.48)
53.8									118.00	(101.48)
53.9									118.00	(101.48)
54.0									118.00	(101.48)
54.1									118.00	(101.48)
54.2									118.00	(101.48)
54.3									118.00	(101.48)
54.4									118.00	(101.48)
54.5									118.00	(101.48)
54.6									118.00	(101.48)

Table 27. Outdoor Unit Capacity (44, 46, 48HP) with Total Horsepower of Combined Indoor Unit (1)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)											
	RAS-44FSXNQ				RAS-46FSXNQ				RAS-48FSXNQ			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
22.0	62.50	(53.75)	70.00	(60.20)								
22.1	62.79	(54.00)	70.32	(60.47)								
22.2	63.07	(54.24)	70.64	(60.75)								
22.3	63.35	(54.48)	70.95	(61.02)								
22.4	63.64	(54.73)	71.27	(61.29)								
22.5	63.92	(54.97)	71.59	(61.57)								
22.6	64.21	(55.22)	71.91	(61.84)								
22.7	64.49	(55.46)	72.23	(62.12)								
22.8	64.77	(55.71)	72.55	(62.39)								
22.9	65.06	(55.95)	72.86	(62.66)								
23.0	65.34	(56.19)	73.18	(62.94)	66.00	(56.76)	72.50	(62.35)				
23.1	65.63	(56.44)	73.50	(63.21)	66.29	(57.01)	72.82	(62.62)				
23.2	65.91	(56.68)	73.82	(63.48)	66.57	(57.25)	73.13	(62.89)				
23.3	66.20	(56.93)	74.14	(63.76)	66.86	(57.50)	73.45	(63.16)				
23.4	66.48	(57.17)	74.45	(64.03)	67.15	(57.75)	73.76	(63.43)				
23.5	66.76	(57.42)	74.77	(64.30)	67.44	(57.99)	74.08	(63.71)				
23.6	67.05	(57.66)	75.09	(64.58)	67.72	(58.24)	74.39	(63.98)				
23.7	67.33	(57.91)	75.41	(64.85)	68.01	(58.49)	74.71	(64.25)				
23.8	67.62	(58.15)	75.73	(65.13)	68.30	(58.73)	75.02	(64.52)				
23.9	67.90	(58.39)	76.05	(65.40)	68.58	(58.98)	75.34	(64.79)				
24.0	68.18	(58.64)	76.36	(65.67)	68.87	(59.23)	75.65	(65.06)	68.00	(58.48)	75.00	(64.50)
24.1	68.47	(58.88)	76.68	(65.95)	69.16	(59.48)	75.97	(65.33)	68.28	(58.72)	75.31	(64.77)
24.2	68.75	(59.13)	77.00	(66.22)	69.44	(59.72)	76.28	(65.60)	68.57	(58.97)	75.62	(65.04)
24.3	69.04	(59.37)	77.32	(66.49)	69.73	(59.97)	76.60	(65.87)	68.85	(59.21)	75.94	(65.31)
24.4	69.32	(59.62)	77.64	(66.77)	70.02	(60.22)	76.91	(66.15)	69.13	(59.45)	76.25	(65.57)
24.5	69.60	(59.86)	77.95	(67.04)	70.31	(60.46)	77.23	(66.42)	69.42	(59.70)	76.56	(65.84)
24.6	69.89	(60.10)	78.27	(67.31)	70.59	(60.71)	77.54	(66.69)	69.70	(59.94)	76.87	(66.11)
24.7	70.17	(60.35)	78.59	(67.59)	70.88	(60.96)	77.86	(66.96)	69.98	(60.18)	77.19	(66.38)
24.8	70.46	(60.59)	78.91	(67.86)	71.17	(61.20)	78.17	(67.23)	70.27	(60.43)	77.50	(66.65)
24.9	70.74	(60.84)	79.23	(68.14)	71.45	(61.45)	78.49	(67.50)	70.55	(60.67)	77.81	(66.92)
25.0	71.02	(61.08)	79.54	(68.41)	71.74	(61.70)	78.80	(67.77)	70.83	(60.92)	78.12	(67.19)
25.1	71.31	(61.33)	79.86	(68.68)	72.03	(61.94)	79.12	(68.04)	71.12	(61.16)	78.44	(67.46)
25.2	71.59	(61.57)	80.18	(68.96)	72.31	(62.19)	79.44	(68.31)	71.40	(61.40)	78.75	(67.72)
25.3	71.88	(61.81)	80.50	(69.23)	72.60	(62.44)	79.75	(68.59)	71.68	(61.65)	79.06	(67.99)
25.4	72.16	(62.06)	80.82	(69.50)	72.89	(62.68)	80.07	(68.86)	71.97	(61.89)	79.37	(68.26)
25.5	72.45	(62.30)	81.14	(69.78)	73.17	(62.93)	80.38	(69.13)	72.25	(62.13)	79.69	(68.53)
25.6	72.73	(62.55)	81.45	(70.05)	73.46	(63.18)	80.70	(69.40)	72.53	(62.38)	80.00	(68.80)
25.7	73.01	(62.79)	81.77	(70.32)	73.75	(63.42)	81.01	(69.67)	72.82	(62.62)	80.31	(69.07)
25.8	73.30	(63.04)	82.09	(70.60)	74.04	(63.67)	81.33	(69.94)	73.10	(62.87)	80.62	(69.34)
25.9	73.58	(63.28)	82.41	(70.87)	74.32	(63.92)	81.64	(70.21)	73.38	(63.11)	80.94	(69.61)
26.0	73.87	(63.52)	82.73	(71.15)	74.61	(64.16)	81.96	(70.48)	73.67	(63.35)	81.25	(69.87)
26.1	74.15	(63.77)	83.04	(71.42)	74.90	(64.41)	82.27	(70.75)	73.95	(63.60)	81.56	(70.14)
26.2	74.43	(64.01)	83.36	(71.69)	75.18	(64.66)	82.59	(71.03)	74.23	(63.84)	81.87	(70.41)
26.3	74.72	(64.26)	83.68	(71.97)	75.47	(64.90)	82.90	(71.30)	74.52	(64.08)	82.19	(70.68)
26.4	75.00	(64.50)	84.00	(72.24)	75.76	(65.15)	83.22	(71.57)	74.80	(64.33)	82.50	(70.95)
26.5	75.29	(64.75)	84.32	(72.51)	76.04	(65.40)	83.53	(71.84)	75.08	(64.57)	82.81	(71.22)
26.6	75.57	(64.99)	84.64	(72.79)	76.33	(65.64)	83.85	(72.11)	75.37	(64.81)	83.12	(71.49)
26.7	75.85	(65.24)	84.95	(73.06)	76.62	(65.89)	84.16	(72.38)	75.65	(65.06)	83.44	(71.76)
26.8	76.14	(65.48)	85.27	(73.33)	76.91	(66.14)	84.48	(72.65)	75.93	(65.30)	83.75	(72.02)
26.9	76.42	(65.72)	85.59	(73.61)	77.19	(66.39)	84.79	(72.92)	76.22	(65.55)	84.06	(72.29)
27.0	76.71	(65.97)	85.91	(73.88)	77.48	(66.63)	85.11	(73.19)	76.50	(65.79)	84.37	(72.56)
27.1	76.99	(66.21)	86.23	(74.16)	77.77	(66.88)	85.42	(73.47)	76.78	(66.03)	84.69	(72.83)
27.2	77.28	(66.46)	86.54	(74.43)	78.05	(67.13)	85.74	(73.74)	77.07	(66.28)	85.00	(73.10)
27.3	77.56	(66.70)	86.86	(74.70)	78.34	(67.37)	86.06	(74.01)	77.35	(66.52)	85.31	(73.37)
27.4	77.84	(66.95)	87.18	(74.98)	78.63	(67.62)	86.37	(74.28)	77.63	(66.76)	85.62	(73.64)
27.5	78.13	(67.19)	87.50	(75.25)	78.91	(67.87)	86.69	(74.55)	77.92	(67.01)	85.94	(73.91)
27.6	78.41	(67.43)	87.82	(75.52)	79.20	(68.11)	87.00	(74.82)	78.20	(67.25)	86.25	(74.17)
27.7	78.70	(67.68)	88.14	(75.80)	79.49	(68.36)	87.32	(75.09)	78.48	(67.49)	86.56	(74.44)
27.8	78.98	(67.92)	88.45	(76.07)	79.77	(68.61)	87.63	(75.36)	78.77	(67.74)	86.87	(74.71)
27.9	79.26	(68.17)	88.77	(76.34)	80.06	(68.85)	87.95	(75.63)	79.05	(67.98)	87.19	(74.98)

Table 28. Outdoor Unit Capacity (44, 46, 48HP) with Total Horsepower of Combined Indoor Unit (2)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)											
	RAS-44FSXNQ				RAS-46FSXNQ				RAS-48FSXNQ			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
28.0	79.55	(68.41)	89.09	(76.62)	80.35	(69.10)	88.26	(75.90)	79.33	(68.23)	87.50	(75.25)
28.1	79.83	(68.66)	89.41	(76.89)	80.64	(69.35)	88.58	(76.18)	79.62	(68.47)	87.81	(75.52)
28.2	80.12	(68.90)	89.73	(77.17)	80.92	(69.59)	88.89	(76.45)	79.90	(68.71)	88.12	(75.79)
28.3	80.40	(69.14)	90.04	(77.44)	81.21	(69.84)	89.21	(76.72)	80.18	(68.96)	88.44	(76.06)
28.4	80.68	(69.39)	90.36	(77.71)	81.50	(70.09)	89.52	(76.99)	80.47	(69.20)	88.75	(76.32)
28.5	80.97	(69.63)	90.68	(77.99)	81.78	(70.33)	89.84	(77.26)	80.75	(69.44)	89.06	(76.59)
28.6	81.25	(69.88)	91.00	(78.26)	82.07	(70.58)	90.15	(77.53)	81.03	(69.69)	89.37	(76.86)
28.7	81.54	(70.12)	91.32	(78.53)	82.36	(70.83)	90.47	(77.80)	81.32	(69.93)	89.69	(77.13)
28.8	81.82	(70.37)	91.64	(78.81)	82.64	(71.07)	90.78	(78.07)	81.60	(70.18)	90.00	(77.40)
28.9	82.10	(70.61)	91.95	(79.08)	82.93	(71.32)	91.10	(78.34)	81.88	(70.42)	90.31	(77.67)
29.0	82.39	(70.85)	92.27	(79.35)	83.22	(71.57)	91.41	(78.62)	82.17	(70.66)	90.62	(77.94)
29.1	82.67	(71.10)	92.59	(79.63)	83.51	(71.81)	91.73	(78.89)	82.45	(70.91)	90.94	(78.21)
29.2	82.96	(71.34)	92.91	(79.90)	83.79	(72.06)	92.04	(79.16)	82.73	(71.15)	91.25	(78.47)
29.3	83.24	(71.59)	93.23	(80.17)	84.08	(72.31)	92.36	(79.43)	83.02	(71.39)	91.56	(78.74)
29.4	83.53	(71.83)	93.54	(80.45)	84.37	(72.55)	92.67	(79.70)	83.30	(71.64)	91.87	(79.01)
29.5	83.81	(72.08)	93.86	(80.72)	84.65	(72.80)	92.99	(79.97)	83.58	(71.88)	92.19	(79.28)
29.6	84.09	(72.32)	94.18	(81.00)	84.94	(73.05)	93.31	(80.24)	83.87	(72.12)	92.50	(79.55)
29.7	84.38	(72.56)	94.50	(81.27)	85.23	(73.30)	93.62	(80.51)	84.15	(72.37)	92.81	(79.82)
29.8	84.66	(72.81)	94.82	(81.54)	85.51	(73.54)	93.94	(80.78)	84.43	(72.61)	93.12	(80.09)
29.9	84.95	(73.05)	95.14	(81.82)	85.80	(73.79)	94.25	(81.06)	84.72	(72.86)	93.44	(80.36)
30.0	85.23	(73.30)	95.45	(82.09)	86.09	(74.04)	94.57	(81.33)	85.00	(73.10)	93.75	(80.62)
30.1	85.51	(73.54)	95.77	(82.36)	86.37	(74.28)	94.88	(81.60)	85.28	(73.34)	94.06	(80.89)
30.2	85.80	(73.79)	96.09	(82.64)	86.66	(74.53)	95.20	(81.87)	85.57	(73.59)	94.37	(81.16)
30.3	86.08	(74.03)	96.41	(82.91)	86.95	(74.78)	95.51	(82.14)	85.85	(73.83)	94.69	(81.43)
30.4	86.37	(74.28)	96.73	(83.18)	87.24	(75.02)	95.83	(82.41)	86.13	(74.07)	95.00	(81.70)
30.5	86.65	(74.52)	97.04	(83.46)	87.52	(75.27)	96.14	(82.68)	86.42	(74.32)	95.31	(81.97)
30.6	86.93	(74.76)	97.36	(83.73)	87.81	(75.52)	96.46	(82.95)	86.70	(74.56)	95.62	(82.24)
30.7	87.22	(75.01)	97.68	(84.01)	88.10	(75.76)	96.77	(83.22)	86.98	(74.80)	95.94	(82.51)
30.8	87.50	(75.25)	98.00	(84.28)	88.38	(76.01)	97.09	(83.50)	87.27	(75.05)	96.25	(82.77)
30.9	87.79	(75.50)	98.32	(84.55)	88.67	(76.26)	97.40	(83.77)	87.55	(75.29)	96.56	(83.04)
31.0	88.07	(75.74)	98.64	(84.83)	88.96	(76.50)	97.72	(84.04)	87.83	(75.54)	96.87	(83.31)
31.1	88.36	(75.99)	98.95	(85.10)	89.24	(76.75)	98.03	(84.31)	88.12	(75.78)	97.19	(83.58)
31.2	88.64	(76.23)	99.27	(85.37)	89.53	(77.00)	98.35	(84.58)	88.40	(76.02)	97.50	(83.85)
31.3	88.92	(76.47)	99.59	(85.65)	89.82	(77.24)	98.66	(84.85)	88.68	(76.27)	97.81	(84.12)
31.4	89.21	(76.72)	99.91	(85.92)	90.11	(77.49)	98.98	(85.12)	88.97	(76.51)	98.12	(84.39)
31.5	89.49	(76.96)	100.23	(86.19)	90.39	(77.74)	99.29	(85.39)	89.25	(76.75)	98.44	(84.66)
31.6	89.78	(77.21)	100.54	(86.47)	90.68	(77.98)	99.61	(85.66)	89.53	(77.00)	98.75	(84.92)
31.7	90.06	(77.45)	100.86	(86.74)	90.97	(78.23)	99.92	(85.94)	89.82	(77.24)	99.06	(85.19)
31.8	90.34	(77.70)	101.18	(87.02)	91.25	(78.48)	100.24	(86.21)	90.10	(77.49)	99.37	(85.46)
31.9	90.63	(77.94)	101.50	(87.29)	91.54	(78.72)	100.56	(86.48)	90.38	(77.73)	99.69	(85.73)
32.0	90.91	(78.18)	101.82	(87.56)	91.83	(78.97)	100.87	(86.75)	90.67	(77.97)	100.00	(86.00)
32.1	91.20	(78.43)	102.14	(87.84)	92.11	(79.22)	101.19	(87.02)	90.95	(78.22)	100.31	(86.27)
32.2	91.48	(78.67)	102.45	(88.11)	92.40	(79.46)	101.50	(87.29)	91.23	(78.46)	100.63	(86.54)
32.3	91.76	(78.92)	102.77	(88.38)	92.69	(79.71)	101.82	(87.56)	91.52	(78.70)	100.94	(86.81)
32.4	92.05	(79.16)	103.09	(88.66)	92.98	(79.96)	102.13	(87.83)	91.80	(78.95)	101.25	(87.07)
32.5	92.33	(79.41)	103.41	(88.93)	93.26	(80.21)	102.45	(88.10)	92.08	(79.19)	101.56	(87.34)
32.6	92.62	(79.65)	103.73	(89.20)	93.55	(80.45)	102.76	(88.38)	92.37	(79.43)	101.88	(87.61)
32.7	92.90	(79.89)	104.04	(89.48)	93.84	(80.70)	103.08	(88.65)	92.65	(79.68)	102.19	(87.88)
32.8	93.18	(80.14)	104.36	(89.75)	94.12	(80.95)	103.39	(88.92)	92.93	(79.92)	102.50	(88.15)
32.9	93.47	(80.38)	104.68	(90.03)	94.41	(81.19)	103.71	(89.19)	93.22	(80.17)	102.81	(88.42)
33.0	93.75	(80.63)	105.00	(90.30)	94.70	(81.44)	104.02	(89.46)	93.50	(80.41)	103.13	(88.69)
33.1	94.04	(80.87)	105.32	(90.57)	94.98	(81.69)	104.34	(89.73)	93.78	(80.65)	103.44	(88.96)
33.2	94.32	(81.12)	105.64	(90.85)	95.27	(81.93)	104.65	(90.00)	94.07	(80.90)	103.75	(89.22)
33.3	94.61	(81.36)	105.95	(91.12)	95.56	(82.18)	104.97	(90.27)	94.35	(81.14)	104.06	(89.49)
33.4	94.89	(81.60)	106.27	(91.39)	95.84	(82.43)	105.28	(90.54)	94.63	(81.38)	104.38	(89.76)
33.5	95.17	(81.85)	106.59	(91.67)	96.13	(82.67)	105.60	(90.81)	94.92	(81.63)	104.69	(90.03)
33.6	95.46	(82.09)	106.91	(91.94)	96.42	(82.92)	105.91	(91.09)	95.20	(81.87)	105.00	(90.30)
33.7	95.74	(82.34)	107.23	(92.21)	96.71	(83.17)	106.23	(91.36)	95.48	(82.11)	105.31	(90.57)
33.8	96.03	(82.58)	107.54	(92.49)	96.99	(83.41)	106.54	(91.63)	95.77	(82.36)	105.63	(90.84)
33.9	96.31	(82.83)	107.86	(92.76)	97.28	(83.66)	106.86	(91.90)	96.05	(82.60)	105.94	(91.11)

Table 29. Outdoor Unit Capacity (44, 46, 48HP) with Total Horsepower of Combined Indoor Unit (3)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)									
	RAS-44FSXNQ		RAS-46FSXNQ				RAS-48FSXNQ			
	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
34.0	96.59 (83.07)	108.18 (93.04)	97.57 (83.91)	107.17 (92.17)	96.33 (82.85)	106.25 (91.37)				
34.1	96.88 (83.32)	108.50 (93.31)	97.85 (84.15)	107.49 (92.44)	96.62 (83.09)	106.56 (91.64)				
34.2	97.16 (83.56)	108.82 (93.58)	98.14 (84.40)	107.81 (92.71)	96.90 (83.33)	106.88 (91.91)				
34.3	97.45 (83.80)	109.14 (93.86)	98.43 (84.65)	108.12 (92.98)	97.18 (83.58)	107.19 (92.18)				
34.4	97.73 (84.05)	109.45 (94.13)	98.71 (84.89)	108.44 (93.25)	97.47 (83.82)	107.50 (92.45)				
34.5	98.01 (84.29)	109.77 (94.40)	99.00 (85.14)	108.75 (93.53)	97.75 (84.06)	107.81 (92.72)				
34.6	98.30 (84.54)	110.09 (94.68)	99.29 (85.39)	109.07 (93.80)	98.03 (84.31)	108.13 (92.99)				
34.7	98.58 (84.78)	110.41 (94.95)	99.58 (85.63)	109.38 (94.07)	98.32 (84.55)	108.44 (93.26)				
34.8	98.87 (85.03)	110.73 (95.22)	99.86 (85.88)	109.70 (94.34)	98.60 (84.80)	108.75 (93.52)				
34.9	99.15 (85.27)	111.04 (95.50)	100.15 (86.13)	110.01 (94.61)	98.88 (85.04)	109.06 (93.79)				
35.0	99.43 (85.51)	111.36 (95.77)	100.44 (86.37)	110.33 (94.88)	99.17 (85.28)	109.38 (94.06)				
35.1	99.72 (85.76)	111.68 (96.05)	100.72 (86.62)	110.64 (95.15)	99.45 (85.53)	109.69 (94.33)				
35.2	100.00 (86.00)	112.00 (96.32)	101.01 (86.87)	110.96 (95.42)	99.73 (85.77)	110.00 (94.60)				
35.3	100.29 (86.25)	112.32 (96.59)	101.30 (87.12)	111.27 (95.69)	100.02 (86.01)	110.31 (94.87)				
35.4	100.57 (86.49)	112.64 (96.87)	101.58 (87.36)	111.59 (95.97)	100.30 (86.26)	110.63 (95.14)				
35.5	100.86 (86.74)	112.95 (97.14)	101.87 (87.61)	111.90 (96.24)	100.58 (86.50)	110.94 (95.41)				
35.6	101.14 (86.98)	113.27 (97.41)	102.16 (87.86)	112.22 (96.51)	100.87 (86.74)	111.25 (95.67)				
35.7	101.42 (87.22)	113.59 (97.69)	102.44 (88.10)	112.53 (96.78)	101.15 (86.99)	111.56 (95.94)				
35.8	101.71 (87.47)	113.91 (97.96)	102.73 (88.35)	112.85 (97.05)	101.43 (87.23)	111.88 (96.21)				
35.9	101.99 (87.71)	114.23 (98.23)	103.02 (88.60)	113.16 (97.32)	101.72 (87.48)	112.19 (96.48)				
36.0	102.28 (87.96)	114.54 (98.51)	103.31 (88.84)	113.48 (97.59)	102.00 (87.72)	112.50 (96.75)				
36.1	102.56 (88.20)	114.86 (98.78)	103.59 (89.09)	113.79 (97.86)	102.28 (87.96)	112.81 (97.02)				
36.2	102.84 (88.45)	115.18 (99.06)	103.88 (89.34)	114.11 (98.13)	102.57 (88.21)	113.13 (97.29)				
36.3	103.13 (88.69)	115.50 (99.33)	104.17 (89.58)	114.42 (98.41)	102.85 (88.45)	113.44 (97.56)				
36.4	103.41 (88.93)	115.82 (99.60)	104.45 (89.83)	114.74 (98.68)	103.13 (88.69)	113.75 (97.82)				
36.5	103.70 (89.18)	116.14 (99.88)	104.74 (90.08)	115.06 (98.95)	103.42 (88.94)	114.06 (98.09)				
36.6	103.98 (89.42)	116.45 (100.15)	105.03 (90.32)	115.37 (99.22)	103.70 (89.18)	114.38 (98.36)				
36.7	104.26 (89.67)	116.77 (100.42)	105.31 (90.57)	115.69 (99.49)	103.98 (89.42)	114.69 (98.63)				
36.8	104.55 (89.91)	117.09 (100.70)	105.60 (90.82)	116.00 (99.76)	104.27 (89.67)	115.00 (98.90)				
36.9	104.83 (90.16)	117.41 (100.97)	105.89 (91.06)	116.32 (100.03)	104.55 (89.91)	115.31 (99.17)				
37.0	105.12 (90.40)	117.73 (101.24)	106.18 (91.31)	116.63 (100.30)	104.83 (90.16)	115.63 (99.44)				
37.1	105.40 (90.64)	118.04 (101.52)	106.46 (91.56)	116.95 (100.57)	105.12 (90.40)	115.94 (99.71)				
37.2	105.69 (90.89)	118.36 (101.79)	106.75 (91.80)	117.26 (100.85)	105.40 (90.64)	116.25 (99.97)				
37.3	105.97 (91.13)	118.68 (102.07)	107.04 (92.05)	117.58 (101.12)	105.68 (90.89)	116.56 (100.24)				
37.4	106.25 (91.38)	119.00 (102.34)	107.32 (92.30)	117.89 (101.39)	105.97 (91.13)	116.88 (100.51)				
37.5	106.54 (91.62)	119.32 (102.61)	107.61 (92.54)	118.21 (101.66)	106.25 (91.37)	117.19 (100.78)				
37.6	106.82 (91.87)	119.64 (102.89)	107.90 (92.79)	118.52 (101.93)	106.53 (91.62)	117.50 (101.05)				
37.7	107.11 (92.11)	119.95 (103.16)	108.18 (93.04)	118.84 (102.20)	106.82 (91.86)	117.81 (101.32)				
37.8	107.39 (92.36)	120.27 (103.43)	108.47 (93.28)	119.15 (102.47)	107.10 (92.10)	118.13 (101.59)				
37.9	107.67 (92.60)	120.59 (103.71)	108.76 (93.53)	119.47 (102.74)	107.38 (92.35)	118.44 (101.86)				
38.0	107.96 (92.84)	120.91 (103.98)	109.04 (93.78)	119.78 (103.01)	107.67 (92.59)	118.75 (102.13)				
38.1	108.24 (93.09)	121.23 (104.25)	109.33 (94.03)	120.10 (103.28)	107.95 (92.84)	119.06 (102.39)				
38.2	108.53 (93.33)	121.54 (104.53)	109.62 (94.27)	120.41 (103.56)	108.23 (93.08)	119.38 (102.66)				
38.3	108.81 (93.58)	121.86 (104.80)	109.91 (94.52)	120.73 (103.83)	108.52 (93.32)	119.69 (102.93)				
38.4	109.09 (93.82)	122.18 (105.08)	110.19 (94.77)	121.04 (104.10)	108.80 (93.57)	120.00 (103.20)				
38.5	109.38 (94.07)	122.50 (105.35)	110.48 (95.01)	121.36 (104.37)	109.08 (93.81)	120.31 (103.47)				
38.6	109.66 (94.31)	122.82 (105.62)	110.77 (95.26)	121.67 (104.64)	109.37 (94.05)	120.63 (103.74)				
38.7	109.95 (94.55)	123.14 (105.90)	111.05 (95.51)	121.99 (104.91)	109.65 (94.30)	120.94 (104.01)				
38.8	110.23 (94.80)	123.45 (106.17)	111.34 (95.75)	122.31 (105.18)	109.93 (94.54)	121.25 (104.28)				
38.9	110.51 (95.04)	123.77 (106.44)	111.63 (96.00)	122.62 (105.45)	110.22 (94.79)	121.56 (104.54)				
39.0	110.80 (95.29)	124.09 (106.72)	111.91 (96.25)	122.94 (105.72)	110.50 (95.03)	121.88 (104.81)				
39.1	111.08 (95.53)	124.41 (106.99)	112.20 (96.49)	123.25 (106.00)	110.78 (95.27)	122.19 (105.08)				
39.2	111.37 (95.78)	124.73 (107.26)	112.49 (96.74)	123.57 (106.27)	111.07 (95.52)	122.50 (105.35)				
39.3	111.65 (96.02)	125.04 (107.54)	112.78 (96.99)	123.88 (106.54)	111.35 (95.76)	122.81 (105.62)				
39.4	111.94 (96.26)	125.36 (107.81)	113.06 (97.23)	124.20 (106.81)	111.63 (96.00)	123.13 (105.89)				
39.5	112.22 (96.51)	125.68 (108.09)	113.35 (97.48)	124.51 (107.08)	111.92 (96.25)	123.44 (106.16)				
39.6	112.50 (96.75)	126.00 (108.36)	113.64 (97.73)	124.83 (107.35)	112.20 (96.49)	123.75 (106.43)				
39.7	112.79 (97.00)	126.32 (108.63)	113.92 (97.97)	125.14 (107.62)	112.48 (96.73)	124.06 (106.69)				
39.8	113.07 (97.24)	126.64 (108.91)	114.21 (98.22)	125.46 (107.89)	112.77 (96.98)	124.38 (106.96)				
39.9	113.36 (97.49)	126.95 (109.18)	114.50 (98.47)	125.77 (108.16)	113.05 (97.22)	124.69 (107.23)				

Table 30. Outdoor Unit Capacity (44, 46, 48HP) with Total Horsepower of Combined Indoor Unit (4)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)									
	RAS-44FSXNQ			RAS-46FSXNQ			RAS-48FSXNQ			
	Cooling	Heating		Cooling	Heating		Cooling	Heating		
40.0	113.64 (97.73)	127.27 (109.45)		114.78 (98.71)	126.09 (108.44)		113.33 (97.47)	125.00 (107.50)		
40.1	113.92 (97.97)	127.59 (109.73)		115.07 (98.96)	126.40 (108.71)		113.62 (97.71)	125.31 (107.77)		
40.2	114.21 (98.22)	127.91 (110.00)		115.36 (99.21)	126.72 (108.98)		113.90 (97.95)	125.63 (108.04)		
40.3	114.49 (98.46)	128.23 (110.27)		115.64 (99.45)	127.03 (109.25)		114.18 (98.20)	125.94 (108.31)		
40.4	114.78 (98.71)	128.54 (110.55)		115.93 (99.70)	127.35 (109.52)		114.47 (98.44)	126.25 (108.58)		
40.5	115.06 (98.95)	128.86 (110.82)		116.22 (99.95)	127.66 (109.79)		114.75 (98.68)	126.56 (108.84)		
40.6	115.34 (99.20)	129.18 (111.10)		116.51 (100.19)	127.98 (110.06)		115.03 (98.93)	126.88 (109.11)		
40.7	115.63 (99.44)	129.50 (111.37)		116.79 (100.44)	128.29 (110.33)		115.32 (99.17)	127.19 (109.38)		
40.8	115.91 (99.69)	129.82 (111.64)		117.08 (100.69)	128.61 (110.60)		115.60 (99.41)	127.50 (109.65)		
40.9	116.20 (99.93)	130.14 (111.92)		117.37 (100.94)	128.92 (110.88)		115.88 (99.66)	127.81 (109.92)		
41.0	116.48 (100.17)	130.45 (112.19)		117.65 (101.18)	129.24 (111.15)		116.17 (99.90)	128.13 (110.19)		
41.1	116.77 (100.42)	130.77 (112.46)		117.94 (101.43)	129.56 (111.42)		116.45 (100.15)	128.44 (110.46)		
41.2	117.05 (100.66)	131.09 (112.74)		118.23 (101.68)	129.87 (111.69)		116.73 (100.39)	128.75 (110.73)		
41.3	117.33 (100.91)	131.41 (113.01)		118.51 (101.92)	130.19 (111.96)		117.02 (100.63)	129.06 (110.99)		
41.4	117.62 (101.15)	131.73 (113.28)		118.80 (102.17)	130.50 (112.23)		117.30 (100.88)	129.38 (111.26)		
41.5	117.90 (101.40)	132.04 (113.56)		119.09 (102.42)	130.82 (112.50)		117.58 (101.12)	129.69 (111.53)		
41.6	118.19 (101.64)	132.36 (113.83)		119.38 (102.66)	131.13 (112.77)		117.87 (101.36)	130.00 (111.80)		
41.7	118.47 (101.88)	132.68 (114.11)		119.66 (102.91)	131.45 (113.04)		118.15 (101.61)	130.31 (112.07)		
41.8	118.75 (102.13)	133.00 (114.38)		119.95 (103.16)	131.76 (113.32)		118.43 (101.85)	130.63 (112.34)		
41.9	119.04 (102.37)	133.32 (114.65)		120.24 (103.40)	132.08 (113.59)		118.72 (102.10)	130.94 (112.61)		
42.0	119.32 (102.62)	133.64 (114.93)		120.52 (103.65)	132.39 (113.86)		119.00 (102.34)	131.25 (112.88)		
42.1	119.61 (102.86)	133.95 (115.20)		120.81 (103.90)	132.71 (114.13)		119.28 (102.58)	131.56 (113.14)		
42.2	119.89 (103.11)	134.27 (115.47)		121.10 (104.14)	133.02 (114.40)		119.57 (102.83)	131.88 (113.41)		
42.3	120.17 (103.35)	134.59 (115.75)		121.38 (104.39)	133.34 (114.67)		119.85 (103.07)	132.19 (113.68)		
42.4	120.46 (103.59)	134.91 (116.02)		121.67 (104.64)	133.65 (114.94)		120.13 (103.31)	132.50 (113.95)		
42.5	120.74 (103.84)	135.23 (116.29)		121.96 (104.88)	133.97 (115.21)		120.42 (103.56)	132.81 (114.22)		
42.6	121.03 (104.08)	135.54 (116.57)		122.24 (105.13)	134.28 (115.48)		120.70 (103.80)	133.13 (114.49)		
42.7	121.31 (104.33)	135.86 (116.84)		122.53 (105.38)	134.60 (115.76)		120.98 (104.04)	133.44 (114.76)		
42.8	121.59 (104.57)	136.18 (117.12)		122.82 (105.62)	134.91 (116.03)		121.27 (104.29)	133.75 (115.03)		
42.9	121.88 (104.82)	136.50 (117.39)		123.11 (105.87)	135.23 (116.30)		121.55 (104.53)	134.06 (115.29)		
43.0	122.16 (105.06)	136.82 (117.66)		123.39 (106.12)	135.54 (116.57)		121.83 (104.78)	134.38 (115.56)		
43.1	122.45 (105.30)	137.14 (117.94)		123.68 (106.36)	135.86 (116.84)		122.12 (105.02)	134.69 (115.83)		
43.2	122.73 (105.55)	137.45 (118.21)		123.97 (106.61)	136.18 (117.11)		122.40 (105.26)	135.00 (116.10)		
43.3	123.02 (105.79)	137.77 (118.48)		124.25 (106.86)	136.49 (117.38)		122.68 (105.51)	135.31 (116.37)		
43.4	123.30 (106.04)	138.09 (118.76)		124.54 (107.10)	136.81 (117.65)		122.97 (105.75)	135.63 (116.64)		
43.5	123.58 (106.28)	138.41 (119.03)		124.83 (107.35)	137.12 (117.92)		123.25 (105.99)	135.94 (116.91)		
43.6	123.87 (106.53)	138.73 (119.30)		125.11 (107.60)	137.44 (118.19)		123.53 (106.24)	136.25 (117.18)		
43.7	124.15 (106.77)	139.04 (119.58)		125.40 (107.85)	137.75 (118.47)		123.82 (106.48)	136.56 (117.44)		
43.8	124.44 (107.01)	139.36 (119.85)		125.69 (108.09)	138.07 (118.74)		124.10 (106.72)	136.88 (117.71)		
43.9	124.72 (107.26)	139.68 (120.13)		125.98 (108.34)	138.38 (119.01)		124.38 (106.97)	137.19 (117.98)		
44.0	125.00 (107.50)	140.00 (120.40)		126.26 (108.59)	138.70 (119.28)		124.67 (107.21)	137.50 (118.25)		
44.1	125.00 (107.50)	140.00 (120.40)		126.55 (108.83)	139.01 (119.55)		124.95 (107.46)	137.81 (118.52)		
44.2	125.00 (107.50)	140.00 (120.40)		126.84 (109.08)	139.33 (119.82)		125.23 (107.70)	138.13 (118.79)		
44.3	125.00 (107.50)	140.00 (120.40)		127.12 (109.33)	139.64 (120.09)		125.52 (107.94)	138.44 (119.06)		
44.4	125.00 (107.50)	140.00 (120.40)		127.41 (109.57)	139.96 (120.36)		125.80 (108.19)	138.75 (119.33)		
44.5	125.00 (107.50)	140.00 (120.40)		127.70 (109.82)	140.27 (120.63)		126.08 (108.43)	139.06 (119.59)		
44.6	125.00 (107.50)	140.00 (120.40)		127.98 (110.07)	140.59 (120.91)		126.37 (108.67)	139.38 (119.86)		
44.7	125.00 (107.50)	140.00 (120.40)		128.27 (110.31)	140.90 (121.18)		126.65 (108.92)	139.69 (120.13)		
44.8	125.00 (107.50)	140.00 (120.40)		128.56 (110.56)	141.22 (121.45)		126.93 (109.16)	140.00 (120.40)		
44.9	125.00 (107.50)	140.00 (120.40)		128.85 (110.81)	141.53 (121.72)		127.22 (109.41)	140.31 (120.67)		
45.0	125.00 (107.50)	140.00 (120.40)		129.13 (111.05)	141.85 (121.99)		127.50 (109.65)	140.63 (120.94)		
45.1	125.00 (107.50)	140.00 (120.40)		129.42 (111.30)	142.16 (122.26)		127.78 (109.89)	140.94 (121.21)		
45.2	125.00 (107.50)	140.00 (120.40)		129.71 (111.55)	142.48 (122.53)		128.07 (110.14)	141.25 (121.48)		
45.3	125.00 (107.50)	140.00 (120.40)		129.99 (111.79)	142.79 (122.80)		128.35 (110.38)	141.56 (121.74)		
45.4	125.00 (107.50)	140.00 (120.40)		130.28 (112.04)	143.11 (123.07)		128.63 (110.62)	141.88 (122.01)		
45.5	125.00 (107.50)	140.00 (120.40)		130.57 (112.29)	143.43 (123.35)		128.92 (110.87)	142.19 (122.28)		
45.6	125.00 (107.50)	140.00 (120.40)		130.85 (112.53)	143.74 (123.62)		129.20 (111.11)	142.50 (122.55)		
45.7	125.00 (107.50)	140.00 (120.40)		131.14 (112.78)	144.06 (123.89)		129.48 (111.35)	142.81 (122.82)		
45.8	125.00 (107.50)	140.00 (120.40)		131.43 (113.03)	144.37 (124.16)		129.77 (111.60)	143.13 (123.09)		
45.9	125.00 (107.50)	140.00 (120.40)		131.71 (113.27)	144.69 (124.43)		130.05 (111.84)	143.44 (123.36)		

Table 31. Outdoor Unit Capacity (44, 46, 48HP) with Total Horsepower of Combined Indoor Unit (5)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)											
	RAS-44FSXNQ				RAS-46FSXNQ				RAS-48FSXNQ			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
46.0	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	130.33	(112.09)	143.75	(123.63)
46.1	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	130.62	(112.33)	144.06	(123.89)
46.2	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	130.90	(112.57)	144.38	(124.16)
46.3	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	131.18	(112.82)	144.69	(124.43)
46.4	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	131.47	(113.06)	145.00	(124.70)
46.5	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	131.75	(113.30)	145.31	(124.97)
46.6	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	132.03	(113.55)	145.63	(125.24)
46.7	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	132.32	(113.79)	145.94	(125.51)
46.8	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	132.60	(114.03)	146.25	(125.78)
46.9	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	132.88	(114.28)	146.56	(126.04)
47.0	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	133.17	(114.52)	146.88	(126.31)
47.1	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	133.45	(114.77)	147.19	(126.58)
47.2	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	133.73	(115.01)	147.50	(126.85)
47.3	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	134.02	(115.25)	147.81	(127.12)
47.4	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	134.30	(115.50)	148.13	(127.39)
47.5	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	134.58	(115.74)	148.44	(127.66)
47.6	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	134.87	(115.98)	148.75	(127.93)
47.7	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	135.15	(116.23)	149.06	(128.19)
47.8	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	135.43	(116.47)	149.38	(128.46)
47.9	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	135.72	(116.71)	149.69	(128.73)
48.0	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
48.1	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
48.2	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
48.3	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
48.4	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
48.5	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
48.6	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
48.7	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
48.8	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
48.9	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
49.0	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
49.1	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
49.2	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
49.3	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
49.4	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
49.5	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
49.6	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
49.7	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
49.8	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
49.9	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
50.0	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
50.1	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
50.2	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
50.3	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
50.4	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
50.5	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
50.6	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
50.7	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
50.8	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
50.9	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
51.0	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
51.1	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
51.2	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
51.3	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
51.4	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
51.5	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
51.6	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
51.7	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
51.8	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)
51.9	125.00	(107.50)	140.00	(120.40)	132.00	(113.52)	145.00	(124.70)	136.00	(116.96)	150.00	(129.00)

SELECTION DATA

Table 32. Outdoor Unit Capacity (44, 46, 48HP) with Total Horsepower of Combined Indoor Unit (6)

[illegible]

Table 33. Outdoor Unit Capacity (44, 46, 48HP) with Total Horsepower of Combined Indoor Unit (7)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)							
	RAS-44FSXNQ		RAS-46FSXNQ				RAS-48FSXNQ	
	Cooling	Heating	Cooling		Heating		Cooling	Heating
58.0			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
58.1			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
58.2			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
58.3			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
58.4			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
58.5			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
58.6			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
58.7			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
58.8			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
58.9			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
59.0			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
59.1			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
59.2			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
59.3			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
59.4			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
59.5			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
59.6			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
59.7			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
59.8			132.00	(113.52)	145.00	(124.70)	136.00	(116.96)
59.9							136.00	(116.96)
60.0							136.00	(116.96)
60.1							136.00	(116.96)
60.2							136.00	(116.96)
60.3							136.00	(116.96)
60.4							136.00	(116.96)
60.5							136.00	(116.96)
60.6							136.00	(116.96)
60.7							136.00	(116.96)
60.8							136.00	(116.96)
60.9							136.00	(116.96)
61.0							136.00	(116.96)
61.1							136.00	(116.96)
61.2							136.00	(116.96)
61.3							136.00	(116.96)
61.4							136.00	(116.96)
61.5							136.00	(116.96)
61.6							136.00	(116.96)
61.7							136.00	(116.96)
61.8							136.00	(116.96)
61.9							136.00	(116.96)
62.0							136.00	(116.96)
62.1							136.00	(116.96)
62.2							136.00	(116.96)
62.3							136.00	(116.96)
62.4							136.00	(116.96)

SELECTION DATA

Table 34. Outdoor Unit Capacity (50, 52, 54HP) with Total Horsepower of Combined Indoor Unit (1)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)									
	RAS-50FSXNQ				RAS-52FSXNQ				RAS-54FSXNQ	
	Cooling		Heating		Cooling		Heating		Cooling	Heating
25.0	70.00	(60.20)	77.50	(66.65)						
25.1	70.28	(60.44)	77.81	(66.92)						
25.2	70.56	(60.68)	78.12	(67.18)						
25.3	70.84	(60.92)	78.43	(67.45)						
25.4	71.12	(61.16)	78.74	(67.72)						
25.5	71.40	(61.40)	79.05	(67.98)						
25.6	71.68	(61.64)	79.36	(68.25)						
25.7	71.96	(61.89)	79.67	(68.52)						
25.8	72.24	(62.13)	79.98	(68.78)						
25.9	72.52	(62.37)	80.29	(69.05)						
26.0	72.80	(62.61)	80.60	(69.32)	72.50	(62.35)	80.00	(68.80)		
26.1	73.08	(62.85)	80.91	(69.58)	72.78	(62.59)	80.31	(69.06)		
26.2	73.36	(63.09)	81.22	(69.85)	73.06	(62.83)	80.61	(69.33)		
26.3	73.64	(63.33)	81.53	(70.12)	73.34	(63.07)	80.92	(69.59)		
26.4	73.92	(63.57)	81.84	(70.38)	73.62	(63.31)	81.23	(69.86)		
26.5	74.20	(63.81)	82.15	(70.65)	73.90	(63.55)	81.54	(70.12)		
26.6	74.48	(64.05)	82.46	(70.92)	74.17	(63.79)	81.85	(70.39)		
26.7	74.76	(64.29)	82.77	(71.18)	74.45	(64.03)	82.15	(70.65)		
26.8	75.04	(64.53)	83.08	(71.45)	74.73	(64.27)	82.46	(70.92)		
26.9	75.32	(64.78)	83.39	(71.72)	75.01	(64.51)	82.77	(71.18)		
27.0	75.60	(65.02)	83.70	(71.98)	75.29	(64.75)	83.08	(71.45)	75.00	(64.50)
27.1	75.88	(65.26)	84.01	(72.25)	75.57	(64.99)	83.38	(71.71)	75.28	(64.74)
27.2	76.16	(65.50)	84.32	(72.52)	75.85	(65.23)	83.69	(71.97)	75.56	(64.98)
27.3	76.44	(65.74)	84.63	(72.78)	76.13	(65.47)	84.00	(72.24)	75.83	(65.22)
27.4	76.72	(65.98)	84.94	(73.05)	76.40	(65.71)	84.31	(72.50)	76.11	(65.46)
27.5	77.00	(66.22)	85.25	(73.31)	76.68	(65.95)	84.61	(72.77)	76.39	(65.69)
27.6	77.28	(66.46)	85.56	(73.58)	76.96	(66.19)	84.92	(73.03)	76.67	(65.93)
27.7	77.56	(66.70)	85.87	(73.85)	77.24	(66.43)	85.23	(73.30)	76.95	(66.17)
27.8	77.84	(66.94)	86.18	(74.11)	77.52	(66.67)	85.54	(73.56)	77.22	(66.41)
27.9	78.12	(67.18)	86.49	(74.38)	77.80	(66.91)	85.85	(73.83)	77.50	(66.65)
28.0	78.40	(67.42)	86.80	(74.65)	78.08	(67.15)	86.15	(74.09)	77.78	(66.89)
28.1	78.68	(67.66)	87.11	(74.91)	78.36	(67.39)	86.46	(74.36)	78.06	(67.13)
28.2	78.96	(67.91)	87.42	(75.18)	78.64	(67.63)	86.77	(74.62)	78.33	(67.37)
28.3	79.24	(68.15)	87.73	(75.45)	78.91	(67.87)	87.08	(74.89)	78.61	(67.61)
28.4	79.52	(68.39)	88.04	(75.71)	79.19	(68.11)	87.38	(75.15)	78.89	(67.84)
28.5	79.80	(68.63)	88.35	(75.98)	79.47	(68.35)	87.69	(75.41)	79.17	(68.08)
28.6	80.08	(68.87)	88.66	(76.25)	79.75	(68.59)	88.00	(75.68)	79.45	(68.32)
28.7	80.36	(69.11)	88.97	(76.51)	80.03	(68.83)	88.31	(75.94)	79.72	(68.56)
28.8	80.64	(69.35)	89.28	(76.78)	80.31	(69.07)	88.61	(76.21)	80.00	(68.80)
28.9	80.92	(69.59)	89.59	(77.05)	80.59	(69.31)	88.92	(76.47)	80.28	(69.04)
29.0	81.20	(69.83)	89.90	(77.31)	80.87	(69.55)	89.23	(76.74)	80.56	(69.28)
29.1	81.48	(70.07)	90.21	(77.58)	81.15	(69.79)	89.54	(77.00)	80.83	(69.52)
29.2	81.76	(70.31)	90.52	(77.85)	81.42	(70.02)	89.85	(77.27)	81.11	(69.76)
29.3	82.04	(70.55)	90.83	(78.11)	81.70	(70.26)	90.15	(77.53)	81.39	(70.00)
29.4	82.32	(70.80)	91.14	(78.38)	81.98	(70.50)	90.46	(77.80)	81.67	(70.23)
29.5	82.60	(71.04)	91.45	(78.65)	82.26	(70.74)	90.77	(78.06)	81.95	(70.47)
29.6	82.88	(71.28)	91.76	(78.91)	82.54	(70.98)	91.08	(78.33)	82.22	(70.71)
29.7	83.16	(71.52)	92.07	(79.18)	82.82	(71.22)	91.38	(78.59)	82.50	(70.95)
29.8	83.44	(71.76)	92.38	(79.45)	83.10	(71.46)	91.69	(78.85)	82.78	(71.19)
29.9	83.72	(72.00)	92.69	(79.71)	83.38	(71.70)	92.00	(79.12)	83.06	(71.43)
30.0	84.00	(72.24)	93.00	(79.98)	83.65	(71.94)	92.31	(79.38)	83.33	(71.67)
30.1	84.28	(72.48)	93.31	(80.25)	83.93	(72.18)	92.61	(79.65)	83.61	(71.91)
30.2	84.56	(72.72)	93.62	(80.51)	84.21	(72.42)	92.92	(79.91)	83.89	(72.15)
30.3	84.84	(72.96)	93.93	(80.78)	84.49	(72.66)	93.23	(80.18)	84.17	(72.38)
30.4	85.12	(73.20)	94.24	(81.05)	84.77	(72.90)	93.54	(80.44)	84.45	(72.62)
30.5	85.40	(73.44)	94.55	(81.31)	85.05	(73.14)	93.85	(80.71)	84.72	(72.86)
30.6	85.68	(73.68)	94.86	(81.58)	85.33	(73.38)	94.15	(80.97)	85.00	(73.10)
30.7	85.96	(73.93)	95.17	(81.85)	85.61	(73.62)	94.46	(81.24)	85.28	(73.34)
30.8	86.24	(74.17)	95.48	(82.11)	85.89	(73.86)	94.77	(81.50)	85.56	(73.58)
30.9	86.52	(74.41)	95.79	(82.38)	86.16	(74.10)	95.08	(81.77)	85.83	(73.82)

Table 35. Outdoor Unit Capacity (50, 52, 54HP) with Total Horsepower of Combined Indoor Unit (2)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)										
	RAS-50FSXNQ				RAS-52FSXNQ				RAS-54FSXNQ		
	Cooling		Heating		Cooling		Heating		Cooling		Heating
31.0	86.80	(74.65)	96.10	(82.65)	86.44	(74.34)	95.38	(82.03)	86.11	(74.06)	94.72 (81.46)
31.1	87.08	(74.89)	96.41	(82.91)	86.72	(74.58)	95.69	(82.29)	86.39	(74.30)	95.03 (81.72)
31.2	87.36	(75.13)	96.72	(83.18)	87.00	(74.82)	96.00	(82.56)	86.67	(74.53)	95.33 (81.99)
31.3	87.64	(75.37)	97.03	(83.45)	87.28	(75.06)	96.31	(82.82)	86.95	(74.77)	95.64 (82.25)
31.4	87.92	(75.61)	97.34	(83.71)	87.56	(75.30)	96.61	(83.09)	87.22	(75.01)	95.94 (82.51)
31.5	88.20	(75.85)	97.65	(83.98)	87.84	(75.54)	96.92	(83.35)	87.50	(75.25)	96.25 (82.78)
31.6	88.48	(76.09)	97.96	(84.25)	88.12	(75.78)	97.23	(83.62)	87.78	(75.49)	96.56 (83.04)
31.7	88.76	(76.33)	98.27	(84.51)	88.40	(76.02)	97.54	(83.88)	88.06	(75.73)	96.86 (83.30)
31.8	89.04	(76.57)	98.58	(84.78)	88.67	(76.26)	97.85	(84.15)	88.33	(75.97)	97.17 (83.56)
31.9	89.32	(76.82)	98.89	(85.05)	88.95	(76.50)	98.15	(84.41)	88.61	(76.21)	97.47 (83.83)
32.0	89.60	(77.06)	99.20	(85.31)	89.23	(76.74)	98.46	(84.68)	88.89	(76.45)	97.78 (84.09)
32.1	89.88	(77.30)	99.51	(85.58)	89.51	(76.98)	98.77	(84.94)	89.17	(76.68)	98.08 (84.35)
32.2	90.16	(77.54)	99.82	(85.85)	89.79	(77.22)	99.08	(85.21)	89.45	(76.92)	98.39 (84.61)
32.3	90.44	(77.78)	100.13	(86.11)	90.07	(77.46)	99.38	(85.47)	89.72	(77.16)	98.69 (84.88)
32.4	90.72	(78.02)	100.44	(86.38)	90.35	(77.70)	99.69	(85.73)	90.00	(77.40)	99.00 (85.14)
32.5	91.00	(78.26)	100.75	(86.64)	90.63	(77.94)	100.00	(86.00)	90.28	(77.64)	99.31 (85.40)
32.6	91.28	(78.50)	101.06	(86.91)	90.91	(78.18)	100.31	(86.26)	90.56	(77.88)	99.61 (85.67)
32.7	91.56	(78.74)	101.37	(87.18)	91.18	(78.42)	100.61	(86.53)	90.83	(78.12)	99.92 (85.93)
32.8	91.84	(78.98)	101.68	(87.44)	91.46	(78.66)	100.92	(86.79)	91.11	(78.36)	100.22 (86.19)
32.9	92.12	(79.22)	101.99	(87.71)	91.74	(78.90)	101.23	(87.06)	91.39	(78.60)	100.53 (86.45)
33.0	92.40	(79.46)	102.30	(87.98)	92.02	(79.14)	101.54	(87.32)	91.67	(78.83)	100.83 (86.72)
33.1	92.68	(79.70)	102.61	(88.24)	92.30	(79.38)	101.85	(87.59)	91.95	(79.07)	101.14 (86.98)
33.2	92.96	(79.95)	102.92	(88.51)	92.58	(79.62)	102.15	(87.85)	92.22	(79.31)	101.44 (87.24)
33.3	93.24	(80.19)	103.23	(88.78)	92.86	(79.86)	102.46	(88.12)	92.50	(79.55)	101.75 (87.51)
33.4	93.52	(80.43)	103.54	(89.04)	93.14	(80.10)	102.77	(88.38)	92.78	(79.79)	102.06 (87.77)
33.5	93.80	(80.67)	103.85	(89.31)	93.41	(80.34)	103.08	(88.65)	93.06	(80.03)	102.36 (88.03)
33.6	94.08	(80.91)	104.16	(89.58)	93.69	(80.58)	103.38	(88.91)	93.33	(80.27)	102.67 (88.29)
33.7	94.36	(81.15)	104.47	(89.84)	93.97	(80.82)	103.69	(89.17)	93.61	(80.51)	102.97 (88.56)
33.8	94.64	(81.39)	104.78	(90.11)	94.25	(81.06)	104.00	(89.44)	93.89	(80.75)	103.28 (88.82)
33.9	94.92	(81.63)	105.09	(90.38)	94.53	(81.30)	104.31	(89.70)	94.17	(80.98)	103.58 (89.08)
34.0	95.20	(81.87)	105.40	(90.64)	94.81	(81.54)	104.61	(89.97)	94.45	(81.22)	103.89 (89.34)
34.1	95.48	(82.11)	105.71	(90.91)	95.09	(81.78)	104.92	(90.23)	94.72	(81.46)	104.19 (89.61)
34.2	95.76	(82.35)	106.02	(91.18)	95.37	(82.02)	105.23	(90.50)	95.00	(81.70)	104.50 (89.87)
34.3	96.04	(82.59)	106.33	(91.44)	95.65	(82.26)	105.54	(90.76)	95.28	(81.94)	104.81 (90.13)
34.4	96.32	(82.84)	106.64	(91.71)	95.92	(82.49)	105.85	(91.03)	95.56	(82.18)	105.11 (90.40)
34.5	96.60	(83.08)	106.95	(91.98)	96.20	(82.73)	106.15	(91.29)	95.83	(82.42)	105.42 (90.66)
34.6	96.88	(83.32)	107.26	(92.24)	96.48	(82.97)	106.46	(91.56)	96.11	(82.66)	105.72 (90.92)
34.7	97.16	(83.56)	107.57	(92.51)	96.76	(83.21)	106.77	(91.82)	96.39	(82.90)	106.03 (91.18)
34.8	97.44	(83.80)	107.88	(92.78)	97.04	(83.45)	107.08	(92.09)	96.67	(83.13)	106.33 (91.45)
34.9	97.72	(84.04)	108.19	(93.04)	97.32	(83.69)	107.38	(92.35)	96.95	(83.37)	106.64 (91.71)
35.0	98.00	(84.28)	108.50	(93.31)	97.60	(83.93)	107.69	(92.61)	97.22	(83.61)	106.94 (91.97)
35.1	98.28	(84.52)	108.81	(93.58)	97.88	(84.17)	108.00	(92.88)	97.50	(83.85)	107.25 (92.24)
35.2	98.56	(84.76)	109.12	(93.84)	98.16	(84.41)	108.31	(93.14)	97.78	(84.09)	107.56 (92.50)
35.3	98.84	(85.00)	109.43	(94.11)	98.43	(84.65)	108.61	(93.41)	98.06	(84.33)	107.86 (92.76)
35.4	99.12	(85.24)	109.74	(94.38)	98.71	(84.89)	108.92	(93.67)	98.33	(84.57)	108.17 (93.02)
35.5	99.40	(85.48)	110.05	(94.64)	98.99	(85.13)	109.23	(93.94)	98.61	(84.81)	108.47 (93.29)
35.6	99.68	(85.72)	110.36	(94.91)	99.27	(85.37)	109.54	(94.20)	98.89	(85.05)	108.78 (93.55)
35.7	99.96	(85.97)	110.67	(95.18)	99.55	(85.61)	109.85	(94.47)	99.17	(85.28)	109.08 (93.81)
35.8	100.24	(86.21)	110.98	(95.44)	99.83	(85.85)	110.15	(94.73)	99.45	(85.52)	109.39 (94.07)
35.9	100.52	(86.45)	111.29	(95.71)	100.11	(86.09)	110.46	(95.00)	99.72	(85.76)	109.69 (94.34)
36.0	100.80	(86.69)	111.60	(95.98)	100.39	(86.33)	110.77	(95.26)	100.00	(86.00)	110.00 (94.60)
36.1	101.08	(86.93)	111.91	(96.24)	100.66	(86.57)	111.08	(95.53)	100.28	(86.24)	110.31 (94.86)
36.2	101.36	(87.17)	112.22	(96.51)	100.94	(86.81)	111.38	(95.79)	100.56	(86.48)	110.61 (95.13)
36.3	101.64	(87.41)	112.53	(96.78)	101.22	(87.05)	111.69	(96.05)	100.83	(86.72)	110.92 (95.39)
36.4	101.92	(87.65)	112.84	(97.04)	101.50	(87.29)	112.00	(96.32)	101.11	(86.96)	111.22 (95.65)
36.5	102.20	(87.89)	113.15	(97.31)	101.78	(87.53)	112.31	(96.58)	101.39	(87.20)	111.53 (95.91)
36.6	102.48	(88.13)	113.46	(97.58)	102.06	(87.77)	112.61	(96.85)	101.67	(87.43)	111.83 (96.18)
36.7	102.76	(88.37)	113.77	(97.84)	102.34	(88.01)	112.92	(97.11)	101.95	(87.67)	112.14 (96.44)
36.8	103.04	(88.61)	114.08	(98.11)	102.62	(88.25)	113.23	(97.38)	102.22	(87.91)	112.44 (96.70)
36.9	103.32	(88.86)	114.39	(98.38)	102.90	(88.49)	113.54	(97.64)	102.50	(88.15)	112.75 (96.97)

Table 36. Outdoor Unit Capacity (50, 52, 54HP) with Total Horsepower of Combined Indoor Unit (3)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)											
	RAS-50FSXNQ				RAS-52FSXNQ				RAS-54FSXNQ			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
37.0	103.60	(89.10)	114.70	(98.64)	103.17	(88.73)	113.85	(97.91)	102.78	(88.39)	113.06	(97.23)
37.1	103.88	(89.34)	115.01	(98.91)	103.45	(88.97)	114.15	(98.17)	103.06	(88.63)	113.36	(97.49)
37.2	104.16	(89.58)	115.32	(99.18)	103.73	(89.21)	114.46	(98.44)	103.33	(88.87)	113.67	(97.75)
37.3	104.44	(89.82)	115.63	(99.44)	104.01	(89.45)	114.77	(98.70)	103.61	(89.11)	113.97	(98.02)
37.4	104.72	(90.06)	115.94	(99.71)	104.29	(89.69)	115.08	(98.97)	103.89	(89.35)	114.28	(98.28)
37.5	105.00	(90.30)	116.25	(99.97)	104.57	(89.93)	115.38	(99.23)	104.17	(89.58)	114.58	(98.54)
37.6	105.28	(90.54)	116.56	(100.24)	104.85	(90.17)	115.69	(99.49)	104.45	(89.82)	114.89	(98.80)
37.7	105.56	(90.78)	116.87	(100.51)	105.13	(90.41)	116.00	(99.76)	104.72	(90.06)	115.19	(99.07)
37.8	105.84	(91.02)	117.18	(100.77)	105.41	(90.65)	116.31	(100.02)	105.00	(90.30)	115.50	(99.33)
37.9	106.12	(91.26)	117.49	(101.04)	105.68	(90.89)	116.61	(100.29)	105.28	(90.54)	115.81	(99.59)
38.0	106.40	(91.50)	117.80	(101.31)	105.96	(91.13)	116.92	(100.55)	105.56	(90.78)	116.11	(99.86)
38.1	106.68	(91.74)	118.11	(101.57)	106.24	(91.37)	117.23	(100.82)	105.83	(91.02)	116.42	(100.12)
38.2	106.96	(91.99)	118.42	(101.84)	106.52	(91.61)	117.54	(101.08)	106.11	(91.26)	116.72	(100.38)
38.3	107.24	(92.23)	118.73	(102.11)	106.80	(91.85)	117.85	(101.35)	106.39	(91.50)	117.03	(100.64)
38.4	107.52	(92.47)	119.04	(102.37)	107.08	(92.09)	118.15	(101.61)	106.67	(91.73)	117.33	(100.91)
38.5	107.80	(92.71)	119.35	(102.64)	107.36	(92.33)	118.46	(101.88)	106.95	(91.97)	117.64	(101.17)
38.6	108.08	(92.95)	119.66	(102.91)	107.64	(92.57)	118.77	(102.14)	107.22	(92.21)	117.94	(101.43)
38.7	108.36	(93.19)	119.97	(103.17)	107.91	(92.81)	119.08	(102.41)	107.50	(92.45)	118.25	(101.70)
38.8	108.64	(93.43)	120.28	(103.44)	108.19	(93.05)	119.38	(102.67)	107.78	(92.69)	118.56	(101.96)
38.9	108.92	(93.67)	120.59	(103.71)	108.47	(93.29)	119.69	(102.93)	108.06	(92.93)	118.86	(102.22)
39.0	109.20	(93.91)	120.90	(103.97)	108.75	(93.53)	120.00	(103.20)	108.33	(93.17)	119.17	(102.48)
39.1	109.48	(94.15)	121.21	(104.24)	109.03	(93.77)	120.31	(103.46)	108.61	(93.41)	119.47	(102.75)
39.2	109.76	(94.39)	121.52	(104.51)	109.31	(94.01)	120.61	(103.73)	108.89	(93.65)	119.78	(103.01)
39.3	110.04	(94.63)	121.83	(104.77)	109.59	(94.25)	120.92	(103.99)	109.17	(93.88)	120.08	(103.27)
39.4	110.32	(94.88)	122.14	(105.04)	109.87	(94.49)	121.23	(104.26)	109.45	(94.12)	120.39	(103.53)
39.5	110.60	(95.12)	122.45	(105.31)	110.15	(94.73)	121.54	(104.52)	109.72	(94.36)	120.69	(103.80)
39.6	110.88	(95.36)	122.76	(105.57)	110.42	(94.97)	121.85	(104.79)	110.00	(94.60)	121.00	(104.06)
39.7	111.16	(95.60)	123.07	(105.84)	110.70	(95.20)	122.15	(105.05)	110.28	(94.84)	121.31	(104.32)
39.8	111.44	(95.84)	123.38	(106.11)	110.98	(95.44)	122.46	(105.32)	110.56	(95.08)	121.61	(104.59)
39.9	111.72	(96.08)	123.69	(106.37)	111.26	(95.68)	122.77	(105.58)	110.83	(95.32)	121.92	(104.85)
40.0	112.00	(96.32)	124.00	(106.64)	111.54	(95.92)	123.08	(105.85)	111.11	(95.56)	122.22	(105.11)
40.1	112.28	(96.56)	124.31	(106.91)	111.82	(96.16)	123.38	(106.11)	111.39	(95.80)	122.53	(105.37)
40.2	112.56	(96.80)	124.62	(107.17)	112.10	(96.40)	123.69	(106.37)	111.67	(96.03)	122.83	(105.64)
40.3	112.84	(97.04)	124.93	(107.44)	112.38	(96.64)	124.00	(106.64)	111.95	(96.27)	123.14	(105.90)
40.4	113.12	(97.28)	125.24	(107.71)	112.66	(96.88)	124.31	(106.90)	112.22	(96.51)	123.44	(106.16)
40.5	113.40	(97.52)	125.55	(107.97)	112.93	(97.12)	124.61	(107.17)	112.50	(96.75)	123.75	(106.43)
40.6	113.68	(97.76)	125.86	(108.24)	113.21	(97.36)	124.92	(107.43)	112.78	(96.99)	124.06	(106.69)
40.7	113.96	(98.01)	126.17	(108.51)	113.49	(97.60)	125.23	(107.70)	113.06	(97.23)	124.36	(106.95)
40.8	114.24	(98.25)	126.48	(108.77)	113.77	(97.84)	125.54	(107.96)	113.33	(97.47)	124.67	(107.21)
40.9	114.52	(98.49)	126.79	(109.04)	114.05	(98.08)	125.85	(108.23)	113.61	(97.71)	124.97	(107.48)
41.0	114.80	(98.73)	127.10	(109.31)	114.33	(98.32)	126.15	(108.49)	113.89	(97.95)	125.28	(107.74)
41.1	115.08	(98.97)	127.41	(109.57)	114.61	(98.56)	126.46	(108.76)	114.17	(98.18)	125.58	(108.00)
41.2	115.36	(99.21)	127.72	(109.84)	114.89	(98.80)	126.77	(109.02)	114.45	(98.42)	125.89	(108.26)
41.3	115.64	(99.45)	128.03	(110.11)	115.17	(99.04)	127.08	(109.29)	114.72	(98.66)	126.19	(108.53)
41.4	115.92	(99.69)	128.34	(110.37)	115.44	(99.28)	127.38	(109.55)	115.00	(98.90)	126.50	(108.79)
41.5	116.20	(99.93)	128.65	(110.64)	115.72	(99.52)	127.69	(109.81)	115.28	(99.14)	126.81	(109.05)
41.6	116.48	(100.17)	128.96	(110.91)	116.00	(99.76)	128.00	(110.08)	115.56	(99.38)	127.11	(109.32)
41.7	116.76	(100.41)	129.27	(111.17)	116.28	(100.00)	128.31	(110.34)	115.83	(99.62)	127.42	(109.58)
41.8	117.04	(100.65)	129.58	(111.44)	116.56	(100.24)	128.61	(110.61)	116.11	(99.86)	127.72	(109.84)
41.9	117.32	(100.90)	129.89	(111.71)	116.84	(100.48)	128.92	(110.87)	116.39	(100.10)	128.03	(110.10)
42.0	117.60	(101.14)	130.20	(111.97)	117.12	(100.72)	129.23	(111.14)	116.67	(100.33)	128.33	(110.37)
42.1	117.88	(101.38)	130.51	(112.24)	117.40	(100.96)	129.54	(111.40)	116.95	(100.57)	128.64	(110.63)
42.2	118.16	(101.62)	130.82	(112.51)	117.67	(101.20)	129.85	(111.67)	117.22	(100.81)	128.94	(110.89)
42.3	118.44	(101.86)	131.13	(112.77)	117.95	(101.44)	130.15	(111.93)	117.50	(101.05)	129.25	(111.16)
42.4	118.72	(102.10)	131.44	(113.04)	118.23	(101.68)	130.46	(112.20)	117.78	(101.29)	129.56	(111.42)
42.5	119.00	(102.34)	131.75	(113.31)	118.51	(101.92)	130.77	(112.46)	118.06	(101.53)	129.86	(111.68)
42.6	119.28	(102.58)	132.06	(113.57)	118.79	(102.16)	131.08	(112.73)	118.33	(101.77)	130.17	(111.94)
42.7	119.56	(102.82)	132.37	(113.84)	119.07	(102.40)	131.38	(112.99)	118.61	(102.01)	130.47	(112.21)
42.8	119.84	(103.06)	132.68	(114.10)	119.35	(102.64)	131.69	(113.25)	118.89	(102.25)	130.78	(112.47)
42.9	120.12	(103.30)	132.99	(114.37)	119.63	(102.88)	132.00	(113.52)	119.17	(102.48)	131.08	(112.73)

Table 37. Outdoor Unit Capacity (50, 52, 54HP) with Total Horsepower of Combined Indoor Unit (4)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)											
	RAS-50FSXNQ				RAS-52FSXNQ				RAS-54FSXNQ			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
43.0	120.40	(103.54)	133.30	(114.64)	119.91	(103.12)	132.31	(113.78)	119.45	(102.72)	131.39	(112.99)
43.1	120.68	(103.78)	133.61	(114.90)	120.18	(103.36)	132.61	(114.05)	119.72	(102.96)	131.69	(113.26)
43.2	120.96	(104.03)	133.92	(115.17)	120.46	(103.60)	132.92	(114.31)	120.00	(103.20)	132.00	(113.52)
43.3	121.24	(104.27)	134.23	(115.44)	120.74	(103.84)	133.23	(114.58)	120.28	(103.44)	132.31	(113.78)
43.4	121.52	(104.51)	134.54	(115.70)	121.02	(104.08)	133.54	(114.84)	120.56	(103.68)	132.61	(114.05)
43.5	121.80	(104.75)	134.85	(115.97)	121.30	(104.32)	133.85	(115.11)	120.83	(103.92)	132.92	(114.31)
43.6	122.08	(104.99)	135.16	(116.24)	121.58	(104.56)	134.15	(115.37)	121.11	(104.16)	133.22	(114.57)
43.7	122.36	(105.23)	135.47	(116.50)	121.86	(104.80)	134.46	(115.64)	121.39	(104.40)	133.53	(114.83)
43.8	122.64	(105.47)	135.78	(116.77)	122.14	(105.04)	134.77	(115.90)	121.67	(104.63)	133.83	(115.10)
43.9	122.92	(105.71)	136.09	(117.04)	122.42	(105.28)	135.08	(116.17)	121.95	(104.87)	134.14	(115.36)
44.0	123.20	(105.95)	136.40	(117.30)	122.69	(105.52)	135.38	(116.43)	122.22	(105.11)	134.44	(115.62)
44.1	123.48	(106.19)	136.71	(117.57)	122.97	(105.76)	135.69	(116.69)	122.50	(105.35)	134.75	(115.89)
44.2	123.76	(106.43)	137.02	(117.84)	123.25	(106.00)	136.00	(116.96)	122.78	(105.59)	135.06	(116.15)
44.3	124.04	(106.67)	137.33	(118.10)	123.53	(106.24)	136.31	(117.22)	123.06	(105.83)	135.36	(116.41)
44.4	124.32	(106.92)	137.64	(118.37)	123.81	(106.48)	136.61	(117.49)	123.33	(106.07)	135.67	(116.67)
44.5	124.60	(107.16)	137.95	(118.64)	124.09	(106.72)	136.92	(117.75)	123.61	(106.31)	135.97	(116.94)
44.6	124.88	(107.40)	138.26	(118.90)	124.37	(106.96)	137.23	(118.02)	123.89	(106.55)	136.28	(117.20)
44.7	125.16	(107.64)	138.57	(119.17)	124.65	(107.20)	137.54	(118.28)	124.17	(106.78)	136.58	(117.46)
44.8	125.44	(107.88)	138.88	(119.44)	124.92	(107.44)	137.85	(118.55)	124.45	(107.02)	136.89	(117.72)
44.9	125.72	(108.12)	139.19	(119.70)	125.20	(107.68)	138.15	(118.81)	124.72	(107.26)	137.19	(117.99)
45.0	126.00	(108.36)	139.50	(119.97)	125.48	(107.91)	138.46	(119.08)	125.00	(107.50)	137.50	(118.25)
45.1	126.28	(108.60)	139.81	(120.24)	125.76	(108.15)	138.77	(119.34)	125.28	(107.74)	137.81	(118.51)
45.2	126.56	(108.84)	140.12	(120.50)	126.04	(108.39)	139.08	(119.61)	125.56	(107.98)	138.11	(118.78)
45.3	126.84	(109.08)	140.43	(120.77)	126.32	(108.63)	139.38	(119.87)	125.83	(108.22)	138.42	(119.04)
45.4	127.12	(109.32)	140.74	(121.04)	126.60	(108.87)	139.69	(120.13)	126.11	(108.46)	138.72	(119.30)
45.5	127.40	(109.56)	141.05	(121.30)	126.88	(109.11)	140.00	(120.40)	126.39	(108.70)	139.03	(119.56)
45.6	127.68	(109.80)	141.36	(121.57)	127.16	(109.35)	140.31	(120.66)	126.67	(108.93)	139.33	(119.83)
45.7	127.96	(110.05)	141.67	(121.84)	127.43	(109.59)	140.61	(120.93)	126.95	(109.17)	139.64	(120.09)
45.8	128.24	(110.29)	141.98	(122.10)	127.71	(109.83)	140.92	(121.19)	127.22	(109.41)	139.94	(120.35)
45.9	128.52	(110.53)	142.29	(122.37)	127.99	(110.07)	141.23	(121.46)	127.50	(109.65)	140.25	(120.62)
46.0	128.80	(110.77)	142.60	(122.64)	128.27	(110.31)	141.54	(121.72)	127.78	(109.89)	140.56	(120.88)
46.1	129.08	(111.01)	142.91	(122.90)	128.55	(110.55)	141.85	(121.99)	128.06	(110.13)	140.86	(121.14)
46.2	129.36	(111.25)	143.22	(123.17)	128.83	(110.79)	142.15	(122.25)	128.33	(110.37)	141.17	(121.40)
46.3	129.64	(111.49)	143.53	(123.44)	129.11	(111.03)	142.46	(122.52)	128.61	(110.61)	141.47	(121.67)
46.4	129.92	(111.73)	143.84	(123.70)	129.39	(111.27)	142.77	(122.78)	128.89	(110.85)	141.78	(121.93)
46.5	130.20	(111.97)	144.15	(123.97)	129.67	(111.51)	143.08	(123.05)	129.17	(111.08)	142.08	(122.19)
46.6	130.48	(112.21)	144.46	(124.24)	129.94	(111.75)	143.38	(123.31)	129.45	(111.32)	142.39	(122.45)
46.7	130.76	(112.45)	144.77	(124.50)	130.22	(111.99)	143.69	(123.57)	129.72	(111.56)	142.69	(122.72)
46.8	131.04	(112.69)	145.08	(124.77)	130.50	(112.23)	144.00	(123.84)	130.00	(111.80)	143.00	(122.98)
46.9	131.32	(112.94)	145.39	(125.04)	130.78	(112.47)	144.31	(124.10)	130.28	(112.04)	143.31	(123.24)
47.0	131.60	(113.18)	145.70	(125.30)	131.06	(112.71)	144.61	(124.37)	130.56	(112.28)	143.61	(123.51)
47.1	131.88	(113.42)	146.01	(125.57)	131.34	(112.95)	144.92	(124.63)	130.83	(112.52)	143.92	(123.77)
47.2	132.16	(113.66)	146.32	(125.84)	131.62	(113.19)	145.23	(124.90)	131.11	(112.76)	144.22	(124.03)
47.3	132.44	(113.90)	146.63	(126.10)	131.90	(113.43)	145.54	(125.16)	131.39	(113.00)	144.53	(124.29)
47.4	132.72	(114.14)	146.94	(126.37)	132.17	(113.67)	145.85	(125.43)	131.67	(113.23)	144.83	(124.56)
47.5	133.00	(114.38)	147.25	(126.64)	132.45	(113.91)	146.15	(125.69)	131.95	(113.47)	145.14	(124.82)
47.6	133.28	(114.62)	147.56	(126.90)	132.73	(114.15)	146.46	(125.96)	132.22	(113.71)	145.44	(125.08)
47.7	133.56	(114.86)	147.87	(127.17)	133.01	(114.39)	146.77	(126.22)	132.50	(113.95)	145.75	(125.35)
47.8	133.84	(115.10)	148.18	(127.43)	133.29	(114.63)	147.08	(126.49)	132.78	(114.19)	146.06	(125.61)
47.9	134.12	(115.34)	148.49	(127.70)	133.57	(114.87)	147.38	(126.75)	133.06	(114.43)	146.36	(125.87)
48.0	134.40	(115.58)	148.80	(127.97)	133.85	(115.11)	147.69	(127.01)	133.33	(114.67)	146.67	(126.13)
48.1	134.68	(115.82)	149.11	(128.23)	134.13	(115.35)	148.00	(127.28)	133.61	(114.91)	146.97	(126.40)
48.2	134.96	(116.07)	149.42	(128.50)	134.41	(115.59)	148.31	(127.54)	133.89	(115.15)	147.28	(126.66)
48.3	135.24	(116.31)	149.73	(128.77)	134.68	(115.83)	148.61	(127.81)	134.17	(115.38)	147.58	(126.92)
48.4	135.52	(116.55)	150.04	(129.03)	134.96	(116.07)	148.92	(128.07)	134.45	(115.62)	147.89	(127.18)
48.5	135.80	(116.79)	150.35	(129.30)	135.24	(116.31)	149.23	(128.34)	134.72	(115.86)	148.19	(127.45)
48.6	136.08	(117.03)	150.66	(129.57)	135.52	(116.55)	149.54	(128.60)	135.00	(116.10)	148.50	(127.71)
48.7	136.36	(117.27)	150.97	(129.83)	135.80	(116.79)	149.85	(128.87)	135.28	(116.34)	148.81	(127.97)
48.8	136.64	(117.51)	151.28	(130.10)	136.08	(117.03)	150.15	(129.13)	135.56	(116.58)	149.11	(128.24)
48.9	136.92	(117.75)	151.59	(130.37)	136.36	(117.27)	150.46	(129.40)	135.83	(116.82)	149.42	(128.50)

Table 38. Outdoor Unit Capacity (50, 52, 54HP) with Total Horsepower of Combined Indoor Unit (5)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)									
	RAS-50FSXNQ			RAS-52FSXNQ			RAS-54FSXNQ			
	Cooling		Heating	Cooling		Heating	Cooling		Heating	
49.0	137.20	(117.99)	151.90	(130.63)	136.64	(117.51)	150.77	(129.66)	136.11	(117.06)
49.1	137.48	(118.23)	152.21	(130.90)	136.92	(117.75)	151.08	(129.93)	136.39	(117.30)
49.2	137.76	(118.47)	152.52	(131.17)	137.19	(117.99)	151.38	(130.19)	136.67	(117.53)
49.3	138.04	(118.71)	152.83	(131.43)	137.47	(118.23)	151.69	(130.45)	136.95	(117.77)
49.4	138.32	(118.96)	153.14	(131.70)	137.75	(118.47)	152.00	(130.72)	137.22	(118.01)
49.5	138.60	(119.20)	153.45	(131.97)	138.03	(118.71)	152.31	(130.98)	137.50	(118.25)
49.6	138.88	(119.44)	153.76	(132.23)	138.31	(118.95)	152.61	(131.25)	137.78	(118.49)
49.7	139.16	(119.68)	154.07	(132.50)	138.59	(119.19)	152.92	(131.51)	138.06	(118.73)
49.8	139.44	(119.92)	154.38	(132.77)	138.87	(119.43)	153.23	(131.78)	138.33	(118.97)
49.9	139.72	(120.16)	154.69	(133.03)	139.15	(119.67)	153.54	(132.04)	138.61	(119.21)
50.0	140.00	(120.40)	155.00	(133.30)	139.43	(119.91)	153.85	(132.31)	138.89	(119.45)
50.1	140.00	(120.40)	155.00	(133.30)	139.70	(120.15)	154.15	(132.57)	139.17	(119.68)
50.2	140.00	(120.40)	155.00	(133.30)	139.98	(120.39)	154.46	(132.84)	139.45	(119.92)
50.3	140.00	(120.40)	155.00	(133.30)	140.26	(120.62)	154.77	(133.10)	139.72	(120.16)
50.4	140.00	(120.40)	155.00	(133.30)	140.54	(120.86)	155.08	(133.37)	140.00	(120.40)
50.5	140.00	(120.40)	155.00	(133.30)	140.82	(121.10)	155.38	(133.63)	140.28	(120.64)
50.6	140.00	(120.40)	155.00	(133.30)	141.10	(121.34)	155.69	(133.89)	140.56	(120.88)
50.7	140.00	(120.40)	155.00	(133.30)	141.38	(121.58)	156.00	(134.16)	140.83	(121.12)
50.8	140.00	(120.40)	155.00	(133.30)	141.66	(121.82)	156.31	(134.42)	141.11	(121.36)
50.9	140.00	(120.40)	155.00	(133.30)	141.93	(122.06)	156.61	(134.69)	141.39	(121.60)
51.0	140.00	(120.40)	155.00	(133.30)	142.21	(122.30)	156.92	(134.95)	141.67	(121.83)
51.1	140.00	(120.40)	155.00	(133.30)	142.49	(122.54)	157.23	(135.22)	141.95	(122.07)
51.2	140.00	(120.40)	155.00	(133.30)	142.77	(122.78)	157.54	(135.48)	142.22	(122.31)
51.3	140.00	(120.40)	155.00	(133.30)	143.05	(123.02)	157.84	(135.75)	142.50	(122.55)
51.4	140.00	(120.40)	155.00	(133.30)	143.33	(123.26)	158.15	(136.01)	142.78	(122.79)
51.5	140.00	(120.40)	155.00	(133.30)	143.61	(123.50)	158.46	(136.28)	143.06	(123.03)
51.6	140.00	(120.40)	155.00	(133.30)	143.89	(123.74)	158.77	(136.54)	143.33	(123.27)
51.7	140.00	(120.40)	155.00	(133.30)	144.17	(123.98)	159.08	(136.81)	143.61	(123.51)
51.8	140.00	(120.40)	155.00	(133.30)	144.44	(124.22)	159.38	(137.07)	143.89	(123.75)
51.9	140.00	(120.40)	155.00	(133.30)	144.72	(124.46)	159.69	(137.33)	144.17	(123.98)
52.0	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	144.45	(124.22)
52.1	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	144.72	(124.46)
52.2	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	145.00	(124.70)
52.3	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	145.28	(124.94)
52.4	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	145.56	(125.18)
52.5	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	145.83	(125.42)
52.6	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	146.11	(125.66)
52.7	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	146.39	(125.90)
52.8	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	146.67	(126.13)
52.9	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	146.95	(126.37)
53.0	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	147.22	(126.61)
53.1	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	147.50	(126.85)
53.2	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	147.78	(127.09)
53.3	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	148.06	(127.33)
53.4	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	148.33	(127.57)
53.5	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	148.61	(127.81)
53.6	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	148.89	(128.05)
53.7	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	149.17	(128.28)
53.8	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	149.45	(128.52)
53.9	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	149.72	(128.76)
54.0	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	150.00	(129.00)
54.1	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	150.00	(129.00)
54.2	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	150.00	(129.00)
54.3	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	150.00	(129.00)
54.4	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	150.00	(129.00)
54.5	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	150.00	(129.00)
54.6	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	150.00	(129.00)
54.7	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	150.00	(129.00)
54.8	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	150.00	(129.00)
54.9	140.00	(120.40)	155.00	(133.30)	145.00	(124.70)	160.00	(137.60)	150.00	(129.00)

Table 39. Outdoor Unit Capacity (50, 52, 54HP) with Total Horsepower of Combined Indoor Unit (6)

[illegible]

SELECTION DATA

Table 40. Outdoor Unit Capacity (50, 52, 54HP) with Total Horsepower of Combined Indoor Unit (7)

[illegible]

Table 41. Outdoor Unit Capacity (50, 52, 54HP) with Total Horsepower of Combined Indoor Unit (8)

Total	Outdoor Unit Capacity Unit: kW (x1,000kcal/h)							
	RAS-50FSXNQ		RAS-52FSXNQ				RAS-54FSXNQ	
	Cooling	Heating	Cooling		Heating		Cooling	Heating
67.0			145.00	(124.70)	160.00	(137.60)	150.00	(129.00)
67.1			145.00	(124.70)	160.00	(137.60)	150.00	(129.00)
67.2			145.00	(124.70)	160.00	(137.60)	150.00	(129.00)
67.3			145.00	(124.70)	160.00	(137.60)	150.00	(129.00)
67.4			145.00	(124.70)	160.00	(137.60)	150.00	(129.00)
67.5			145.00	(124.70)	160.00	(137.60)	150.00	(129.00)
67.6			145.00	(124.70)	160.00	(137.60)	150.00	(129.00)
67.7							150.00	(129.00)
67.8							150.00	(129.00)
67.9							150.00	(129.00)
68.0							150.00	(129.00)
68.1							150.00	(129.00)
68.2							150.00	(129.00)
68.3							150.00	(129.00)
68.4							150.00	(129.00)
68.5							150.00	(129.00)
68.6							150.00	(129.00)
68.7							150.00	(129.00)
68.8							150.00	(129.00)
68.9							150.00	(129.00)
69.0							150.00	(129.00)
69.1							150.00	(129.00)
69.2							150.00	(129.00)
69.3							150.00	(129.00)
69.4							150.00	(129.00)
69.5							150.00	(129.00)
69.6							150.00	(129.00)
69.7							150.00	(129.00)
69.8							150.00	(129.00)
69.9							150.00	(129.00)
70.0							150.00	(129.00)
70.1							150.00	(129.00)
70.2							150.00	(129.00)

6.3 Cooling Capacity Table of 100% Combination (Dimension: kW)

Table 1. Cooling Capacity Table for RAS-8FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	19.3 (0.86)	21.4 (0.96)	22.4 (1.00)	23.3 (1.04)	24.6 (1.10)	25.1 (1.12)
30.0	19.3 (0.86)	21.4 (0.96)	22.4 (1.00)	23.3 (1.04)	24.6 (1.10)	25.1 (1.12)
35.0	19.3 (0.86)	21.4 (0.96)	22.4 (1.00)	23.3 (1.04)	24.6 (1.10)	25.1 (1.12)
40.0	19.0 (0.85)	20.7 (0.93)	21.5 (0.96)	22.3 (1.00)	23.3 (1.04)	23.6 (1.06)

Table 2. Cooling Capacity Table for RAS-10FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	24.2 (0.86)	26.7 (0.96)	28.0 (1.00)	29.1 (1.04)	30.7 (1.10)	31.4 (1.12)
30.0	24.2 (0.86)	26.7 (0.96)	28.0 (1.00)	29.1 (1.04)	30.7 (1.10)	31.4 (1.12)
35.0	24.2 (0.86)	26.7 (0.96)	28.0 (1.00)	29.1 (1.04)	30.7 (1.10)	31.4 (1.12)
40.0	23.5 (0.84)	25.6 (0.92)	26.6 (0.95)	27.5 (0.98)	28.6 (1.02)	29.0 (1.04)

Table 3. Cooling Capacity Table for RAS-12FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	28.9 (0.86)	32.0 (0.96)	33.5 (1.00)	34.8 (1.04)	36.7 (1.10)	37.5 (1.12)
30.0	28.9 (0.86)	32.0 (0.96)	33.5 (1.00)	34.8 (1.04)	36.7 (1.10)	37.5 (1.12)
35.0	28.9 (0.86)	32.0 (0.96)	33.5 (1.00)	34.8 (1.04)	36.3 (1.09)	36.8 (1.10)
40.0	27.8 (0.83)	30.3 (0.91)	31.2 (0.93)	32.0 (0.95)	32.8 (0.98)	33.2 (0.99)

Table 4. Cooling Capacity Table for RAS-14FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	34.5 (0.86)	38.2 (0.96)	40.0 (1.00)	41.6 (1.04)	43.8 (1.10)	44.8 (1.12)
30.0	34.5 (0.86)	38.2 (0.96)	40.0 (1.00)	41.6 (1.04)	43.8 (1.10)	44.8 (1.12)
35.0	34.5 (0.86)	38.2 (0.96)	40.0 (1.00)	41.6 (1.04)	43.4 (1.09)	43.9 (1.10)
40.0	33.2 (0.83)	36.2 (0.91)	37.2 (0.93)	38.2 (0.95)	39.2 (0.98)	39.7 (0.99)

Table 5. Cooling Capacity Table for RAS-16FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	38.8 (0.86)	43.0 (0.96)	45.0 (1.00)	46.8 (1.04)	49.3 (1.10)	50.4 (1.12)
30.0	38.8 (0.86)	43.0 (0.96)	45.0 (1.00)	46.8 (1.04)	49.3 (1.10)	50.4 (1.12)
35.0	38.8 (0.86)	43.0 (0.96)	45.0 (1.00)	46.4 (1.03)	48.1 (1.07)	48.6 (1.08)
40.0	36.9 (0.82)	39.9 (0.89)	41.0 (0.91)	41.6 (0.92)	42.3 (0.94)	42.5 (0.95)

Table 6. Cooling Capacity Table for RAS-18FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	43.2 (0.86)	47.8 (0.96)	50.0 (1.00)	52.0 (1.04)	54.8 (1.10)	56.0 (1.12)
30.0	43.2 (0.86)	47.8 (0.96)	50.0 (1.00)	52.0 (1.04)	54.8 (1.10)	56.0 (1.12)
35.0	43.2 (0.86)	47.8 (0.96)	50.0 (1.00)	51.5 (1.03)	53.4 (1.07)	54.0 (1.08)
40.0	41.0 (0.82)	44.3 (0.89)	45.5 (0.91)	46.2 (0.92)	47.0 (0.94)	47.3 (0.95)

Table 7. Cooling Capacity Table for RAS-20FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	48.2 (0.86)	53.4 (0.95)	56.0 (1.00)	58.1 (1.04)	61.3 (1.09)	62.6 (1.12)
30.0	48.2 (0.86)	53.4 (0.95)	56.0 (1.00)	58.1 (1.04)	61.3 (1.09)	62.6 (1.12)
35.0	48.2 (0.86)	53.4 (0.95)	56.0 (1.00)	58.1 (1.04)	60.9 (1.09)	61.9 (1.10)
40.0	46.8 (0.84)	51.0 (0.91)	52.7 (0.94)	54.2 (0.97)	56.1 (1.00)	56.9 (1.02)

Table 8. Cooling Capacity Table for RAS-22FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	53.2 (0.87)	59.0 (0.96)	61.5 (1.00)	64.2 (1.04)	68.0 (1.11)	69.6 (1.13)
30.0	53.2 (0.87)	59.0 (0.96)	61.5 (1.00)	64.2 (1.04)	68.0 (1.11)	69.6 (1.13)
35.0	53.2 (0.87)	59.0 (0.96)	61.5 (1.00)	64.2 (1.04)	68.0 (1.10)	69.0 (1.12)
40.0	52.2 (0.85)	56.9 (0.93)	58.7 (0.95)	60.4 (0.98)	62.5 (1.02)	63.3 (1.03)

Table 9. Cooling Capacity Table for RAS-24FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	58.7 (0.85)	65.5 (0.95)	69.0 (1.00)	71.5 (1.04)	75.0 (1.09)	76.3 (1.11)
30.0	58.7 (0.85)	65.5 (0.95)	69.0 (1.00)	71.5 (1.04)	75.0 (1.09)	76.3 (1.11)
35.0	58.7 (0.85)	65.5 (0.95)	69.0 (1.00)	71.0 (1.03)	74.1 (1.07)	75.3 (1.09)
40.0	56.7 (0.82)	61.8 (0.90)	63.8 (0.92)	65.7 (0.95)	67.8 (0.98)	68.7 (1.00)

Table 10. Cooling Capacity Table for RAS-26FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	63.4 (0.87)	70.2 (0.96)	73.0 (1.00)	76.0 (1.04)	80.3 (1.10)	82.2 (1.13)
30.0	63.4 (0.87)	70.2 (0.96)	73.0 (1.00)	76.0 (1.04)	80.3 (1.10)	82.2 (1.13)
35.0	63.4 (0.87)	70.2 (0.96)	73.0 (1.00)	76.0 (1.04)	79.7 (1.09)	80.7 (1.11)
40.0	61.0 (0.84)	66.5 (0.91)	68.4 (0.94)	70.1 (0.96)	72.0 (0.99)	72.9 (1.00)

Table 11. Cooling Capacity Table for RAS-28FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	69.0 (0.86)	76.4 (0.96)	80.0 (1.00)	83.2 (1.04)	87.7 (1.10)	89.6 (1.12)
30.0	69.0 (0.86)	76.4 (0.96)	80.0 (1.00)	83.2 (1.04)	87.7 (1.10)	89.6 (1.12)
35.0	69.0 (0.86)	76.4 (0.96)	80.0 (1.00)	83.2 (1.04)	86.8 (1.09)	87.8 (1.10)
40.0	66.4 (0.83)	72.4 (0.91)	74.4 (0.93)	76.3 (0.95)	78.4 (0.98)	79.4 (0.99)

Table 12. Cooling Capacity Table for RAS-30FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	73.4 (0.86)	81.2 (0.96)	85.0 (1.00)	88.4 (1.04)	93.2 (1.10)	95.2 (1.12)
30.0	73.4 (0.86)	81.2 (0.96)	85.0 (1.00)	88.4 (1.04)	93.2 (1.10)	95.2 (1.12)
35.0	73.4 (0.86)	81.2 (0.96)	85.0 (1.00)	88.0 (1.03)	91.5 (1.08)	92.5 (1.09)
40.0	70.1 (0.82)	76.1 (0.89)	78.2 (0.92)	79.7 (0.94)	81.5 (0.96)	82.2 (0.97)

Table 13. Cooling Capacity Table for RAS-32FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	77.7 (0.86)	86.0 (0.96)	90.0 (1.00)	93.6 (1.04)	98.6 (1.10)	100.8 (1.12)
30.0	77.7 (0.86)	86.0 (0.96)	90.0 (1.00)	93.6 (1.04)	98.6 (1.10)	100.8 (1.12)
35.0	77.7 (0.86)	86.0 (0.96)	90.0 (1.00)	92.7 (1.03)	96.1 (1.07)	97.2 (1.08)
40.0	73.8 (0.82)	79.7 (0.89)	81.9 (0.91)	83.2 (0.92)	84.6 (0.94)	85.1 (0.95)

Table 14. Cooling Capacity Table for RAS-34FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	82.0 (0.86)	90.7 (0.96)	95.0 (1.00)	98.8 (1.04)	104.1 (1.10)	106.4 (1.12)
30.0	82.0 (0.86)	90.7 (0.96)	95.0 (1.00)	98.8 (1.04)	104.1 (1.10)	106.4 (1.12)
35.0	82.0 (0.86)	90.7 (0.96)	95.0 (1.00)	97.9 (1.03)	101.5 (1.07)	102.6 (1.08)
40.0	77.9 (0.82)	84.2 (0.89)	86.5 (0.91)	87.8 (0.92)	89.3 (0.94)	89.8 (0.95)

Table 15. Cooling Capacity Table for RAS-36FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	86.3 (0.86)	95.5 (0.96)	100.0 (1.00)	104.0 (1.04)	109.6 (1.10)	112.0 (1.12)
30.0	86.3 (0.86)	95.5 (0.96)	100.0 (1.00)	104.0 (1.04)	109.6 (1.10)	112.0 (1.12)
35.0	86.3 (0.86)	95.5 (0.96)	100.0 (1.00)	103.0 (1.03)	106.8 (1.07)	108.0 (1.08)
40.0	82.0 (0.82)	88.6 (0.89)	91.0 (0.91)	92.4 (0.92)	94.0 (0.94)	94.5 (0.95)

Table 16. Cooling Capacity Table for RAS-38FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	92.3 (0.85)	103.5 (0.95)	109.0 (1.00)	112.5 (1.03)	117.8 (1.08)	120.2 (1.10)
30.0	92.3 (0.85)	103.5 (0.95)	109.0 (1.00)	112.5 (1.03)	117.8 (1.08)	120.2 (1.10)
35.0	92.3 (0.85)	103.5 (0.95)	109.0 (1.00)	112.0 (1.03)	116.1 (1.07)	117.5 (1.08)
40.0	88.8 (0.81)	96.8 (0.89)	99.5 (0.91)	102.1 (0.94)	104.9 (0.96)	106.1 (0.97)

Table 17. Cooling Capacity Table for RAS-40FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	96.7 (0.86)	107.0 (0.96)	112.0 (1.00)	116.5 (1.04)	122.8 (1.10)	125.4 (1.12)
30.0	96.7 (0.86)	107.0 (0.96)	112.0 (1.00)	116.5 (1.04)	122.8 (1.10)	125.4 (1.12)
35.0	96.7 (0.86)	107.0 (0.96)	112.0 (1.00)	116.0 (1.04)	120.8 (1.08)	122.2 (1.09)
40.0	92.5 (0.83)	100.5 (0.90)	103.3 (0.92)	105.5 (0.94)	108.0 (0.96)	109.0 (0.97)

Table 18. Cooling Capacity Table for RAS-42FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	101.0 (0.86)	112.5 (0.95)	118.0 (1.00)	122.0 (1.03)	128.2 (1.09)	131.0 (1.11)
30.0	101.0 (0.86)	112.5 (0.95)	118.0 (1.00)	122.0 (1.03)	128.2 (1.09)	131.0 (1.11)
35.0	101.0 (0.86)	112.5 (0.95)	118.0 (1.00)	121.2 (1.03)	126.1 (1.07)	127.6 (1.08)
40.0	96.6 (0.82)	104.9 (0.89)	107.8 (0.91)	110.1 (0.93)	112.7 (0.95)	113.7 (0.96)

Table 19. Cooling Capacity Table for RAS-44FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	106.6 (0.85)	118.5 (0.95)	125.0 (1.00)	129.0 (1.03)	135.4 (1.08)	138.3 (1.11)
30.0	106.6 (0.85)	118.5 (0.95)	125.0 (1.00)	129.0 (1.03)	135.4 (1.08)	138.3 (1.11)
35.0	106.6 (0.85)	118.5 (0.95)	125.0 (1.00)	127.9 (1.02)	133.1 (1.07)	134.7 (1.08)
40.0	102.0 (0.82)	110.8 (0.89)	113.9 (0.91)	116.3 (0.93)	119.0 (0.95)	120.2 (0.96)

Table 20. Cooling Capacity Table for RAS-46FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	112.0 (0.85)	125.5 (0.95)	132.0 (1.00)	136.5 (1.03)	143.0 (1.08)	145.8 (1.10)
30.0	112.0 (0.85)	125.5 (0.95)	132.0 (1.00)	136.5 (1.03)	143.0 (1.08)	145.8 (1.10)
35.0	112.0 (0.85)	125.5 (0.95)	132.0 (1.00)	134.5 (1.02)	137.8 (1.04)	139.4 (1.06)
40.0	105.7 (0.80)	114.5 (0.87)	117.6 (0.89)	119.7 (0.91)	122.1 (0.93)	123.0 (0.93)

Table 21. Cooling Capacity Table for RAS-48FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	115.2 (0.85)	129.0 (0.95)	136.0 (1.00)	141.0 (1.04)	147.2 (1.08)	150.0 (1.10)
30.0	115.2 (0.85)	129.0 (0.95)	136.0 (1.00)	141.0 (1.04)	147.2 (1.08)	150.0 (1.10)
35.0	115.2 (0.85)	129.0 (0.95)	136.0 (1.00)	139.0 (1.02)	143.1 (1.05)	144.8 (1.06)
40.0	109.8 (0.81)	118.9 (0.87)	122.2 (0.90)	124.4 (0.91)	126.8 (0.93)	127.7 (0.94)

Table 22. Cooling Capacity Table for RAS-50FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	120.8 (0.86)	133.7 (0.96)	140.0 (1.00)	145.6 (1.04)	153.4 (1.10)	156.8 (1.12)
30.0	120.8 (0.86)	133.7 (0.96)	140.0 (1.00)	145.6 (1.04)	153.4 (1.10)	156.8 (1.12)
35.0	120.8 (0.86)	133.7 (0.96)	140.0 (1.00)	144.6 (1.03)	150.2 (1.07)	151.9 (1.09)
40.0	115.2 (0.82)	124.8 (0.89)	128.2 (0.92)	130.6 (0.93)	133.2 (0.95)	134.2 (0.96)

Table 23. Cooling Capacity Table for RAS-52FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	125.1 (0.86)	138.5 (0.96)	145.0 (1.00)	150.8 (1.04)	158.9 (1.10)	162.4 (1.12)
30.0	125.1 (0.86)	138.5 (0.96)	145.0 (1.00)	150.8 (1.04)	158.9 (1.10)	162.4 (1.12)
35.0	125.1 (0.86)	138.5 (0.96)	145.0 (1.00)	149.4 (1.03)	154.9 (1.07)	156.6 (1.08)
40.0	118.9 (0.82)	128.5 (0.89)	132.0 (0.91)	134.0 (0.92)	136.3 (0.94)	137.0 (0.95)

Table 24. Cooling Capacity Table for RAS-54FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	129.5 (0.86)	143.3 (0.96)	150.0 (1.00)	156.0 (1.04)	164.4 (1.10)	168.0 (1.12)
30.0	129.5 (0.86)	143.3 (0.96)	150.0 (1.00)	156.0 (1.04)	164.4 (1.10)	168.0 (1.12)
35.0	129.5 (0.86)	143.3 (0.96)	150.0 (1.00)	154.5 (1.03)	160.2 (1.07)	162.0 (1.08)
40.0	123.0 (0.82)	132.9 (0.89)	136.5 (0.91)	138.6 (0.92)	141.0 (0.94)	141.8 (0.95)

NOTE:

- The table shows the normal value of cooling operation.
In some cases, the value may change due to the compressor protection control.
- The cooling capacity on the table indicates the peak value, which does not include the capacity decrease caused by frost.
- The value on the table shows when the system is operated under the following conditions.
The indoor unit total capacity: 100% of outdoor unit capacity, The total piping length: 7.5m, The height difference: 0m
- In case of the heat recovery system, the value on the table indicates when all the indoor units are operated in cooling mode.

6.4 Heating Capacity Table of 100% Combination (Dimension: kW)

Table 1. Heating Capacity Table for RAS-8FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	19.5 (0.78)	19.5 (0.78)	19.5 (0.78)	19.5 (0.78)	19.5 (0.78)	19.4 (0.78)
-5.0	22.1 (0.88)	22.0 (0.88)	22.0 (0.88)	21.9 (0.88)	21.9 (0.87)	21.5 (0.86)
0.0	24.5 (0.98)	24.3 (0.97)	24.0 (0.96)	23.8 (0.95)	23.4 (0.94)	22.0 (0.88)
5.0	25.9 (1.04)	25.5 (1.02)	24.8 (0.99)	24.4 (0.98)	23.9 (0.96)	22.0 (0.88)
6.0	26.5 (1.06)	25.8 (1.03)	25.0 (1.00)	24.6 (0.98)	23.9 (0.95)	22.0 (0.88)
10.0	28.3 (1.13)	27.0 (1.08)	25.5 (1.02)	24.7 (0.99)	23.9 (0.95)	22.0 (0.88)
15.0	28.3 (1.13)	27.0 (1.08)	25.5 (1.02)	24.7 (0.99)	23.9 (0.95)	22.0 (0.88)

Table 2. Heating Capacity Table for RAS-10FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	22.7 (0.72)	22.7 (0.72)	22.7 (0.72)	22.7 (0.72)	22.6 (0.72)	22.6 (0.72)
-5.0	26.0 (0.83)	26.0 (0.82)	25.9 (0.82)	25.8 (0.82)	25.8 (0.82)	25.6 (0.81)
0.0	28.8 (0.91)	28.7 (0.91)	28.7 (0.91)	28.5 (0.91)	28.4 (0.90)	27.5 (0.87)
5.0	31.8 (1.01)	31.5 (1.00)	31.2 (0.99)	30.8 (0.98)	29.9 (0.95)	27.7 (0.88)
6.0	32.9 (1.05)	32.3 (1.03)	31.5 (1.00)	31.0 (0.98)	30.1 (0.95)	27.7 (0.88)
10.0	34.5 (1.10)	33.8 (1.07)	32.1 (1.02)	31.2 (0.99)	30.1 (0.95)	27.7 (0.88)
15.0	35.7 (1.13)	34.0 (1.08)	32.1 (1.02)	31.2 (0.99)	30.1 (0.95)	27.7 (0.88)

Table 3. Heating Capacity Table for RAS-12FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	24.4 (0.65)	24.4 (0.65)	24.4 (0.65)	24.4 (0.65)	24.3 (0.65)	24.2 (0.65)
-5.0	28.7 (0.77)	28.7 (0.77)	28.7 (0.77)	28.7 (0.76)	28.6 (0.76)	28.4 (0.76)
0.0	33.0 (0.88)	33.0 (0.88)	33.0 (0.88)	32.9 (0.88)	32.8 (0.87)	31.9 (0.85)
5.0	36.9 (0.98)	36.9 (0.98)	36.6 (0.98)	36.2 (0.97)	35.5 (0.95)	33.0 (0.88)
6.0	38.1 (1.02)	38.1 (1.02)	37.5 (1.00)	36.9 (0.98)	35.8 (0.95)	33.0 (0.88)
10.0	40.5 (1.08)	39.6 (1.06)	38.3 (1.02)	37.1 (0.99)	35.8 (0.95)	33.0 (0.88)
15.0	42.5 (1.13)	40.6 (1.08)	38.3 (1.02)	37.1 (0.99)	35.8 (0.95)	33.0 (0.88)

Table 4. Heating Capacity Table for RAS-14FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	32.4 (0.72)	32.4 (0.72)	32.4 (0.72)	32.4 (0.72)	32.3 (0.72)	32.2 (0.72)
-5.0	37.2 (0.83)	37.1 (0.82)	37.0 (0.82)	36.9 (0.82)	36.8 (0.82)	36.6 (0.81)
0.0	41.1 (0.91)	41.0 (0.91)	41.0 (0.91)	40.8 (0.91)	40.5 (0.90)	39.3 (0.87)
5.0	45.4 (1.01)	45.0 (1.00)	44.6 (0.99)	44.0 (0.98)	42.8 (0.95)	39.6 (0.88)
6.0	47.1 (1.05)	46.2 (1.03)	45.0 (1.00)	44.3 (0.98)	43.0 (0.95)	39.6 (0.88)
10.0	49.3 (1.10)	48.3 (1.07)	45.9 (1.02)	44.5 (0.99)	43.0 (0.95)	39.6 (0.88)
15.0	51.0 (1.13)	48.7 (1.08)	45.9 (1.02)	44.5 (0.99)	43.0 (0.95)	39.6 (0.88)

Table 5. Heating Capacity Table for RAS-16FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	35.0 (0.70)	35.0 (0.70)	35.0 (0.70)	35.0 (0.70)	34.9 (0.70)	34.8 (0.70)
-5.0	40.3 (0.81)	40.2 (0.80)	40.1 (0.80)	40.0 (0.80)	39.9 (0.80)	39.7 (0.79)
0.0	45.3 (0.91)	45.2 (0.90)	45.1 (0.90)	44.9 (0.90)	44.6 (0.89)	43.4 (0.87)
5.0	50.2 (1.00)	49.8 (1.00)	49.3 (0.99)	48.8 (0.98)	47.4 (0.95)	44.0 (0.88)
6.0	52.2 (1.04)	51.4 (1.03)	50.0 (1.00)	49.2 (0.98)	47.7 (0.95)	44.0 (0.88)
10.0	54.8 (1.10)	53.7 (1.07)	51.0 (1.02)	49.5 (0.99)	47.7 (0.95)	44.0 (0.88)
15.0	56.7 (1.13)	54.2 (1.08)	51.0 (1.02)	49.5 (0.99)	47.7 (0.95)	44.0 (0.88)

Table 6. Heating Capacity Table for RAS-18FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	39.2 (0.70)	39.2 (0.70)	39.2 (0.70)	39.2 (0.70)	39.1 (0.70)	39.0 (0.70)
-5.0	45.1 (0.81)	45.0 (0.80)	44.9 (0.80)	44.8 (0.80)	44.7 (0.80)	44.5 (0.79)
0.0	50.7 (0.91)	50.6 (0.90)	50.5 (0.90)	50.3 (0.90)	50.0 (0.89)	48.6 (0.87)
5.0	56.2 (1.00)	55.8 (1.00)	55.2 (0.99)	54.7 (0.98)	53.1 (0.95)	49.3 (0.88)
6.0	58.5 (1.04)	57.6 (1.03)	56.0 (1.00)	55.1 (0.98)	53.5 (0.95)	49.3 (0.88)
10.0	61.4 (1.10)	60.1 (1.07)	57.1 (1.02)	55.4 (0.99)	53.5 (0.95)	49.3 (0.88)
15.0	63.5 (1.13)	60.6 (1.08)	57.1 (1.02)	55.4 (0.99)	53.5 (0.95)	49.3 (0.88)

Table 7. Heating Capacity Table for RAS-20FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	43.9 (0.70)	43.9 (0.70)	43.9 (0.70)	43.9 (0.70)	43.8 (0.69)	43.6 (0.69)
-5.0	50.8 (0.81)	50.7 (0.81)	50.7 (0.80)	50.6 (0.80)	50.4 (0.80)	49.8 (0.79)
0.0	57.5 (0.91)	57.3 (0.91)	57.0 (0.90)	56.7 (0.90)	56.2 (0.89)	53.9 (0.86)
5.0	62.8 (1.00)	62.4 (0.99)	61.4 (0.97)	60.6 (0.96)	59.4 (0.94)	55.0 (0.87)
6.0	64.6 (1.02)	64.0 (1.02)	63.0 (1.00)	61.5 (0.98)	59.7 (0.95)	55.0 (0.87)
10.0	68.8 (1.09)	66.6 (1.06)	63.8 (1.01)	61.8 (0.98)	59.7 (0.95)	55.0 (0.87)
15.0	70.8 (1.12)	67.6 (1.07)	63.8 (1.01)	61.8 (0.98)	59.7 (0.95)	55.0 (0.87)

Table 8. Heating Capacity Table for RAS-22FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	51.9 (0.75)	51.9 (0.75)	51.9 (0.75)	51.9 (0.75)	51.8 (0.75)	51.6 (0.75)
-5.0	59.2 (0.86)	59.1 (0.86)	58.9 (0.85)	58.8 (0.85)	58.7 (0.85)	58.1 (0.84)
0.0	65.6 (0.95)	65.3 (0.95)	65.0 (0.94)	64.6 (0.94)	63.9 (0.93)	60.7 (0.88)
5.0	70.8 (1.03)	69.8 (1.01)	68.4 (0.99)	67.6 (0.98)	65.9 (0.96)	60.7 (0.88)
6.0	72.8 (1.06)	71.0 (1.03)	69.0 (1.00)	67.6 (0.98)	65.9 (0.96)	60.7 (0.88)
10.0	76.5 (1.11)	74.7 (1.08)	70.4 (1.02)	68.3 (0.99)	65.9 (0.96)	60.7 (0.88)
15.0	78.2 (1.13)	74.7 (1.08)	70.4 (1.02)	68.3 (0.99)	65.9 (0.96)	60.7 (0.88)

Table 9. Heating Capacity Table for RAS-24FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	55.1 (0.71)	55.1 (0.71)	55.1 (0.71)	55.1 (0.71)	54.9 (0.71)	54.8 (0.71)
-5.0	63.2 (0.82)	63.0 (0.81)	62.9 (0.81)	62.7 (0.81)	62.6 (0.81)	62.3 (0.80)
0.0	69.9 (0.90)	69.8 (0.90)	69.6 (0.90)	69.3 (0.89)	68.9 (0.89)	66.8 (0.86)
5.0	77.1 (0.99)	76.5 (0.99)	75.7 (0.98)	74.8 (0.97)	72.7 (0.94)	67.3 (0.87)
6.0	80.0 (1.03)	79.0 (1.02)	77.5 (1.00)	75.5 (0.97)	73.0 (0.94)	67.3 (0.87)
10.0	83.8 (1.08)	82.1 (1.06)	78.0 (1.01)	75.7 (0.98)	73.0 (0.94)	67.3 (0.87)
15.0	86.7 (1.12)	82.8 (1.07)	78.0 (1.01)	75.7 (0.98)	73.0 (0.94)	67.3 (0.87)

Table 10. Heating Capacity Table for RAS-26FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	56.8 (0.69)	56.8 (0.69)	56.8 (0.69)	56.8 (0.69)	56.6 (0.69)	56.4 (0.68)
-5.0	65.9 (0.80)	65.8 (0.80)	65.7 (0.80)	65.6 (0.79)	65.4 (0.79)	65.0 (0.79)
0.0	74.1 (0.90)	74.0 (0.90)	74.0 (0.90)	73.7 (0.89)	73.3 (0.89)	71.2 (0.86)
5.0	82.3 (1.00)	81.9 (0.99)	81.2 (0.98)	80.2 (0.97)	78.2 (0.95)	72.6 (0.88)
6.0	85.1 (1.03)	84.2 (1.02)	82.5 (1.00)	81.2 (0.98)	78.8 (0.95)	72.6 (0.88)
10.0	89.8 (1.09)	87.9 (1.07)	84.2 (1.02)	81.6 (0.99)	78.8 (0.95)	72.6 (0.88)
15.0	93.5 (1.13)	89.3 (1.08)	84.2 (1.02)	81.6 (0.99)	78.8 (0.95)	72.6 (0.88)

Table 11. Heating Capacity Table for RAS-28FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	64.8 (0.72)	64.8 (0.72)	64.8 (0.72)	64.8 (0.72)	64.6 (0.72)	64.4 (0.72)
-5.0	74.3 (0.83)	74.2 (0.82)	74.0 (0.82)	73.8 (0.82)	73.6 (0.82)	73.3 (0.81)
0.0	82.3 (0.91)	82.1 (0.91)	81.9 (0.91)	81.5 (0.91)	81.0 (0.90)	78.6 (0.87)
5.0	90.7 (1.01)	90.0 (1.00)	89.1 (0.99)	88.0 (0.98)	85.5 (0.95)	79.2 (0.88)
6.0	94.1 (1.05)	92.3 (1.03)	90.0 (1.00)	88.6 (0.98)	85.9 (0.95)	79.2 (0.88)
10.0	98.6 (1.10)	96.6 (1.07)	91.8 (1.02)	89.0 (0.99)	85.9 (0.95)	79.2 (0.88)
15.0	102.0 (1.13)	97.5 (1.08)	91.8 (1.02)	89.0 (0.99)	85.9 (0.95)	79.2 (0.88)

Table 12. Heating Capacity Table for RAS-30FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	67.4 (0.71)	67.4 (0.71)	67.4 (0.71)	67.4 (0.71)	67.2 (0.71)	67.0 (0.71)
-5.0	77.5 (0.82)	77.3 (0.81)	77.1 (0.81)	76.9 (0.81)	76.7 (0.81)	76.3 (0.80)
0.0	86.4 (0.91)	86.2 (0.91)	86.1 (0.91)	85.7 (0.90)	85.1 (0.90)	82.7 (0.87)
5.0	95.6 (1.01)	94.8 (1.00)	93.9 (0.99)	92.8 (0.98)	90.2 (0.95)	83.6 (0.88)
6.0	99.3 (1.04)	97.6 (1.03)	95.0 (1.00)	93.5 (0.98)	90.7 (0.95)	83.6 (0.88)
10.0	104.1 (1.10)	101.9 (1.07)	96.9 (1.02)	94.0 (0.99)	90.7 (0.95)	83.6 (0.88)
15.0	107.7 (1.13)	102.9 (1.08)	96.9 (1.02)	94.0 (0.99)	90.7 (0.95)	83.6 (0.88)

Table 13. Heating Capacity Table for RAS-32FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	70.0 (0.70)	70.0 (0.70)	70.0 (0.70)	70.0 (0.70)	69.8 (0.70)	69.6 (0.70)
-5.0	80.6 (0.81)	80.4 (0.80)	80.2 (0.80)	80.0 (0.80)	79.8 (0.80)	79.4 (0.79)
0.0	90.6 (0.91)	90.4 (0.90)	90.2 (0.90)	89.8 (0.90)	89.2 (0.89)	86.8 (0.87)
5.0	100.4 (1.00)	99.6 (1.00)	98.6 (0.99)	97.6 (0.98)	94.8 (0.95)	88.0 (0.88)
6.0	104.4 (1.04)	102.8 (1.03)	100.0 (1.00)	98.4 (0.98)	95.5 (0.95)	88.0 (0.88)
10.0	109.6 (1.10)	107.3 (1.07)	102.0 (1.02)	98.9 (0.99)	95.5 (0.95)	88.0 (0.88)
15.0	113.3 (1.13)	108.3 (1.08)	102.0 (1.02)	98.9 (0.99)	95.5 (0.95)	88.0 (0.88)

Table 14. Heating Capacity Table for RAS-34FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	74.2 (0.70)	74.2 (0.70)	74.2 (0.70)	74.2 (0.70)	74.0 (0.70)	73.8 (0.70)
-5.0	85.4 (0.81)	85.2 (0.80)	85.0 (0.80)	84.8 (0.80)	84.6 (0.80)	84.2 (0.79)
0.0	96.0 (0.91)	95.8 (0.90)	95.6 (0.90)	95.2 (0.90)	94.6 (0.89)	92.0 (0.87)
5.0	106.4 (1.00)	105.6 (1.00)	104.5 (0.99)	103.5 (0.98)	100.5 (0.95)	93.3 (0.88)
6.0	110.7 (1.04)	109.0 (1.03)	106.0 (1.00)	104.3 (0.98)	101.2 (0.95)	93.3 (0.88)
10.0	116.2 (1.10)	113.7 (1.07)	108.1 (1.02)	104.9 (0.99)	101.2 (0.95)	93.3 (0.88)
15.0	120.1 (1.13)	114.8 (1.08)	108.1 (1.02)	104.9 (0.99)	101.2 (0.95)	93.3 (0.88)

Table 15. Heating Capacity Table for RAS-36FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	78.4 (0.70)	78.4 (0.70)	78.4 (0.70)	78.4 (0.70)	78.2 (0.70)	78.0 (0.70)
-5.0	90.3 (0.81)	90.0 (0.80)	89.8 (0.80)	89.6 (0.80)	89.4 (0.80)	88.9 (0.79)
0.0	101.5 (0.91)	101.2 (0.90)	101.0 (0.90)	100.6 (0.90)	99.9 (0.89)	97.2 (0.87)
5.0	112.4 (1.00)	111.6 (1.00)	110.4 (0.99)	109.3 (0.98)	106.2 (0.95)	98.6 (0.88)
6.0	116.9 (1.04)	115.1 (1.03)	112.0 (1.00)	110.2 (0.98)	106.9 (0.95)	98.6 (0.88)
10.0	122.8 (1.10)	120.2 (1.07)	114.2 (1.02)	110.8 (0.99)	106.9 (0.95)	98.6 (0.88)
15.0	126.9 (1.13)	121.3 (1.08)	114.2 (1.02)	110.8 (0.99)	106.9 (0.95)	98.6 (0.88)

Table 16. Heating Capacity Table for RAS-38FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	81.2 (0.69)	81.2 (0.69)	81.2 (0.69)	81.2 (0.69)	80.9 (0.69)	80.7 (0.68)
-5.0	94.6 (0.80)	94.5 (0.80)	94.4 (0.80)	94.2 (0.80)	94.0 (0.80)	93.3 (0.79)
0.0	107.1 (0.91)	107.0 (0.91)	107.0 (0.91)	106.6 (0.90)	106.1 (0.90)	103.0 (0.87)
5.0	118.0 (1.00)	117.8 (1.00)	117.0 (0.99)	116.0 (0.98)	112.7 (0.96)	103.8 (0.88)
6.0	121.0 (1.03)	119.8 (1.02)	118.0 (1.00)	116.0 (0.98)	112.7 (0.96)	103.8 (0.88)
10.0	129.3 (1.10)	126.6 (1.07)	120.4 (1.02)	116.7 (0.99)	112.7 (0.96)	103.8 (0.88)
15.0	133.7 (1.13)	127.8 (1.08)	120.4 (1.02)	116.7 (0.99)	112.7 (0.96)	103.8 (0.88)

Table 17. Heating Capacity Table for RAS-40FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	83.8 (0.67)	83.8 (0.67)	83.8 (0.67)	83.8 (0.67)	83.5 (0.67)	83.3 (0.67)
-5.0	97.8 (0.78)	97.7 (0.78)	97.6 (0.78)	97.3 (0.78)	97.1 (0.78)	96.4 (0.77)
0.0	111.3 (0.89)	111.2 (0.89)	111.1 (0.89)	110.8 (0.89)	110.2 (0.88)	107.2 (0.86)
5.0	124.0 (0.99)	123.6 (0.99)	122.5 (0.98)	121.3 (0.97)	118.4 (0.95)	110.0 (0.88)
6.0	128.3 (1.03)	127.5 (1.02)	125.0 (1.00)	123.0 (0.98)	119.3 (0.95)	110.0 (0.88)
10.0	135.8 (1.09)	132.9 (1.06)	127.5 (1.02)	123.7 (0.99)	119.3 (0.95)	110.0 (0.88)
15.0	141.7 (1.13)	135.4 (1.08)	127.5 (1.02)	123.7 (0.99)	119.3 (0.95)	110.0 (0.88)

Table 18. Heating Capacity Table for RAS-42FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	88.0 (0.67)	88.0 (0.67)	88.0 (0.67)	88.0 (0.67)	87.7 (0.66)	87.4 (0.66)
-5.0	102.6 (0.78)	102.5 (0.78)	102.4 (0.78)	102.1 (0.77)	101.8 (0.77)	101.2 (0.77)
0.0	116.7 (0.88)	116.6 (0.88)	116.5 (0.88)	116.1 (0.88)	115.5 (0.88)	112.4 (0.85)
5.0	130.0 (0.99)	129.6 (0.98)	128.4 (0.97)	127.1 (0.96)	124.0 (0.94)	115.3 (0.87)
6.0	134.6 (1.02)	133.7 (1.01)	132.0 (1.00)	129.6 (0.98)	125.1 (0.95)	115.3 (0.87)
10.0	142.4 (1.08)	139.3 (1.06)	133.6 (1.01)	129.6 (0.98)	125.1 (0.95)	115.3 (0.87)
15.0	148.5 (1.12)	141.9 (1.07)	133.6 (1.01)	129.6 (0.98)	125.1 (0.95)	115.3 (0.87)

Table 19. Heating Capacity Table for RAS-44FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	96.0 (0.69)	96.0 (0.69)	96.0 (0.69)	96.0 (0.69)	95.7 (0.68)	95.4 (0.68)
-5.0	111.0 (0.79)	110.8 (0.79)	110.6 (0.79)	110.4 (0.79)	110.1 (0.79)	109.4 (0.78)
0.0	124.9 (0.89)	124.7 (0.89)	124.5 (0.89)	124.0 (0.89)	123.2 (0.88)	119.8 (0.86)
5.0	138.5 (0.99)	137.7 (0.98)	136.4 (0.97)	134.9 (0.96)	131.3 (0.94)	121.9 (0.87)
6.0	143.6 (1.03)	142.4 (1.02)	140.0 (1.00)	137.0 (0.98)	132.2 (0.94)	121.9 (0.87)
10.0	151.2 (1.08)	148.0 (1.06)	141.3 (1.01)	137.0 (0.98)	132.2 (0.94)	121.9 (0.87)
15.0	157.0 (1.12)	150.0 (1.07)	141.3 (1.01)	137.0 (0.98)	132.2 (0.94)	121.9 (0.87)

Table 20. Heating Capacity Table for RAS-46FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	98.6 (0.68)	98.6 (0.68)	98.6 (0.68)	98.6 (0.68)	98.3 (0.68)	98.0 (0.68)
-5.0	114.2 (0.79)	113.9 (0.79)	113.7 (0.78)	113.5 (0.78)	113.2 (0.78)	112.5 (0.78)
0.0	129.0 (0.89)	128.8 (0.89)	128.6 (0.89)	128.1 (0.88)	127.3 (0.88)	123.9 (0.85)
5.0	143.3 (0.99)	142.5 (0.98)	141.1 (0.97)	139.7 (0.96)	136.0 (0.94)	126.3 (0.87)
6.0	148.7 (1.03)	147.0 (1.01)	145.0 (1.00)	142.0 (0.98)	137.0 (0.94)	126.3 (0.87)
10.0	156.7 (1.08)	153.3 (1.06)	146.4 (1.01)	142.0 (0.98)	137.0 (0.94)	126.3 (0.87)
15.0	162.6 (1.12)	155.4 (1.07)	146.4 (1.01)	142.0 (0.98)	137.0 (0.94)	126.3 (0.87)

Table 21. Heating Capacity Table for RAS-48FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	102.8 (0.69)	102.8 (0.69)	102.8 (0.69)	102.8 (0.69)	102.5 (0.68)	102.2 (0.68)
-5.0	119.0 (0.79)	118.8 (0.79)	118.5 (0.79)	118.3 (0.79)	118.0 (0.79)	117.3 (0.78)
0.0	134.5 (0.90)	134.2 (0.89)	134.0 (0.89)	133.5 (0.89)	132.7 (0.88)	129.1 (0.86)
5.0	149.3 (1.00)	148.5 (0.99)	147.0 (0.98)	145.5 (0.97)	141.7 (0.94)	131.6 (0.88)
6.0	155.0 (1.03)	153.2 (1.02)	150.0 (1.00)	147.1 (0.98)	142.7 (0.95)	131.6 (0.88)
10.0	163.3 (1.09)	159.8 (1.07)	152.5 (1.02)	147.9 (0.99)	142.7 (0.95)	131.6 (0.88)
15.0	169.4 (1.13)	161.9 (1.08)	152.5 (1.02)	147.9 (0.99)	142.7 (0.95)	131.6 (0.88)

Table 22. Heating Capacity Table for RAS-50FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	110.8 (0.71)	110.8 (0.71)	110.8 (0.71)	110.8 (0.71)	110.5 (0.71)	110.2 (0.71)
-5.0	127.4 (0.82)	127.1 (0.82)	126.8 (0.82)	126.5 (0.82)	126.2 (0.81)	125.6 (0.81)
0.0	142.6 (0.92)	142.3 (0.92)	142.0 (0.92)	141.3 (0.91)	140.4 (0.91)	136.4 (0.88)
5.0	157.8 (1.02)	156.6 (1.01)	155.0 (1.00)	152.2 (0.98)	148.0 (0.95)	136.4 (0.88)
6.0	162.4 (1.05)	159.2 (1.03)	155.0 (1.00)	152.2 (0.98)	148.0 (0.95)	136.4 (0.88)
10.0	172.0 (1.11)	166.4 (1.07)	158.1 (1.02)	153.3 (0.99)	148.0 (0.95)	136.4 (0.88)
15.0	176.0 (1.14)	167.9 (1.08)	158.1 (1.02)	153.3 (0.99)	148.0 (0.95)	136.4 (0.88)

Table 23. Heating Capacity Table for RAS-52FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	113.4 (0.71)	113.4 (0.71)	113.4 (0.71)	113.4 (0.71)	113.1 (0.71)	112.8 (0.70)
-5.0	130.6 (0.82)	130.2 (0.81)	129.9 (0.81)	129.6 (0.81)	129.3 (0.81)	128.6 (0.80)
0.0	146.8 (0.92)	146.4 (0.92)	146.1 (0.91)	145.5 (0.91)	144.5 (0.90)	140.6 (0.88)
5.0	162.6 (1.02)	161.4 (1.01)	159.7 (1.00)	157.6 (0.99)	152.8 (0.96)	140.8 (0.88)
6.0	169.1 (1.06)	165.5 (1.03)	160.0 (1.00)	157.6 (0.99)	152.8 (0.96)	140.8 (0.88)
10.0	177.5 (1.11)	171.7 (1.07)	163.2 (1.02)	158.2 (0.99)	152.8 (0.96)	140.8 (0.88)
15.0	181.6 (1.14)	173.2 (1.08)	163.2 (1.02)	158.2 (0.99)	152.8 (0.96)	140.8 (0.88)

Table 24. Heating Capacity Table for RAS-54FSXNQ

Unit of Capacity: kW (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	117.6 (0.71)	117.6 (0.71)	117.6 (0.71)	117.6 (0.71)	117.3 (0.71)	116.9 (0.71)
-5.0	135.4 (0.82)	135.1 (0.82)	134.7 (0.82)	134.4 (0.81)	134.1 (0.81)	133.4 (0.81)
0.0	152.2 (0.92)	151.9 (0.92)	151.5 (0.92)	150.9 (0.91)	149.9 (0.91)	145.2 (0.88)
5.0	168.7 (1.02)	167.3 (1.01)	164.6 (1.00)	162.1 (0.98)	157.6 (0.96)	145.2 (0.88)
6.0	175.0 (1.06)	170.7 (1.03)	165.0 (1.00)	162.1 (0.98)	157.6 (0.96)	145.2 (0.88)
10.0	183.0 (1.11)	177.0 (1.07)	168.3 (1.02)	163.1 (0.99)	157.6 (0.96)	145.2 (0.88)
15.0	187.2 (1.13)	178.6 (1.08)	168.3 (1.02)	163.1 (0.99)	157.6 (0.96)	145.2 (0.88)

NOTE:

- The table shows the normal value of heating operation.
In some cases, the value may change due to the compressor protection control.
- The heating capacity on the table indicates the peak value, which does not include the capacity decrease caused by frost.
- The value on the table shows when the system is operated under the following conditions.
The indoor unit total capacity: 100% of outdoor unit capacity, The total piping length: 7.5m, The height difference: 0m
- In case of the heat recovery system, the value on the table indicates when all the indoor units are operated in heating mode.

6.5 Cooling Capacity Table of 100% Combination (Dimension: ×1,000 kcal/h)

Table 1. Cooling Capacity Table for RAS-8FSXNQ

Unit of Capacity: × 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	16.6 (0.86)	18.4 (0.96)	19.3 (1.00)	20.0 (1.04)	21.1 (1.10)	21.6 (1.12)
30.0	16.6 (0.86)	18.4 (0.96)	19.3 (1.00)	20.0 (1.04)	21.1 (1.10)	21.6 (1.12)
35.0	16.6 (0.86)	18.4 (0.96)	19.3 (1.00)	20.0 (1.04)	21.1 (1.10)	21.6 (1.12)
40.0	16.4 (0.85)	17.8 (0.93)	18.5 (0.96)	19.2 (1.00)	20.0 (1.04)	20.3 (1.06)

Table 2. Cooling Capacity Table for RAS-10FSXNQ

Unit of Capacity: × 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	20.8 (0.86)	23.0 (0.96)	24.1 (1.00)	25.0 (1.04)	26.4 (1.10)	27.0 (1.12)
30.0	20.8 (0.86)	23.0 (0.96)	24.1 (1.00)	25.0 (1.04)	26.4 (1.10)	27.0 (1.12)
35.0	20.8 (0.86)	23.0 (0.96)	24.1 (1.00)	25.0 (1.04)	26.4 (1.10)	27.0 (1.12)
40.0	20.2 (0.84)	22.0 (0.92)	22.9 (0.95)	23.6 (0.98)	24.6 (1.02)	24.9 (1.04)

Table 3. Cooling Capacity Table for RAS-12FSXNQ

Unit of Capacity: × 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	24.9 (0.86)	27.5 (0.96)	28.8 (1.00)	30.0 (1.04)	31.6 (1.10)	32.3 (1.12)
30.0	24.9 (0.86)	27.5 (0.96)	28.8 (1.00)	30.0 (1.04)	31.6 (1.10)	32.3 (1.12)
35.0	24.9 (0.86)	27.5 (0.96)	28.8 (1.00)	30.0 (1.04)	31.3 (1.09)	31.6 (1.10)
40.0	23.9 (0.83)	26.1 (0.91)	26.8 (0.93)	27.5 (0.95)	28.2 (0.98)	28.6 (0.99)

Table 4. Cooling Capacity Table for RAS-14FSXNQ

Unit of Capacity: × 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	29.7 (0.86)	32.9 (0.96)	34.4 (1.00)	35.8 (1.04)	37.7 (1.10)	38.5 (1.12)
30.0	29.7 (0.86)	32.9 (0.96)	34.4 (1.00)	35.8 (1.04)	37.7 (1.10)	38.5 (1.12)
35.0	29.7 (0.86)	32.9 (0.96)	34.4 (1.00)	35.8 (1.04)	37.3 (1.09)	37.8 (1.10)
40.0	28.6 (0.83)	31.1 (0.91)	32.0 (0.93)	32.8 (0.95)	33.7 (0.98)	34.1 (0.99)

Table 5. Cooling Capacity Table for RAS-16FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	33.4 (0.86)	37.0 (0.96)	38.7 (1.00)	40.2 (1.04)	42.4 (1.10)	43.3 (1.12)
30.0	33.4 (0.86)	37.0 (0.96)	38.7 (1.00)	40.2 (1.04)	42.4 (1.10)	43.3 (1.12)
35.0	33.4 (0.86)	37.0 (0.96)	38.7 (1.00)	39.9 (1.03)	41.3 (1.07)	41.8 (1.08)
40.0	31.7 (0.82)	34.3 (0.89)	35.2 (0.91)	35.8 (0.92)	36.4 (0.94)	36.6 (0.95)

Table 6. Cooling Capacity Table for RAS-18FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	37.1 (0.86)	41.1 (0.96)	43.0 (1.00)	44.7 (1.04)	47.1 (1.10)	48.2 (1.12)
30.0	37.1 (0.86)	41.1 (0.96)	43.0 (1.00)	44.7 (1.04)	47.1 (1.10)	48.2 (1.12)
35.0	37.1 (0.86)	41.1 (0.96)	43.0 (1.00)	44.3 (1.03)	45.9 (1.07)	46.4 (1.08)
40.0	35.3 (0.82)	38.1 (0.89)	39.1 (0.91)	39.7 (0.92)	40.4 (0.94)	40.6 (0.95)

Table 7. Cooling Capacity Table for RAS-20FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	41.5 (0.86)	45.9 (0.95)	48.2 (1.00)	50.0 (1.04)	52.7 (1.09)	53.8 (1.12)
30.0	41.5 (0.86)	45.9 (0.95)	48.2 (1.00)	50.0 (1.04)	52.7 (1.09)	53.8 (1.12)
35.0	41.5 (0.86)	45.9 (0.95)	48.2 (1.00)	50.0 (1.04)	52.4 (1.09)	53.2 (1.10)
40.0	40.3 (0.84)	43.9 (0.91)	45.3 (0.94)	46.7 (0.97)	48.3 (1.00)	48.9 (1.02)

Table 8. Cooling Capacity Table for RAS-22FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	45.8 (0.87)	50.7 (0.96)	52.9 (1.00)	55.2 (1.04)	58.5 (1.11)	59.9 (1.13)
30.0	45.8 (0.87)	50.7 (0.96)	52.9 (1.00)	55.2 (1.04)	58.5 (1.11)	59.9 (1.13)
35.0	45.8 (0.87)	50.7 (0.96)	52.9 (1.00)	55.2 (1.04)	58.4 (1.10)	59.3 (1.12)
40.0	44.9 (0.85)	49.0 (0.93)	50.5 (0.95)	52.0 (0.98)	53.7 (1.02)	54.4 (1.03)

Table 9. Cooling Capacity Table for RAS-24FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	50.5 (0.85)	56.3 (0.95)	59.3 (1.00)	61.5 (1.04)	64.5 (1.09)	65.6 (1.11)
30.0	50.5 (0.85)	56.3 (0.95)	59.3 (1.00)	61.5 (1.04)	64.5 (1.09)	65.6 (1.11)
35.0	50.5 (0.85)	56.3 (0.95)	59.3 (1.00)	61.1 (1.03)	63.7 (1.07)	64.7 (1.09)
40.0	48.8 (0.82)	53.2 (0.90)	54.9 (0.92)	56.5 (0.95)	58.3 (0.98)	59.1 (1.00)

Table 10. Cooling Capacity Table for RAS-26FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	54.6 (0.87)	60.4 (0.96)	62.8 (1.00)	65.4 (1.04)	69.1 (1.10)	70.7 (1.13)
30.0	54.6 (0.87)	60.4 (0.96)	62.8 (1.00)	65.4 (1.04)	69.1 (1.10)	70.7 (1.13)
35.0	54.6 (0.87)	60.4 (0.96)	62.8 (1.00)	65.4 (1.04)	68.6 (1.09)	69.4 (1.11)
40.0	52.5 (0.84)	57.2 (0.91)	58.8 (0.94)	60.3 (0.96)	61.9 (0.99)	62.7 (1.00)

Table 11. Cooling Capacity Table for RAS-28FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	59.4 (0.86)	65.7 (0.96)	68.8 (1.00)	71.6 (1.04)	75.4 (1.10)	77.1 (1.12)
30.0	59.4 (0.86)	65.7 (0.96)	68.8 (1.00)	71.6 (1.04)	75.4 (1.10)	77.1 (1.12)
35.0	59.4 (0.86)	65.7 (0.96)	68.8 (1.00)	71.6 (1.04)	74.6 (1.09)	75.5 (1.10)
40.0	57.1 (0.83)	62.3 (0.91)	64.0 (0.93)	65.6 (0.95)	67.4 (0.98)	68.2 (0.99)

Table 12. Cooling Capacity Table for RAS-30FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	63.1 (0.86)	69.8 (0.96)	73.1 (1.00)	76.0 (1.04)	80.1 (1.10)	81.9 (1.12)
30.0	63.1 (0.86)	69.8 (0.96)	73.1 (1.00)	76.0 (1.04)	80.1 (1.10)	81.9 (1.12)
35.0	63.1 (0.86)	69.8 (0.96)	73.1 (1.00)	75.6 (1.03)	78.7 (1.08)	79.6 (1.09)
40.0	60.3 (0.82)	65.4 (0.89)	67.2 (0.92)	68.6 (0.94)	70.1 (0.96)	70.7 (0.97)

Table 13. Cooling Capacity Table for RAS-32FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	66.8 (0.86)	73.9 (0.96)	77.4 (1.00)	80.5 (1.04)	84.8 (1.10)	86.7 (1.12)
30.0	66.8 (0.86)	73.9 (0.96)	77.4 (1.00)	80.5 (1.04)	84.8 (1.10)	86.7 (1.12)
35.0	66.8 (0.86)	73.9 (0.96)	77.4 (1.00)	79.7 (1.03)	82.7 (1.07)	83.6 (1.08)
40.0	63.5 (0.82)	68.6 (0.89)	70.4 (0.91)	71.5 (0.92)	72.8 (0.94)	73.1 (0.95)

Table 14. Cooling Capacity Table for RAS-34FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	70.5 (0.86)	78.0 (0.96)	81.7 (1.00)	85.0 (1.04)	89.5 (1.10)	91.5 (1.12)
30.0	70.5 (0.86)	78.0 (0.96)	81.7 (1.00)	85.0 (1.04)	89.5 (1.10)	91.5 (1.12)
35.0	70.5 (0.86)	78.0 (0.96)	81.7 (1.00)	84.2 (1.03)	87.3 (1.07)	88.2 (1.08)
40.0	67.0 (0.82)	72.4 (0.89)	74.3 (0.91)	75.5 (0.92)	76.8 (0.94)	77.2 (0.95)

Table 15. Cooling Capacity Table for RAS-36FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	74.2 (0.86)	82.1 (0.96)	86.0 (1.00)	89.4 (1.04)	94.3 (1.10)	96.3 (1.12)
30.0	74.2 (0.86)	82.1 (0.96)	86.0 (1.00)	89.4 (1.04)	94.3 (1.10)	96.3 (1.12)
35.0	74.2 (0.86)	82.1 (0.96)	86.0 (1.00)	88.6 (1.03)	91.8 (1.07)	92.9 (1.08)
40.0	70.5 (0.82)	76.2 (0.89)	78.3 (0.91)	79.5 (0.92)	80.8 (0.94)	81.3 (0.95)

Table 16. Cooling Capacity Table for RAS-38FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	79.4 (0.85)	89.0 (0.95)	93.7 (1.00)	96.8 (1.03)	101.3 (1.08)	103.4 (1.10)
30.0	79.4 (0.85)	89.0 (0.95)	93.7 (1.00)	96.8 (1.03)	101.3 (1.08)	103.4 (1.10)
35.0	79.4 (0.85)	89.0 (0.95)	93.7 (1.00)	96.3 (1.03)	99.8 (1.07)	101.0 (1.08)
40.0	76.4 (0.81)	83.3 (0.89)	85.6 (0.91)	87.8 (0.94)	90.2 (0.96)	91.3 (0.97)

Table 17. Cooling Capacity Table for RAS-40FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	83.1 (0.86)	92.0 (0.96)	96.3 (1.00)	100.2 (1.04)	105.6 (1.10)	107.9 (1.12)
30.0	83.1 (0.86)	92.0 (0.96)	96.3 (1.00)	100.2 (1.04)	105.6 (1.10)	107.9 (1.12)
35.0	83.1 (0.86)	92.0 (0.96)	96.3 (1.00)	99.8 (1.04)	103.8 (1.08)	105.1 (1.09)
40.0	79.6 (0.83)	86.4 (0.90)	88.8 (0.92)	90.7 (0.94)	92.8 (0.96)	93.7 (0.97)

Table 18. Cooling Capacity Table for RAS-42FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	86.8 (0.86)	96.8 (0.95)	101.5 (1.00)	104.9 (1.03)	110.3 (1.09)	112.7 (1.11)
30.0	86.8 (0.86)	96.8 (0.95)	101.5 (1.00)	104.9 (1.03)	110.3 (1.09)	112.7 (1.11)
35.0	86.8 (0.86)	96.8 (0.95)	101.5 (1.00)	104.2 (1.03)	108.4 (1.07)	109.7 (1.08)
40.0	83.1 (0.82)	90.2 (0.89)	92.7 (0.91)	94.7 (0.93)	96.9 (0.95)	97.8 (0.96)

Table 19. Cooling Capacity Table for RAS-44FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	91.7 (0.85)	101.9 (0.95)	107.5 (1.00)	110.9 (1.03)	116.4 (1.08)	119.0 (1.11)
30.0	91.7 (0.85)	101.9 (0.95)	107.5 (1.00)	110.9 (1.03)	116.4 (1.08)	119.0 (1.11)
35.0	91.7 (0.85)	101.9 (0.95)	107.5 (1.00)	110.0 (1.02)	114.5 (1.07)	115.8 (1.08)
40.0	87.7 (0.82)	95.3 (0.89)	97.9 (0.91)	100.0 (0.93)	102.4 (0.95)	103.3 (0.96)

Table 20. Cooling Capacity Table for RAS-46FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	96.3 (0.85)	107.9 (0.95)	113.5 (1.00)	117.4 (1.03)	123.0 (1.08)	125.4 (1.10)
30.0	96.3 (0.85)	107.9 (0.95)	113.5 (1.00)	117.4 (1.03)	123.0 (1.08)	125.4 (1.10)
35.0	96.3 (0.85)	107.9 (0.95)	113.5 (1.00)	115.7 (1.02)	118.5 (1.04)	119.9 (1.06)
40.0	90.9 (0.80)	98.5 (0.87)	101.1 (0.89)	103.0 (0.91)	105.0 (0.93)	105.8 (0.93)

Table 21. Cooling Capacity Table for RAS-48FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	99.1 (0.85)	110.9 (0.95)	117.0 (1.00)	121.3 (1.04)	126.6 (1.08)	129.0 (1.10)
30.0	99.1 (0.85)	110.9 (0.95)	117.0 (1.00)	121.3 (1.04)	126.6 (1.08)	129.0 (1.10)
35.0	99.1 (0.85)	110.9 (0.95)	117.0 (1.00)	119.5 (1.02)	123.1 (1.05)	124.5 (1.06)
40.0	94.4 (0.81)	102.3 (0.87)	105.1 (0.90)	106.9 (0.91)	109.1 (0.93)	109.8 (0.94)

Table 22. Cooling Capacity Table for RAS-50FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	103.9 (0.86)	115.0 (0.96)	120.4 (1.00)	125.2 (1.04)	132.0 (1.10)	134.8 (1.12)
30.0	103.9 (0.86)	115.0 (0.96)	120.4 (1.00)	125.2 (1.04)	132.0 (1.10)	134.8 (1.12)
35.0	103.9 (0.86)	115.0 (0.96)	120.4 (1.00)	124.4 (1.03)	129.2 (1.07)	130.7 (1.09)
40.0	99.1 (0.82)	107.3 (0.89)	110.3 (0.92)	112.3 (0.93)	114.6 (0.95)	115.4 (0.96)

Table 23. Cooling Capacity Table for RAS-52FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	107.6 (0.86)	119.1 (0.96)	124.7 (1.00)	129.7 (1.04)	136.7 (1.10)	139.7 (1.12)
30.0	107.6 (0.86)	119.1 (0.96)	124.7 (1.00)	129.7 (1.04)	136.7 (1.10)	139.7 (1.12)
35.0	107.6 (0.86)	119.1 (0.96)	124.7 (1.00)	128.4 (1.03)	133.2 (1.07)	134.7 (1.08)
40.0	102.3 (0.82)	110.5 (0.89)	113.5 (0.91)	115.2 (0.92)	117.2 (0.94)	117.8 (0.95)

Table 24. Cooling Capacity Table for RAS-54FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Dry Bulb (°C)	Indoor Air Inlet Wet Bulb (°C)					
	16.0	18.0	19.0	20.0	22.0	23.0
25.0	111.3 (0.86)	123.2 (0.96)	129.0 (1.00)	134.2 (1.04)	141.4 (1.10)	144.5 (1.12)
30.0	111.3 (0.86)	123.2 (0.96)	129.0 (1.00)	134.2 (1.04)	141.4 (1.10)	144.5 (1.12)
35.0	111.3 (0.86)	123.2 (0.96)	129.0 (1.00)	132.9 (1.03)	137.8 (1.07)	139.3 (1.08)
40.0	105.8 (0.82)	114.3 (0.89)	117.4 (0.91)	119.2 (0.92)	121.3 (0.94)	121.9 (0.95)

NOTE:

- The table shows the normal value of cooling operation.
In some cases, the value may change due to the compressor protection control.
- The cooling capacity on the table indicates the peak value, which does not include the capacity decrease caused by frost.
- The value on the table shows when the system is operated under the following conditions.
The indoor unit total capacity: 100% of outdoor unit capacity, The total piping length: 7.5m, The height difference: 0m
- In case of the heat recovery system, the value on the table indicates when all the indoor units are operated in cooling mode.

6.6 Heating Capacity Table of 100% Combination (Dimension: ×1,000 kcal/h)

Table 1. Heating Capacity Table for RAS-8FSXNQ

Unit of Capacity: × 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	16.8 (0.78)	16.8 (0.78)	16.8 (0.78)	16.8 (0.78)	16.7 (0.78)	16.7 (0.78)
-5.0	19.0 (0.88)	18.9 (0.88)	18.9 (0.88)	18.8 (0.88)	18.8 (0.87)	18.4 (0.86)
0.0	21.1 (0.98)	20.9 (0.97)	20.6 (0.96)	20.5 (0.95)	20.1 (0.94)	18.9 (0.88)
5.0	22.3 (1.04)	21.9 (1.02)	21.3 (0.99)	21.0 (0.98)	20.5 (0.96)	18.9 (0.88)
6.0	22.8 (1.06)	22.1 (1.03)	21.5 (1.00)	21.2 (0.98)	20.5 (0.95)	18.9 (0.88)
10.0	24.4 (1.13)	23.2 (1.08)	21.9 (1.02)	21.3 (0.99)	20.5 (0.95)	18.9 (0.88)
15.0	24.4 (1.13)	23.2 (1.08)	21.9 (1.02)	21.3 (0.99)	20.5 (0.95)	18.9 (0.88)

Table 2. Heating Capacity Table for RAS-10FSXNQ

Unit of Capacity: × 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	19.5 (0.72)	19.5 (0.72)	19.5 (0.72)	19.5 (0.72)	19.5 (0.72)	19.4 (0.72)
-5.0	22.4 (0.83)	22.3 (0.82)	22.3 (0.82)	22.2 (0.82)	22.2 (0.82)	22.1 (0.81)
0.0	24.8 (0.91)	24.7 (0.91)	24.7 (0.91)	24.5 (0.91)	24.4 (0.90)	23.6 (0.87)
5.0	27.3 (1.01)	27.1 (1.00)	26.8 (0.99)	26.5 (0.98)	25.7 (0.95)	23.8 (0.88)
6.0	28.3 (1.05)	27.8 (1.03)	27.1 (1.00)	26.7 (0.98)	25.9 (0.95)	23.8 (0.88)
10.0	29.7 (1.10)	29.1 (1.07)	27.6 (1.02)	26.8 (0.99)	25.9 (0.95)	23.8 (0.88)
15.0	30.7 (1.13)	29.3 (1.08)	27.6 (1.02)	26.8 (0.99)	25.9 (0.95)	23.8 (0.88)

Table 3. Heating Capacity Table for RAS-12FSXNQ

Unit of Capacity: × 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	21.0 (0.65)	21.0 (0.65)	21.0 (0.65)	21.0 (0.65)	20.9 (0.65)	20.8 (0.65)
-5.0	24.7 (0.77)	24.7 (0.77)	24.7 (0.77)	24.6 (0.76)	24.6 (0.76)	24.4 (0.76)
0.0	28.4 (0.88)	28.4 (0.88)	28.4 (0.88)	28.3 (0.88)	28.2 (0.87)	27.4 (0.85)
5.0	31.7 (0.98)	31.7 (0.98)	31.5 (0.98)	31.2 (0.97)	30.5 (0.95)	28.4 (0.88)
6.0	32.7 (1.02)	32.7 (1.02)	32.3 (1.00)	31.7 (0.98)	30.8 (0.95)	28.4 (0.88)
10.0	34.8 (1.08)	34.1 (1.06)	32.9 (1.02)	31.9 (0.99)	30.8 (0.95)	28.4 (0.88)
15.0	36.6 (1.13)	34.9 (1.08)	32.9 (1.02)	31.9 (0.99)	30.8 (0.95)	28.4 (0.88)

Table 4. Heating Capacity Table for RAS-14FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	27.9 (0.72)	27.9 (0.72)	27.9 (0.72)	27.9 (0.72)	27.8 (0.72)	27.7 (0.72)
-5.0	32.0 (0.83)	31.9 (0.82)	31.8 (0.82)	31.7 (0.82)	31.7 (0.82)	31.5 (0.81)
0.0	35.4 (0.91)	35.3 (0.91)	35.2 (0.91)	35.1 (0.91)	34.8 (0.90)	33.8 (0.87)
5.0	39.0 (1.01)	38.7 (1.00)	38.3 (0.99)	37.8 (0.98)	36.8 (0.95)	34.1 (0.88)
6.0	40.5 (1.05)	39.7 (1.03)	38.7 (1.00)	38.1 (0.98)	36.9 (0.95)	34.1 (0.88)
10.0	42.4 (1.10)	41.5 (1.07)	39.5 (1.02)	38.3 (0.99)	36.9 (0.95)	34.1 (0.88)
15.0	43.9 (1.13)	41.9 (1.08)	39.5 (1.02)	38.3 (0.99)	36.9 (0.95)	34.1 (0.88)

Table 5. Heating Capacity Table for RAS-16FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	30.1 (0.70)	30.1 (0.70)	30.1 (0.70)	30.1 (0.70)	30.0 (0.70)	29.9 (0.70)
-5.0	34.7 (0.81)	34.6 (0.80)	34.5 (0.80)	34.4 (0.80)	34.3 (0.80)	34.1 (0.79)
0.0	39.0 (0.91)	38.9 (0.90)	38.8 (0.90)	38.6 (0.90)	38.4 (0.89)	37.3 (0.87)
5.0	43.2 (1.00)	42.8 (1.00)	42.4 (0.99)	42.0 (0.98)	40.8 (0.95)	37.8 (0.88)
6.0	44.9 (1.04)	44.2 (1.03)	43.0 (1.00)	42.3 (0.98)	41.1 (0.95)	37.8 (0.88)
10.0	47.1 (1.10)	46.1 (1.07)	43.9 (1.02)	42.5 (0.99)	41.1 (0.95)	37.8 (0.88)
15.0	48.7 (1.13)	46.6 (1.08)	43.9 (1.02)	42.5 (0.99)	41.1 (0.95)	37.8 (0.88)

Table 6. Heating Capacity Table for RAS-18FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	33.7 (0.70)	33.7 (0.70)	33.7 (0.70)	33.7 (0.70)	33.6 (0.70)	33.5 (0.70)
-5.0	38.8 (0.81)	38.7 (0.80)	38.6 (0.80)	38.5 (0.80)	38.4 (0.80)	38.2 (0.79)
0.0	43.6 (0.91)	43.5 (0.90)	43.4 (0.90)	43.2 (0.90)	43.0 (0.89)	41.8 (0.87)
5.0	48.4 (1.00)	48.0 (1.00)	47.5 (0.99)	47.0 (0.98)	45.7 (0.95)	42.4 (0.88)
6.0	50.3 (1.04)	49.5 (1.03)	48.2 (1.00)	47.4 (0.98)	46.0 (0.95)	42.4 (0.88)
10.0	52.8 (1.10)	51.7 (1.07)	49.1 (1.02)	47.6 (0.99)	46.0 (0.95)	42.4 (0.88)
15.0	54.6 (1.13)	52.2 (1.08)	49.1 (1.02)	47.6 (0.99)	46.0 (0.95)	42.4 (0.88)

Table 7. Heating Capacity Table for RAS-20FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	37.7 (0.70)	37.7 (0.70)	37.7 (0.70)	37.7 (0.70)	37.6 (0.69)	37.5 (0.69)
-5.0	43.7 (0.81)	43.6 (0.81)	43.6 (0.80)	43.5 (0.80)	43.4 (0.80)	42.8 (0.79)
0.0	49.5 (0.91)	49.3 (0.91)	49.0 (0.90)	48.8 (0.90)	48.3 (0.89)	46.3 (0.86)
5.0	54.0 (1.00)	53.6 (0.99)	52.8 (0.97)	52.1 (0.96)	51.0 (0.94)	47.3 (0.87)
6.0	55.5 (1.02)	55.0 (1.02)	54.2 (1.00)	52.9 (0.98)	51.3 (0.95)	47.3 (0.87)
10.0	59.2 (1.09)	57.3 (1.06)	54.8 (1.01)	53.2 (0.98)	51.3 (0.95)	47.3 (0.87)
15.0	60.9 (1.12)	58.1 (1.07)	54.8 (1.01)	53.2 (0.98)	51.3 (0.95)	47.3 (0.87)

Table 8. Heating Capacity Table for RAS-22FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	44.6 (0.75)	44.6 (0.75)	44.6 (0.75)	44.6 (0.75)	44.5 (0.75)	44.4 (0.75)
-5.0	50.9 (0.86)	50.8 (0.86)	50.7 (0.85)	50.6 (0.85)	50.4 (0.85)	49.9 (0.84)
0.0	56.4 (0.95)	56.2 (0.95)	55.9 (0.94)	55.5 (0.94)	55.0 (0.93)	52.2 (0.88)
5.0	60.9 (1.03)	60.0 (1.01)	58.8 (0.99)	58.1 (0.98)	56.7 (0.96)	52.2 (0.88)
6.0	62.6 (1.06)	61.1 (1.03)	59.3 (1.00)	58.1 (0.98)	56.7 (0.96)	52.2 (0.88)
10.0	65.8 (1.11)	64.2 (1.08)	60.5 (1.02)	58.7 (0.99)	56.7 (0.96)	52.2 (0.88)
15.0	67.3 (1.13)	64.3 (1.08)	60.5 (1.02)	58.7 (0.99)	56.7 (0.96)	52.2 (0.88)

Table 9. Heating Capacity Table for RAS-24FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	47.4 (0.71)	47.4 (0.71)	47.4 (0.71)	47.4 (0.71)	47.2 (0.71)	47.1 (0.71)
-5.0	54.3 (0.82)	54.2 (0.81)	54.1 (0.81)	53.9 (0.81)	53.8 (0.81)	53.6 (0.80)
0.0	60.1 (0.90)	60.0 (0.90)	59.9 (0.90)	59.6 (0.89)	59.2 (0.89)	57.4 (0.86)
5.0	66.3 (0.99)	65.8 (0.99)	65.1 (0.98)	64.3 (0.97)	62.5 (0.94)	57.9 (0.87)
6.0	68.8 (1.03)	67.9 (1.02)	66.7 (1.00)	64.9 (0.97)	62.8 (0.94)	57.9 (0.87)
10.0	72.1 (1.08)	70.6 (1.06)	67.1 (1.01)	65.1 (0.98)	62.8 (0.94)	57.9 (0.87)
15.0	74.6 (1.12)	71.2 (1.07)	67.1 (1.01)	65.1 (0.98)	62.8 (0.94)	57.9 (0.87)

Table 10. Heating Capacity Table for RAS-26FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	48.8 (0.69)	48.8 (0.69)	48.8 (0.69)	48.8 (0.69)	48.7 (0.69)	48.5 (0.68)
-5.0	56.7 (0.80)	56.6 (0.80)	56.5 (0.80)	56.4 (0.79)	56.2 (0.79)	55.9 (0.79)
0.0	63.8 (0.90)	63.7 (0.90)	63.6 (0.90)	63.4 (0.89)	63.0 (0.89)	61.2 (0.86)
5.0	70.7 (1.00)	70.4 (0.99)	69.8 (0.98)	69.0 (0.97)	67.3 (0.95)	62.4 (0.88)
6.0	73.2 (1.03)	72.4 (1.02)	71.0 (1.00)	69.8 (0.98)	67.7 (0.95)	62.4 (0.88)
10.0	77.2 (1.09)	75.6 (1.07)	72.4 (1.02)	70.2 (0.99)	67.7 (0.95)	62.4 (0.88)
15.0	80.4 (1.13)	76.8 (1.08)	72.4 (1.02)	70.2 (0.99)	67.7 (0.95)	62.4 (0.88)

Table 11. Heating Capacity Table for RAS-28FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	55.7 (0.72)	55.7 (0.72)	55.7 (0.72)	55.7 (0.72)	55.6 (0.72)	55.4 (0.72)
-5.0	63.9 (0.83)	63.8 (0.82)	63.6 (0.82)	63.5 (0.82)	63.3 (0.82)	63.0 (0.81)
0.0	70.7 (0.91)	70.6 (0.91)	70.4 (0.91)	70.1 (0.91)	69.7 (0.90)	67.6 (0.87)
5.0	78.0 (1.01)	77.4 (1.00)	76.6 (0.99)	75.7 (0.98)	73.5 (0.95)	68.1 (0.88)
6.0	81.0 (1.05)	79.4 (1.03)	77.4 (1.00)	76.2 (0.98)	73.9 (0.95)	68.1 (0.88)
10.0	84.8 (1.10)	83.1 (1.07)	78.9 (1.02)	76.6 (0.99)	73.9 (0.95)	68.1 (0.88)
15.0	87.7 (1.13)	83.8 (1.08)	78.9 (1.02)	76.6 (0.99)	73.9 (0.95)	68.1 (0.88)

Table 12. Heating Capacity Table for RAS-30FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	58.0 (0.71)	58.0 (0.71)	58.0 (0.71)	58.0 (0.71)	57.8 (0.71)	57.6 (0.71)
-5.0	66.6 (0.82)	66.5 (0.81)	66.3 (0.81)	66.1 (0.81)	66.0 (0.81)	65.6 (0.80)
0.0	74.3 (0.91)	74.2 (0.91)	74.0 (0.91)	73.7 (0.90)	73.2 (0.90)	71.1 (0.87)
5.0	82.2 (1.01)	81.5 (1.00)	80.7 (0.99)	79.8 (0.98)	77.5 (0.95)	71.9 (0.88)
6.0	85.4 (1.04)	83.9 (1.03)	81.7 (1.00)	80.4 (0.98)	78.0 (0.95)	71.9 (0.88)
10.0	89.5 (1.10)	87.7 (1.07)	83.3 (1.02)	80.8 (0.99)	78.0 (0.95)	71.9 (0.88)
15.0	92.6 (1.13)	88.5 (1.08)	83.3 (1.02)	80.8 (0.99)	78.0 (0.95)	71.9 (0.88)

Table 13. Heating Capacity Table for RAS-32FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	60.2 (0.70)	60.2 (0.70)	60.2 (0.70)	60.2 (0.70)	60.0 (0.70)	59.9 (0.70)
-5.0	69.3 (0.81)	69.1 (0.80)	69.0 (0.80)	68.8 (0.80)	68.6 (0.80)	68.3 (0.79)
0.0	77.9 (0.91)	77.7 (0.90)	77.6 (0.90)	77.2 (0.90)	76.7 (0.89)	74.6 (0.87)
5.0	86.3 (1.00)	85.7 (1.00)	84.8 (0.99)	83.9 (0.98)	81.5 (0.95)	75.7 (0.88)
6.0	89.8 (1.04)	88.4 (1.03)	86.0 (1.00)	84.6 (0.98)	82.1 (0.95)	75.7 (0.88)
10.0	94.3 (1.10)	92.3 (1.07)	87.7 (1.02)	85.1 (0.99)	82.1 (0.95)	75.7 (0.88)
15.0	97.5 (1.13)	93.1 (1.08)	87.7 (1.02)	85.1 (0.99)	82.1 (0.95)	75.7 (0.88)

Table 14. Heating Capacity Table for RAS-34FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	63.8 (0.70)	63.8 (0.70)	63.8 (0.70)	63.8 (0.70)	63.6 (0.70)	63.4 (0.70)
-5.0	73.5 (0.81)	73.3 (0.80)	73.1 (0.80)	72.9 (0.80)	72.7 (0.80)	72.4 (0.79)
0.0	82.6 (0.91)	82.4 (0.90)	82.2 (0.90)	81.9 (0.90)	81.3 (0.89)	79.1 (0.87)
5.0	91.5 (1.00)	90.8 (1.00)	89.9 (0.99)	89.0 (0.98)	86.4 (0.95)	80.2 (0.88)
6.0	95.2 (1.04)	93.7 (1.03)	91.2 (1.00)	89.7 (0.98)	87.0 (0.95)	80.2 (0.88)
10.0	99.9 (1.10)	97.8 (1.07)	93.0 (1.02)	90.2 (0.99)	87.0 (0.95)	80.2 (0.88)
15.0	103.3 (1.13)	98.7 (1.08)	93.0 (1.02)	90.2 (0.99)	87.0 (0.95)	80.2 (0.88)

Table 15. Heating Capacity Table for RAS-36FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	67.4 (0.70)	67.4 (0.70)	67.4 (0.70)	67.4 (0.70)	67.2 (0.70)	67.0 (0.70)
-5.0	77.6 (0.81)	77.4 (0.80)	77.2 (0.80)	77.1 (0.80)	76.9 (0.80)	76.5 (0.79)
0.0	87.3 (0.91)	87.1 (0.90)	86.9 (0.90)	86.5 (0.90)	85.9 (0.89)	83.6 (0.87)
5.0	96.7 (1.00)	95.9 (1.00)	95.0 (0.99)	94.0 (0.98)	91.3 (0.95)	84.8 (0.88)
6.0	100.6 (1.04)	99.0 (1.03)	96.3 (1.00)	94.8 (0.98)	92.0 (0.95)	84.8 (0.88)
10.0	105.6 (1.10)	103.4 (1.07)	98.2 (1.02)	95.3 (0.99)	92.0 (0.95)	84.8 (0.88)
15.0	109.2 (1.13)	104.3 (1.08)	98.2 (1.02)	95.3 (0.99)	92.0 (0.95)	84.8 (0.88)

Table 16. Heating Capacity Table for RAS-38FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	69.8 (0.69)	69.8 (0.69)	69.8 (0.69)	69.8 (0.69)	69.6 (0.69)	69.4 (0.68)
-5.0	81.4 (0.80)	81.3 (0.80)	81.2 (0.80)	81.0 (0.80)	80.8 (0.80)	80.3 (0.79)
0.0	92.1 (0.91)	92.1 (0.91)	92.0 (0.91)	91.7 (0.90)	91.2 (0.90)	88.6 (0.87)
5.0	101.5 (1.00)	101.3 (1.00)	100.6 (0.99)	99.8 (0.98)	96.9 (0.96)	89.3 (0.88)
6.0	104.1 (1.03)	103.0 (1.02)	101.5 (1.00)	99.8 (0.98)	96.9 (0.96)	89.3 (0.88)
10.0	111.2 (1.10)	108.9 (1.07)	103.5 (1.02)	100.4 (0.99)	96.9 (0.96)	89.3 (0.88)
15.0	115.0 (1.13)	109.9 (1.08)	103.5 (1.02)	100.4 (0.99)	96.9 (0.96)	89.3 (0.88)

Table 17. Heating Capacity Table for RAS-40FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	72.0 (0.67)	72.0 (0.67)	72.0 (0.67)	72.0 (0.67)	71.8 (0.67)	71.6 (0.67)
-5.0	84.1 (0.78)	84.0 (0.78)	83.9 (0.78)	83.7 (0.78)	83.5 (0.78)	82.9 (0.77)
0.0	95.7 (0.89)	95.6 (0.89)	95.5 (0.89)	95.2 (0.89)	94.7 (0.88)	92.1 (0.86)
5.0	106.6 (0.99)	106.3 (0.99)	105.4 (0.98)	104.3 (0.97)	101.8 (0.95)	94.6 (0.88)
6.0	110.4 (1.03)	109.7 (1.02)	107.5 (1.00)	105.8 (0.98)	102.6 (0.95)	94.6 (0.88)
10.0	116.8 (1.09)	114.3 (1.06)	109.7 (1.02)	106.4 (0.99)	102.6 (0.95)	94.6 (0.88)
15.0	121.8 (1.13)	116.4 (1.08)	109.7 (1.02)	106.4 (0.99)	102.6 (0.95)	94.6 (0.88)

Table 18. Heating Capacity Table for RAS-42FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	75.6 (0.67)	75.6 (0.67)	75.6 (0.67)	75.6 (0.67)	75.4 (0.66)	75.2 (0.66)
-5.0	88.2 (0.78)	88.1 (0.78)	88.0 (0.78)	87.8 (0.77)	87.6 (0.77)	87.0 (0.77)
0.0	100.4 (0.88)	100.3 (0.88)	100.2 (0.88)	99.9 (0.88)	99.3 (0.88)	96.6 (0.85)
5.0	111.8 (0.99)	111.4 (0.98)	110.4 (0.97)	109.3 (0.96)	106.7 (0.94)	99.1 (0.87)
6.0	115.7 (1.02)	115.0 (1.01)	113.5 (1.00)	111.5 (0.98)	107.6 (0.95)	99.1 (0.87)
10.0	122.4 (1.08)	119.8 (1.06)	114.9 (1.01)	111.5 (0.98)	107.6 (0.95)	99.1 (0.87)
15.0	127.7 (1.12)	122.0 (1.07)	114.9 (1.01)	111.5 (0.98)	107.6 (0.95)	99.1 (0.87)

Table 19. Heating Capacity Table for RAS-44FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	82.5 (0.69)	82.5 (0.69)	82.5 (0.69)	82.5 (0.69)	82.3 (0.68)	82.1 (0.68)
-5.0	95.5 (0.79)	95.3 (0.79)	95.1 (0.79)	94.9 (0.79)	94.7 (0.79)	94.1 (0.78)
0.0	107.4 (0.89)	107.2 (0.89)	107.0 (0.89)	106.6 (0.89)	106.0 (0.88)	103.0 (0.86)
5.0	119.1 (0.99)	118.4 (0.98)	117.3 (0.97)	116.0 (0.96)	112.9 (0.94)	104.8 (0.87)
6.0	123.5 (1.03)	122.5 (1.02)	120.4 (1.00)	117.8 (0.98)	113.7 (0.94)	104.8 (0.87)
10.0	130.0 (1.08)	127.3 (1.06)	121.5 (1.01)	117.8 (0.98)	113.7 (0.94)	104.8 (0.87)
15.0	135.0 (1.12)	129.0 (1.07)	121.5 (1.01)	117.8 (0.98)	113.7 (0.94)	104.8 (0.87)

Table 20. Heating Capacity Table for RAS-46FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	84.8 (0.68)	84.8 (0.68)	84.8 (0.68)	84.8 (0.68)	84.5 (0.68)	84.3 (0.68)
-5.0	98.2 (0.79)	98.0 (0.79)	97.8 (0.78)	97.6 (0.78)	97.3 (0.78)	96.8 (0.78)
0.0	111.0 (0.89)	110.8 (0.89)	110.6 (0.89)	110.2 (0.88)	109.5 (0.88)	106.5 (0.85)
5.0	123.3 (0.99)	122.5 (0.98)	121.4 (0.97)	120.1 (0.96)	116.9 (0.94)	108.6 (0.87)
6.0	127.9 (1.03)	126.4 (1.01)	124.7 (1.00)	122.1 (0.98)	117.8 (0.94)	108.6 (0.87)
10.0	134.7 (1.08)	131.9 (1.06)	125.9 (1.01)	122.1 (0.98)	117.8 (0.94)	108.6 (0.87)
15.0	139.9 (1.12)	133.7 (1.07)	125.9 (1.01)	122.1 (0.98)	117.8 (0.94)	108.6 (0.87)

Table 21. Heating Capacity Table for RAS-48FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	88.4 (0.69)	88.4 (0.69)	88.4 (0.69)	88.4 (0.69)	88.1 (0.68)	87.9 (0.68)
-5.0	102.3 (0.79)	102.1 (0.79)	102.0 (0.79)	101.7 (0.79)	101.4 (0.79)	100.9 (0.78)
0.0	115.6 (0.90)	115.5 (0.89)	115.3 (0.89)	114.8 (0.89)	114.1 (0.88)	111.0 (0.86)
5.0	128.4 (1.00)	127.7 (0.99)	126.4 (0.98)	125.2 (0.97)	121.8 (0.94)	113.1 (0.88)
6.0	133.3 (1.03)	131.8 (1.02)	129.0 (1.00)	126.5 (0.98)	122.7 (0.95)	113.1 (0.88)
10.0	140.4 (1.09)	137.4 (1.07)	131.1 (1.02)	127.2 (0.99)	122.7 (0.95)	113.1 (0.88)
15.0	145.7 (1.13)	139.2 (1.08)	131.1 (1.02)	127.2 (0.99)	122.7 (0.95)	113.1 (0.88)

Table 22. Heating Capacity Table for RAS-50FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	95.3 (0.71)	95.3 (0.71)	95.3 (0.71)	95.3 (0.71)	95.0 (0.71)	94.7 (0.71)
-5.0	109.6 (0.82)	109.3 (0.82)	109.1 (0.82)	108.8 (0.82)	108.5 (0.81)	108.0 (0.81)
0.0	122.6 (0.92)	122.4 (0.92)	122.1 (0.92)	121.6 (0.91)	120.7 (0.91)	117.3 (0.88)
5.0	135.7 (1.02)	134.6 (1.01)	133.3 (1.00)	130.9 (0.98)	127.3 (0.95)	117.3 (0.88)
6.0	139.7 (1.05)	136.9 (1.03)	133.3 (1.00)	130.9 (0.98)	127.3 (0.95)	117.3 (0.88)
10.0	147.9 (1.11)	143.1 (1.07)	136.0 (1.02)	131.8 (0.99)	127.3 (0.95)	117.3 (0.88)
15.0	151.4 (1.14)	144.4 (1.08)	136.0 (1.02)	131.8 (0.99)	127.3 (0.95)	117.3 (0.88)

Table 23. Heating Capacity Table for RAS-52FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	97.5 (0.71)	97.5 (0.71)	97.5 (0.71)	97.5 (0.71)	97.2 (0.71)	97.0 (0.70)
-5.0	112.3 (0.82)	112.0 (0.81)	111.7 (0.81)	111.5 (0.81)	111.2 (0.81)	110.6 (0.80)
0.0	126.2 (0.92)	125.9 (0.92)	125.7 (0.91)	125.1 (0.91)	124.3 (0.90)	120.9 (0.88)
5.0	139.9 (1.02)	138.8 (1.01)	137.4 (1.00)	135.5 (0.99)	131.4 (0.96)	121.1 (0.88)
6.0	145.5 (1.06)	142.3 (1.03)	137.6 (1.00)	135.5 (0.99)	131.4 (0.96)	121.1 (0.88)
10.0	152.7 (1.11)	147.7 (1.07)	140.4 (1.02)	136.1 (0.99)	131.4 (0.96)	121.1 (0.88)
15.0	156.2 (1.14)	149.0 (1.08)	140.4 (1.02)	136.1 (0.99)	131.4 (0.96)	121.1 (0.88)

Table 24. Heating Capacity Table for RAS-54FSXNQ

Unit of Capacity: x 1,000 kcal/h (Correction Factor)

Outdoor Air Inlet Wet Bulb (°C)	Indoor Air Inlet Dry Bulb (°C)					
	16.0	18.0	20.0	21.0	22.0	24.0
-10.0	101.1 (0.71)	101.1 (0.71)	101.1 (0.71)	101.1 (0.71)	100.8 (0.71)	100.6 (0.71)
-5.0	116.5 (0.82)	116.2 (0.82)	115.9 (0.82)	115.6 (0.81)	115.3 (0.81)	114.7 (0.81)
0.0	130.9 (0.92)	130.6 (0.92)	130.3 (0.92)	129.7 (0.91)	128.9 (0.91)	124.9 (0.88)
5.0	145.1 (1.02)	143.9 (1.01)	141.6 (1.00)	139.4 (0.98)	135.5 (0.96)	124.9 (0.88)
6.0	150.5 (1.06)	146.8 (1.03)	141.9 (1.00)	139.4 (0.98)	135.5 (0.96)	124.9 (0.88)
10.0	157.4 (1.11)	152.2 (1.07)	144.7 (1.02)	140.3 (0.99)	135.5 (0.96)	124.9 (0.88)
15.0	161.0 (1.13)	153.6 (1.08)	144.7 (1.02)	140.3 (0.99)	135.5 (0.96)	124.9 (0.88)

NOTE:

- The table shows the normal value of heating operation.
In some cases, the value may change due to the compressor protection control.
- The heating capacity on the table indicates the peak value, which does not include the capacity decrease caused by frost.
- The value on the table shows when the system is operated under the following conditions.
The indoor unit total capacity: 100% of outdoor unit capacity, The total piping length: 7.5m, The height difference: 0m
- In case of the heat recovery system, the value on the table indicates when all the indoor units are operated in heating mode.

6.7 Correction Factor According to Piping Length

< Cooling Capacity >

Correction Factor for Cooling Capacity According to Piping Length

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

$$CCA = CC \times F$$

CCA: Actual Corrected Cooling Capacity

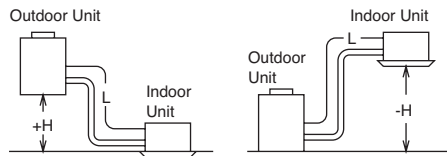
CC: Cooling Capacity in the Performance Table

F: Correction Factor Based on the Equivalent Piping Length

The correction factors are shown in the following figure.

Equivalent Piping Length for

- One 90° Elbow is 0.5m.
- One 180° Bend is 1.5m.
- One Multi-Kit is 0.5m.



H: Vertical Distance Between Indoor Unit and Outdoor Unit in Meters

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

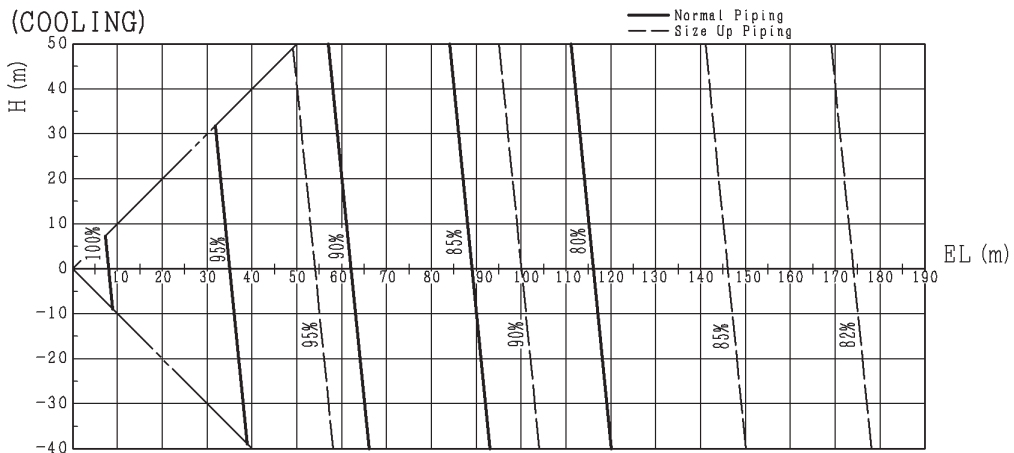
H>0: Position of Outdoor Unit Higher Than Position of Indoor Unit

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

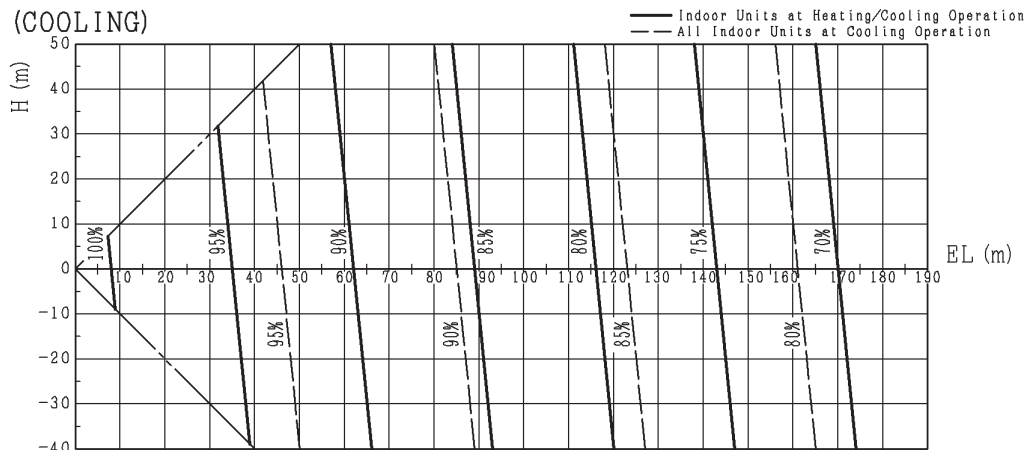
NOTE:

1. If EL is more than 100m in Heat Pump System (2 Pipes Type), increase both Liquid Pipe and Gas Pipe by 1 size.
2. If EL is more than 100m in Heat Recovery System (3 Pipes Type), increase Liquid Pipe by 1 size.
3. In Heat Recovery System (3 Pipes Type), the dotted line for cooling capacity correction factor indicates that all the indoor units are operated at cooling mode. Even if one of the indoor units is operated at heating mode, the value will be indicated by the solid line.

• Heat Pump System (2 Pipes)



• Heat Recovery System (3 Pipes)



< Heating Capacity >

Correction Factor for Heating Capacity According to Piping Length

The heating capacity should be corrected according to the following formula:

$$HCA = HC \times F$$

HCA: Actual Corrected Heating Capacity

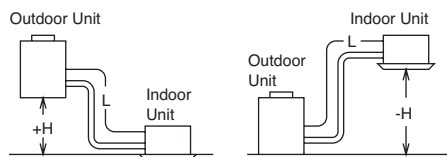
HC: Heating Capacity in the Performance Table

F: Correction Factor Based on the Equivalent Piping Length

The correction factors are shown in the following figure.

Equivalent Piping Length for

- One 90° Elbow is 0.5m.
- One 180° Bend is 1.5m.
- One Multi-Kit is 0.5m.



H: Vertical Distance Between Indoor Unit and Outdoor Unit in Meters

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

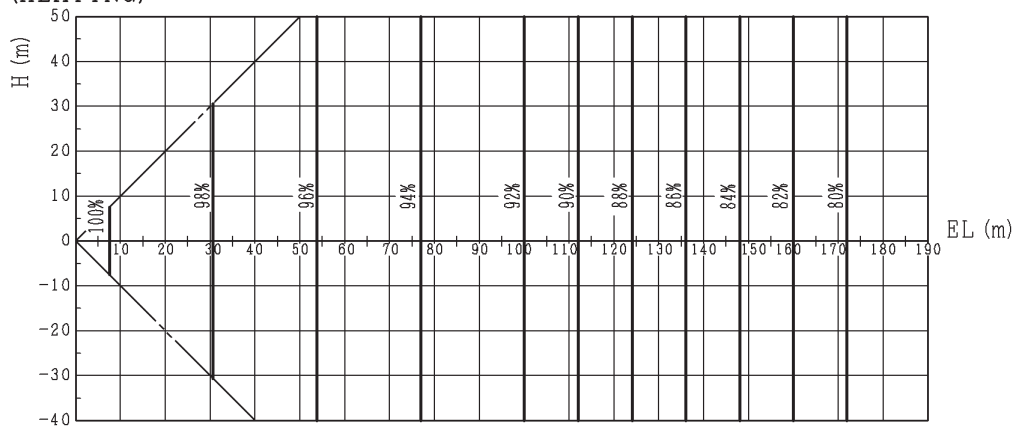
L: Actual One-Way Piping Length Between Indoor Unit and Outdoor Unit in Meters

NOTE:

1. If EL is more than 100m in Heat Pump System (2 Pipes Type), increase both Liquid Pipe and Gas Pipe by 1 size.
2. If EL is more than 100m in Heat Recovery System (3 Pipes Type), increase Liquid Pipe by 1 size.

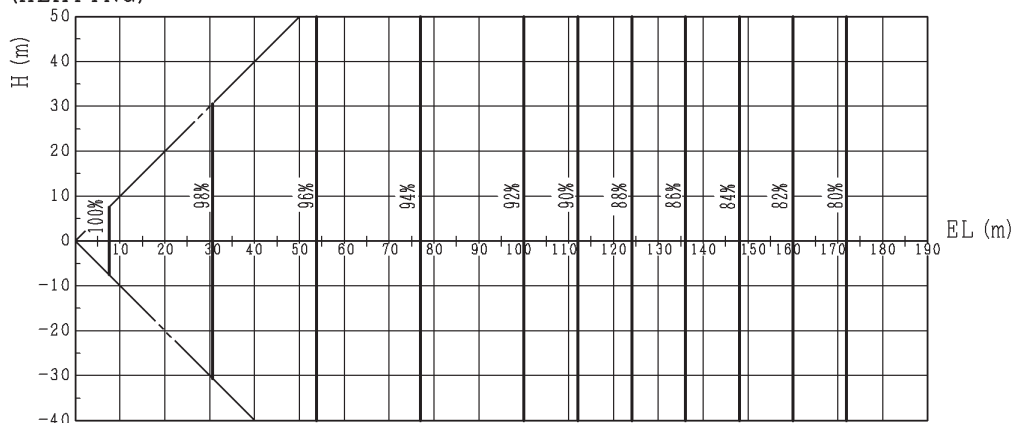
• Heat Pump System (2 Pipes)

(HEATING)



• Heat Recovery System (3 Pipes)

(HEATING)



6.8 Correction Factor According to Defrosting Operation

The heating capacity in the preceding paragraph, excludes the condition of the frost or the defrosting operation period.

In consideration of the frost or the defrosting operation, the heating capacity is corrected by the equation below.

$$\text{Corrected Heating Capacity} = \text{Correction Factor} \times \text{Heating Capacity}$$

Outdoor Inlet Air Temp. (°C DB) (Humidity=85% RH)	-7	-5	-3	0	3	5	7
Correction Factor	0.95	0.93	0.88	0.85	0.87	0.90	1.0

NOTE:

The correction factor is not available for the special condition like a snowfall or a operation in a transitional period.

7. Electrical Data

< 380-415V/50Hz >

Model	Unit Main Power			Applicable Voltage		STC	Cooling Operation		Heating Operation		Maximum Current
	VOL	PH	HZ	Maximum	Minimum		RNC	IPT	RNC	IPT	
RAS-8FSXNQ	380/415	3	50	456	342	9/8	9.5/8.7	5.65	9.8/9.0	5.81	16.1
RAS-10FSXNQ						9/8	13.0/11.9	7.65	13.1/12.0	7.76	17
RAS-12FSXNQ						9/8	17.2/15.7	10.18	17.1/15.6	10.12	23
RAS-14FSXNQ						100/91	21.2/19.6	12.25	19.3/18.0	11.30	28
RAS-16FSXNQ						100/91	23.5/21.7	13.74	21.5/19.9	12.60	31
RAS-18FSXNQ						119/109	28.3/26.5	16.60	26.1/23.8	15.30	33
RAS-20FSXNQ						25/23	26.7/24.4	15.83	26.9/24.6	15.93	39.1
RAS-22FSXNQ						111/102	30.7/28.3	17.90	29.1/27.0	17.11	41.1
RAS-24FSXNQ						116/107	34.2/31.5	19.90	32.4/30.0	19.06	46
RAS-26FSXNQ						120/110	38.4/35.3	22.43	36.4/33.6	21.42	49
RAS-28FSXNQ						124/113	42.4/39.2	24.50	38.6/36.0	22.60	55
RAS-30FSXNQ						129/118	44.7/41.3	25.99	40.8/37.9	23.90	59
RAS-32FSXNQ						129/118	47.0/43.4	27.48	43.0/39.8	25.20	62
RAS-34FSXNQ						148/135	51.8/48.2	30.34	47.6/43.7	27.90	64
RAS-36FSXNQ						152/139	56.6/53.0	33.20	52.2/47.6	30.60	66
RAS-38FSXNQ						140/128	55.6/51.0	32.61	53.5/49.2	31.54	73
RAS-40FSXNQ						140/128	57.9/53.1	34.10	55.7/51.1	32.84	74
RAS-42FSXNQ						159/146	62.7/57.9	36.96	60.3/55.0	35.54	80
RAS-44FSXNQ						163/149	66.7/61.8	39.03	62.5/57.4	36.72	85
RAS-46FSXNQ						168/154	69.0/63.9	40.52	64.7/59.3	38.02	92
RAS-48FSXNQ						172/157	73.8/68.7	43.38	69.3/63.2	40.72	93
RAS-50FSXNQ						176/161	77.8/72.6	45.45	71.5/65.6	41.90	93
RAS-52FSXNQ						181/165	80.1/74.7	46.94	73.7/67.5	43.20	97
RAS-54FSXNQ						185/170	84.9/79.5	49.80	78.3/71.4	45.90	99

VOL: Rated Unit Power Supply Voltage (Plated)(V)

HZ: Frequency (Hz)

STC: Starting Current (A)

RNC: Running Current (A)

PH: Phase (φ)

IPT: Input (kW)

NOTES:

1. The above compressor data is based on 100% capacity combination of the indoor units at rated operating frequency.
2. The above performance data is based on 7.5m equivalent piping length and 0m piping lift.
3. These data are based on the same conditions as the nominal heating and cooling capacities.
4. The compressor is started by an inverter, resulting in extremely low starting current.

< 380V/60Hz >

Model	Unit Main Power			Applicable Voltage		STC	Cooling Operation		Heating Operation		Maximum Current
	VOL	PH	HZ	Maximum	Minimum		RNC	IPT	RNC	IPT	
RAS-8FSXNQ	380	3	60	418	342	9	9.5	5.65	9.8	5.81	16.1
RAS-10FSXNQ						9	13.0	7.65	13.1	7.76	17
RAS-12FSXNQ						9	17.2	10.18	17.1	10.12	23
RAS-14FSXNQ						100	21.2	12.40	19.2	11.27	28
RAS-16FSXNQ						100	23.5	13.90	21.2	12.50	31
RAS-18FSXNQ						119	28.2	16.70	25.7	15.10	33
RAS-20FSXNQ						25	26.7	15.83	26.9	15.93	39.1
RAS-22FSXNQ						111	30.7	18.05	29.0	17.08	41.1
RAS-24FSXNQ						116	34.2	20.05	32.3	19.03	46
RAS-26FSXNQ						120	38.4	22.58	36.3	21.39	49
RAS-28FSXNQ						124	42.4	24.80	38.4	22.54	55
RAS-30FSXNQ						129	44.7	26.30	40.4	23.77	59
RAS-32FSXNQ						129	47.0	27.80	42.4	25.00	62
RAS-34FSXNQ						148	51.7	30.60	46.9	27.60	64
RAS-36FSXNQ						152	56.4	33.40	51.4	30.20	66
RAS-38FSXNQ						140	55.6	32.76	53.4	31.51	73
RAS-40FSXNQ						140	57.9	34.26	55.4	32.74	74
RAS-42FSXNQ						159	62.6	37.06	59.9	35.34	80
RAS-44FSXNQ						163	66.6	39.28	62.0	36.49	85
RAS-46FSXNQ						168	68.9	40.78	64.0	37.72	92
RAS-48FSXNQ						172	73.6	43.58	68.5	40.32	93
RAS-50FSXNQ						176	77.6	45.80	70.6	41.47	93
RAS-52FSXNQ						181	79.9	47.30	72.6	42.70	97
RAS-54FSXNQ						185	84.6	50.10	77.1	45.30	99

VOL: Rated Unit Power Supply Voltage (Plated)(V)

HZ: Frequency (Hz)

STC: Starting Current (A)

RNC: Running Current (A)

PH: Phase (φ)

IPT: Input (kW)

NOTES:

1. The above compressor data is based on 100% capacity combination of the indoor units at rated operating frequency.
2. The above performance data is based on 7.5m equivalent piping length and 0m piping lift.
3. These data are based on the same conditions as the nominal heating and cooling capacities.
4. The compressor is started by an inverter, resulting in extremely low starting current.

< 220V/60Hz >

Model	Unit Main Power			Applicable Voltage		STC	Cooling Operation		Heating Operation		Maximum Current
	VOL	PH	HZ	Maximum	Minimum		RNC	IPT	RNC	IPT	
RAS-8FSXNQ	220	3	60	242	198	15	17.0	5.82	17.5	6.00	23
RAS-10FSXNQ						15	21.5	7.39	22.3	7.66	29
RAS-12FSXNQ						15	28.6	9.82	30.4	10.42	40
RAS-14FSXNQ						172	37.6	12.46	34.4	11.54	49
RAS-16FSXNQ						172	42.1	14.11	37.9	12.72	55
RAS-18FSXNQ						205	45.0	14.93	43.4	14.55	59
RAS-20FSXNQ						44	45.6	15.64	48.2	16.54	63
RAS-22FSXNQ						192	51.2	17.16	50.5	17.04	67
RAS-24FSXNQ						201	61.5	20.61	58.8	19.91	80
RAS-26FSXNQ						207	64.6	21.73	64.8	21.96	84
RAS-28FSXNQ						214	75.2	24.92	68.8	23.08	98
RAS-30FSXNQ						222	79.7	26.57	72.3	24.26	104
RAS-32FSXNQ						222	84.2	28.22	75.8	25.44	109
RAS-34FSXNQ						255	87.1	29.04	81.3	27.27	113
RAS-36FSXNQ						262	90.0	29.86	86.8	29.10	117
RAS-38FSXNQ						242	98.3	33.25	89.6	30.45	128
RAS-40FSXNQ						242	99.3	33.75	98.7	33.56	129
RAS-42FSXNQ						275	105.3	35.60	106.0	36.05	138
RAS-44FSXNQ						282	115.4	38.58	110.6	37.36	150
RAS-46FSXNQ						290	124.7	41.85	115.8	39.08	162
RAS-48FSXNQ						297	125.9	42.09	118.1	39.85	164
RAS-50FSXNQ						304	127.6	42.32	115.8	38.84	166
RAS-52FSXNQ						312	132.1	43.97	119.3	40.02	172
RAS-54FSXNQ						320	135.0	44.79	122.1	40.95	176

VOL: Rated Unit Power Supply Voltage (Plated)(V)

HZ: Frequency (Hz)

STC: Starting Current (A)

RNC: Running Current (A)

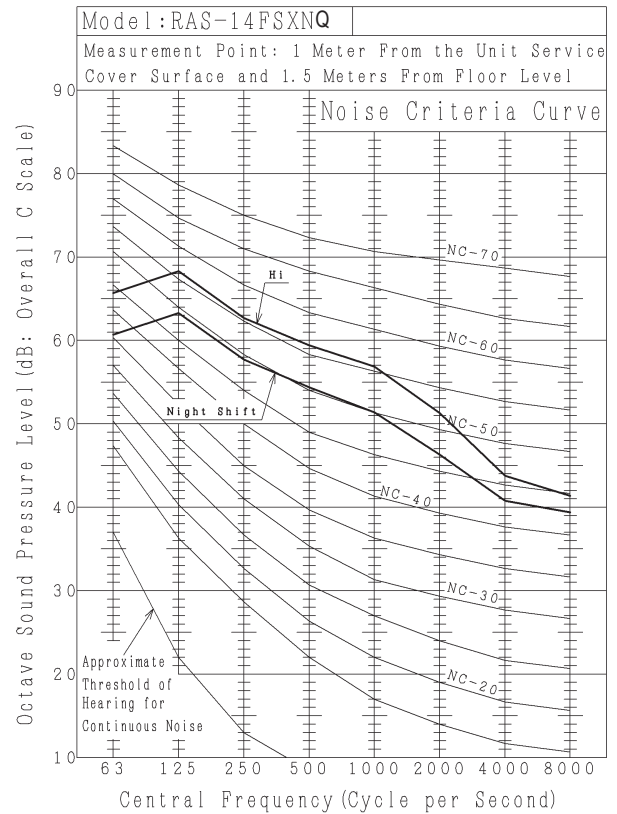
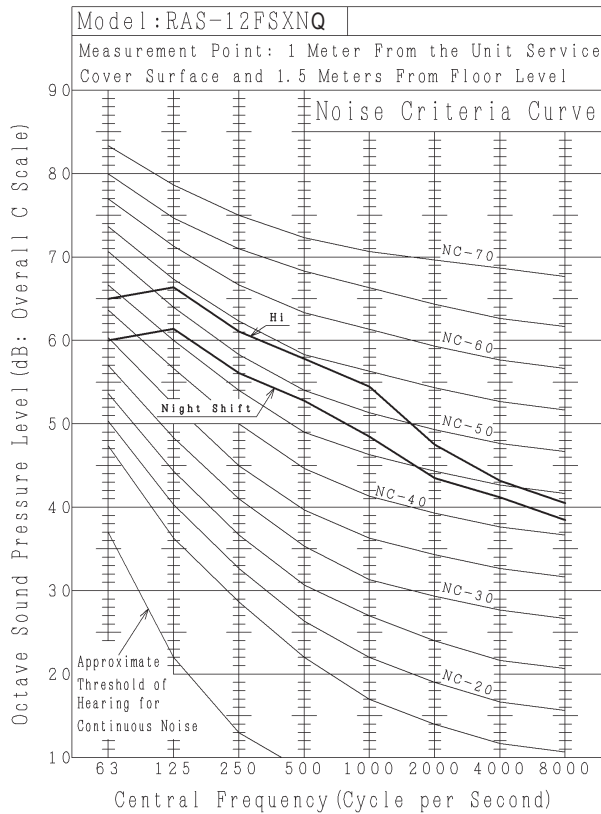
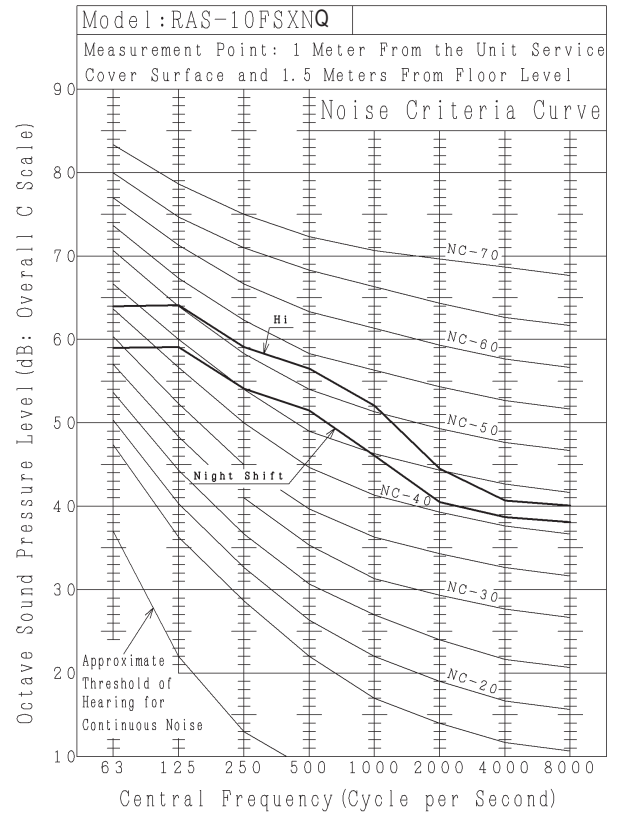
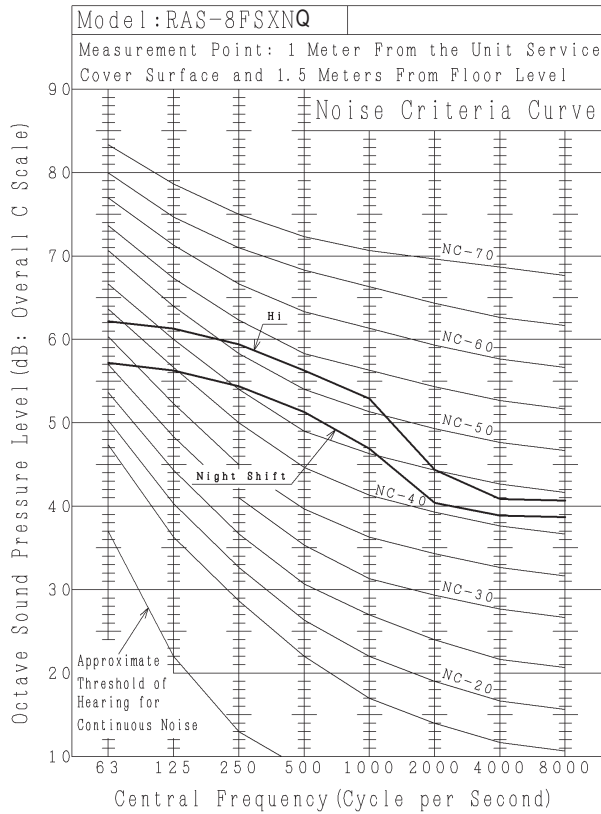
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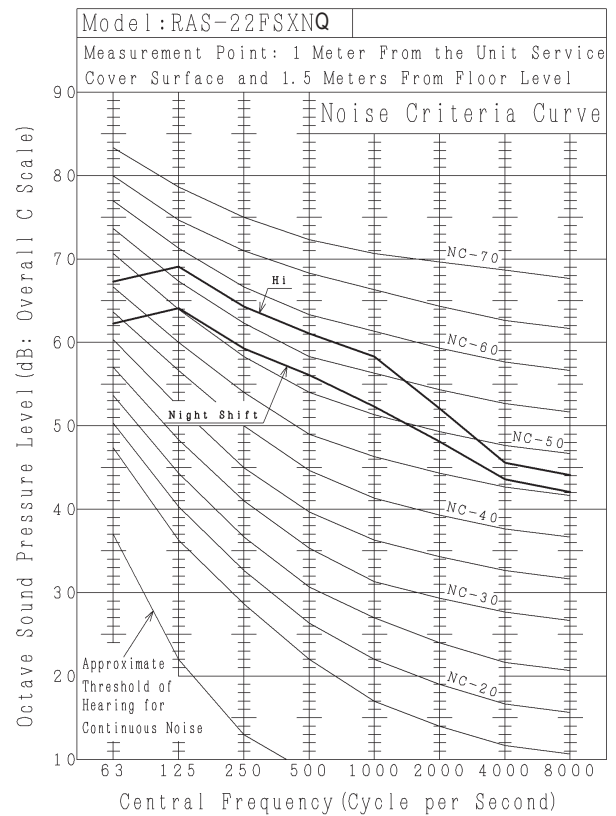
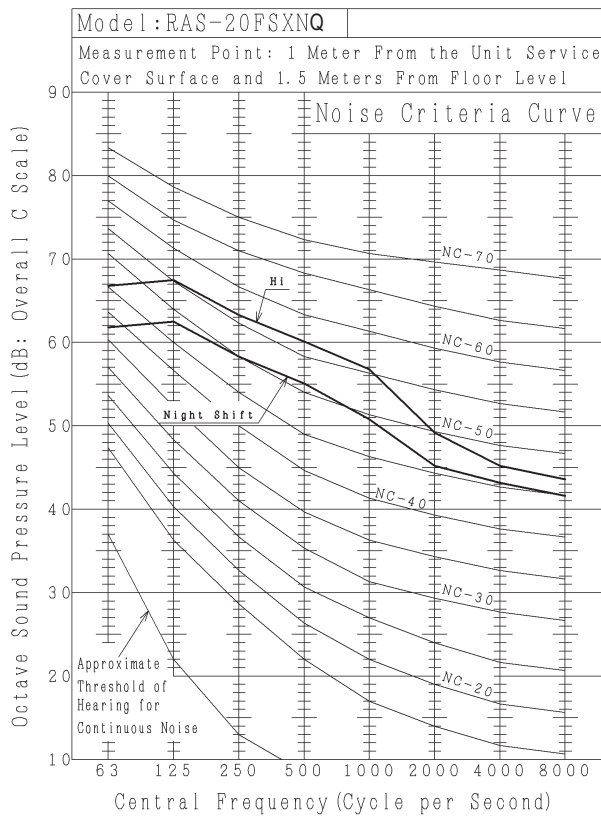
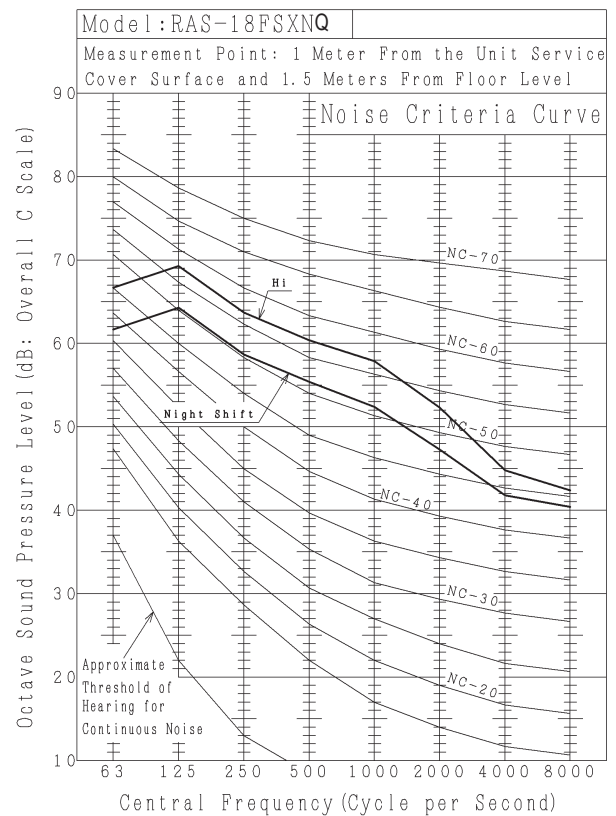
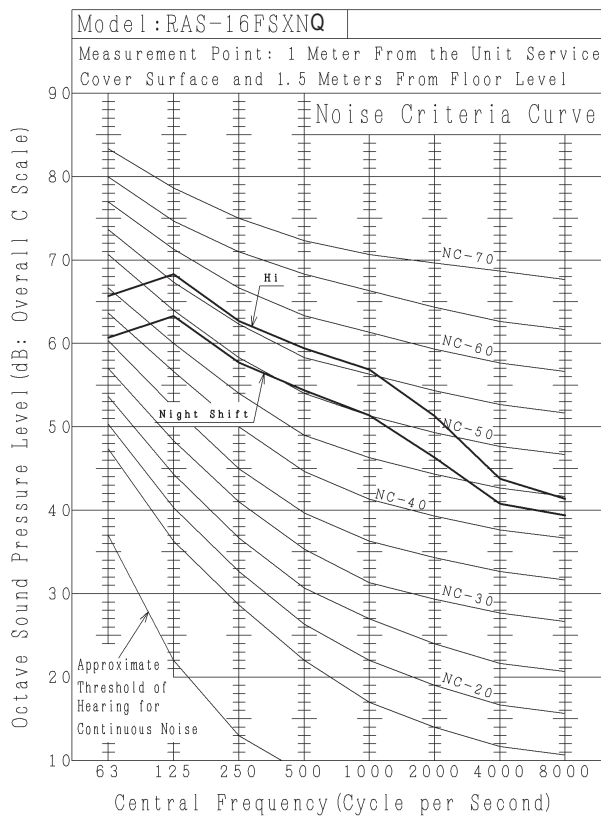
IPT: Input (kW)

NOTES:

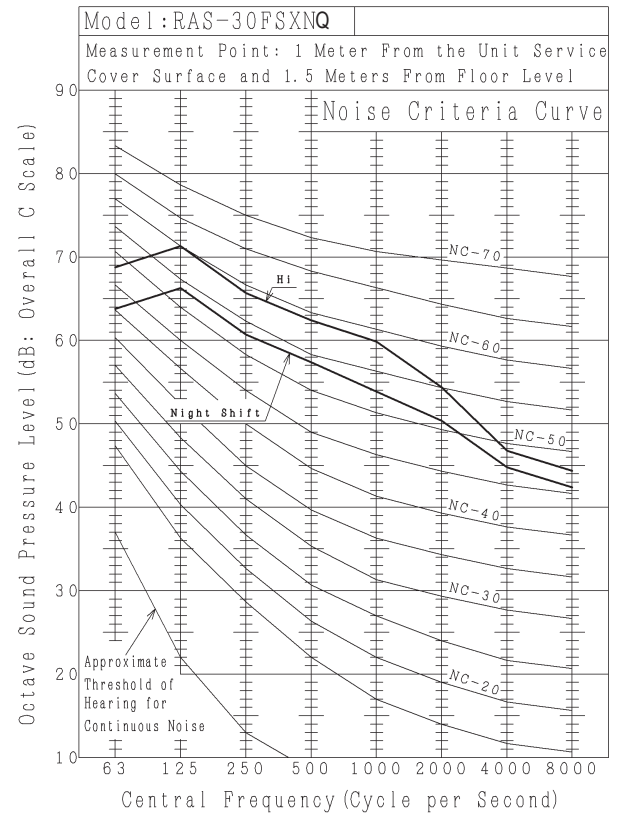
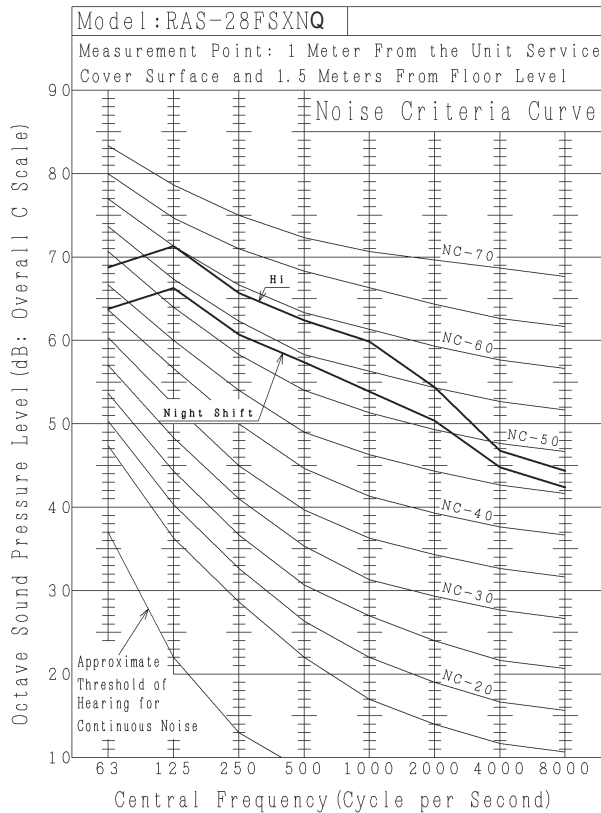
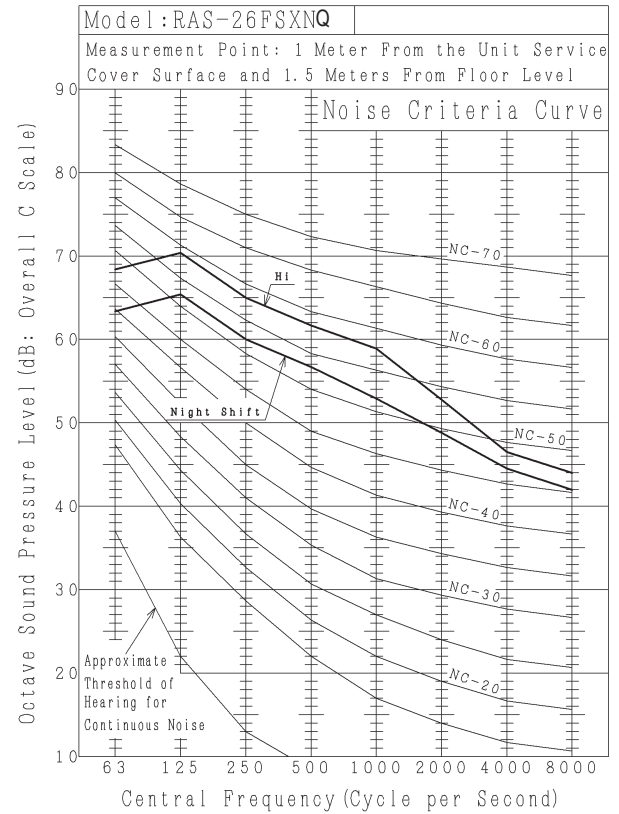
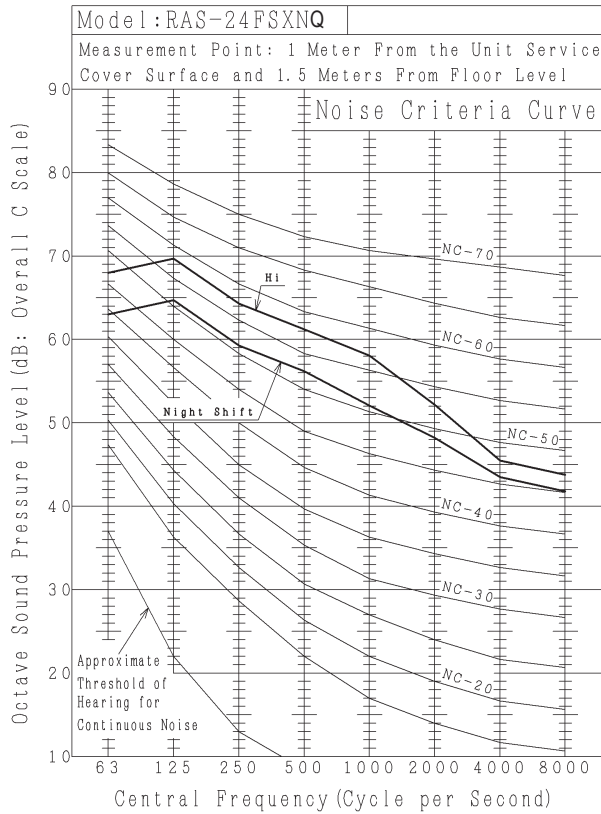
1. The above compressor data is based on 100% capacity combination of the indoor units at rated operating frequency.
2. The above performance data is based on 7.5m equivalent piping length and 0m piping lift.
3. These data are based on the same conditions as the nominal heating and cooling capacities.
4. The compressor is started by an inverter, resulting in extremely low starting current.

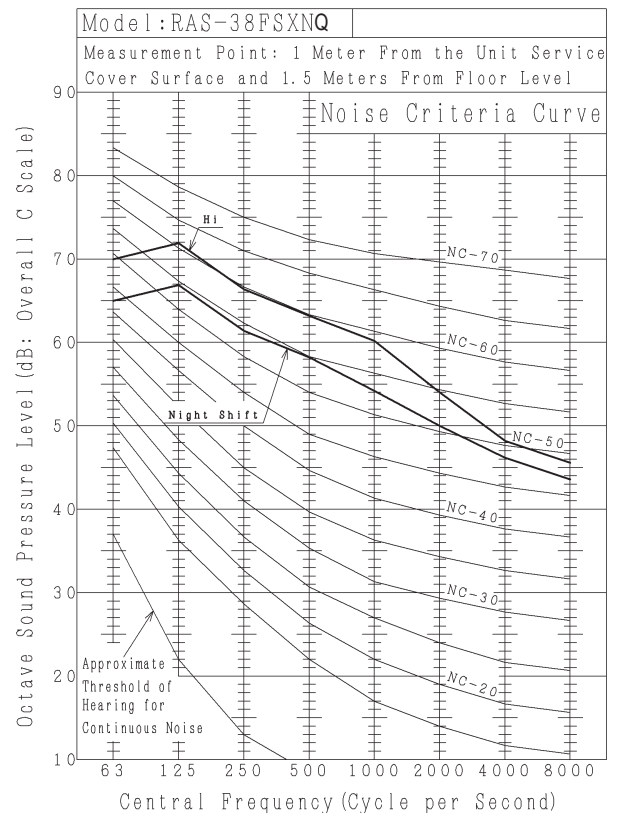
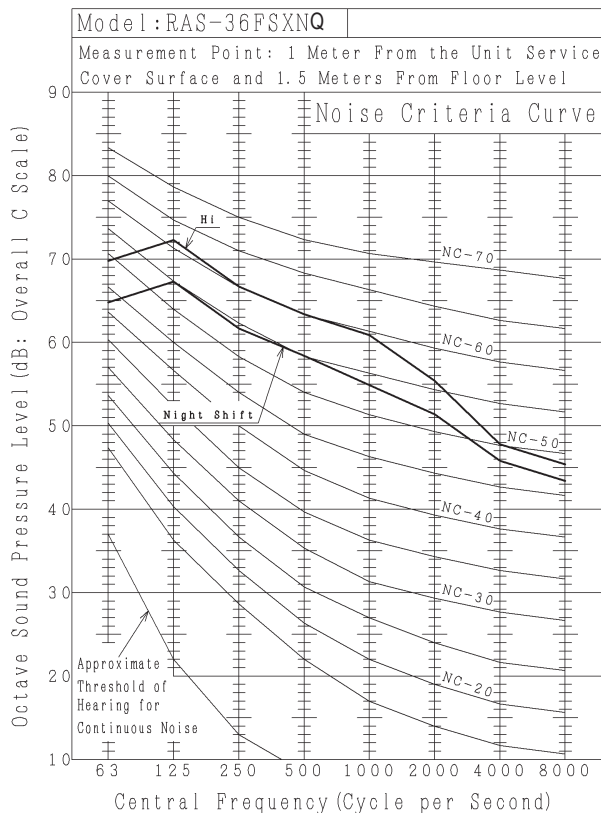
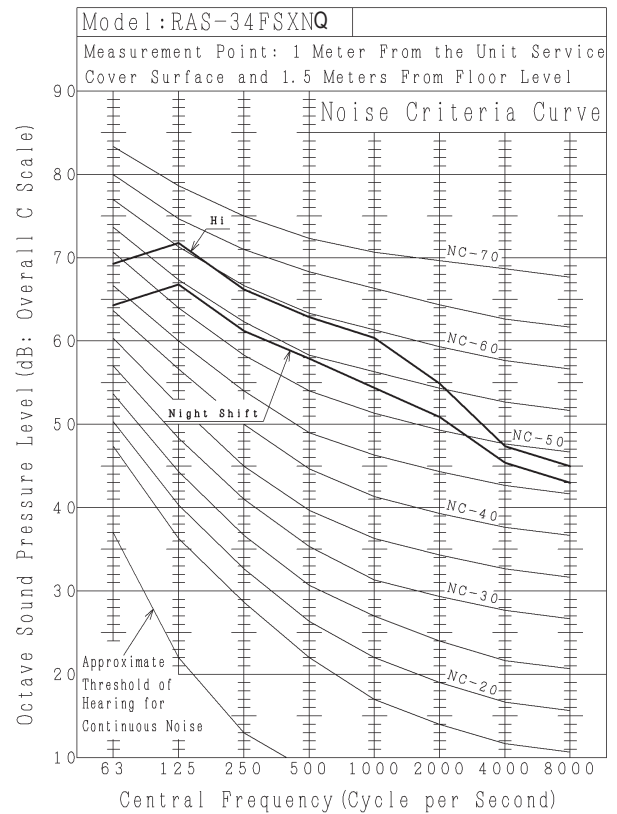
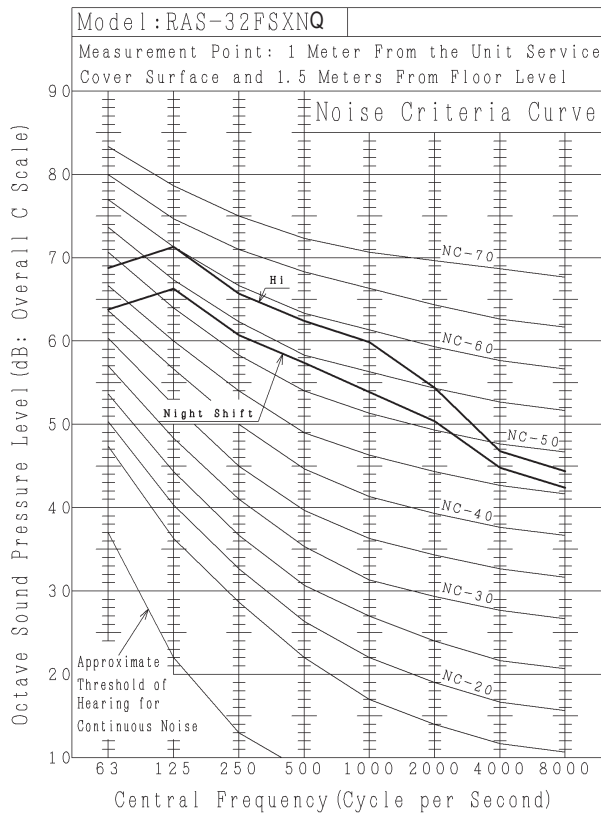
8. Sound Data



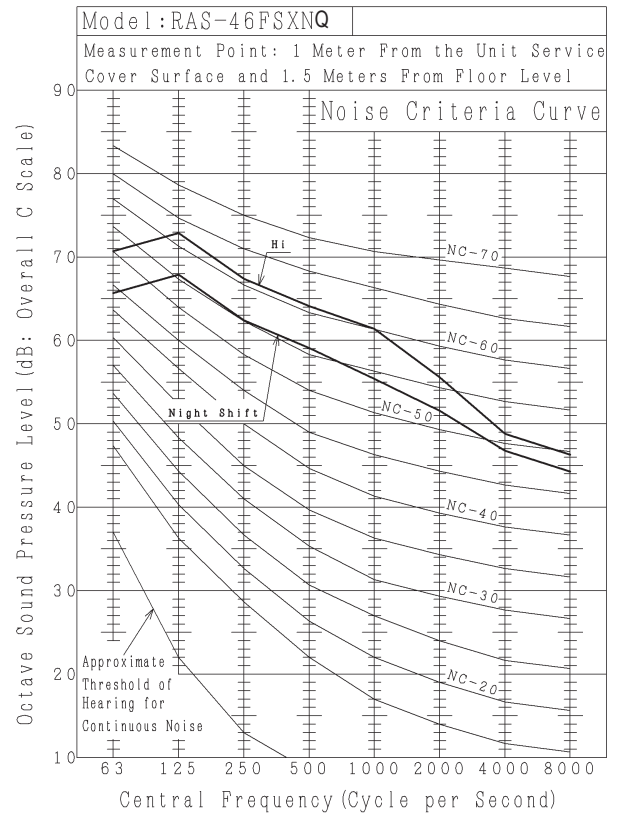
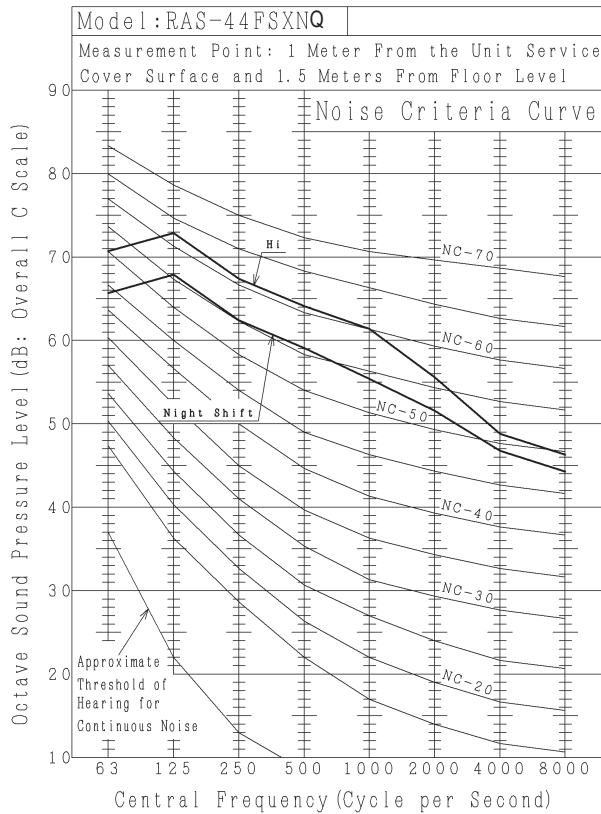
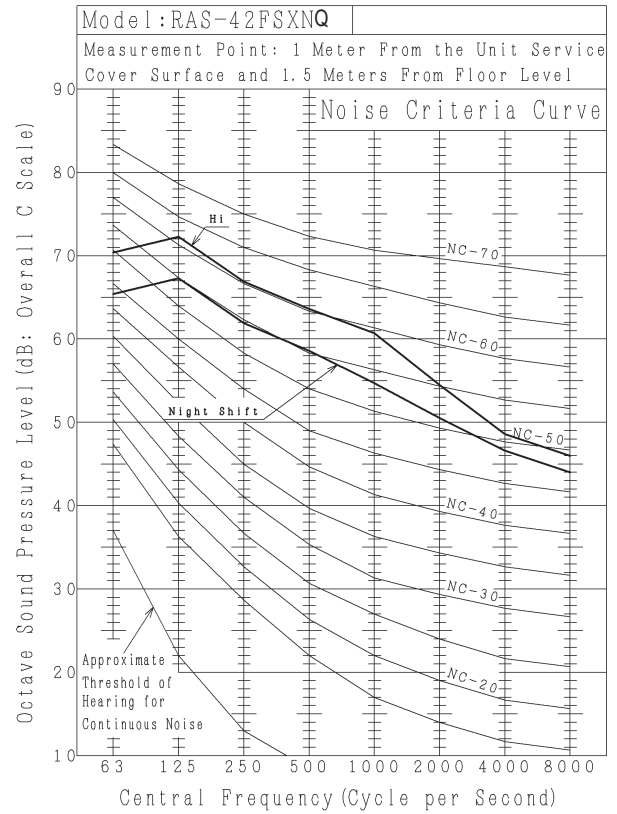
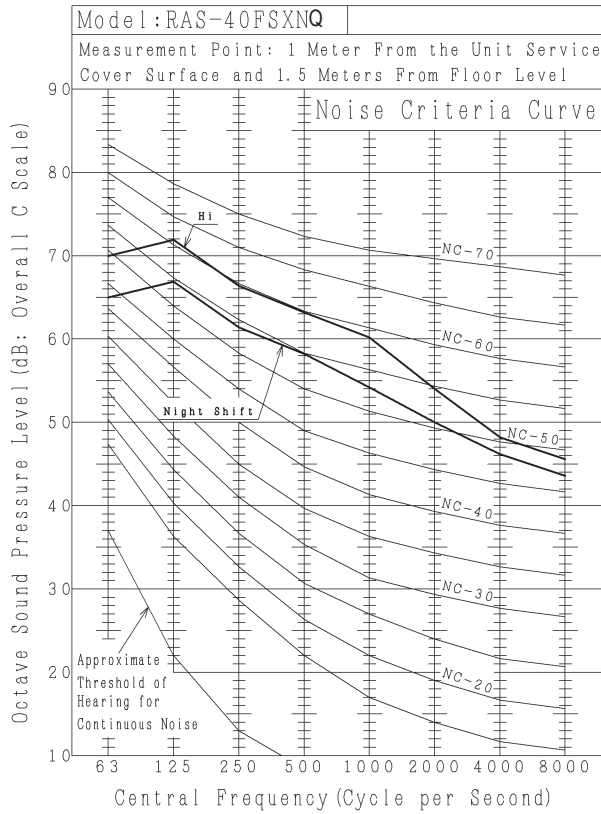


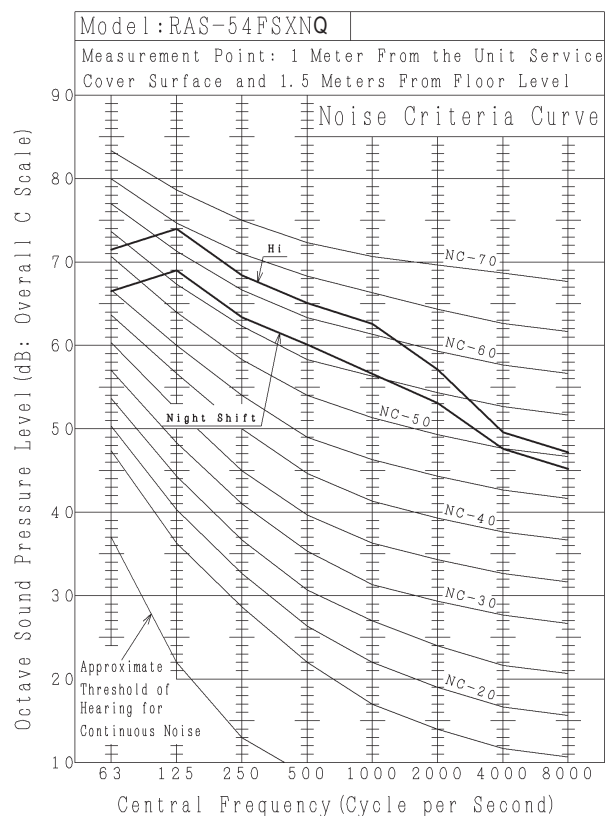
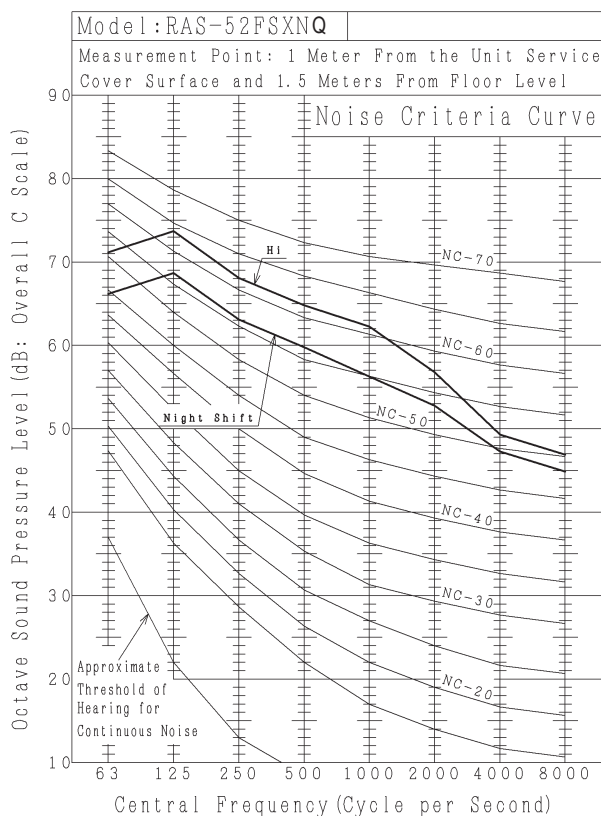
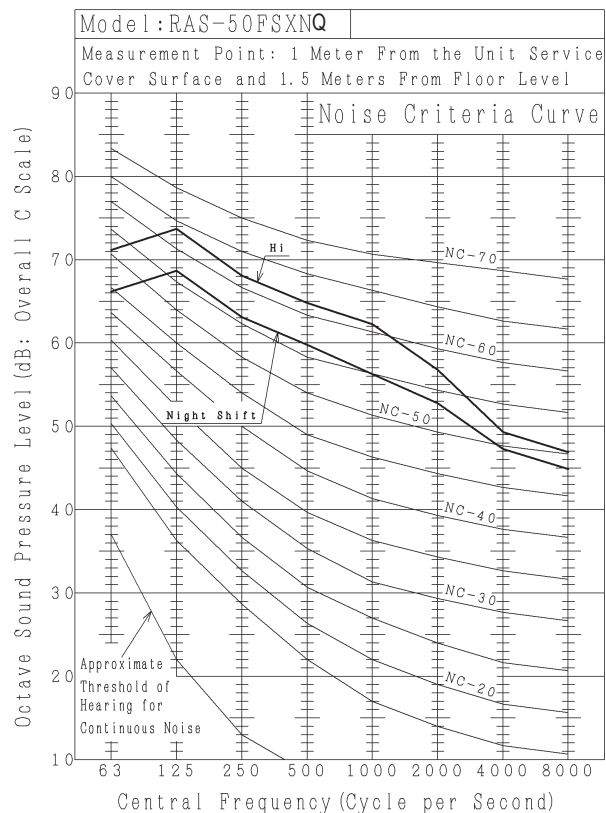
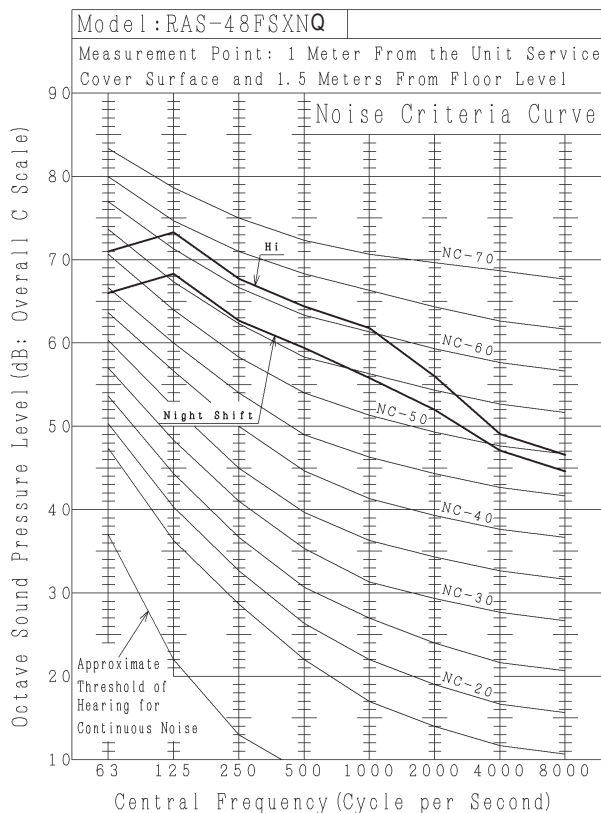
SOUND DATA



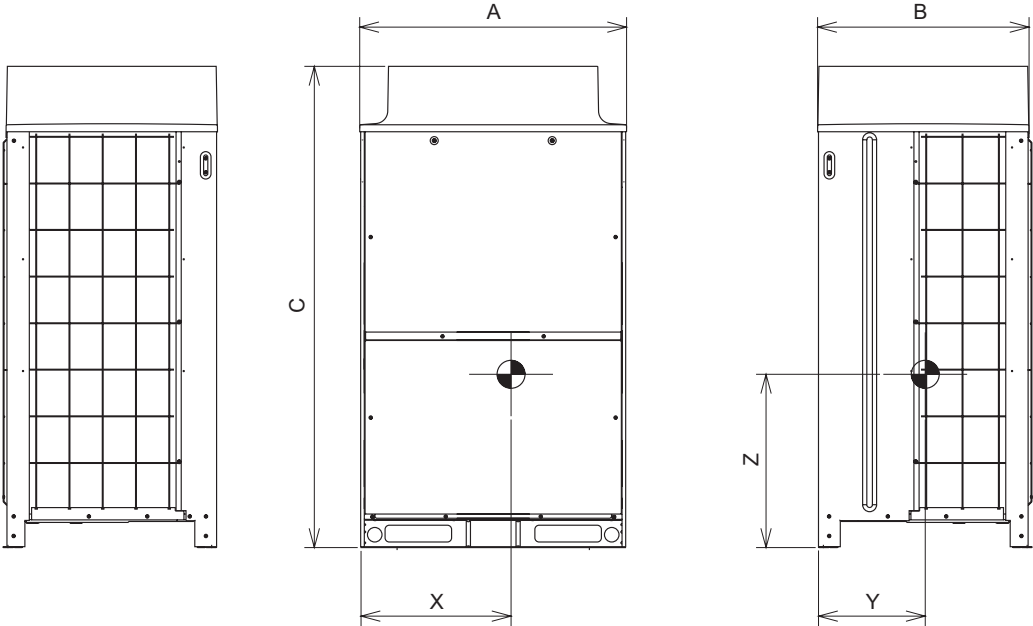


SOUND DATA





9. Center of Gravity



Model	Net Weight (kg)	Center of Gravity (mm)			Outer Dimensions (mm)		
		X	Y	Z	A	B	C
RAS-8FSXNQ	209	470	310	630	950	765	1720
RAS-10FSXNQ	211						
RAS-12FSXNQ	229						
RAS-14FSXNQ	294	540	295	575	1210	765	1720
RAS-16FSXNQ	308						
RAS-18FSXNQ	314	540	305	590			

10. Working Range

Power Supply

Working Voltage: 90% to 110% of the Rated Voltage

Voltage Imbalance: Within a 3% Deviation from Each Voltage at the Main Terminal of Outdoor Unit

Starting Voltage: Higher than 85% of the Rated Voltage

Following the Council Directive 89/336/EEC and its amendments 92/31/EEC and 93/68/EEC, relating to electromagnetic compatibility, the following table indicates maximum permissible system impedance Z_{max} at the interface point of the user's supply, in accordance with EN61000-3-11.

Outdoor Unit	Z_{max} (Ω)
RAS-8FSXNQ	-
RAS-10FSXNQ	-
RAS-12FSXNQ	-
RAS-14FSXNQ	0.11
RAS-16FSXNQ	0.11
RAS-18FSXNQ	0.08

Temperature Range

The temperature range are given in the following table.

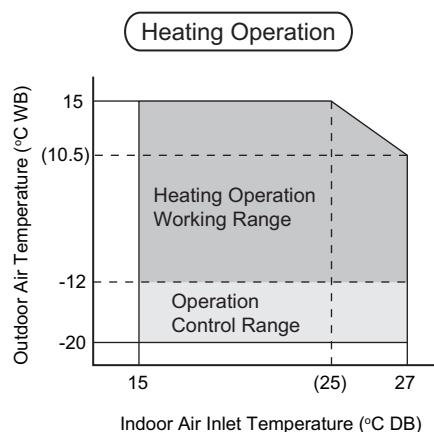
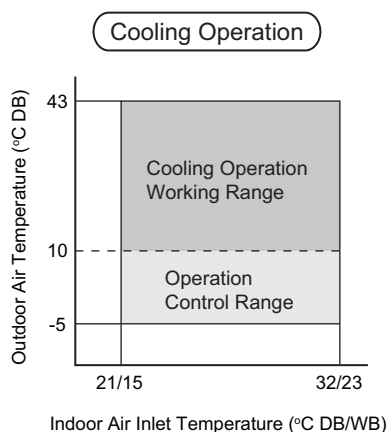
		Cooling Operation	Heating Operation
Indoor Temperature	Minimum	21°C DB / 15°C WB	15°C DB
	Maximum	32°C DB / 23°C WB	27°C DB
Outdoor Temperature	Minimum	-5°C DB (*)	-20°C WB (**)
	Maximum	43°C DB	15°C WB

DB: Dry Bulb, WB: Wet Bulb

NOTES:

(*) 10°C DB ~ -5°C DB, Operation Control Range

(**) -12°C WB ~ -20°C WB, Operation Control Range



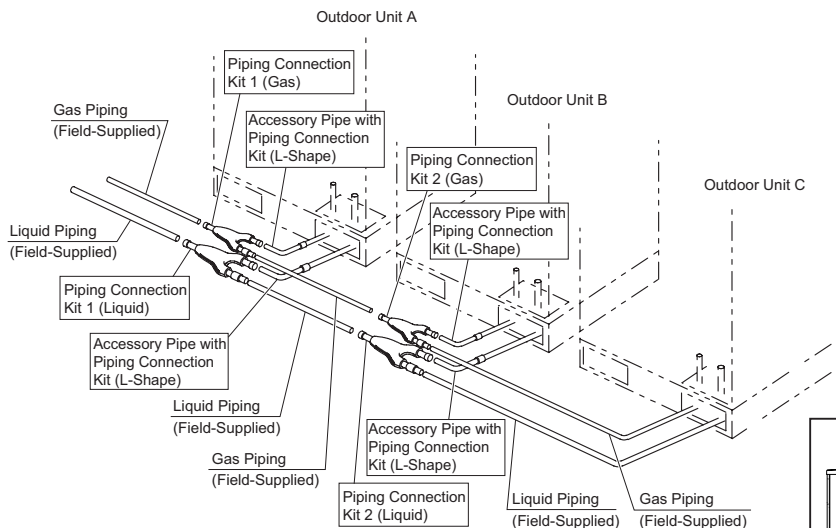
11. Optional Accessories

11.1 Piping Connection Kit

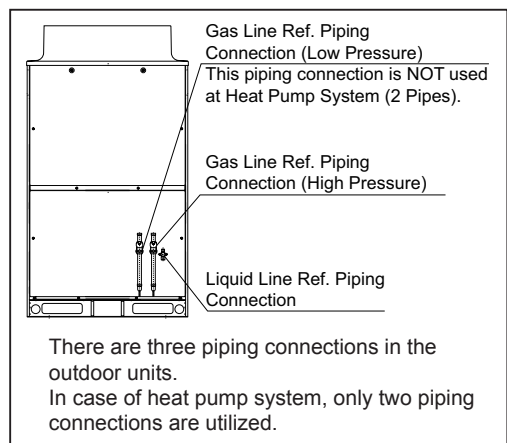
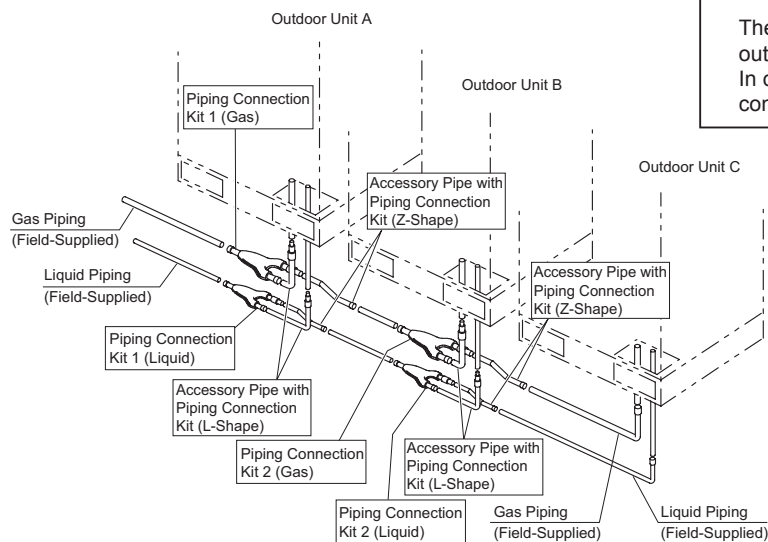
Item	Operation Type	Applicable Outdoor Unit		Model	Remarks
		Outdoor Unit HP	Outdoor Unit Number		
Piping Connection Kit	for Heat Pump Type	20 to 24	2	M-20SNQ	2 Pipes Type * for Gas * for Liquid
		26 to 36	2	M-30SNQ	
		38 to 54	3	M-30SNQ + M-30SNQ	
	for Heat Recovery Type	20 to 24	2	M-20XNQ	3 Pipes Type * for High Pressure Gas * for Low Pressure Gas * for Liquid
		26 to 36	2	M-21XNQ	
		38 to 54	3	M-30XNQ + M-30XNQ	

● Construction Example (In Case of 36HP: 2 Pipes Type)

< Front Side or Rear Side Piping Connection >



< Downward Piping Connection >



11.2 Multi-Kit

● Multi-Kit for Heat Pump System

< Line Branch >

First Branch

Outdoor Unit HP	Model
8 and 10	E-102SN
12 to 16	E-162SN
18 to 24	E-242SN
26 to 54	E-302SN

Pipe Diameter and Multi-Kit after First Branch

Total Indoor Unit HP	Gas (φmm)	Liquid (φmm)	Model
Lower than 6	15.88	9.53	E-102SN
6 to 8.99	19.05	9.53	
9 to 11.99	22.2	9.53	
12 to 15.99	25.4	12.7	E-162SN
16 to 17.99	28.6	12.7	
18 to 25.99	28.6	15.88	E-242SN
26 to 35.99	31.75	19.05	E-302SN
Over 36	38.1	19.05	

● Multi-Kit for Heat Recovery System

< Line Branch >

First Branch

Outdoor Unit HP	Model
8 and 10	M-282XNQ
12 to 16	M-452XNQ
18 and 24	M-562XNQ
26 and 36	M-692XNQ
38 to 54	M-902XNQ

Pipe Diameter and Multi-Kit after First Branch *

Total Indoor Unit HP	Low Pressure Gas (φmm)	High Pressure Gas (φmm)	Liquid (φmm)	Model
Lower than 6	15.88	12.7	9.53	M-142XNQ
6 to 8.99	19.05	15.88	9.53	M-282XNQ
9 to 11.99	22.2	19.05	9.53	
12 to 15.99	25.4	22.2	12.7	M-452XNQ
16 to 17.99	28.6	22.2	12.7	M-562XNQ
18 to 21.99	28.6	22.2	15.88	
22 to 25.99	28.6	25.4	15.88	M-692XNQ
26 to 35.99	31.75	28.6	19.05	
Over 36	38.1	31.75	19.05	M-902XNQ

* If the piping branch at 2 pipes portion is necessary, use multi-kit of E-102SN, E-162SN, E-242SN for heat pump type.

11.3 Drain Boss

The drain boss is for the drain pipe connection in order to use outdoor unit bottom base as a drain pan.

Name	Model
Drain Boss	DBS-26

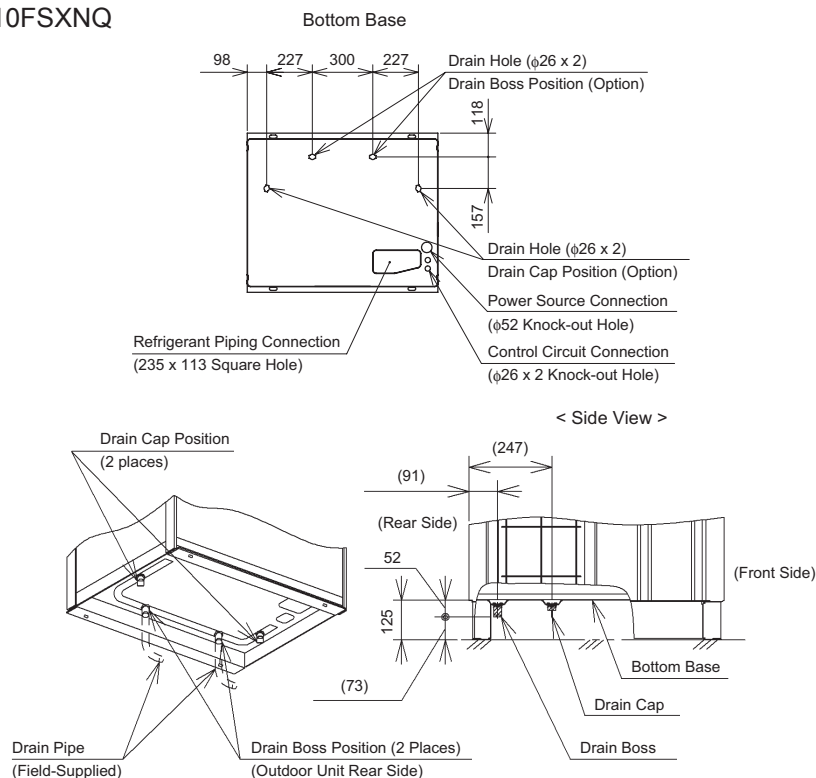
Component Formation of Drain Boss

Model	Parts Name	Material / Color	Q'ty	Application
DBS-26	Drain Boss	PP / Black	2	Connecting for Drain Piping
	Drain Cap	PP / Black	2	Embolization for Drain Hole
	Rubber Cap	CR / Black	4	Sealing for Boss and Cap

OPTIONAL ACCESSORIES

< Installation Position >

Example: RAS-10FSXNQ



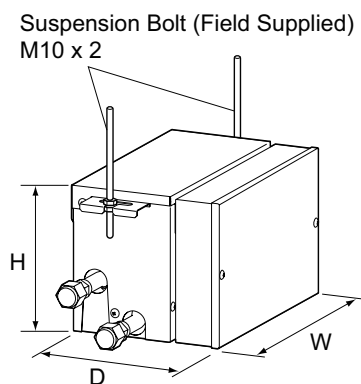
< Drain Water Treatment >

Drain water is discharged during heating and defrosting operation. (Rain water is also discharged.) Pay attention to the followings.

- (1) Choose a place where well drainage is available or provide a drain ditch.
- (2) Do not install the unit over the walkways. Condensation water may fall on people. In case of installing the unit in such a place, provide the additional drain pan.
- (3) Do not use drain boss in the cold area. The drain water in the drain pipe may be frozen and then the drain pipe may crack.

11.4 CH Unit

Models: CH-6.0N1 and CH-10.0N1



Model	Specifications		Indoor Unit Connection	
	Dimension W x D x H (mm)	Net Weight (kg)	Total HP	Number of Indoor Units T
CH-6.0N1	301 x 214 x 191	7	6HP ≥	1 ~ 7
CH-10.0N1			6.1HP to 10HP	1 ~ 8

* When multiple indoor units are connected to same CH unit, they are controlled with same operation mode.

NOTE:

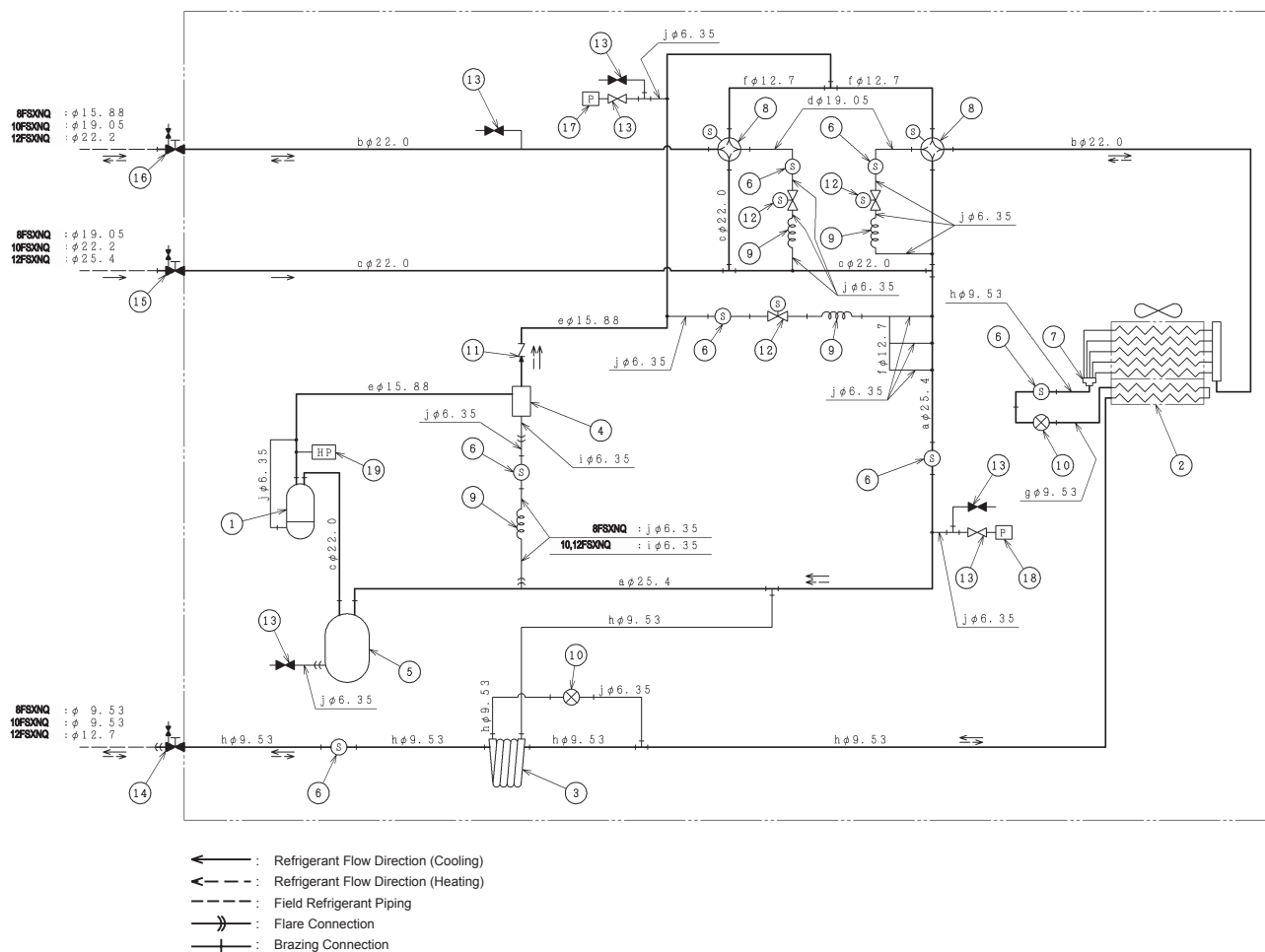
When switching the refrigerant flow channel at Operation ON/OFF, Thermo ON/OFF, Defrost Operation and Operation Mode, refrigerant flow noise may be heard from CH Unit. Therefore install the unit in a place such as under the roof of corridor so that the sound may not be heard in the room.

12. Control System

12.1 Refrigeration Cycle

12.1.1 Outdoor Units

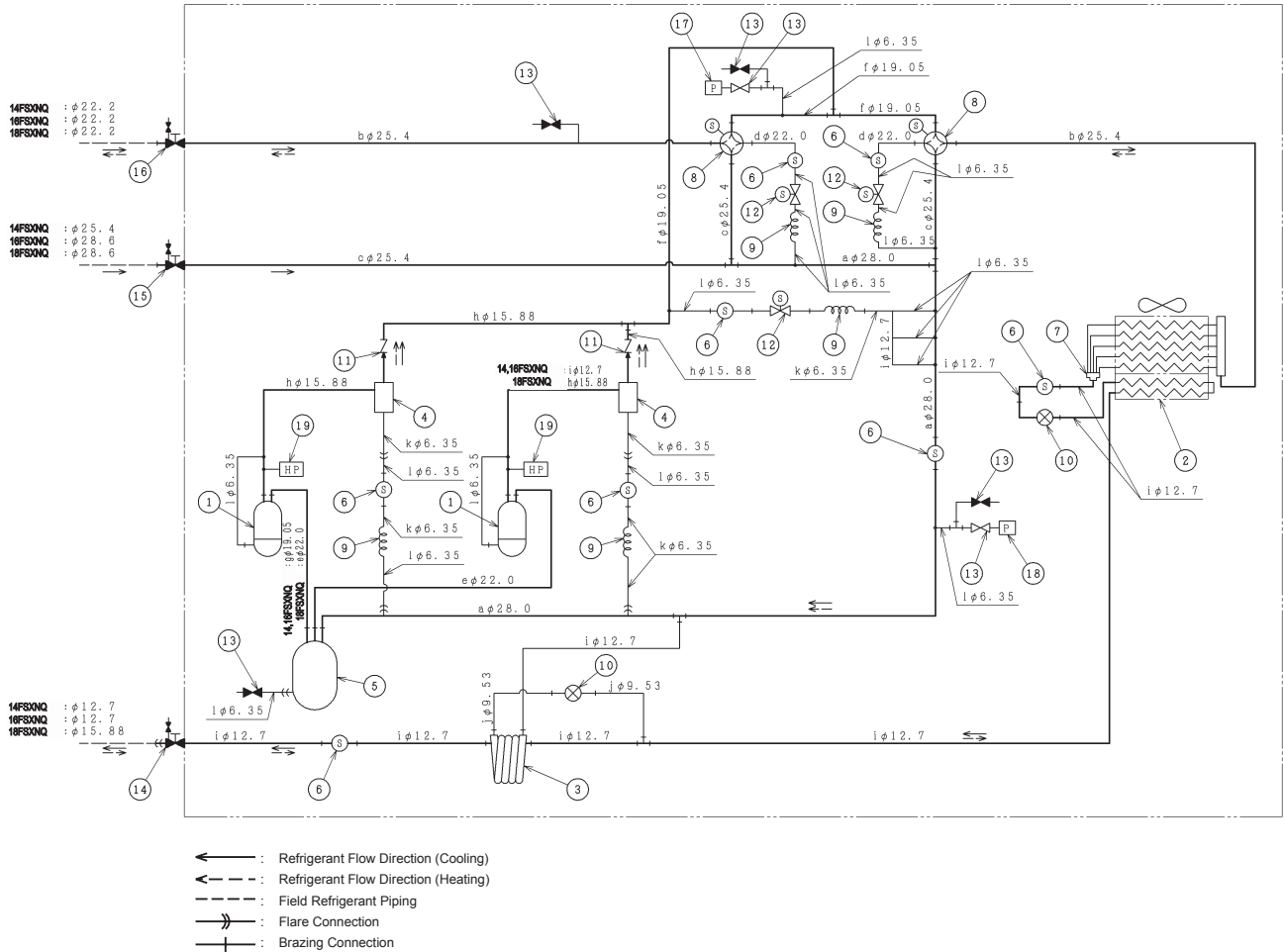
Model: RAS-8FSXNQ, RAS-10FSXNQ and RAS-12FSXNQ



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	Micro-Computer Control Expansion Valve
11	Check Valve
12	Solenoid Valve
13	Check Joint
14	Stop Valve for Liquid Line
15	Stop Valve for Gas (Low) Line
16	Stop Valve for Gas (High) Line
17	Sensor for Refrigerant Pressure (High Pressure Sensor)
18	Sensor for Refrigerant Pressure (Low Pressure Sensor)
19	High Pressure Switch for Protection

Mark	OD x T	Material
a	25.4 x 1.2	C1220T-O
b	22.0 x 1.5	
c	22.0 x 1.2	
d	19.05 x 1.42	
e	15.88 x 1.2	
f	12.7 x 1.0	
g	9.53 x 1.0	
h	9.53 x 0.8	
i	6.35 x 1.07	
j	6.35 x 0.7	

Model: RAS-14FSXNQ, RAS-16FSXNQ and RAS-18FSXNQ

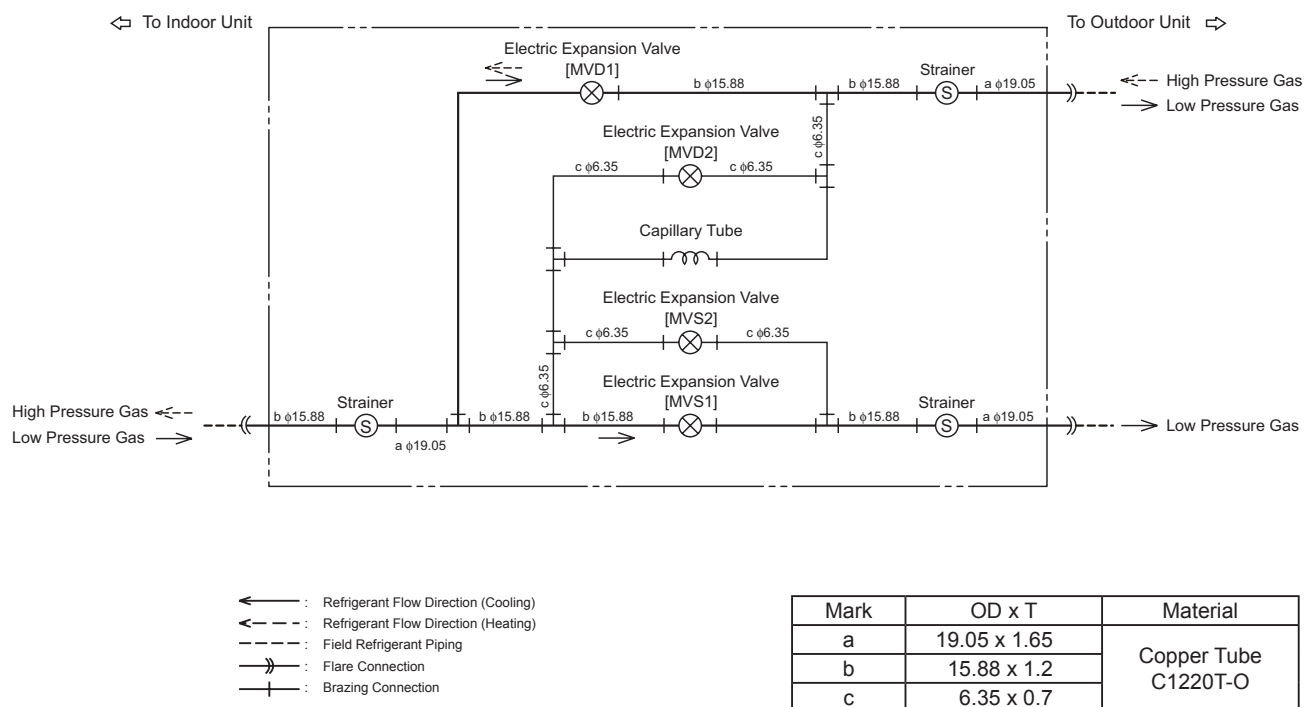


Mark	Part Name
1	Compressor
2	Heat Exchanger
3	Double Tube Type Heat Exchanger
4	Oil Separator
5	Accumulator
6	Strainer
7	Distributor
8	Reversing Valve
9	Capillary Tube
10	Micro-Computer Control Expansion Valve
11	Check Valve
12	Solenoid Valve
13	Check Joint
14	Stop Valve for Liquid Line
15	Stop Valve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

Mark	OD x T	Material
a	28.0 x 1.6	C1220T-O
b	25.4 x 1.8	
c	25.4 x 1.2	
d	22.0 x 1.5	
e	22.0 x 1.2	
f	19.05 x 1.42	
g	19.05 x 1.2	
h	15.88 x 1.2	
i	12.7 x 1.0	
j	9.53 x 0.8	
k	6.35 x 1.07	
l	6.35 x 0.7	

12.1.2 CH Units

Model: CH-6.0N1 and CH-10.0N1



NOTE:

The mark of inside “[]” is shown in the electrical wiring diagram.

12.2 Control System

■ Cycle Control

Control Device	Control				
	Cooling Operation		Heating Operation, Heat Recovery System		Defrosting
	Purpose of Control	Contents	Purpose of Control	Contents	Contents
Inverter Frequency of Compressor	Total I.U. Operating Capacity	Capacity control is carried out to achieve the targeted value of evaporating temperature.	Total I.U. Operating Capacity	PI control is carried out to achieve the targeted value of Pd.	All of the compressors: ON
Electronic Expansion Valve for O.U. Heat Exchanger	Capacity Control	Fully open (Electronic expansion valve opening is depending on the refrigerant cycle condition.)	Condenser <COND> Capacity Control	Condenser <COND> Fully Open (Electronic expansion valve opening is depending on the refrigerant cycle condition.)	Fully open
			Evaporator <EVAP> O.U. Heat Exchanger SH	Evaporator <EVAP> PI control is carried out to achieve the targeted value of O.U. heat exchanger SH.	
Electronic Expansion Valve for Super Cooling Heat Exchanger	TdSH Control	Control Td SH of compressor to achieve the targeted value.	TdSH Control	Control Td SH of compressor to achieve the targeted value.	TdSH Control
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.	<Cooling Setting> I.U. Heat Exchanger SH	<Cooling Setting> PI control is carried out to achieve the targeted value of I.U. heat exchanger SH.	I.U. Heat Exchanger SH Control
			<Heating Setting> I.U. Heat Exchanger SC	<Heating Setting> Control super cooling of I.U. liquid thermistor to achieve the targeted value.	
Outdoor Fan	Pd Control	PI control is carried out to achieve the targeted value of Pd.	Condenser <COND> Pd Control	Condenser <COND> PI control is carried out to achieve the targeted value of Pd.	Stop
			Evaporator <EVAP> Fixing by Ambient Temperature and Operating Capacity	Evaporator <EVAP> Fan rotation is controlled by ambient temperature and I.U. operating capacity.	
Gas Bypass Valve (SVA)	1. Pd Increase Protection 2. Ps Decrease Protection	1. Pd>3.6MPa: ON 2. Ps<0.15MPa: ON	1. Pd Increase Protection 2. Ps Decrease Protection	1. Pd>3.6MPa: ON 2. Ps<0.15MPa: ON	Closed
High and Low Pressure Shut-off Valve (SVG)	Shut-off of High and Low Pressure Inside Cycle during Stoppage	Compressor Run: ON Compressor Stop: OFF	Shut-off of High and Low Pressure inside Cycle during Stoppage	Compressor Run: ON Compressor Stop: OFF	Open

Pd: Discharge Pressure

Ps: Suction Pressure

SH: Superheat

SC: Supercooling

TdSH: Superheat of Discharge Gas 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.

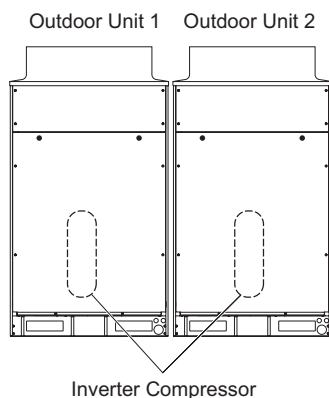
This control is performed during the outdoor unit thermo-OFF.

In the case of switch-OFF or thermo-OFF after 120 minutes of operating time, the inverter compressor with the shortest operating time will operate preferentially.

At least 2 outdoor units are required for this function.

The operating sequence of compressor rotation control is as follows.

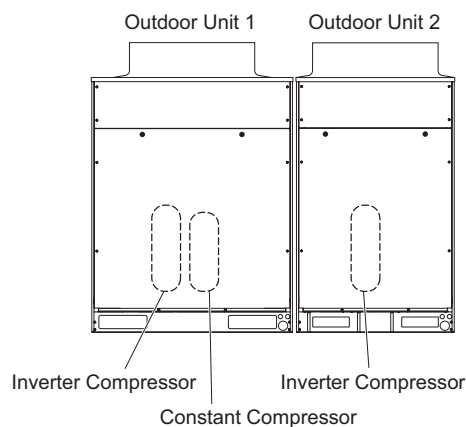
RAS-20FSXNQ



< Compressor Operating Sequence >

	Outdoor Unit 1	Outdoor Unit 2
	Inverter Compressor	
Last Time	1	2
This Time	2	1
Next Time	1	2

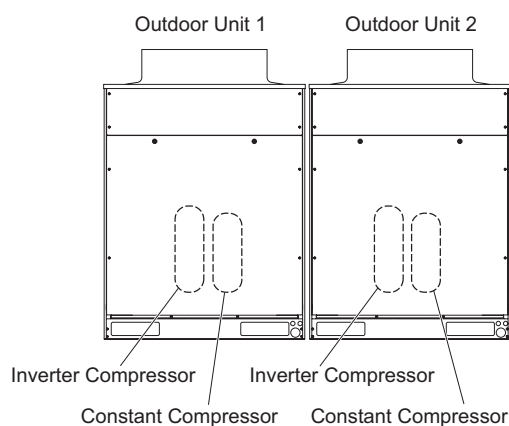
RAS-22FSXNQ to RAS-26FSXNQ



< Compressor Operating Sequence >

	Outdoor Unit 1		Outdoor Unit 2
	Inverter Compressor	Constant Compressor	Inverter Compressor
Last Time	1	3	2
This Time	2	3	1
Next Time	1	3	2

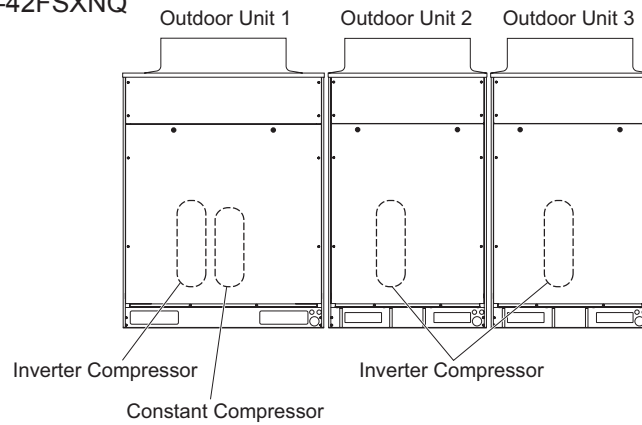
RAS-28FSXNQ to RAS-36FSXNQ



< Compressor Operating Sequence >

	Outdoor Unit 1		Outdoor Unit 2	
	Inverter Compressor	Constant Compressor	Inverter Compressor	Constant Compressor
Last Time	1	3	2	4
This Time	2	4	1	3
Next Time	1	3	2	4

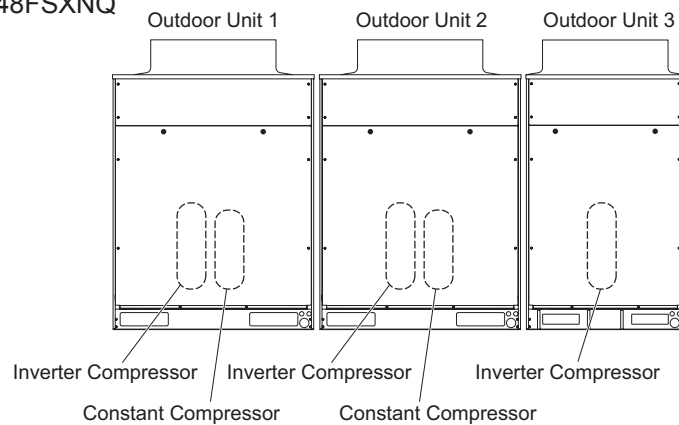
RAS-38FSXNQ to RAS-42FSXNQ



< Compressor Operating Sequence >

	Outdoor Unit 1		Outdoor Unit 2	Outdoor Unit 3
	Inverter Compressor	Constant Compressor	Inverter Compressor	Inverter Compressor
Last Time	1	4	2	3
This Time	2	4	3	1
Next Time	3	4	1	2

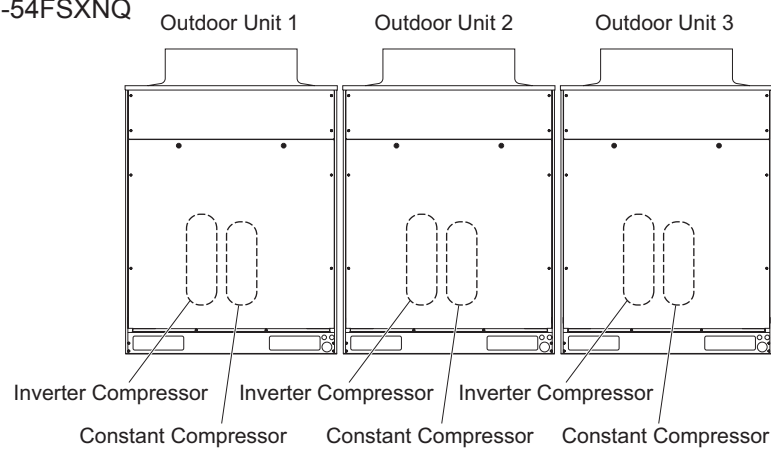
RAS-44FSXNQ to RAS-48FSXNQ



< Compressor Operating Sequence >

	Outdoor Unit 1		Outdoor Unit 2		Outdoor Unit 3
	Inverter Compressor	Constant Compressor	Inverter Compressor	Constant Compressor	Inverter Compressor
Last Time	1	4	2	5	3
This Time	2	4	3	5	1
Next Time	3	5	1	4	2

RAS-50FSXNQ to RAS-54FSXNQ



< Compressor Operating Sequence >

	Outdoor Unit 1		Outdoor Unit 2		Outdoor Unit 3	
	Inverter Compressor	Constant Compressor	Inverter Compressor	Constant Compressor	Inverter Compressor	Constant Compressor
Last Time	1	4	2	5	3	6
This Time	2	5	3	6	1	4
Next Time	3	6	1	4	2	5

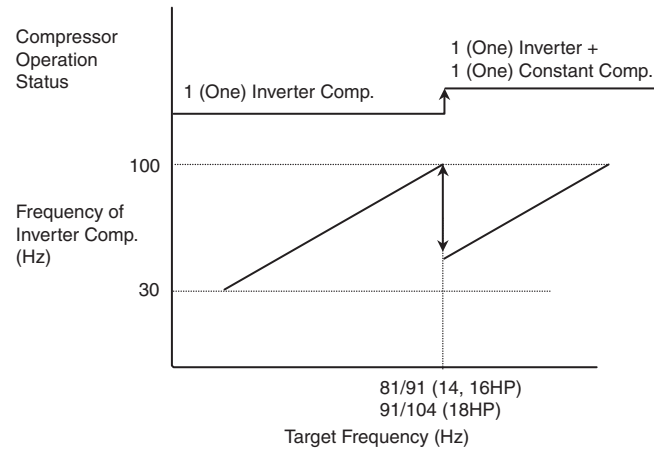
(2) Compressor Frequency Control

Compressor Operation Control is to perform the output frequency of Inverter Compressor or run/stop of Constant Operation according to Target Frequency.

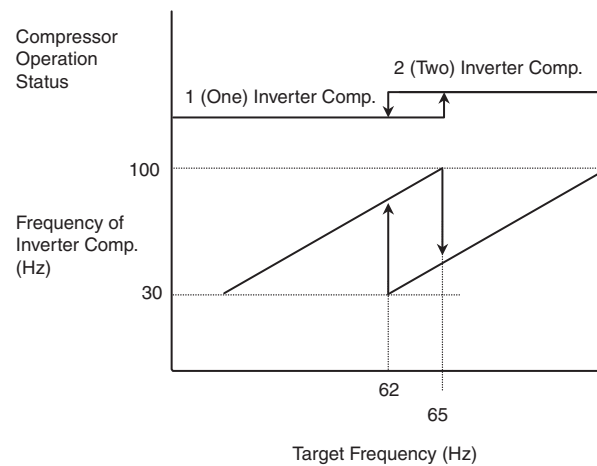
(Target Frequency is determined by PID calculation and cooling and heating load.)

Therefore, when the load is smaller, the constant compressor may not operate.

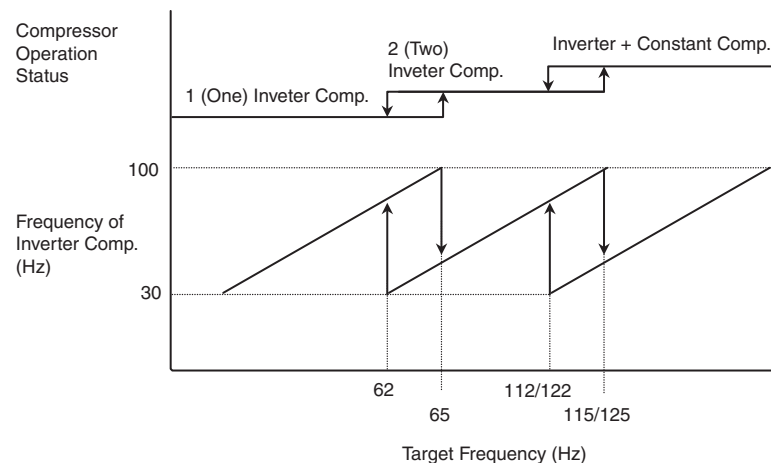
14~18HP (Power Supply Frequency 50/60Hz)



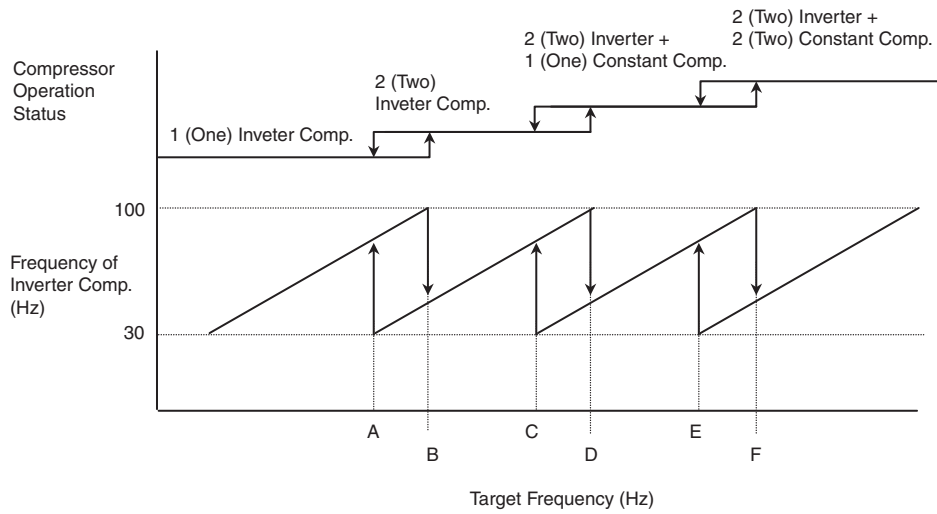
20HP (Power Supply Frequency 50/60Hz)



22~26HP (Power Supply Frequency 50/60Hz)

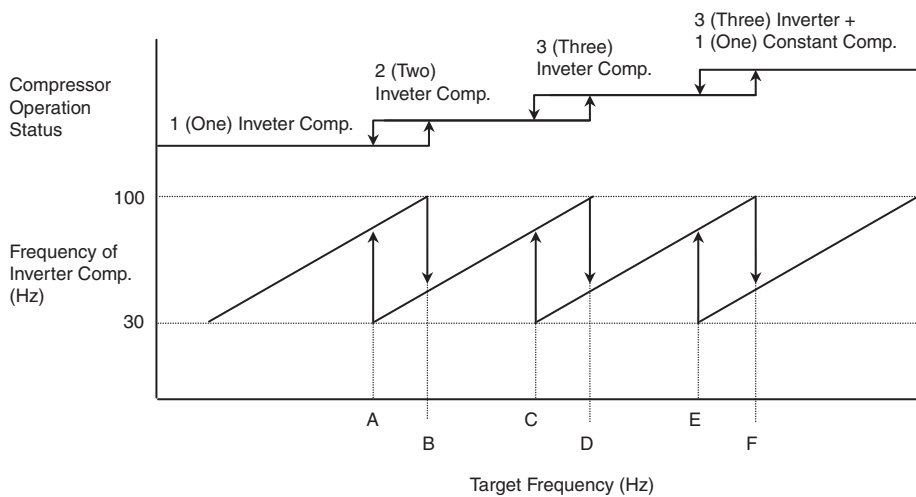


28~36HP (Power Supply Frequency 50/60Hz)



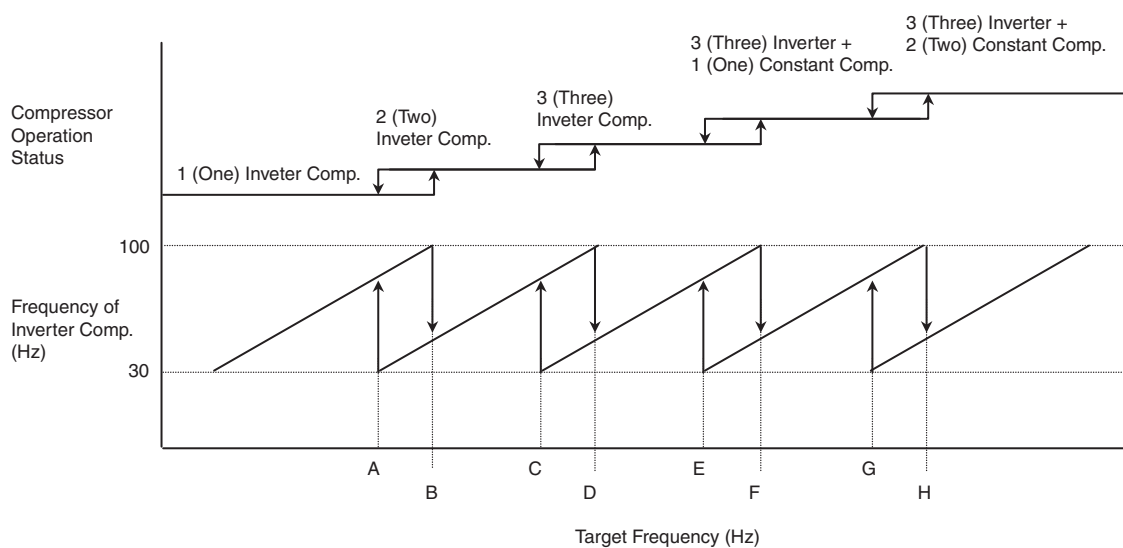
HP	Target Frequency (Hz)					
	A	B	C	D	E	F
28	62	65	112/122	115/125	162/182	165/185
30	62	65	112/122	115/125	162/182	165/185
32	62	65	112/122	115/125	162/182	165/185
34	62	65	122/135	125/138	172/195	175/198
36	62	65	122/135	125/138	182/208	185/211

38~42HP (Power Supply Frequency 50/60Hz)



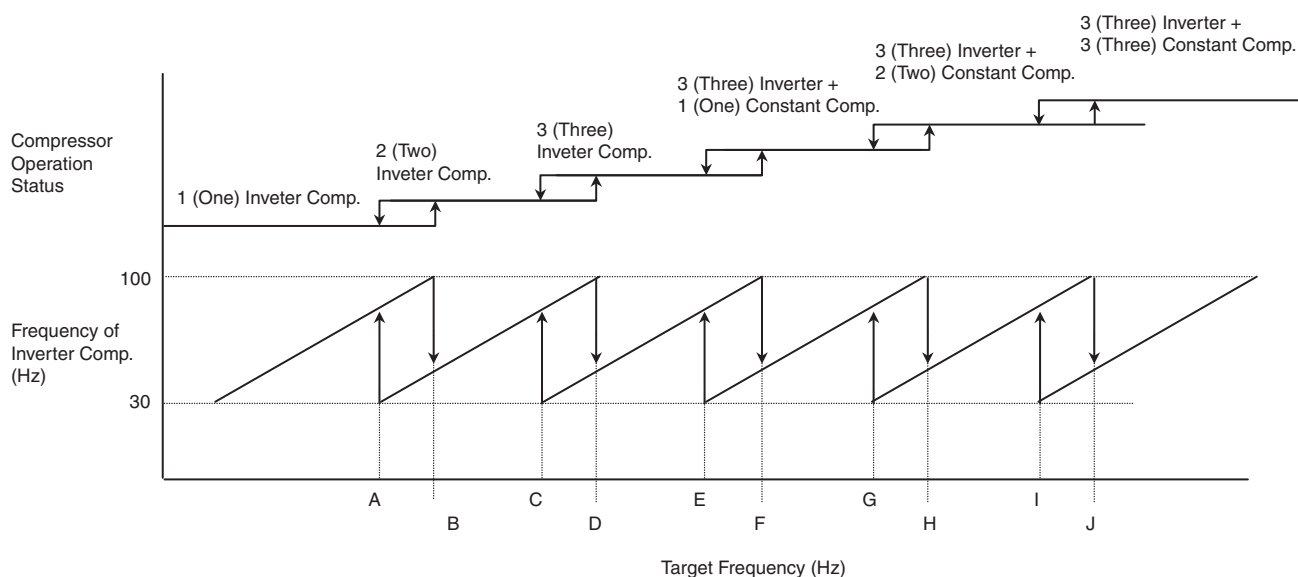
HP	Target Frequency (Hz)					
	A	B	C	D	E	F
38	62	65	93	130	143/153	180/190
40	62	65	93	130	143/153	180/190
42	62	65	93	130	153/166	190/203

44~48HP (Power Supply Frequency 50/60Hz)



HP	Target Frequency (Hz)							
	A	B	C	D	E	F	G	H
44	62	65	93	130	153/166	190/203	203/226	240/263
46	62	65	93	130	153/166	190/203	203/226	240/263
48	62	65	93	130	153/166	190/203	213/239	250/276

50~54HP (Power Supply Frequency 50/60Hz)



HP	Target Frequency (Hz)									
	A	B	C	D	E	F	G	H	I	J
50	62	65	93	130	153/166	190/203	213/239	250/276	263/299	300/336
52	62	65	93	130	153/166	190/203	213/239	250/276	263/299	300/336
54	62	65	93	130	153/166	190/203	213/239	250/276	273/312	310/349

■ Heat Exchanger Mode Control

< Heat Recovery System >

In accordance with the connectable indoor unit load, the outdoor unit heat exchanger can be switched as shown in the table below.

< Heat Pump System >

In accordance with the connectable indoor unit operation mode, the outdoor unit heat exchanger can 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	Mainly Cooling Mode		Mainly Heating Mode	Heating Mode	Defrosting Mode
		COND	D1	D1-1	D4	EVAP	DEF1
Heat Exchanger Condition		COND	COND	cond	EVAP	EVAP	COND
Reversing Valve	RVR2	OFF	OFF	OFF	ON	ON	OFF
	RVR1	ON	OFF	OFF	OFF	OFF	ON
Expansion Valve	MV1	Fully Open	Pd		Heat Exchanger SH		Fully Open
	MVB	TdSH	TdSH				

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

Heat Exchanger Mode			Cooling Mode	Mainly Cooling Mode		Mainly Heating Mode		Heating Mode	Defrosting Mode	
			COND	D1	D2	D3	D4	EVAP	DEF2	DEF1
									With CH Unit	Without CH Unit
Main Outdoor Unit	Heat Exchanger Condition		COND	COND	COND	cond	EVAP	EVAP	COND/EVAP	COND
	Reversing Valve	RVR2	OFF	OFF	OFF	OFF	ON	ON	ON/OFF	OFF
		RVR1	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
	Expansion Valve	MV1	Fully Open	Pd			Heat Exchanger SH		Fully Open/ Heat Exchanger SH	Fully Closed
		MVB	TdSH	TdSH						
Sub Outdoor Unit	Heat Exchanger Condition		COND	COND	evap	EVAP	EVAP	EVAP	COND/EVAP	COND
	Reversing Valve	RVR2	OFF	OFF	ON	ON	ON	ON	ON/OFF	OFF
		RVR1	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
	Expansion Valve	MV1	Fully Open	Pd	Fully Closed	Heat Exchanger SH			Fully Open/ Heat Exchanger SH	Fully Closed
		MVB	TdSH	TdSH						

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

Heat Exchanger Mode			Cooling Mode	Mainly Cooling Mode			Mainly Heating Mode				Heating Mode	Defrosting Mode	
			COND	D1	D2-1	D2-2	D2-3	D3-1	D3-2	D4	EVAP	DEF2	DEF1
				With CH Unit	Without CH Unit								
Main Outdoor Unit	Heat Exchanger Condition		COND	COND	COND	COND	cond	cond	COND	EVAP	EVAP	COND/EVAP	COND
	Reversing Valve	RVR2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF/ON	OFF
		RVR1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
	Expansion Valve	MV1	Fully Open	Pd						Heat Exchanger SH		Fully Open/ Heat Exchanger SH	Pd
		MVB	TdSH	TdSH									
Sub Outdoor Unit	Heat Exchanger Condition		COND	COND	evap	evap	EVAP	EVAP	EVAP	EVAP	EVAP	COND/EVAP	COND
	Reversing Valve	RVR2	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	OFF/ON	OFF
		RVR1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
	Expansion Valve	MV1	Fully Open	Pd	Fully Closed		Heat Exchanger SH					Fully Open/ Heat Exchanger SH	Pd
		MVB	TdSH	TdSH									
Sub Outdoor Unit	Heat Exchanger Condition		COND	COND	COND	cond	cond	evap	EVAP	EVAP	EVAP	COND/EVAP	COND
	Reversing Valve	RVR2	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF/ON	OFF
		RVR1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
	Expansion Valve	MV1	Fully Open	Pd			Fully Closed	Heat Exchanger SH				Fully Open/ Heat Exchanger SH	Pd
		MVB	TdSH	TdSH									

NOTE:

1. Condition of Heat Exchanger

COND : Use as Condenser

cond : Avoid the use of Heat Exchanger (under the high pressure condition)

EVAP : Use as Evaporator

evap : Avoid the use of Heat Exchanger (under the low pressure condition)

2. Control Method of Expansion Valve

Pd: Normally, fully open. (The opening is depending on the refrigerant cycle condition.)

PI control is performed to achieve the targeted value of discharge pressure when discharge pressure decreases.

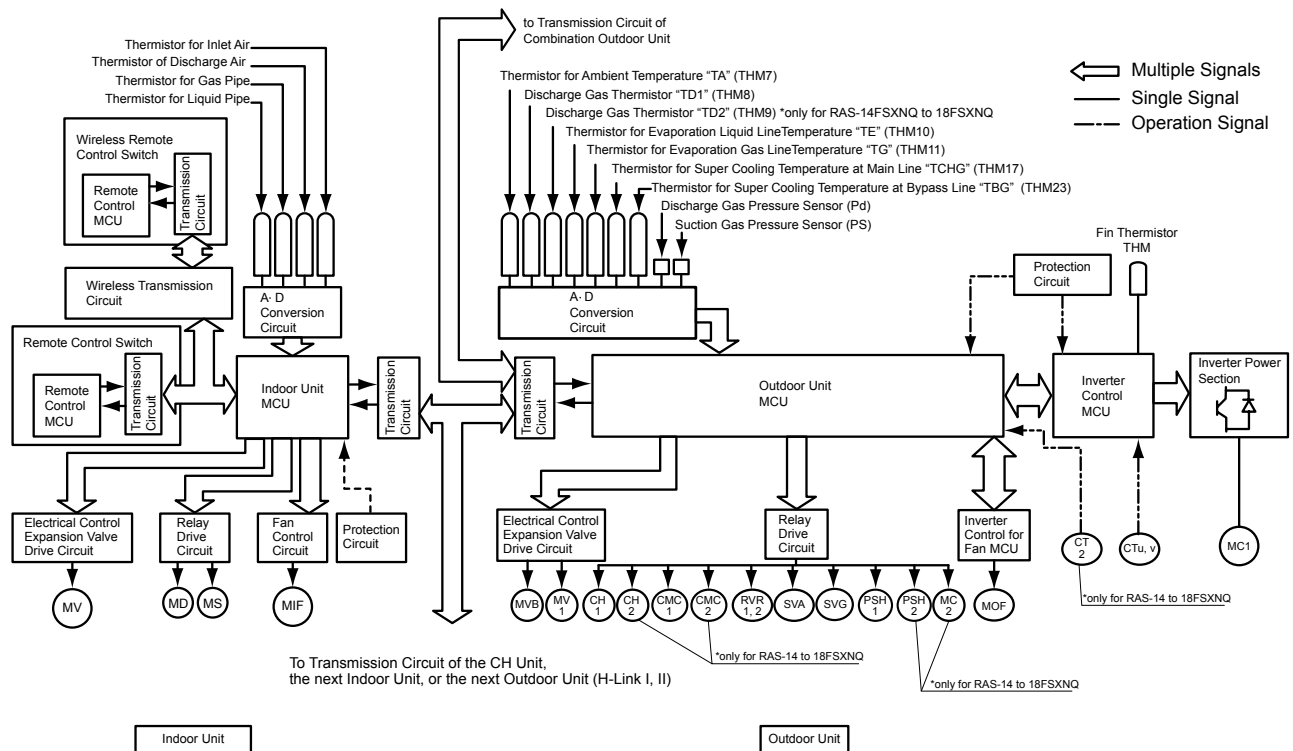
TdSH: PI control is performed to achieve the targeted value of TdSH of compressor.

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

3. D1, D1-1, D2, D2-1, D2-2, D2-3, D3, D3-1, D3-2, D4, EVAP, DEF1 and DEF2 are the reference number.

Figure below shows the outline of the control system.

(Example: Combination of Base Units, RAS-20FSXNQ to RAS-54FSXNQ + Indoor Unit)

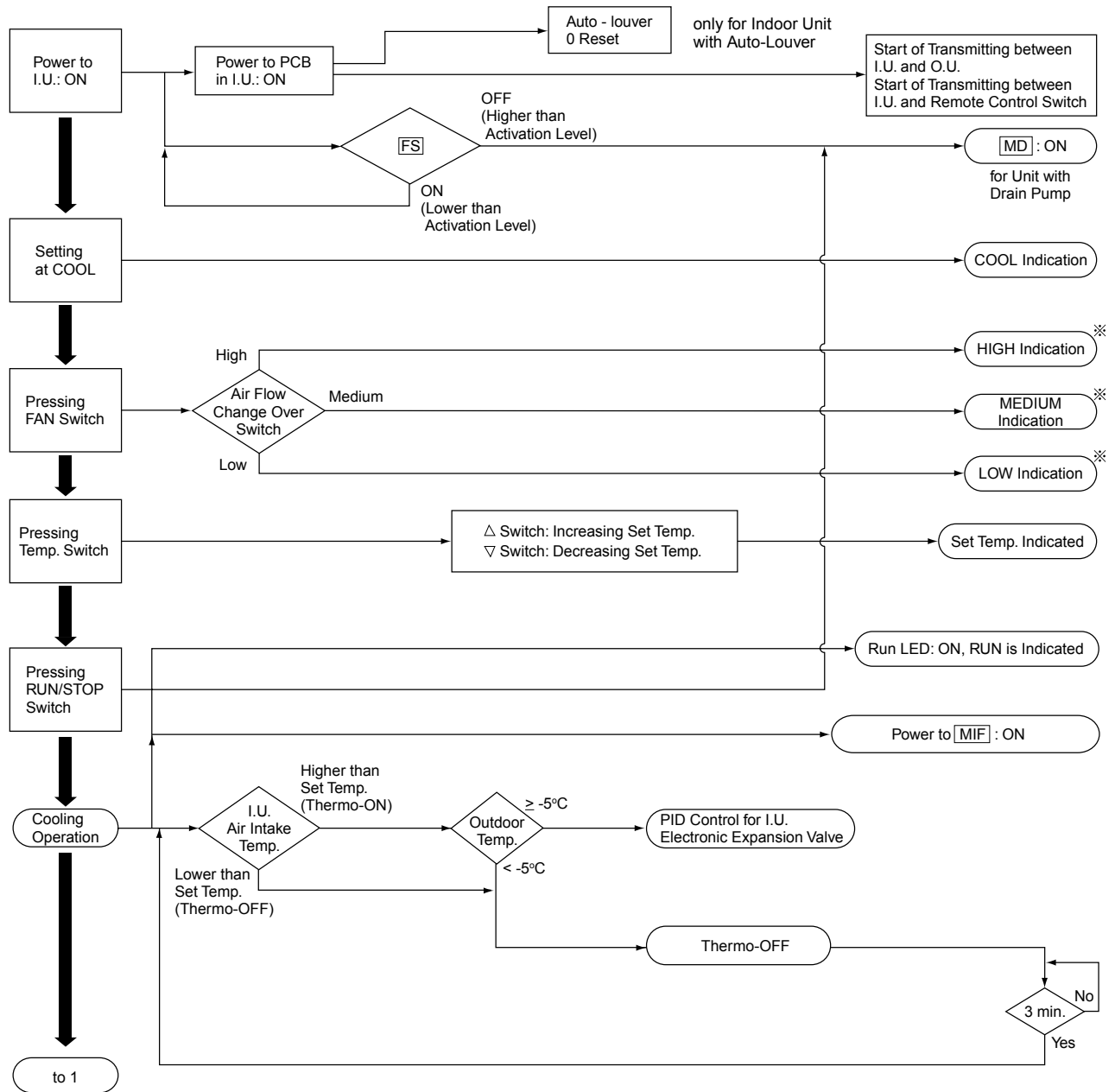


Symbol	Name
MC1	DC Motor (for Inverter Compressor)
MC2	AC Motor (for Constant Speed Compressor)
MOF	DC Motor (for Outdoor Fan)
MIF	Motor (for Indoor Fan)
MS	Motor (for Auto-Louver)
MD	Motor (for Drain Pump)
MV	Electronic Expansion Valve (for Indoor Unit)
MV1	Electronic Expansion Valve (for Outdoor Unit)
MVB	Electronic Expansion Valve for Plate Heat Exchanger
CMC1, 2	Magnetic Contactor for Compressor
SVA	Solenoid Valve
SVG	Solenoid Valve
RVR1, 2	Reversing Valve
PSH1, 2	High Pressure Switch
CH1, 2	Crankcase Heater
CTu, v	Current Sensor

12.3 Standard Operation Sequence

■ Cooling Operation

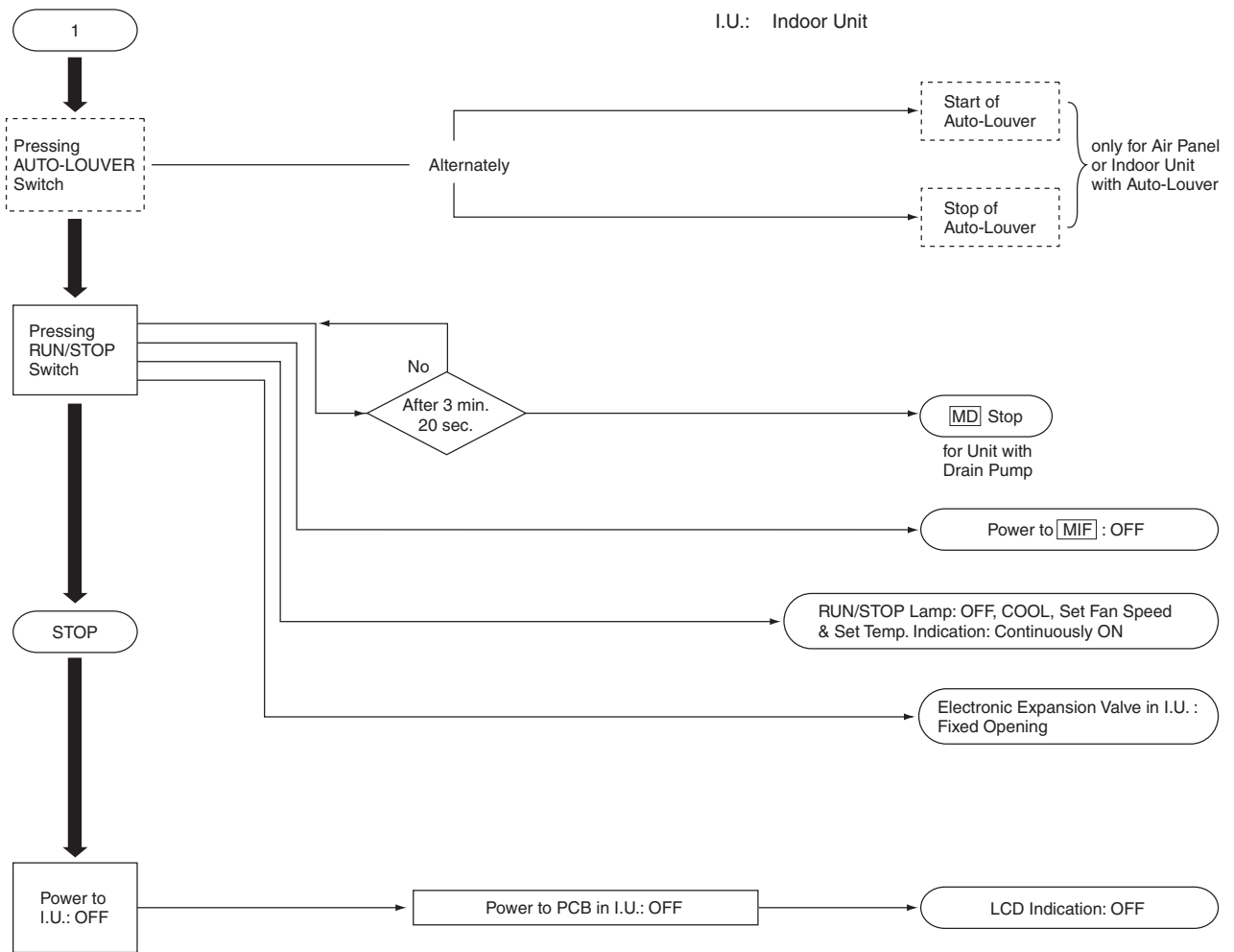
I.U.: Indoor Unit
O.U.: Outdoor Unit



Note

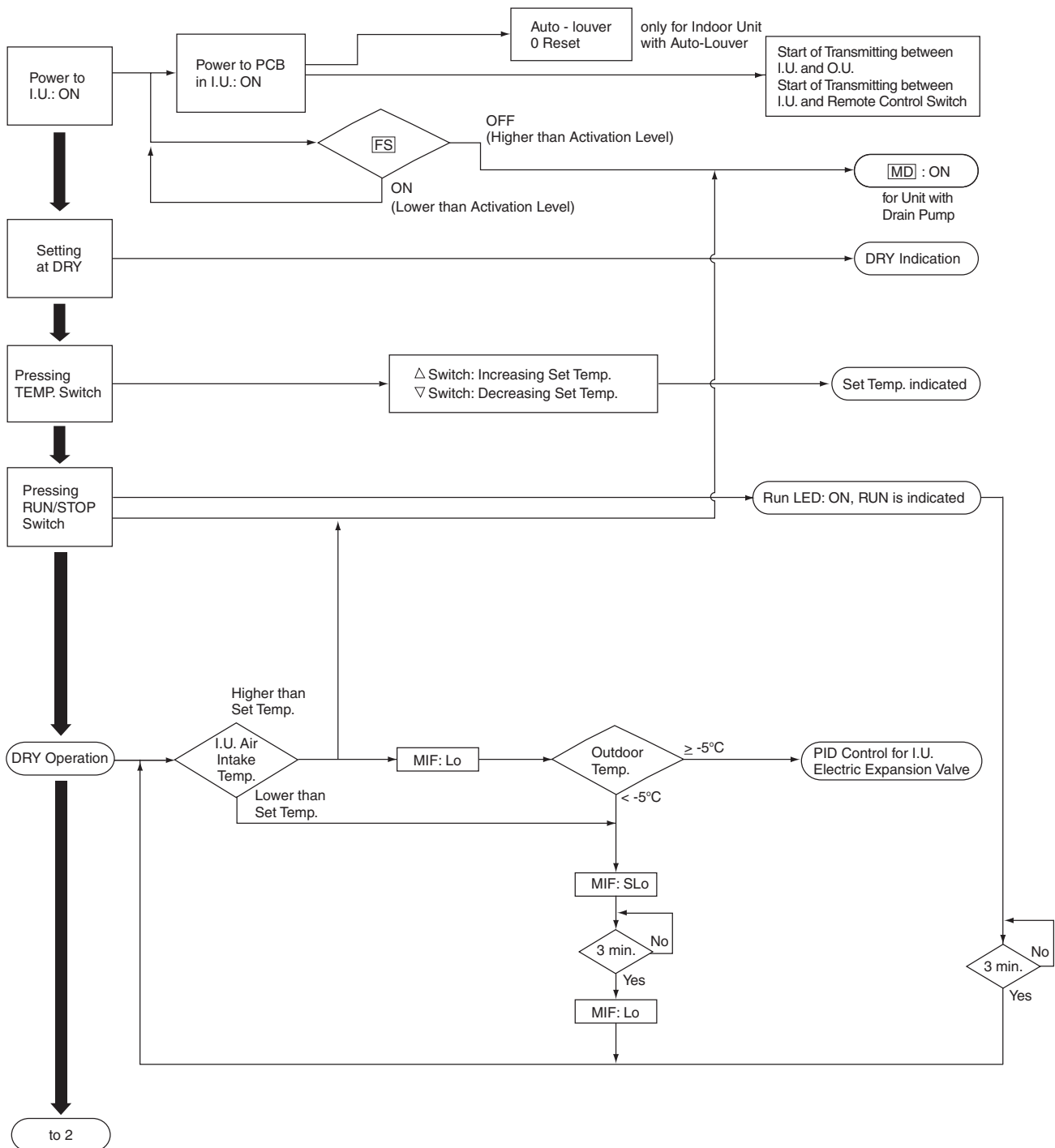
※: In case of RPI-8FSNQ and 10FSNQ, Fan Speed is "High" only.
By pressing the FAN SPEED SWITCH of Remote Control Switch, indication of LCD is change as $\rightarrow \text{Hi} \rightarrow \text{Me} \rightarrow \text{Lo}$, but actual fan speed is "High" only.

■ Cooling Operation



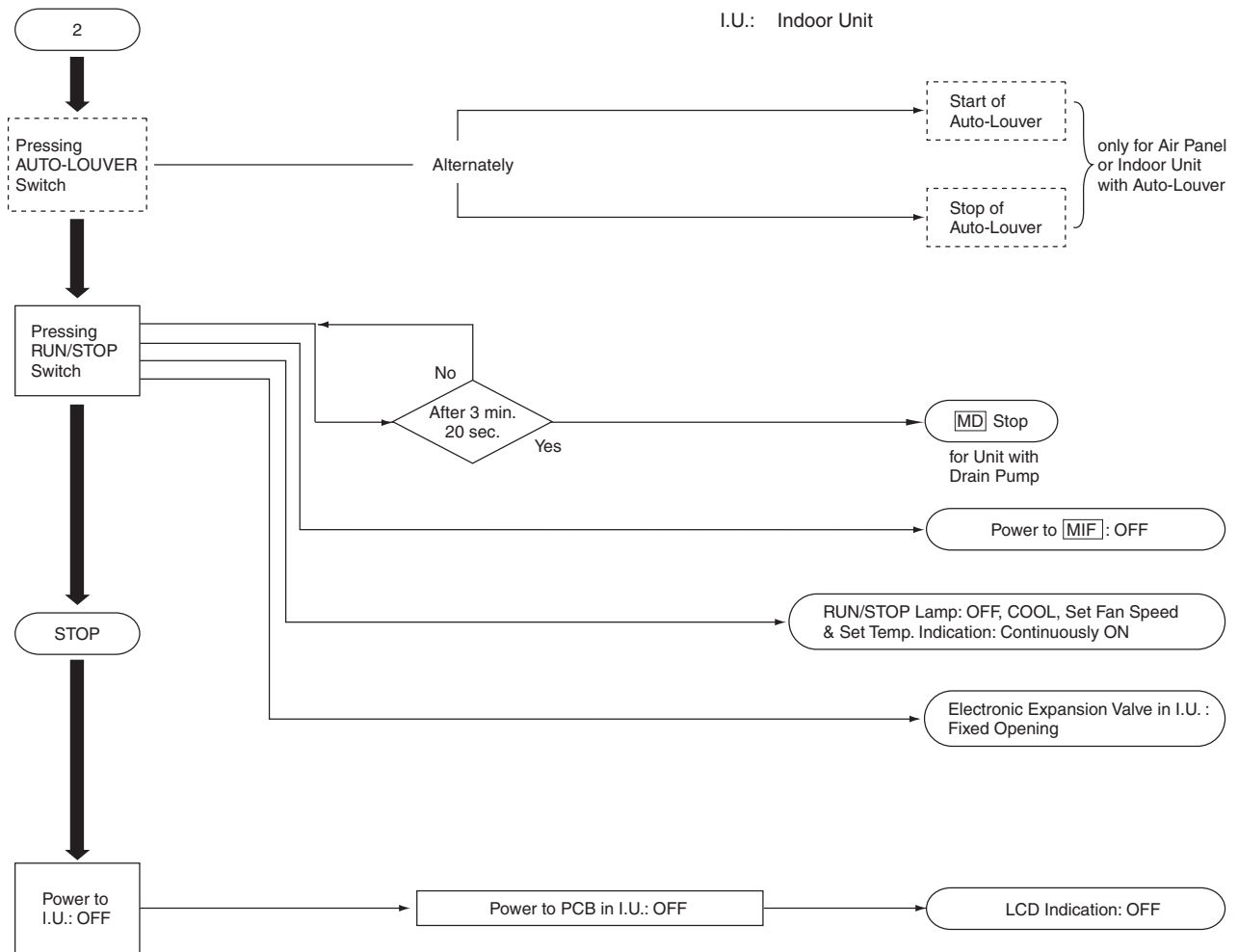
■ Dry Operation

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

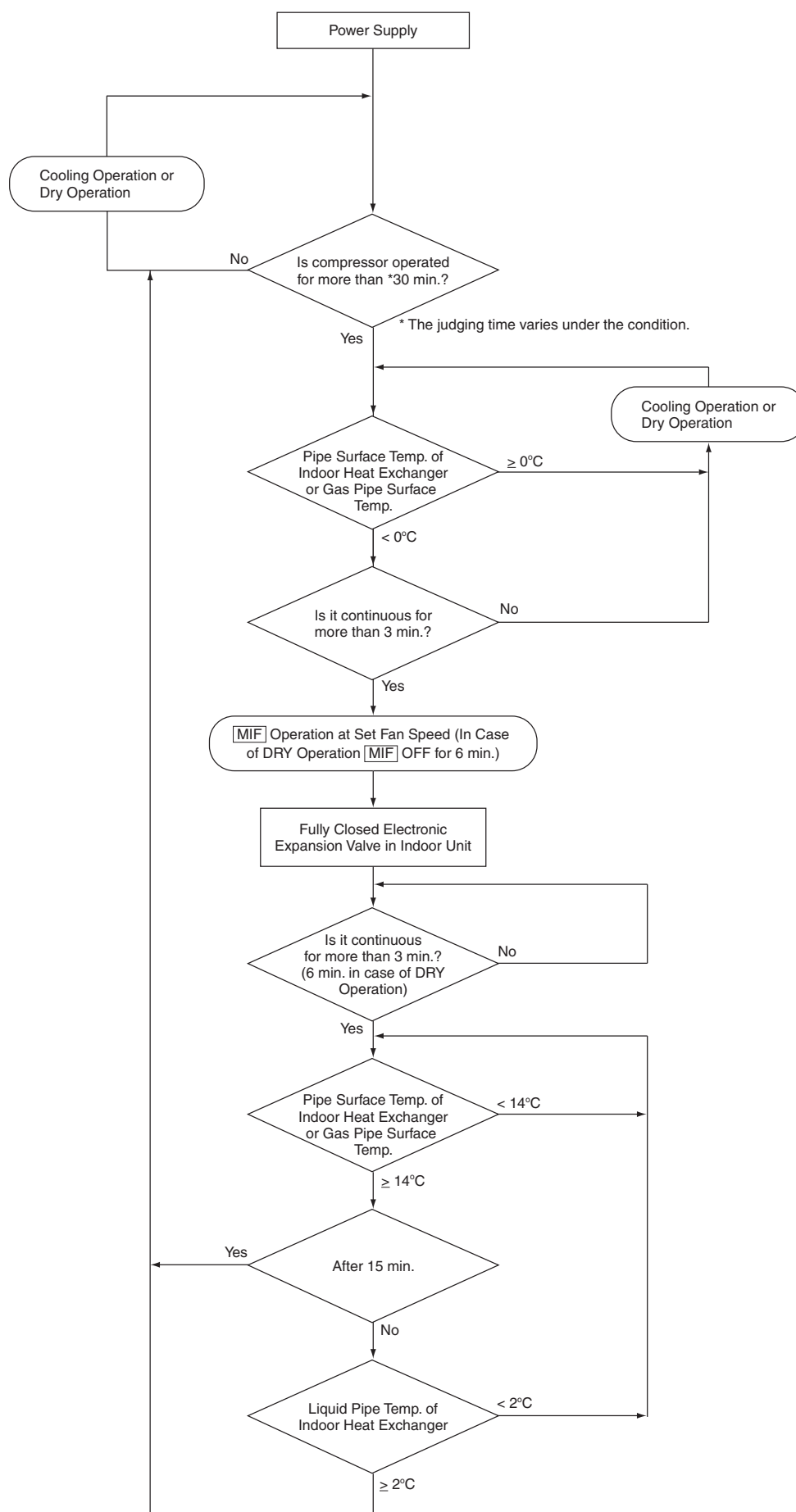


CONTROL SYSTEM

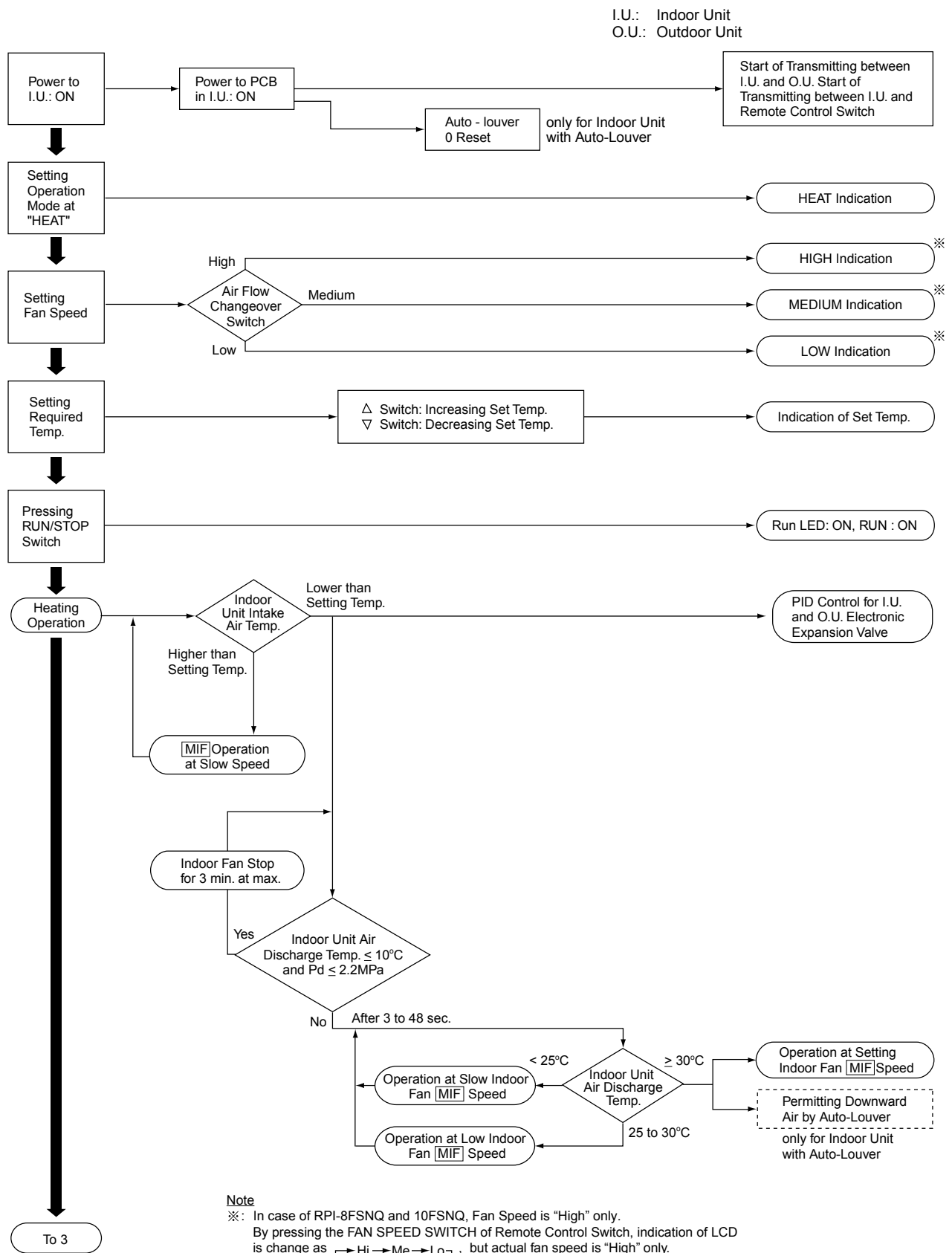
■ Dry Operation



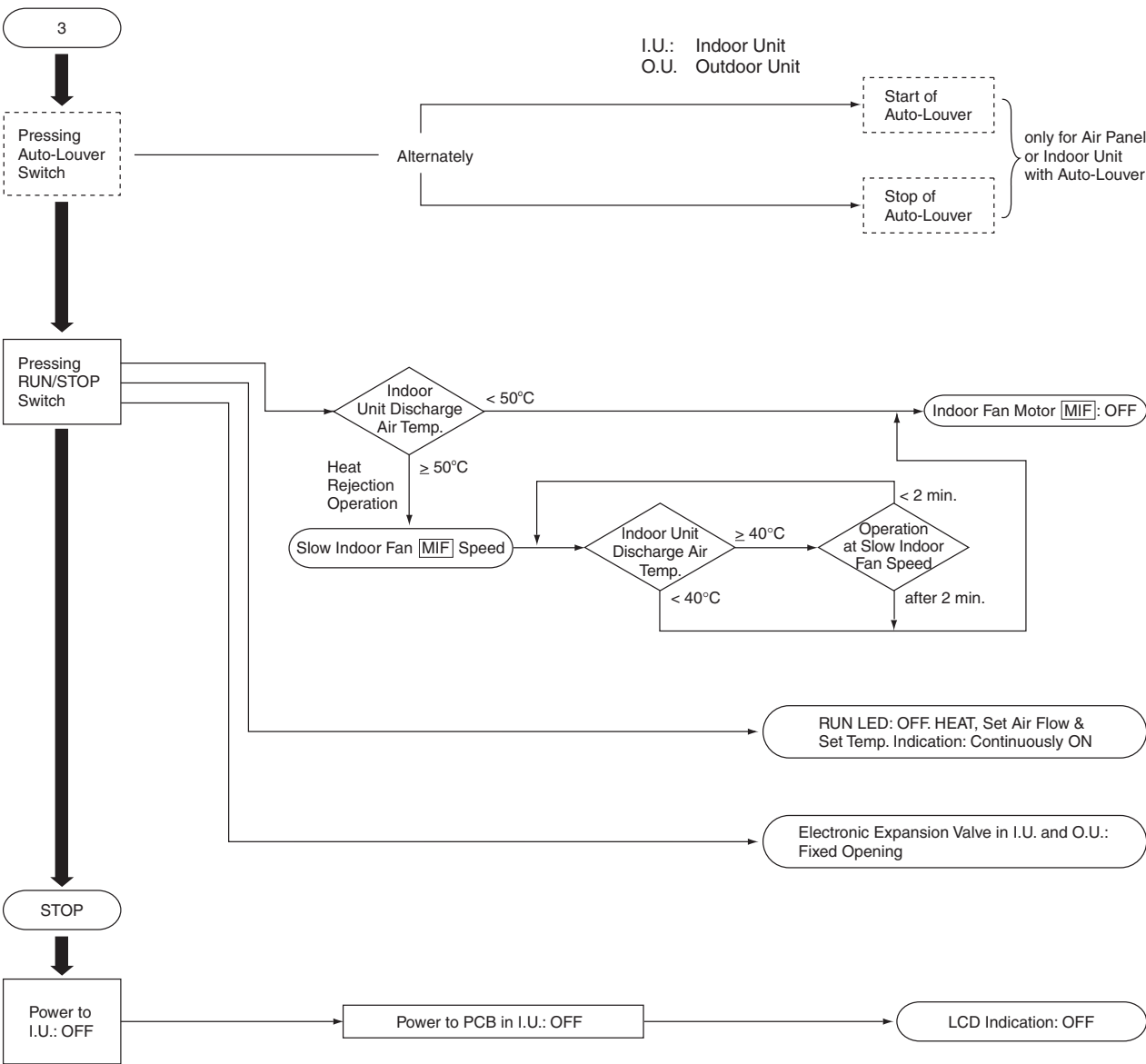
■ Freezing Protection Control during Cooling or Dry Operation



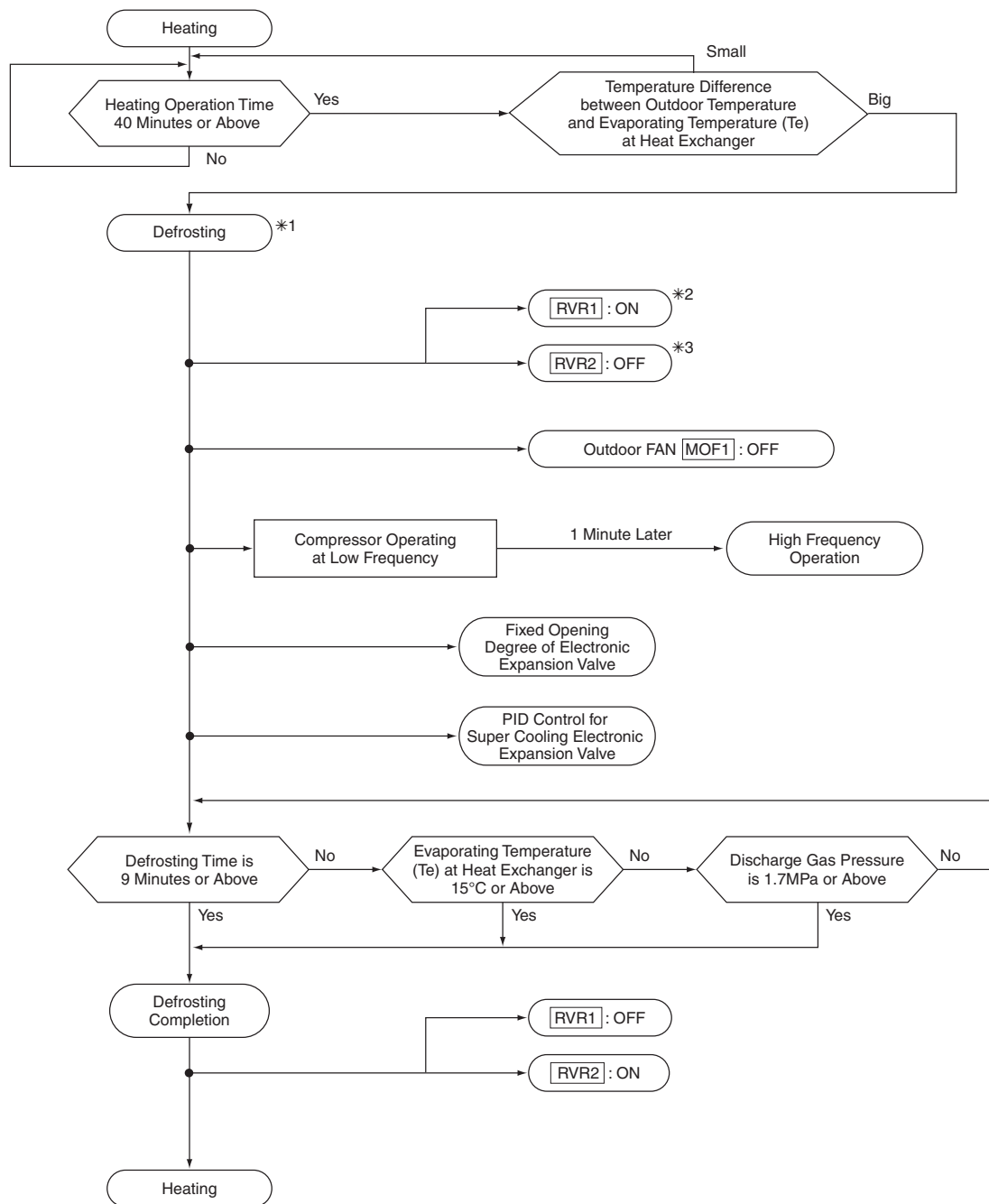
■ Heating Operation



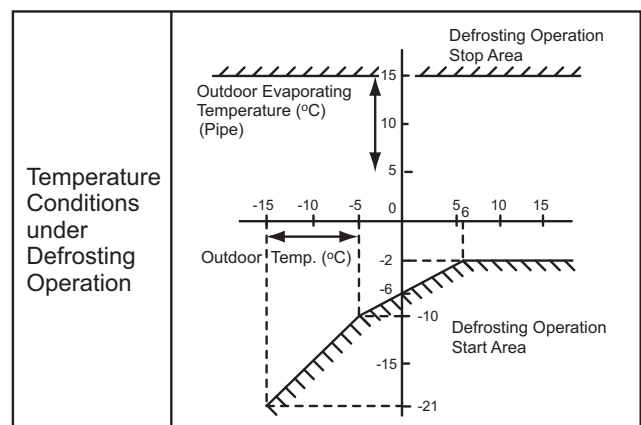
■ Heating Operation



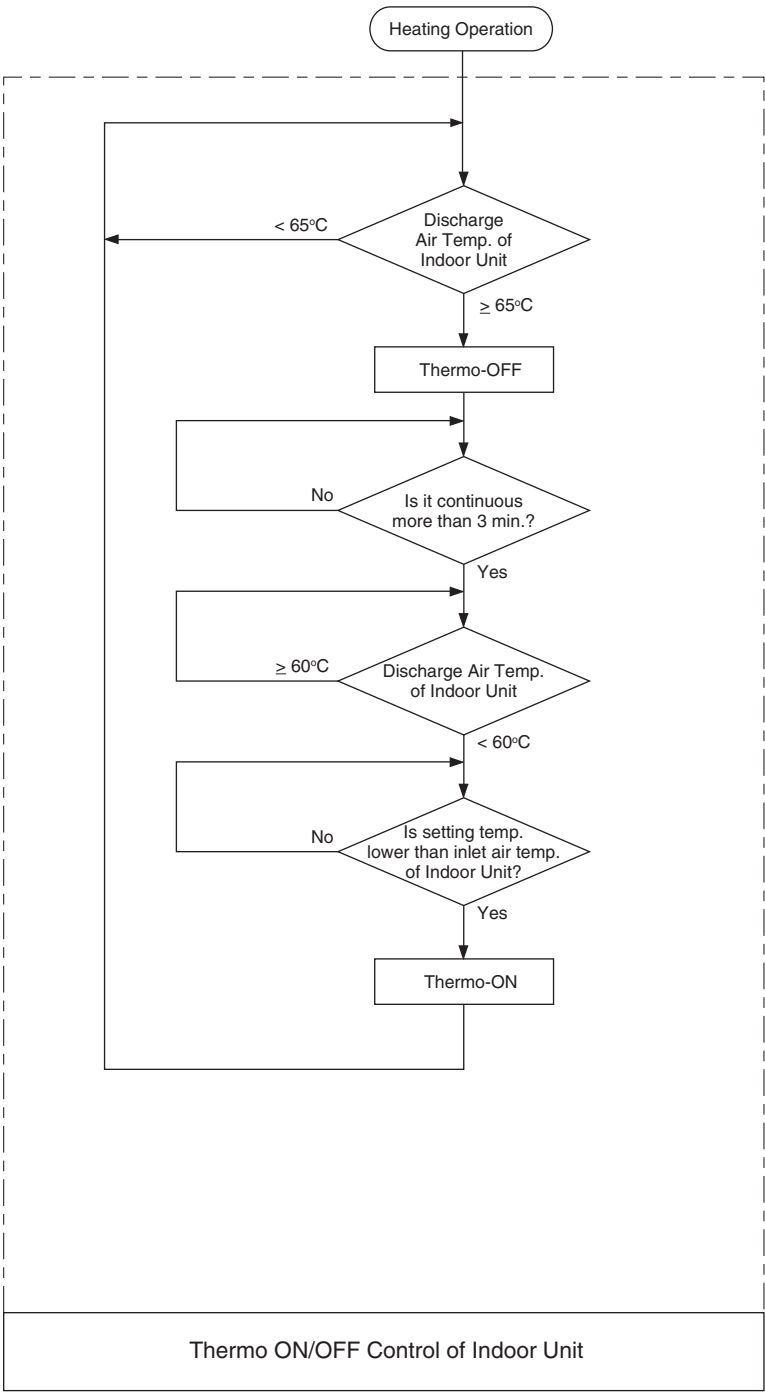
■ Defrosting Operation



- *1: Defrost operation signal is transmitted to the indoor unit during the defrost operation. After the signal is received, “DEFROST” will be indicated on LCD of remote control switch and the indoor fan will be stopped.
- *2: For the heat recovery system of 20HP or over, RVR1 will not operate.
- *3: For the heat recovery system of 20HP or over, switching power ON/OFF of RVR2 will be performed in each outdoor unit.



■ Prevention Control for Excessively High Discharge Air Temperature
(For RCI, RCD and RPI (6.0HP or less))

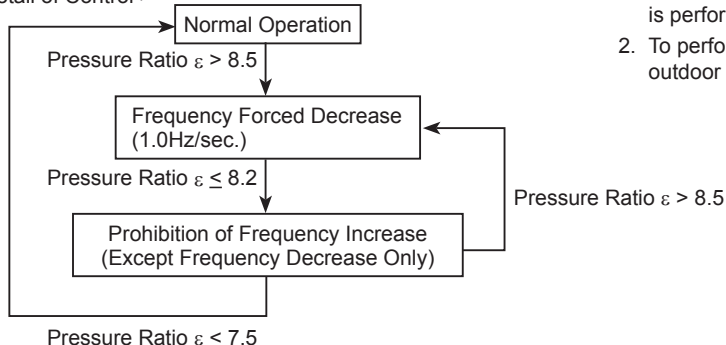


■ Protection Control

(1) Pressure Ratio Increase Protection Control

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

< Detail of Control >



NOTE:

1. In case of combination of base units, the control in the figure is performed for the whole outdoor units to be connected.
2. To perform this control, calculate the pressure ratio in each outdoor unit and use the maximum value.

$$\varepsilon = (Pd + 0.06) / (Ps + 0.06)$$

Pd: High Pressure Sensor Detected Value

Ps: Low Pressure Sensor Detected Value

(2) High Pressure Protection Control

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

< Control Value >

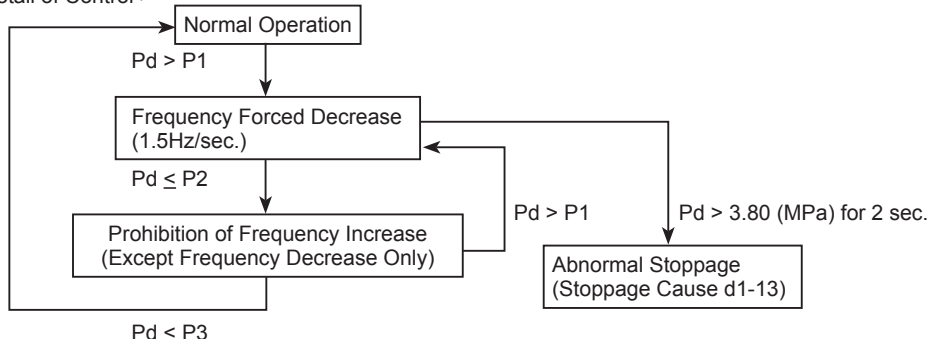
Operation Mode	P1	P2	P3
Cooling	3.45	3.40	3.20
Heating/ Cooling-Heating Simultaneous	3.35	3.30	3.10

NOTE:

1. In case of combination of base units, the control in the figure is performed for the whole outdoor units to be connected.
2. To perform this control, calculate the high pressure in each outdoor unit and use the maximum value.

Pd: High Pressure Sensor Detected Value

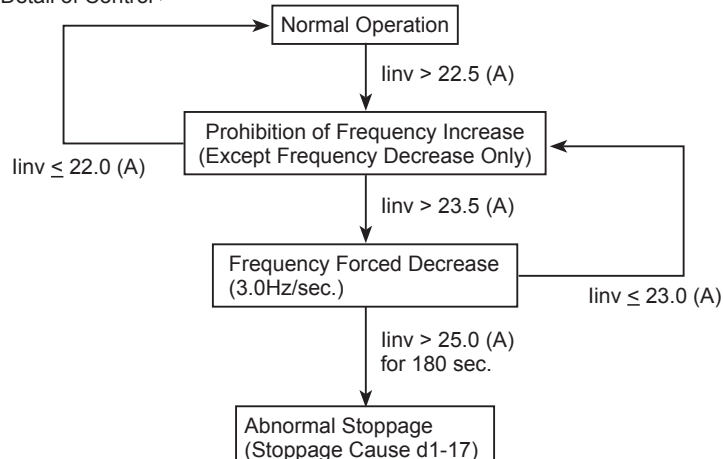
< Detail of Control >



(3) Inverter Current Protection Control

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

< Detail of Control >



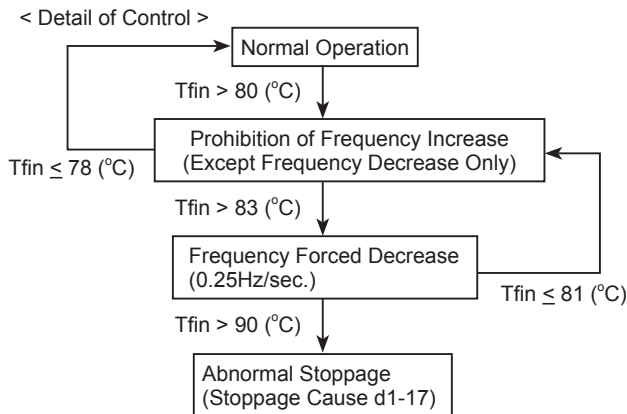
NOTE:

1. In case of combination of base units, the control in the figure is performed for the whole outdoor units to be connected.
2. To perform this control, calculate the inverter current value in each outdoor unit and use the maximum value.

linv: Inverter Secondary Current Detected Value

(4) Inverter Fin Temperature Increase Protection Control

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



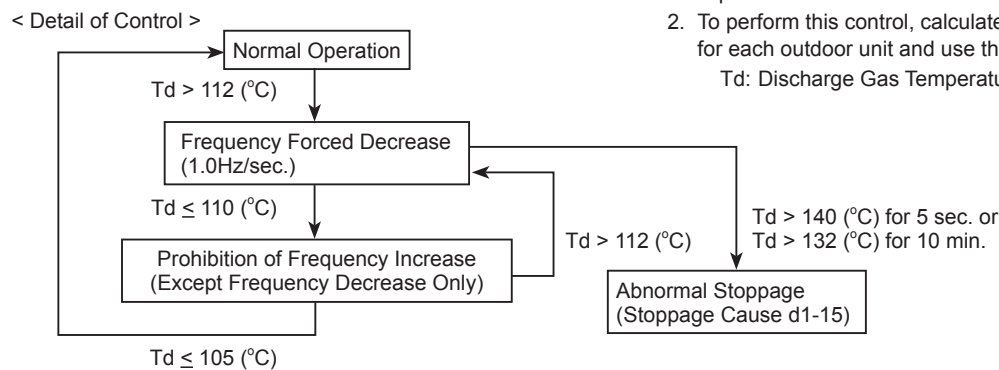
NOTE:

1. In case of combination of base units, the control in the figure is performed for the whole outdoor units to be connected.
2. To perform this control, calculate the inverter fin temperature for each outdoor unit and use the maximum value.

Tfin: Inverter Fin Temperature Sensor Detected Value

(5) Discharge Temperature Increase Protection Control

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



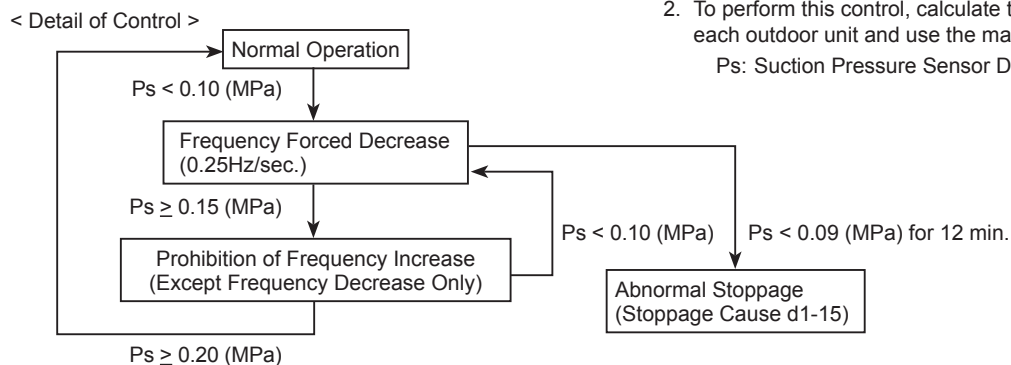
NOTE:

1. In case of combination of base units, the control in the figure is performed for the whole outdoor units to be connected.
2. To perform this control, calculate the discharge temperature for each outdoor unit and use the maximum value.

Td: Discharge Gas Temperature Sensor Detected Value

(6) Suction Pressure Protection Control

Suction Pressure Protection Control is performed in order to protect compressor from transitional decrease of suction pressure.



NOTE:

1. In case of combination of base units, the control in the figure is performed for the whole outdoor units to be connected.
2. To perform this control, calculate the suction temperature for each outdoor unit and use the maximum value.

Ps: Suction Pressure Sensor Detected Value

(7) Degeneration Control

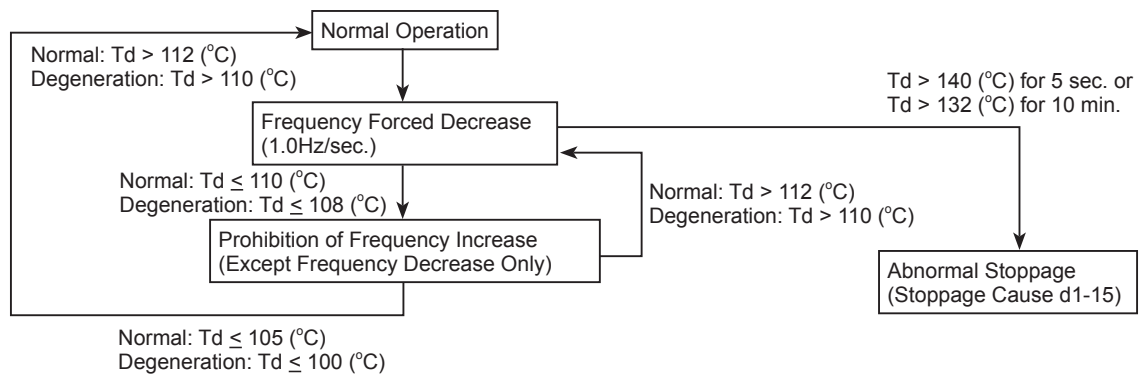
Degeneration Control is performed for the change of the protection control range.

It prevents frequent occurrence of ON/OFF by alarm when retry stoppage by the abnormal control occurs.

< Related Protection Control >

- (1) Pressure Ratio Decrease Protection Control
- (2) Discharge Pressure Increase Protection Control
- (3) Inverter Overcurrent Protection Control
- (4) Inverter Fin Temperature Increase Protection Control
- (5) Discharge Temperature Increase Protection Control
- (6) Discharge Gas Super Heat Decrease Protection Control

< Example of Discharge Temperature Increase Protection Control >



■ Control of CH Unit (CH-6.0N1, CH-10.0N1)

The following table shows the expansion valve opening of CH unit at the steady condition.

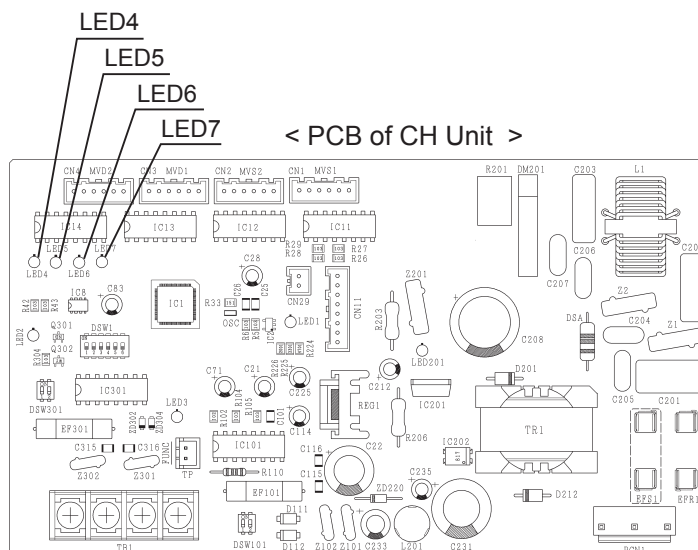
The expansion valve opening right after the operation mode change (such as thermo-ON → thermo-OFF) may not be matched with the table below. Make sure that the opening should be checked after at least 6 minutes of mode change.

(1) Checking Method of CH Unit Performance

Check the LED on the PCB of CH unit to inspect the expansion valve opening.

Refer to the table below for the relation between expansion valve opening and LED.

LED		Expansion Valve	
Number	Condition	Signal	Opening [Pulse]
LED4	ON	MVD2	480
	OFF		0
LED5	ON	MVD1	600
	OFF		0
LED6	ON	MVS2	480
	OFF		0
LED7	ON	MVS1	600
	OFF		0



(a) When Outdoor Unit Compressor is Stopped (All Indoor Unit are Stopped)

Refer to the table below for the expansion valve opening of CH unit when all the indoor units are stopped (including thermo-OFF stoppage).

CH Unit Expansion Valve	Indoor Unit Operation Mode (Remote Control Setting)		
	Cooling*	Heating	FAN
MVS1	0	0	0
MVS2	0	480	0
MVD1	0	0	0
MVD2	0	0	0

*: Dry setting is included as cooling operation.

(b) When Outdoor Unit Compressor is Operated

Refer to the table below for the expansion valve opening of CH unit when outdoor unit compressors are operated.

Outdoor Unit Operation Condition	CH Unit Expansion Valve	Indoor Unit Operation Mode (Remote Control Setting)				
		Cooling *	Heating	Cooling Thermo-OFF *	Heating Thermo-OFF	FAN
Cooling Mode	MVS1	600	-	600	600	600
	MVS2	480	-	480	480	480
	MVD1	600	-	600	0	600
	MVD2	480	-	480	0	480
Heating Mode	MVS1	-	0	0	0	0
	MVS2	-	0	480	480	0
	MVD1	-	600	0	0	0
	MVD2	-	480	0	0	0
Heat Recovery Mode	MVS1	600	0	0	0	0
	MVS2	480	0	480	480	480
	MVD1	0	600	0	0	0
	MVD2	0	480	0	0	0

*: Dry setting is included as cooling operation.

12.4 Safety and Control Device Setting

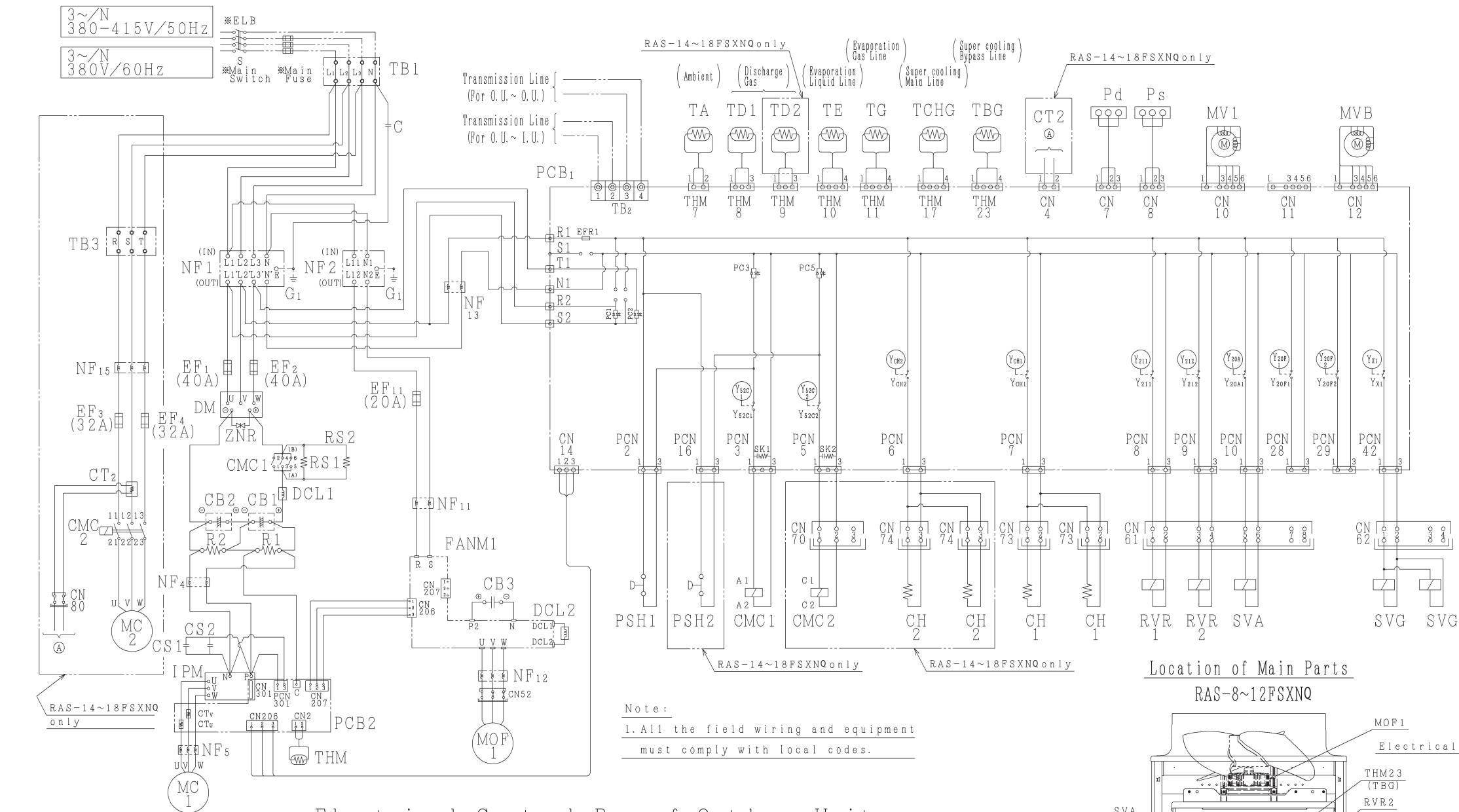
Model			RAS-8FSXNQ	RAS-10FSXNQ	RAS-12FSXNQ
For Compressor Pressure Switches			Automatic Reset, Non-Adjustable (each one for each compressor)		
High	Cut-Out	MPa	$4.15 \begin{smallmatrix} -0.05 \\ -0.15 \end{smallmatrix}$	$4.15 \begin{smallmatrix} -0.05 \\ -0.15 \end{smallmatrix}$	$4.15 \begin{smallmatrix} -0.05 \\ -0.15 \end{smallmatrix}$
	Cut-In	MPa	3.20 ± 0.15	3.20 ± 0.15	3.20 ± 0.15
Fuse Capacity					
3 ϕ , 220V, 60Hz			60 x 2	60 x 2	60 x 2
3 ϕ , 380-415V, 50Hz					
3 ϕ , 380V, 60Hz			40 x 2	40 x 2	40 x 2
Oil Heater Capacity			40 x 2	40 x 2	40 x 2
CCP Timer Setting Time			Non-Adjustable		
			3	3	3
For DC Fan Module Fuse Capacity					
3 ϕ , 220V, 60Hz			16 x 2	16 x 2	16 x 2
3 ϕ , 380-415V, 50Hz					
3 ϕ , 380V, 60Hz			20 x 1	20 x 1	20 x 1

Model			RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ
For Compressor Pressure Switches			Automatic Reset, Non-Adjustable (each one for each compressor)		
High	Cut-Out	MPa	$4.15 \begin{smallmatrix} -0.05 \\ -0.15 \end{smallmatrix}$	$4.15 \begin{smallmatrix} -0.05 \\ -0.15 \end{smallmatrix}$	$4.15 \begin{smallmatrix} -0.05 \\ -0.15 \end{smallmatrix}$
	Cut-In	MPa	3.20 ± 0.15	3.20 ± 0.15	3.20 ± 0.15
Fuse Capacity					
3 ϕ , 220V, 60Hz			60 x 2 + 50 x 2	60 x 2 + 50 x 2	60 x 4
3 ϕ , 380-415V, 50Hz					
3 ϕ , 380V, 60Hz			40 x 2 + 32 x 2	40 x 2 + 32 x 2	40 x 2 + 32 x 2
Oil Heater Capacity			40 x 4	40 x 4	40 x 4
CCP Timer Setting Time			Non-Adjustable		
			3	3	3
For DC Fan Module Fuse Capacity					
3 ϕ , 220V, 60Hz			16 x 2	16 x 2	16 x 2
3 ϕ , 380-415V, 50Hz					
3 ϕ , 380V, 60Hz			20 x 1	20 x 1	20 x 1

12.5 Electrical Wiring Diagram

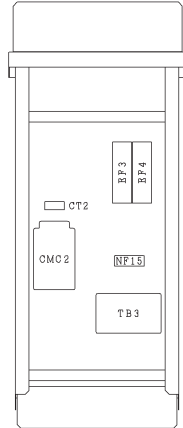
12.5.1 Outdoor Units

ELECTRICAL WIRING DIAGRAM (FOR MODEL: RAS-8FSXNQ, RAS-10FSXNQ, RAS-12FSXNQ, RAS-14FSXNQ, RAS-16FSXNQ AND RAS-18FSXNQ; 380-415V/50HZ, 380V/60HZ)

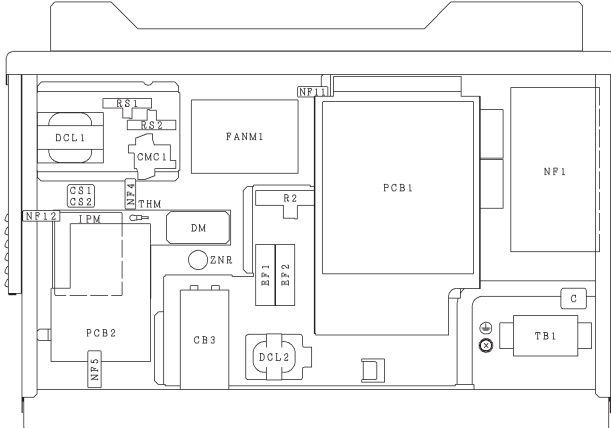


Electrical Control Box of Outdoor Unit

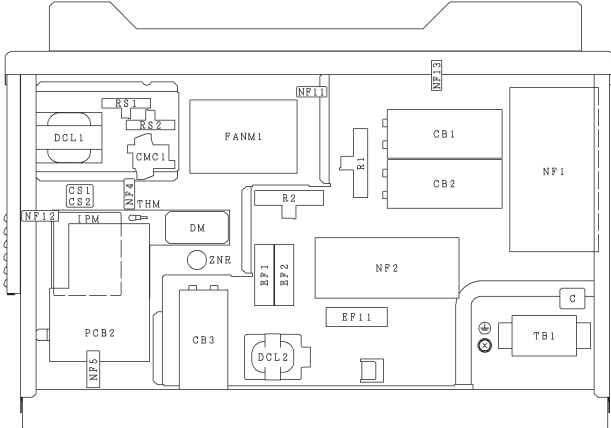
Front side (For Constant)
RAS-14~18FSXNQ only



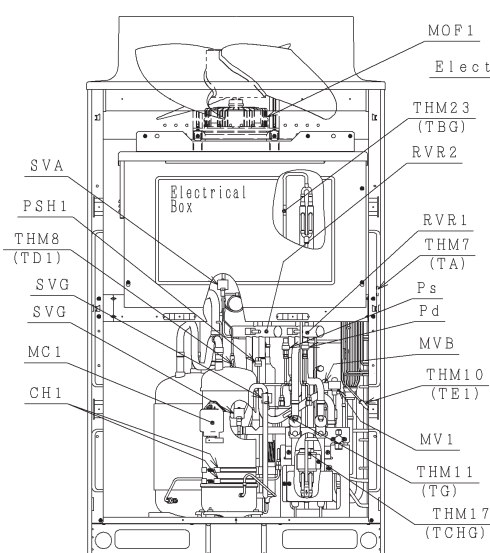
Front side (For Inverter)



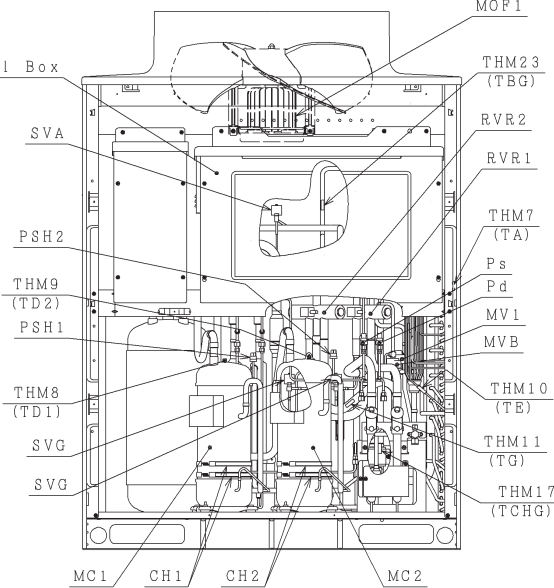
The Interior of the Electrical Control Box
(For Inverter)



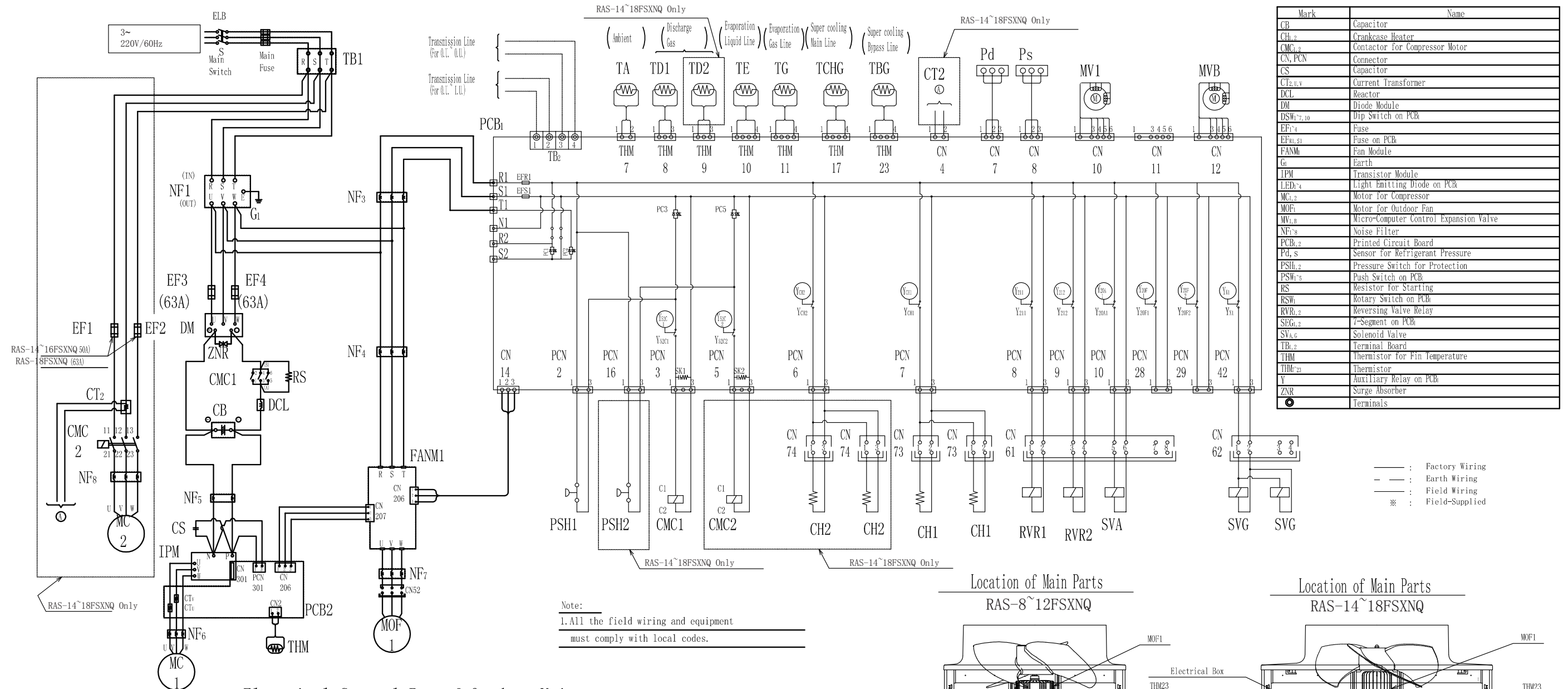
Location of Main Parts
RAS-8~12FSXNQ



Location of Main Parts
RAS-14~18FSXNQ



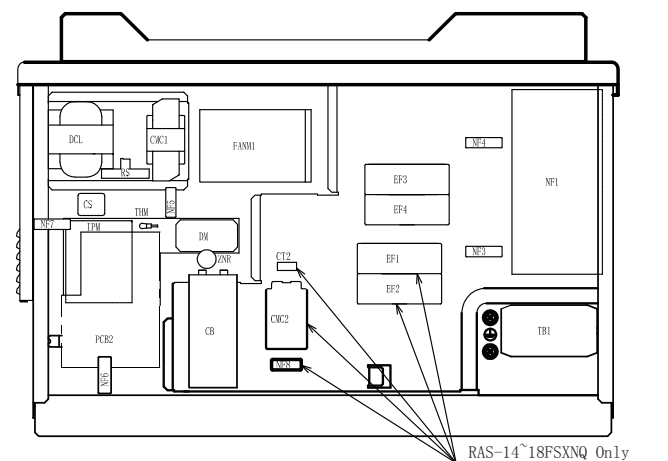
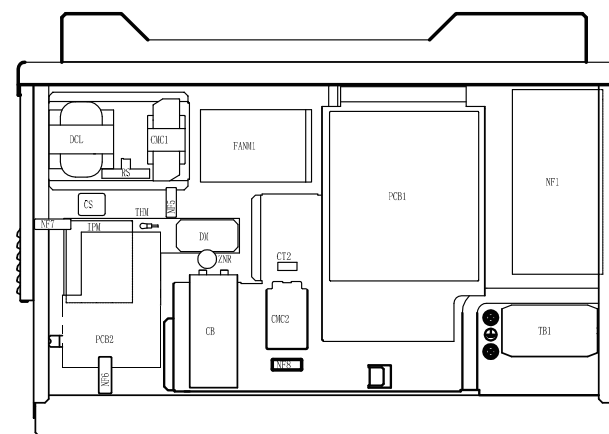
ELECTRICAL WIRING DIAGRAM (FOR MODEL: RAS-8FSXNQ, RAS-10FSXNQ, RAS-12FSXNQ, RAS-14FSXNQ, RAS-16FSXNQ AND RAS-18FSXNQ; 220V/60HZ)



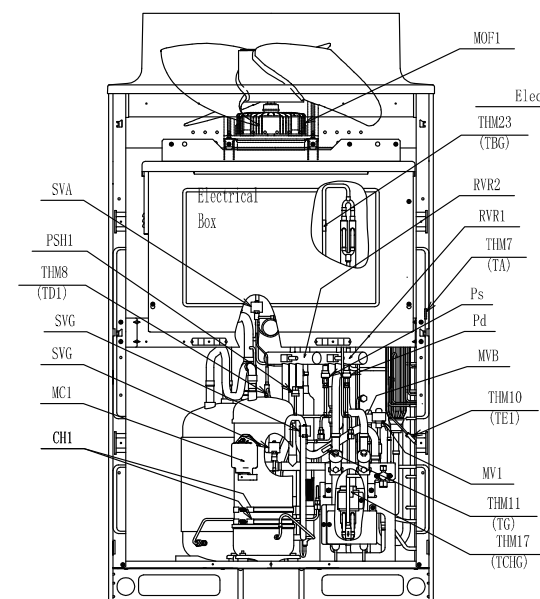
Electrical Control Box of Outdoor Unit

Front side

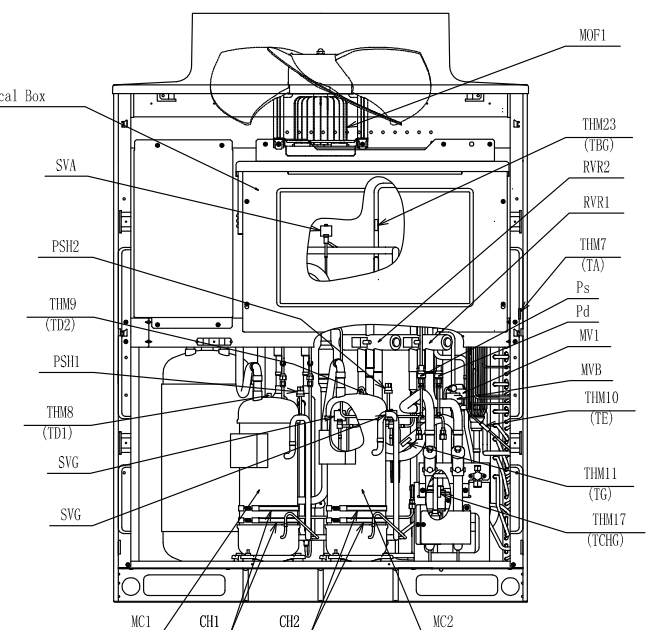
The Interior of the Electrical Control Box



Location of Main Parts
RAS-8~12FSXNQ

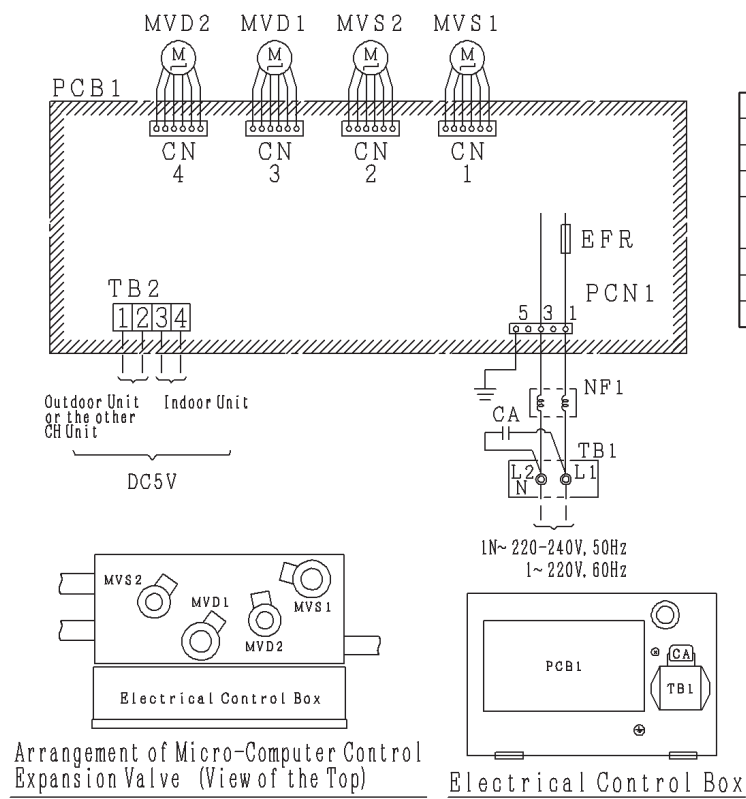


Location of Main Parts
RAS-14[~]18FSXNQ



12.5.2 CH Units

ELECTRICAL WIRING DIAGRAM (FOR MODEL: CH-6.0N1 AND CH-10.0N1; 220-240V/50HZ, 220V/60HZ)



Mark	Name	Remark
PCB1	Printed Circuit Board	
TB1	Terminal Board	Main Power
TB2	Terminal Board	Operating Line
MVD1, MVS1 MVD2, MVS2	Micro-Computer Control Expansion Valve	
NF1	Noise Filter	
EFR	Fuse	
CA	Capacitor	

Mark	Torque to tighten the terminal
TB1	1. 0~1. 3 (N·m)
TB2	1. 0~1. 3 (N·m)

—: Factory Wiring
—: Field Wiring

Note:

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

13. Miscellaneous Notes

Special Notes

1. Provide a service access door near the unit piping connection part on the false ceiling for the cassette type units.
2. Consider the air distribution from the unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained.
Cassette and Ceiling Types - Avoid unit installation in a room where the ceiling height (distance between the floor to the false ceiling) exceeds three meters. If the indoor unit is installed in a room with a ceiling of higher than 3 meters, it is recommended that an air circulation fan be installed separately to obtain uniform air temperature in the room, especially during the heating operation.
3. Check to ensure that the ceiling slab is strong enough and that the false ceiling is flat and level.
4. Avoid obstacles which may restrict the air intake or the discharge flow.
5. Do not install the unit in a machinery shop or kitchen where vapor from oil or its mist can enter to the unit.
The oil will deposit on the heat exchanger, thereby reducing the unit performance, and may deform, in the worst case, break the plastic parts of the unit.
6. Pay attention to the following points when the unit is installed in a hospital or other facilities where electromagnetic wave is radiated from medical equipment.
 - (A) Do not install the unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
 - (B) Install the unit and component as far as practical (at least three meters) from the electromagnetic wave radiator.
 - (C) Prepare a steel box and install the remote control switch in it. Prepare a steel conduit pipe and wire the remote control cable in it. And then, connect earth wire with the box and the pipe.
 - (D) Install a noise filter when the power supply emits harmful noise.
7. Do not install the units in an acid or alkaline environment due to the corrosive action on the heat exchanger. In the case that outdoor units are installed near the sea, it is recommended that optional corrosion-resistant type outdoor unit be used.
8. Do not install the units in a flammable environment due to the danger of an explosion.
9. Regarding cassette type indoor units, consider the direct and reflected sound level, when selecting the unit for spaces where extremely low sound is required.
10. During heating operation, the outdoor heat exchanger produces condensate dew or melting water from frost.
Install the outdoor unit where drainage of such water is convenient, or provide a drain passage.
11. Heating Performance: The heating capacity normally decreases when outdoor temperatures decrease. Therefore, provide an auxiliary heating unit if outdoor temperatures are very low.
12. In the case that an outdoor temperature is low and humidity is high, the outdoor heat exchanger will be covered with frost, resulting in lower heating capacity. In order to remove the frost, the unit is automatically changed to the defrosting mode. During this defrosting operation, the unit is stopped for approximately 3 to 10 minutes.
13. As this unit is of heat pump type by circulating hot air in the whole room space, it takes time to heat up the room temperature.
14. The operating sound data is based on an anechoic chamber. Therefore, the actual operating sound will be higher due to reflected sound from the floor and wall.
15. In the case that the unit is operated for a long time higher than the indoor temperature of 27°CDB or the humidity of 80%, dewing may occur on the cabinets resulting in dew drops. If dewing, it is required to add thermal insulator on the cabinets.
16. Provide snow-protection hoods to prevent the outdoor heat exchanger from snow clogging. If the unit is operated in an area where it snows heavily, provide a base under the outdoor unit which should be 50cm higher than the presumable maximum snow height.
17. It is recommended that periodical service and maintenance be performed by authorized service engineers before air conditioning seasons, in order to avoid performance decrease due to dust or dirt.
18. This heat pump air conditioner has been designed for normal air conditioning for men. Do not apply to other purposes such as for food, animals, plants, high precision machines or work of art. Also do not apply to vehicles or vessels. It will result in water leakage or electrical leakage.
19. It is recommended that the system be installed by authorized engineers. If not, it may cause water leakage, electric shock or fire.
20. In a place where fibers or dusts are floating, the air filter or heat exchangers or the drain pipe may be clogged, resulting in water leakage from the drain pan.

14. Standard Specifications

UNIT - The unit shall be a multi-split system inverter-driven heat pump air conditioner for application with R410A refrigerants, and shall be composed of 4-way cassette type indoor units, or in-the-ceiling type indoor units, 2-way cassette type indoor units, ceiling type indoor units, wall type indoor units, floor type indoor units and an outdoor unit, with a distributed refrigeration cycle, electrical components and enclosing cabinets. Optional accessories shall also be provided upon customer request. The indoor unit shall be constructed for installation, and the outdoor unit shall be completely weather-proofed for outdoor installation. Both indoor unit and the outdoor unit shall be properly assembled, internally piped and wired, thoroughly tested, and charged with R410A refrigerant at the factory and shall comply with Japanese Industrial Standards and other Japanese standardization statutes.

CAPACITY - The total capacity of the multi-split system inverter-driven heat pump air conditioner shall be ____kW or greater with ____°C air inlet dry bulb, ____°C air inlet wet bulb, ____°C outdoor air inlet temperature and ____m³/min. indoor air flow. The total compressor power inputs shall not exceed ____kW. The total heating capacity of the split-type air conditioners shall be ____kW or greater, with ____°C indoor heat exchanger air inlet dry bulb, ____°C outdoor heat exchanger air inlet dry bulb, ____°C outdoor heat exchanger air inlet wet bulb, and ____m³/min. indoor air flow. The total compressor power input shall not exceed ____kW.

OUTDOOR UNIT

CABINET - The cabinet shall be constructed of galvanized steel sheet, baked with synthetic resin paint. The service panel shall be easily removable for service access to the electrical components and the compressor section.

REFRIGERATION CYCLE - Each refrigeration cycle shall be equipped with (a) scroll compressor(s), a solenoid valve, a heat exchanger, an accumulator, a 4-Way valve and flare connection parts.

COMPRESSOR PROTECTION - The compressor shall be protected against breakdown by a quick response overcurrent relay, a high pressure switch, a wrap-around type oil heater and a discharge gas thermistor.

OUTDOOR FAN AND FAN MOTOR - The outdoor fan(s) shall be the plastic propeller type, dynamically balanced, and the fan shall be directly driven by a ____W motor for vertical-flow air discharge. The fan motor shall be permanently lubricated and be protected from ingress of water.

OUTDOOR HEAT EXCHANGER - The heat exchanger shall be the multi-pass, cross-finned tube type, equipped with highly-efficient aluminum fins, mechanically bonded to oxygen-free copper tubes. The coil shall be cleaned, dehydrated and tested for leakage at the factory.

CONTROL - All electrical control devices, shall be enclosed in the indoor and outdoor units.

In addition to the compressor protection devices, the indoor fan motor shall be equipped with an internal thermostat. The outdoor fan motor shall be protected by an internal thermostat. The indoor fan motor shall be directly supplied with the power source from the control circuit. The functions of these control devices shall compose an electrical sequence of manual starting and stopping, automatic continuous operation whenever the room thermostat requires, and the protection devices allow the operation.

CABINET - The cabinet shall be constructed of galvanized steel sheet.

REFRIGERATION CYCLE - The refrigeration cycle shall be equipped with solenoid valves and flare connections to changeover the cycle in mediating between outdoor unit and indoor unit.

15. Caution on Refrigerant Leakage

15.1 Maximum Permissible Concentration of HFC Gas

The refrigerant R410A, charged in the SET-FREE FSXNQ system, is an incombustible and non-toxic gas. However, if leakage occurs and gas fills a room, it may cause suffocation.

The maximum permissible concentration of R410A in air is $*0.3 \text{ kg/m}^3$, according to the refrigeration and air conditioning facility standard (KHK S 0010) by the KHK (High Pressure Gas Protection Association) Japan. Therefore, some effective measure must be taken to lower the R410A concentration in air below $*0.3 \text{ kg/m}^3$, in case of leakage.

15.2 Calculation of Refrigerant Concentration

- (1) Calculate the total quantity of refrigerant R (kg) charged in the system connecting all the indoor units of rooms to be air-conditioned.
- (2) Calculate the room Volume V (m^3) of each room.
- (3) Calculate the refrigerant concentration C (kg/m^3) of the room according to the following equation.

$$\frac{\text{R: Total Quantity of Charged Refrigerant (kg)}}{\text{V: Room Space for each Indoor Unit (m}^3\text{)}} = \text{C: Refrigerant Concentration} \leq *0.3 (\text{kg/m}^3)$$

15.3 Countermeasure for Refrigerant Leakage According to KHK Standard

The facility shall be arranged as follows referring to the KHK standards, so that the refrigerant concentration will be below $*0.3 \text{ kg/m}^3$.

- (1) Provide a shutterless opening which will allow fresh air to circulate into the room.
- (2) Provide a doorless opening of 0.15% or more size to the floor area.
- (3) Provide a ventilator, linked with a gas leak detector, of $0.4 \text{ m}^3/\text{min.}$ or more ventilating capacity per Japanese Refrigeration Ton (= compressor displacement $\text{m}^3/\text{h} / 5.7$) of the air conditioning system utilizing refrigerant R410A.

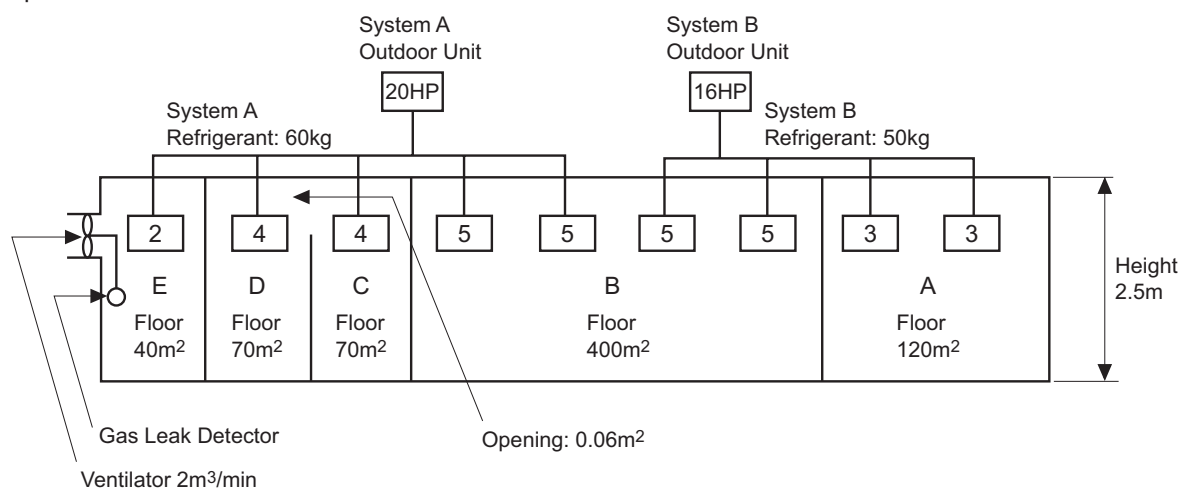
50Hz / 60Hz

RAS-8FSXNQ	4.11 / 4.11	ton
RAS-10FSXNQ	4.11 / 4.11	ton
RAS-12FSXNQ	4.11 / 4.11	ton
RAS-14FSXNQ	6.08 / 6.48	ton
RAS-16FSXNQ	6.08 / 6.48	ton
RAS-18FSXNQ	6.51 / 6.54	ton
RAS-20FSXNQ	8.22 / 8.22	ton
RAS-22FSXNQ	10.19 / 10.59	ton
RAS-24FSXNQ	10.19 / 10.59	ton
RAS-26FSXNQ	10.19 / 10.59	ton
RAS-28FSXNQ	12.16 / 12.96	ton
RAS-30FSXNQ	12.16 / 12.96	ton
RAS-32FSXNQ	12.16 / 12.96	ton
RAS-34FSXNQ	12.59 / 13.02	ton
RAS-36FSXNQ	13.02 / 13.08	ton
RAS-38FSXNQ	14.30 / 14.70	ton
RAS-40FSXNQ	14.30 / 14.70	ton
RAS-42FSXNQ	14.73 / 14.76	ton
RAS-44FSXNQ	16.70 / 17.13	ton
RAS-46FSXNQ	16.70 / 17.13	ton
RAS-48FSXNQ	17.13 / 17.19	ton
RAS-50FSXNQ	19.10 / 19.56	ton
RAS-52FSXNQ	19.10 / 19.56	ton
RAS-54FSXNQ	19.53 / 19.62	ton

- (4) Pay a special attention to the place, such as a basement, etc., where refrigerant can stay, since refrigerant is heavier than air.

*: In case of KHK S 0010, this value should be decided according to the each country's regulations such as ISO5149 and EN378.

<Example>



Room	R (kg)	V (m ³)	C (kg/m ³)	Countermeasure
A	50	300	0.17	-
B	110	1,000	0.11	-
C	60	175	0.34	0.06 m ² Opening
D	60	175	0.34	0.06 m ² Opening
C + D	60	350	0.171	-
E	60	100	0.6	2 m ³ /min. Ventilator Linked with Gas Leak Detector

If local codes or regulations are specified, follow them.

<Example>

European Standard, EN378

R410A Commercial Office Building Class D Occupancy

MR = C×V

MR: Maximum Charge or Leakage of Refrigerant (kg)

C: Maximum Allowable Concentration = 0.17 (kg/m³)V: Volume of Space (m³)

Installation and Operation

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1. Safety Summary

DANGER

- Do not perform installation work, refrigerant piping work, drain pump, drain piping and electrical wiring connection without referring to our installation manual. If the instructions are not followed, it may result in a water leakage, electric shock or a fire.
- Use the specified non-flammable refrigerant (R410A) to the outdoor unit in the refrigerant cycle.
Do not charge material other than R410A into the unit such as hydrocarbon refrigerants (propane or etc.), oxygen, flammable gases (acetylene or etc.) or poisonous gases when installing, maintaining and moving. These flammables are extremely dangerous and may cause an explosion, a fire, and injury.
- Do not pour water into the indoor or outdoor unit. These products are equipped with electrical parts. If poured, it will cause a serious electrical shock.
- Do not open the service cover or access panel for the indoor or outdoor units without turning OFF the main power supply.
- Do not touch or adjust safety devices inside the indoor unit or outdoor units. If these devices are touched or readjusted, it may cause a serious accident.
- Refrigerant leakage can cause difficulty with breathing due to insufficient air. Turn OFF the main switch, extinguish any naked flames and contact your service contractor, if refrigerant leakage occurs.
- Make sure that the refrigerant leakage test should be performed.
Refrigerant (Fluorocarbon) for this unit is incombustible, non-toxic and odorless.
However if the refrigerant is leaked and is contacted with fire, toxic gas will generate.
Also because the fluorocarbon is heavier than air, the floor surface will be filled with it, which could cause suffocation.
- The installer and system specialist shall secure safety against refrigerant leakage according to local regulations or standards.
- Use an ELB (Earth Leakage Breaker).
In the event of fault, there is danger of an electric shock or a fire if it is not used.
- Do not install the outdoor unit where there is high level of oil mist, flammable gases, salty air or harmful gases such as sulfur.
- For installation, firmly connect the refrigerant pipe before the compressor starts operating.
For maintenance, relocation and disposal, remove the refrigerant pipe after the compressor stops.
- Do not perform a short-circuit of the protection device such as a pressure switch when operating.
It may cause a fire and explosion.

⚠ WARNING

- Do not use any sprays such as insecticide, lacquer, hair spray or other flammable gases within approximately one (1) meter from the system.
- If circuit breaker or fuse is often activated, stop the system and contact your service contractor.
- Check that the ground wire is securely connected. If the unit is not correctly grounded, it lead electric shock. Do not connect the ground wiring to gas piping, water piping, lighting conductor or ground wiring for telephone.
- Connect a fuse of specified capacity.
- Before performing any brazing work, check to ensure that there is no flammable material around. When using refrigerant be sure to wear leather gloves to prevent cold injuries.
- Protect the wires, electrical parts, etc. from rats or other small animals.
If not protected, rats may gnaw at unprotected parts and which may lead to a fire.
- Fix the cables securely. External forces on the terminals could lead to a fire.
- Provide a sufficiently strong foundation. If not, the unit may fall down and it may lead to injuries.
- Do not install the unit in a place where oil, vapor, organic solvent and corrosive gas (ammonia, sulfur compound and acid) may be present in quantities.
It may cause refrigerant leakage due to corrosion, electrical shock, deteriorated performance and breakage.
- Perform electrical work according to Installation Manual and all the relevant regulation and standards.
If the instructions are not followed, an electrical shock and fire may occur due to insufficient capacity and inadequate performance.
- Use specified cables between units and choose the cables correctly. If not, an electrical shock or fire may occur.
- Ensure that the wiring terminals are tightened securely with the specified torques. If not, generating fire or electrical shock at the terminal connection part may occur.

⚠ CAUTION

- Do not step or put any material on the product.
- Do not put any foreign material on the unit or inside the unit.
- Provide a strong and correct foundation so that;
 - a. The outdoor unit is not on an incline.
 - b. Abnormal sound dose not occur.
 - c. The outdoor unit will not fall down due to a strong wind or earthquake.

NOTICE

- Do not install the indoor unit, outdoor unit, remote control switch and cable within approximately 3 meters from strong electromagnetic wave radiators such as medical equipment.
- Supply electrical power to the system to energize the oil heater for 12 hours before startup after a long shutdown.
- Make sure that the outdoor unit is not covered with snow or ice, before operation.
- In some cases, the packaged air conditioner may not be operated normally under the following cases.
 - * In case that electrical power for the packaged air conditioner is supplied from the same power transformer as the device*.
 - * In case that the power source wires for the device* and the packaged air conditioner are located close to each other.

Device*: (Ex) Lift, container crane, rectifier for electric railway, inverter power device, arc furnace, electric furnace, large-sized induction motor and large-sized switch.
It consumes a large quantity of electrical power.

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

Therefore, check the field regulations and standards before performing electrical work in order to protect the power supply for the packaged air conditioner.

NOTE

- It is recommended that the room will be ventilated every 3 to 4 hours.
- The heating capacity of the heat pump unit is decreased according to the outdoor air temperature. Therefore, it is recommended that auxiliary heating equipment be used in the field when the units is installed in a low temperature region.

2. Structure

2.1 Outdoor Unit & Refrigerant Cycle

Regarding structure drawings and refrigerant cycle diagram, please refer to Technical Data in this Technical Catalog.

2.2 Necessary Tools and Instrument List for Installation

No.	Tool	No.	Tool	No.	Tool	No.	Tool
1	Handsaw	6	Copper Pipe Bender	11	Spanner	16	Leveller
2	Phillips Screwdriver	7	Plier	12	Charging Cylinder	17	Clamper for Solderless Terminals
3	Vacuum Pump	8	Pipe Cutter	13	Gauge Manifold	18	Hoist (for Indoor Unit)
4	Refrigerant Gas Hose	9	Brazing Kit	14	Cutter for Wires	19	Ammeter
5	Megohmmeter	10	Hexagon Wrench	15	Gas Leak Detector	20	Voltage Meter

Use tools and measuring instruments only for the new refrigerant R410A which is directly touch to refrigerant.

DANGER

The pressure of refrigerant R410A is 1.4 times higher than that of conventional refrigerant, impurities such as moisture, oxide film, and grease affect easily R410A. Be sure to remove any moisture, dust, different refrigerant or refrigerant oil from the refrigerant cycle.

Therefore, if the specified materials are not used, it may cause explosion, injury, leakage, electrical shock or fire.

NOTICE

Check the design pressure for this product is 4.15MPa.

To avoid accidental mixing of the different refrigerant or different refrigerant oil, the sizes of the charging connections have been changed.

It is necessary to prepare the following tools before performing the installation work.

INSTALLATION & OPERATION

◇ : Interchangeability is available with current R22

● : only for Refrigerant R410A (No Interchangeability with R22)

× : Prohibited

◆ : only for Refrigerant R407C (No Interchangeability with R22)

Measuring Instrument and Tool		Interchangeability with R22		Reason of Non-Interchangeability and Attention (★ : Strictly Required)	Use
		R410A	R407C		
Refrigerant Pipe	Pipe Cutter Chamfering Reamer	◇	◇	-	Cutting Pipe Removing Burrs
	Flaring Tool	◇●	◇	* The flaring tools for R407C are applicable to R22.	Flaring for Tubes
	Extrusion Adjustment Gauge	●	-	* If using flaring tube, make dimension of tube larger for R410A. * In case of material 1/2H, flaring is not available.	Dimensional Control for Extruded Portion of Tube after Flaring
	Pipe Bender	◇	◇	* In case of material 1/2H, bending is not available. Use elbow for bend and braze.	Bending
	Expanding Tool	◇	◇	* In case of material 1/2H, expanding of tube is not available. Use socket for connecting tube.	Expanding Tubes
	Torque Wrench	●	◇	* For φ12.7, φ15.88, spanner size is up 2mm.	Connection of Flare Nut
		◇	◇	* For φ6.35, φ9.53, φ19.05, spanner size is the same.	
	Brazing Tool	◇	◇	* Perform correct brazing work.	Brazing for Tubes
	Nitrogen Gas	◇	◇	* Strict Control against Contamin (Blow nitrogen during brazing.)	Prevention from Oxidation during Brazing
Vacuum Drying Refrigerant Charge	Lubrication Oil (for Flare Surface)	●	◆	* Use a synthetic oil which is equivalent to the oil used in the refrigeration cycle. * Synthetic oil absorbs moisture quickly.	Applying Oil to the Flared Surface
	Refrigerant Cylinder	●	◆	* Check refrigerant cylinder color. ★ Liquid refrigerant charging is required regarding zeotropic refrigerant.	Refrigerant Charging
	Vacuum Pump	◇	◇	★ The current ones are applicable. However, it is required to mount a vacuum pump adapter which can prevent from reverse flow when a vacuum pump stops, resulting in no reverse oil flow.	Vacuum Pumping
	Adapter for Vacuum Pump	* ●	◆		
	Manifold Valve	●	◆	* No interchangeability is available due to higher pressures when compared with R22. ★ Do not use current ones to the different refrigerant. If used, mineral oil will flow into the cycle and cause sludges, resulting in clogging or compressor failure. Connection diameter is different; R410A: UNF1/2, R407C: UNF7/16.	Vacuum Pumping, Vacuum Holding, Refrigerant Charging and Check of Pressures
	Charging Hose	●	◆		
	Charging Cylinder	×	×	* Use the weight scale.	-
	Weight Scale	◇	◇	-	Measuring Instrument for Refrigerant Charging
	Refrigerant Gas Leakage Detector	* ●	◆	* The current gas leakage detector (R22) is not applicable due to different detecting method.	Gas Leakage Check

*: Interchangeability with R407C.

3. Before Installation

3.1 Line-Up of Outdoor Unit

< Base Unit >

HP	8	10	12	14	16	18
Model	RAS-8FSXNQ	RAS-10FSXNQ	RAS-12FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ

< Combination of Base Units > *

HP	20	22	24	26	28	30
Model	RAS-20FSXNQ	RAS-22FSXNQ	RAS-24FSXNQ	RAS-26FSXNQ	RAS-28FSXNQ	RAS-30FSXNQ
Combination	RAS-8FSXNQ	RAS-8FSXNQ	RAS-10FSXNQ	RAS-12FSXNQ	RAS-14FSXNQ	RAS-14FSXNQ
	RAS-12FSXNQ	RAS-14FSXNQ	RAS-14FSXNQ	RAS-14FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ

HP	32	34	36	38	40	42
Model	RAS-32FSXNQ	RAS-34FSXNQ	RAS-36FSXNQ	RAS-38FSXNQ	RAS-40FSXNQ	RAS-42FSXNQ
Combination	RAS-16FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ
	RAS-16FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ
	-	-	-	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ

HP	44	46	48	50	52	54
Model	RAS-44FSXNQ	RAS-46FSXNQ	RAS-48FSXNQ	RAS-50FSXNQ	RAS-52FSXNQ	RAS-54FSXNQ
Combination	RAS-12FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ
	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ
	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ

*: Regarding the configuration of outdoor units especially for 20 ~ 54HP, combine the specified based units (2 or 3) as shown in the table above.

3.2 Combination of Indoor Unit and Outdoor Unit

The following indoor units can be combined with the HITACHI SET-FREE FSXNQ outdoor unit.

Table 3.1 Indoor Unit Type List

Indoor Unit Type	Nominal Capacity (HP)														
	0.8	1.0	1.3	1.5	1.8	2.0	2.3	2.5	3.0	3.3	4.0	5.0	6.0	8.0	10.0
In-the-Ceiling	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
In-the-Ceiling(Low-height)	○	○	○	○	○	○	○	○							
4-Way Cassette		○	○	○	○	○	○	○	○	○	○	○	○		
2-Way Cassette		○		○		○		○	○		○	○			
Wall	○	○	○	○	○	○	○	○							
Floor		○		○											
Floor Concealed		○		○		○		○							
Ceiling				○		○		○	○		○	○	○		
Slim In-the-Ceiling	○	○	○	○											

○ : Available

- The number of connectable indoor unit with SET-FREE FSXNQ series outdoor unit is as follows. Comply with the condition as follows when installing the unit.
- A maximum total capacity of 130% and a minimum total capacity of 50% can be obtained by combination of the indoor units when compared with the nominal outdoor unit capacity.

Table 3.2 System Combination

Outdoor Unit	Min. Capacity at Individual Operation (HP)	Max. Number of Connectable I.U.	Recommended Number of Connectable I.U.	Range of Combination Capacity
RAS-8FSXNQ	0.8	13	8	50 to 130%
RAS-10FSXNQ		16	10	
RAS-12FSXNQ		19	10	
RAS-14FSXNQ		23	16	
RAS-16FSXNQ		26	16	
RAS-18FSXNQ		26	16	
RAS-20FSXNQ		33	18	
RAS-22FSXNQ		36	20	
RAS-24FSXNQ		40	26	
RAS-26FSXNQ		43	26	
RAS-28FSXNQ		47	32	
RAS-30FSXNQ		50	32	
RAS-32FSXNQ		53	32	
RAS-34FSXNQ		56	32	
RAS-36FSXNQ		59	32	
RAS-38FSXNQ		64	38	
RAS-40FSXNQ		64	38	
RAS-42FSXNQ		64	38	
RAS-44FSXNQ		64	38	
RAS-46FSXNQ		64	38	
RAS-48FSXNQ		64	38	
RAS-50FSXNQ		64	38	
RAS-52FSXNQ		64	38	
RAS-54FSXNQ		64	38	

NOTES:

1. For the system which all indoor units are operated simultaneously, the total indoor unit capacity should be less or equal to the outdoor unit capacity. If not, poor performance or narrow operation range at overload may occur.
2. For the system which all indoor units are not operated simultaneously, the total indoor unit capacity is available up to 130% against the outdoor unit capacity.
3. If the system is used in the cold area (ambient temperature becomes under -10°C) or under the high heating load conditions, the total indoor unit capacity should be less than 100% against the outdoor unit and total piping length is less than 300m.
4. Compared to over 1.3HP of indoor units, 0.8 and 1.0HP of indoor units are set with higher air flow. Do not install these units in the place where the cold draft may occur during heating operation. Determine the usage environment and installation location carefully.
If the unit is installed in such places, the number of connectable I.U. should be less than the recommended number on the table above.

4. Transportation and Handling

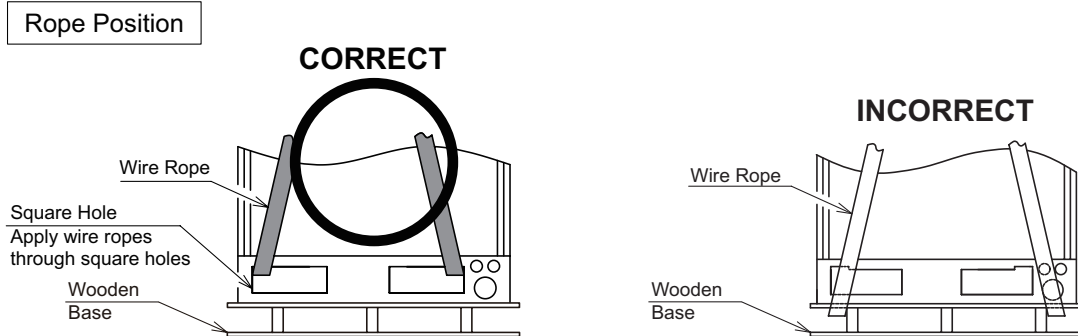
4.1 Transportation

Transport the product as close to the installation location as practical before unpacking.

When using a crane, hang the unit according to the description of the label attached to the outdoor unit.

⚠ DANGER

Do not hang the unit by the ropes at the wooden base.



⚠ CAUTION

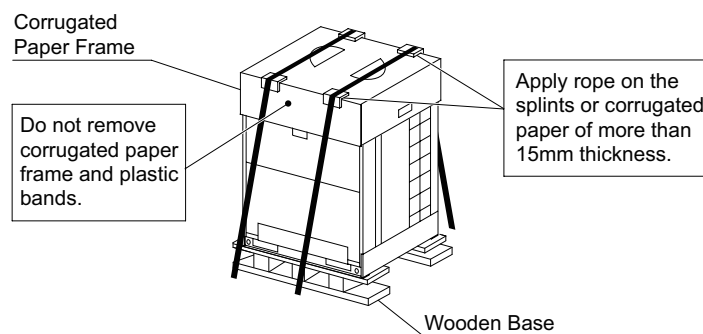
1. Transportation and Storage

The corrugated paper frame is not sufficiently strong, therefore pay attention to the followings in order to prevent the unit deformation.

- Do not step or put any material on the product.
- Apply two lifting wires onto the outdoor unit, when lifting it by crane.

2. Transportation and Wire Rope

- To protect the unit, do not remove any packing.
- Do not stack or put any material on the product.
- Apply wire ropes on the both side of the unit as shown in the figure.



• Hanging Method

When hanging the unit, ensure a balance of the unit, check safety and lift up smoothly.

- (1) Do not remove any packing materials.
- (2) Hang the unit under packing condition with two (2) wire ropes, as shown in Fig. 4.1.

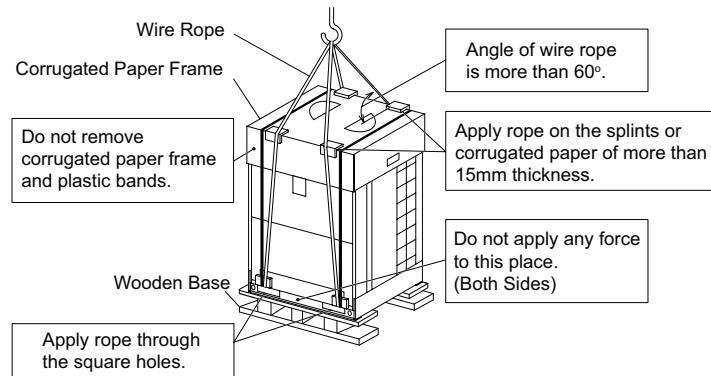


Fig. 4.1 Hanging Work for Transportation

- (3) Hang the unit without wooden base with two (2) wire ropes, as shown in Fig. 4.2.

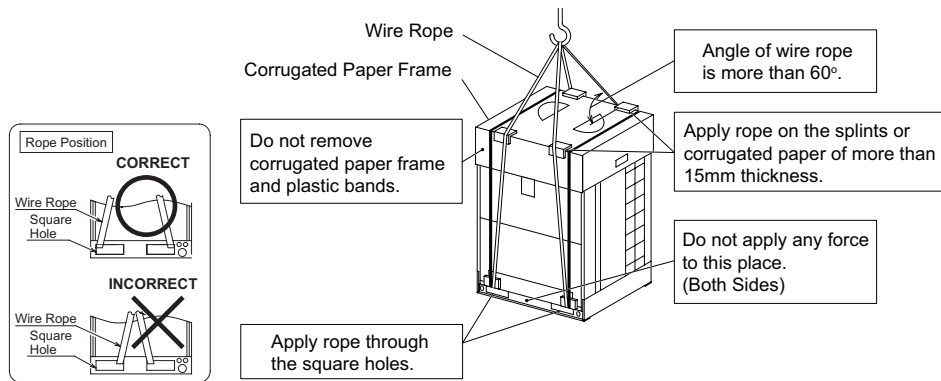
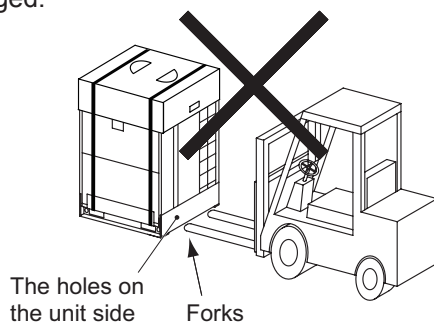


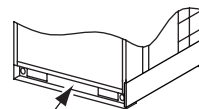
Fig. 4.2 Hanging Work without Wooden Base

When using forklift, do not insert forks into the holes on the unit side. The unit may be damaged.



Do not apply excessive force to the square holes with forks or other materials. The bottom of the unit may be deformed.

- * Do not push the bottom base by fork.
- * Do not use roller.



NOTE

In case of transportation after unpacking, protect the unit with the splints or cloth.

4.2 Handling of Outdoor Unit

! WARNING

Do not put any foreign material into the outdoor unit and check to ensure that none exists in the outdoor unit before the installation and test run. Otherwise, a fire or failure, etc. may occur.

5. Outdoor Unit Installation

5.1 Factory-Supplied Accessories

Check to ensure that the following accessories are packed with the outdoor unit.

Table 5.1 Factory-Supplied Accessories

Accessory			8HP	10HP	12HP	14HP	16HP	18HP	Remarks
Accessory Pipe	(A)	Connection for Refrigerant Gas (High) Pipe	 φ22.2→φ15.88	 φ22.2→φ19.05	-	 φ25.4→φ22.2	 φ25.4→φ22.2	 φ25.4→φ22.2	
	(B)	Connection for Refrigerant Gas (High/Low) Pipe	 φ22.2→φ19.05	-	 φ22.2→φ25.4	-	 φ25.4→φ28.6	 φ25.4→φ28.6	
	(C)	Connection for Refrigerant Liquid Pipe	-	-	 φ9.53→φ12.7	-	-	 φ12.7→φ15.88	
Rubber Bush	For Connection Hole of Power Supply Wire		 ×1	 ×1	 ×1	 ×1	 ×1	 ×1	
Screw (Spare)			 ×3	 ×3	 ×3	 ×3	 ×3	 ×3	
Combination Unit Model Label									

NOTE

If any of these accessories are not packed with the unit, please contact your contractor.

5.2 Installation

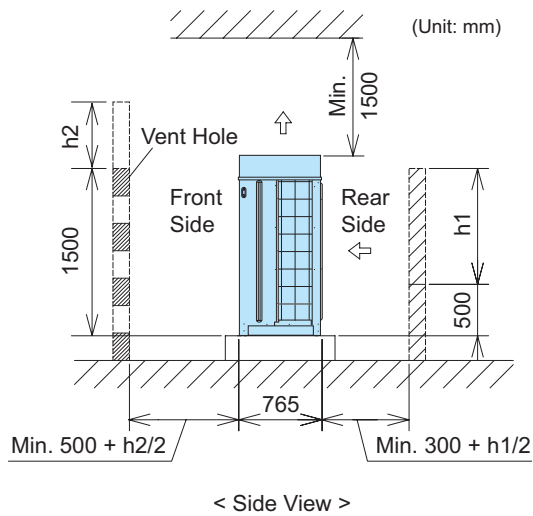
- (1) Install the outdoor unit in a dry well ventilated environment.
- (2) Install the outdoor unit where it is in the shade or it will not be exposed to direct sunshine or direct radiation from high temperature heat source.
- (3) Install the outdoor unit where the sound or the discharge air from the outdoor unit does not affect neighbors or surrounding ventilation. The operating sound at the rear or right/left sides is 3 to 6dB(A) higher than the value in the catalog at the front side.
- (4) Install the outdoor unit in a space with limited access to general public.
- (5) Check to ensure that the foundation is flat, level and sufficiently strong.
- (6) Do not install the outdoor unit where dust or other contamination could block the outdoor heat exchanger.
- (7) When installing the outdoor unit in snow-covered areas, mount the field-supplied hoods on the top of the outdoor unit and the inlet side of the heat exchanger.
- (8) While heating or defrosting operation, drain water is discharged. Provide adequate drainage around the foundation. If installing the unit on a roof or a veranda, avoid draining in or over walkways to prevent water dripping on people or the formation of ice in winter. In case of installing such a place, provide the additional drainage around the foundation.
- (9) Do not install the outdoor unit in a space where a seasonal wind directly blows to the outdoor heat exchanger or a wind from a building space directly blows to the outdoor fan.

NOTES:

1. Do not install the outdoor unit where there is a high level of oil mist, flammable gases, salty air or harmful gases such as sulphur and an acid or alkaline environment.
2. Do not install the outdoor unit where the electromagnetic wave is directly radiated to the electrical control box.
3. Install the outdoor unit as far as possible, being at least 3 meters from the electromagnetic wave radiator.

5.3 Service Space

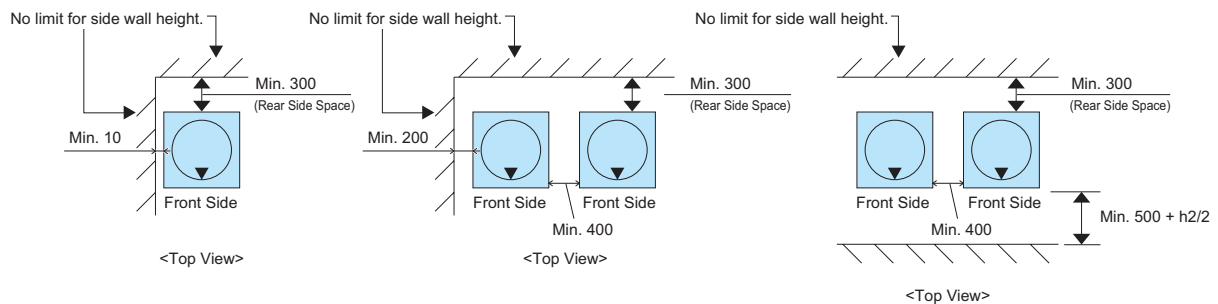
Make the service space when outdoor unit is installed as follows.



- In case of no walls at the front and the rear side of the unit, the space of 500mm for the front side and 300mm for the rear side is required.
- When the wall of front side is higher than 1,500mm, the space of $(500 + h_2/2)$ mm for the front side is required.
- When the wall of rear side is higher than 500mm, the space of $(300 + h_1/2)$ mm for the rear side is required.
- When install the wall in front of the unit, make the vent hole on the wall.
- When the space to the obstacle above the unit is less than 1,500mm or the space above the unit is closed, set up the duct at the air outlet side in order to prevent short circuit.
- When there are obstacles above the unit, the four (front, rear, right and left) sides of the unit shall be open in principle.

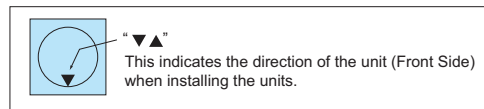
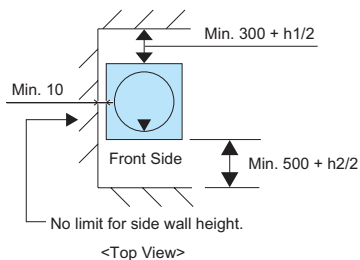
1) Walls on 2 Directions

In case that the units are installed adjacent to tall buildings and there are no walls in 2 directions, the minimum rear side space is 300mm.



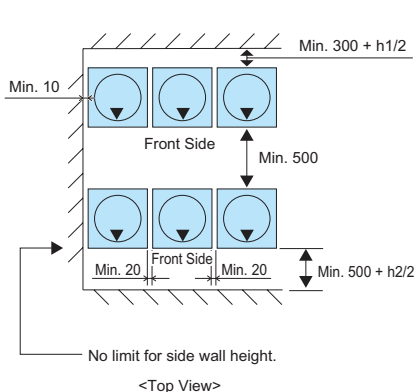
2) Walls on 3 Directions

• Single Installation

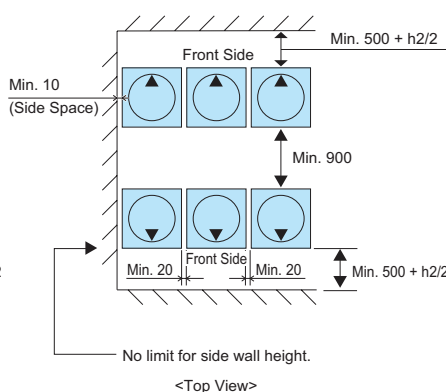


• Multiple / Serial Installation

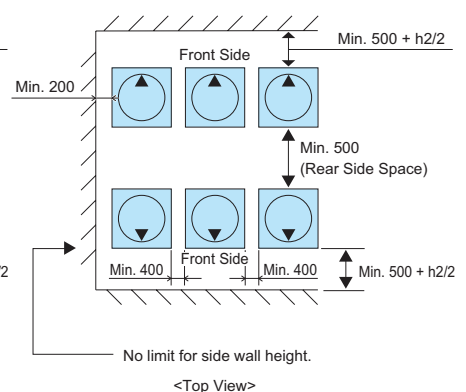
< Installation in the Same Direction >



< Rear to Rear Installation 1 >

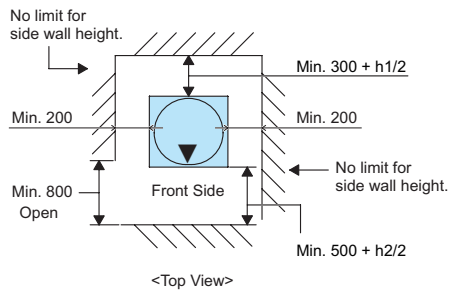


< Rear to Rear Installation 2 >



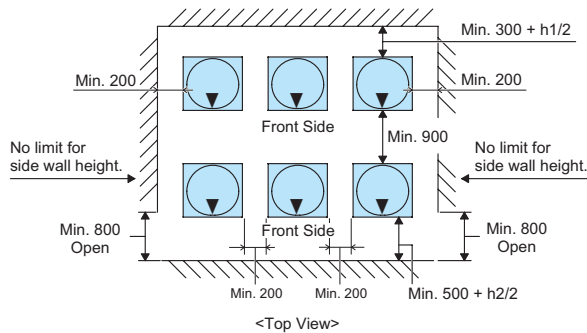
3) Walls on 4 Directions

• Single Installation

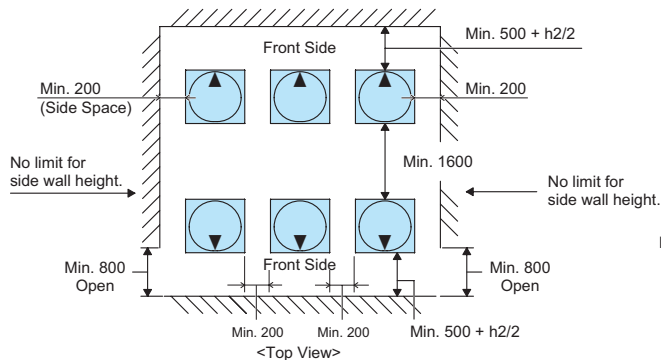


• Multiple / Serial Installation

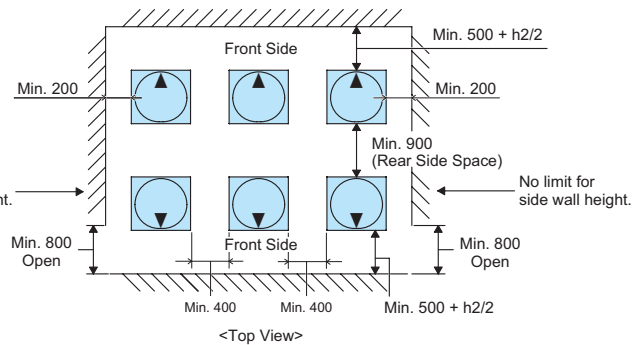
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< Rear to Rear Installation 1 >

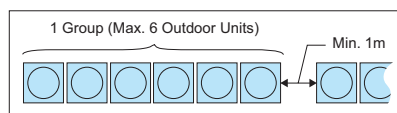


< Rear to Rear Installation 2 >



NOTE

1. Keep the upper side open to prevent mutual interference of inlet and outlet air of each outdoor unit.
2. The figure dimensions are sufficient spaces around outdoor units for operation and maintenance at typical installing conditions as follows. [Operation Mode: Cooling Operation, Outside Temp.: 35°C]
In case that the outdoor unit ambient temperature is higher and also the short circuit is likely to occur compared to the installation condition, find an appropriate dimension by calculating air flow current.
3. For the multiple installation, 1 group allows 6 outdoor units (max.).
The space of 1m between each group is required.

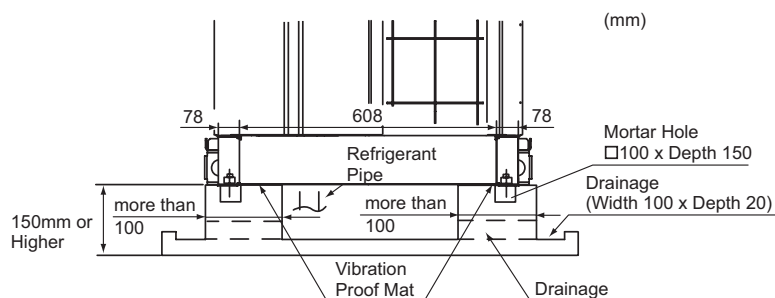


4. Partly open a wall if the unit is surrounded by walls in four directions.

5.4 Foundation

• Concrete Foundations

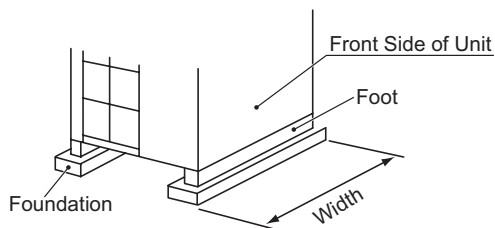
- (1) The height of the foundation should be 150mm higher than the ground level.
- (2) Install a drainage around foundation for smooth drain.



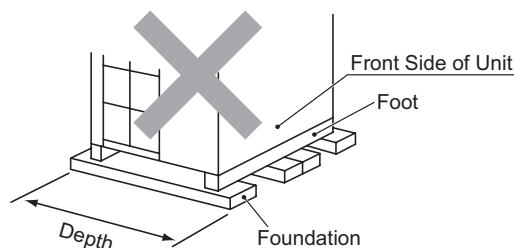
* Provide concrete foundation as shown in the figure.

* Do not provide concrete foundation as shown below. The foot of the outdoor unit may be deformed.

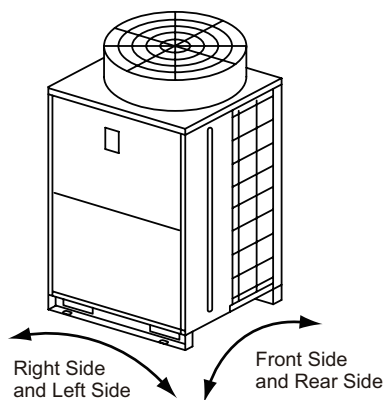
CORRECT



INCORRECT



- (3) Install the outdoor unit in the front-rear and right-left direction horizontally. (Use a level gauge.) Check to ensure that the gradient in four directions (front, rear, right and left) is within 10mm.



- (4) Provide a strong and correct foundation so that;
 - a. The outdoor unit is not on an incline.
 - b. Abnormal sound does not occur.
 - c. The outdoor unit will not fall down due to a strong wind or earthquake.

- (5) When installing the outdoor unit, fix the unit by anchor bolts (field-supplied).
Refer to Fig. 5.1 regarding the location of fixing holes.

< 8HP to 12HP >

< 14HP to 18HP >

Unit: mm

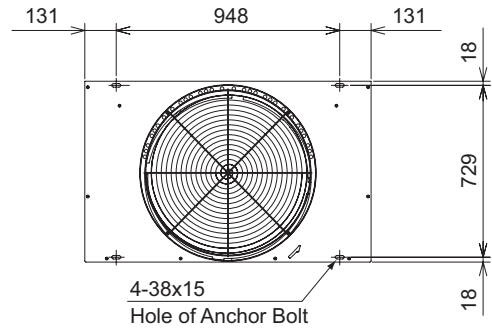
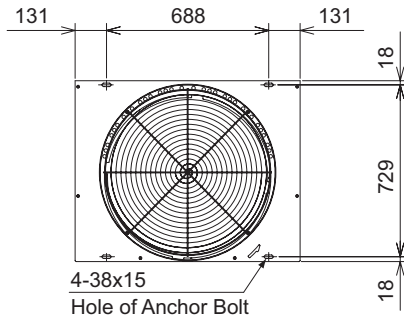
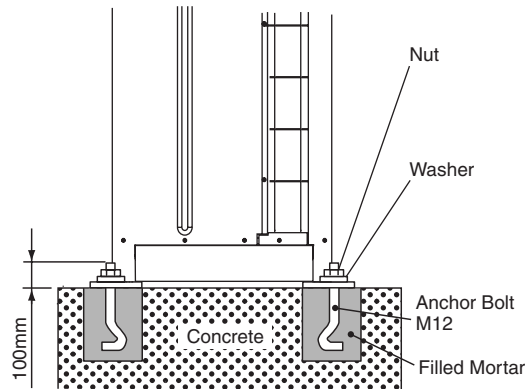


Fig. 5.1 Position of Anchor Bolts

Secure the outdoor unit with the anchor bolts.



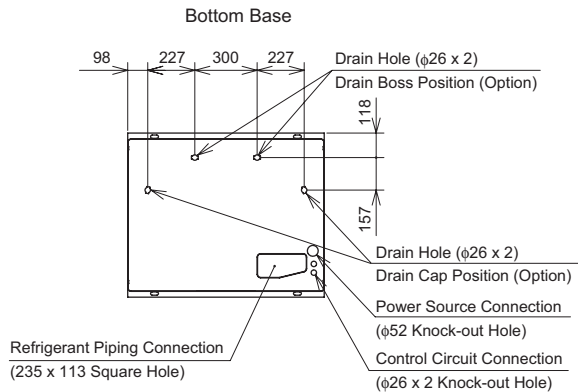
- (6) When installing the unit on a roof or a veranda, drain water sometimes turns to ice on a cold morning. Therefore, avoid draining into an area where people often use because it is slippery.
- (7) When drain piping is necessary for the outdoor unit, use the drain boss set (Optional, DBS-26). Do not use drain boss and drain pan kit in the cold area. The drain water in the drain pipe may be frozen and then the drain pipe may crack.

5.5 Drain Water Treatment

Drain water is discharged during heating and defrosting operation. (Rain water is also discharged.)
Pay attention to the followings.

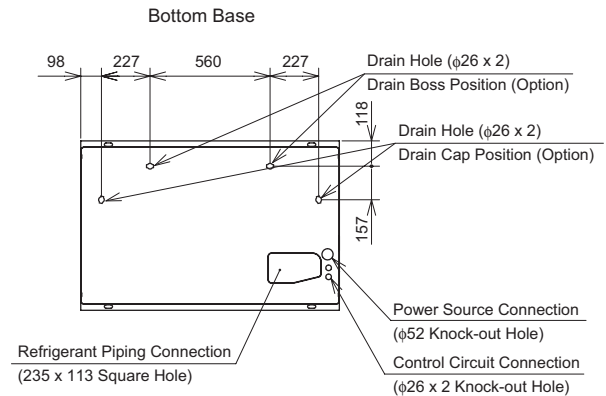
- (1) Choose a place where well drainage is available, or provide a drain ditch.
- (2) Do not install the unit over the walkways. Condensation water may fall on people.
In case of installing the unit in such a place, provide the additional drain pan.
- (3) When drain piping is necessary for the outdoor unit, use the drain boss set (Optional, DBS-26).
Do not use drain boss and drain pan kit in the cold area. The drain water in the drain pipe may be frozen and then the drain pipe may crack.

< 8HP to 12HP >



< 14HP to 18HP >

Unit: mm



• Drain Boss (Optional Parts)

The drain boss is for the drain pipe connection in order to use outdoor unit bottom base as a drain pan.

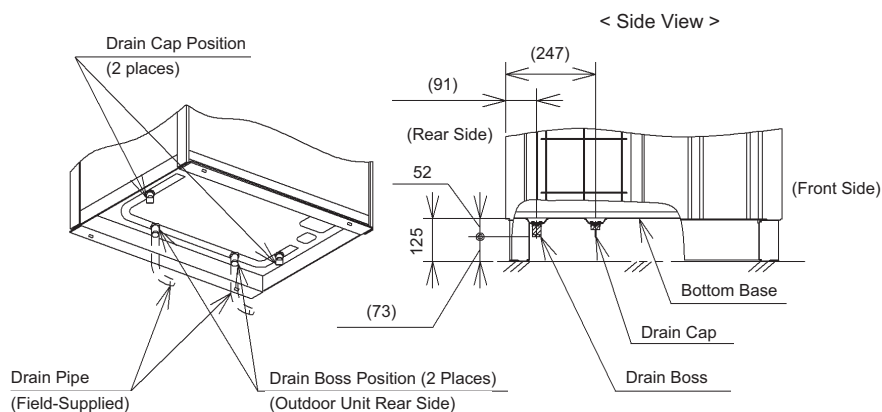
Name	Model
Drain Boss	DBS-26

Component Formation of Drain Boss

Model	Parts Name	Material / Color	Q'ty	Application
DBS-26	Drain Boss	PP / Black	2	Connecting for Drain Piping
	Drain Cap	PP / Black	2	Embolization for Drain Hole
	Rubber Cap	CR / Black	4	Sealing for Boss and Cap

< Installation Position >

Example: RAS-10FSXNQ



6. Refrigerant Piping Work

⚠ DANGER

- Use the specified non-flammable refrigerant (R410A) to the outdoor unit in the refrigerant cycle. Do not charge material other than R410A into the unit such as hydrocarbon refrigerants (propane or etc.), oxygen, flammable gases (acetylene or etc.) or poisonous gases when installing, maintaining and moving. These flammables are extremely dangerous and may cause an explosion, a fire, and injury.
- Check to ensure that no pressure exists inside the stop valve before removing the flange.

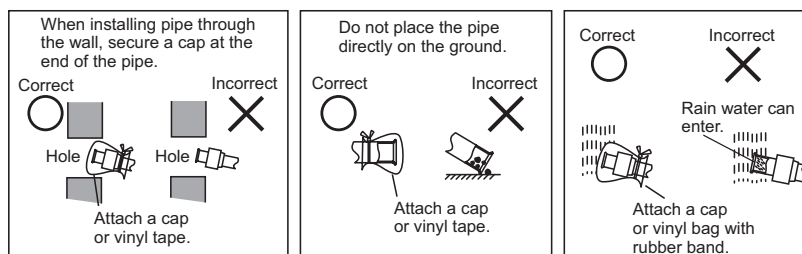
⚠ CAUTION

Ensure to connect the piping among the units in the same refrigerant cycle.

6.1 Piping Materials

- (1) Prepare locally-supplied copper pipes.
- (2) Select the piping size from the Table 6.1 and Table 6.2.
- (3) Select clean copper pipes. Make sure there is no dust and moisture inside of the pipes. Blow the inside of the pipes with nitrogen or dry air, to remove any dust or foreign materials before connecting pipes. Do not use any tools which produce a lot of swarf such as a saw or a grinder.

● Cautions for Refrigerant Pipe Ends



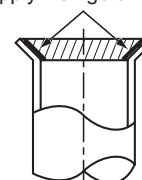
● Cautions for Piping Connection Work

- (1) Connect the indoor/outdoor units with refrigerant pipes. Fix the pipes and pay attention not to contact with weak materials such as ceiling. (Otherwise, abnormal sound may be heard due to the vibration of the piping.)
- (2) Apply refrigerant oil slightly on the sheet surface of the pipe and flare nut before the flaring work. And then tighten the flare nut with the specified tightening torque using two spanners. Perform the flaring work on the liquid piping side before the gas piping side. Check the gas leakage after the flaring work.

NOTE:

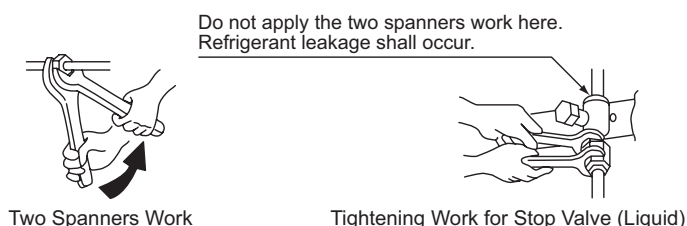
Refrigerant oil is field-supplied.
[Ethereal Oil FVC68D]

Apply Refrigerant Oil.



- (3) In case that temperature and humidity inside the ceiling exceed 27°C/RH80%, apply additional insulation (approx. 10mm thickness) to the accessory insulation. It prevents dew condensation on the surface of the insulation (refrigerant pipe only).
- (4) Perform the air-tight test (4.15MPa for the test pressure).
- (5) Perform cold insulation work by insulating and taping the flare connection and reducer connection. Also insulate all the refrigerant pipes.

● When tightening the flare nut, use two spanners.



⚠ CAUTION

Do not apply excessive force to the flare nut when tightening. If applied, the flare nut may crack due to aged deterioration and refrigerant leakage may occur. Use the specified tightening torque.

Table 6.1 Piping Size of Outdoor Unit
< For Heat Pump System (2 Pipes) >
(mm)

Model	Gas	Liquid
RAS-8FSXNQ	φ19.05	φ9.53
RAS-10FSXNQ	φ22.2	φ9.53
RAS-12FSXNQ	φ25.4	φ12.7
RAS-14FSXNQ		
RAS-16FSXNQ	φ28.6	φ12.7
RAS-18FSXNQ	φ28.6	φ15.88
RAS-20FSXNQ		
RAS-22FSXNQ		
RAS-24FSXNQ		
RAS-26FSXNQ	φ31.75	φ19.05
RAS-28FSXNQ		
RAS-30FSXNQ		
RAS-32FSXNQ		
RAS-34FSXNQ		
RAS-36FSXNQ	φ38.1	φ19.05
RAS-38FSXNQ		
RAS-40FSXNQ		
RAS-42FSXNQ		
RAS-44FSXNQ		
RAS-46FSXNQ		
RAS-48FSXNQ		
RAS-50FSXNQ		
RAS-52FSXNQ		
RAS-54FSXNQ		

< For Heat Recovery System (3 Pipes) >
(mm)

Model	Gas		Liquid
	Low Pressure	High Pressure	
RAS-8FSXNQ	φ19.05	φ15.88	φ9.53
RAS-10FSXNQ	φ22.2	φ19.05	φ9.53
RAS-12FSXNQ	φ25.4	φ22.2	φ12.7
RAS-14FSXNQ			
RAS-16FSXNQ	φ28.6	φ22.2	φ12.7
RAS-18FSXNQ	φ28.6	φ22.2	φ15.88
RAS-20FSXNQ			
RAS-22FSXNQ	φ28.6	φ25.4	φ15.88
RAS-24FSXNQ			
RAS-26FSXNQ	φ31.75	φ25.4	φ19.05
RAS-28FSXNQ	φ31.75	φ28.6	φ19.05
RAS-30FSXNQ			
RAS-32FSXNQ			
RAS-34FSXNQ			
RAS-36FSXNQ			
RAS-38FSXNQ	φ38.1	φ31.75	φ19.05
RAS-40FSXNQ			
RAS-42FSXNQ			
RAS-44FSXNQ			
RAS-46FSXNQ			
RAS-48FSXNQ			
RAS-50FSXNQ			
RAS-52FSXNQ			
RAS-54FSXNQ			

Table 6.2 Piping Size of Indoor Unit

(mm)

Indoor Unit HP	Gas	Liquid
0.8 to 1.5	φ12.7	φ6.35
1.8 and 2.0	φ15.88	φ6.35
2.3 to 6.0	φ15.88	φ9.53
8.0	φ19.05	φ9.53
10.0	φ22.2	φ9.53

• Piping Thickness and Material

Use the pipe as below.

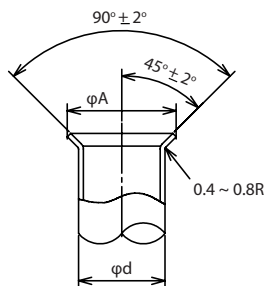
(mm)

Diameter	R410A	
	Thickness	Material
φ6.35	0.8	O material
φ9.53	0.8	O material
φ12.7	0.8	O material
φ15.88	1.0	O material
φ19.05	1.0	1/2H material
φ22.2	1.0	1/2H material
φ25.4	1.0	1/2H material
φ28.6	1.0	1/2H material
φ31.75	1.1	1/2H material
φ38.1	1.35	1/2H material
φ41.3	1.45	1/2H material
φ44.45	1.55	1/2H material

6.2 Flaring and Joint

• Flaring Dimension

Perform the flaring work as shown below.



(mm)

Diameter (φd)	A ⁺⁰ _{-0.4}
	R410A
6.35	9.1
9.53	13.2
12.7	16.6
15.88	19.7
19.05	(*)

(*) It is impossible to perform the flaring work with 1/2H material. In this case, use an accessory pipe (with a flare).

• Joint Selection

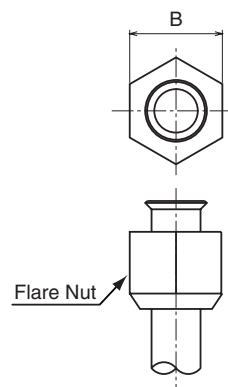
If you use 1/2H material, you can not perform the flaring work. In this case, use a joint selected from the chart below.

< Minimum Thickness of Joint (mm) >

Diameter	R410A
φ6.35	0.5
φ9.53	0.6
φ12.7	0.7
φ15.88	0.8
φ19.05	0.8
φ22.2	0.9
φ25.4	0.95
φ28.6	1.0
φ31.75	1.1
φ38.1	1.35
φ41.3	1.45
φ44.5	1.55

< Flare Nut Dimension B (mm) >

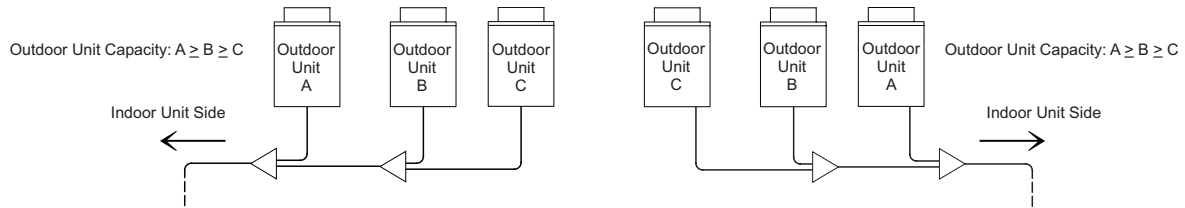
Diameter	R410A
φ6.35	17
φ9.53	22
φ12.7	26
φ15.88	29
φ19.05	36



6.3 Caution about Outdoor Unit Installation

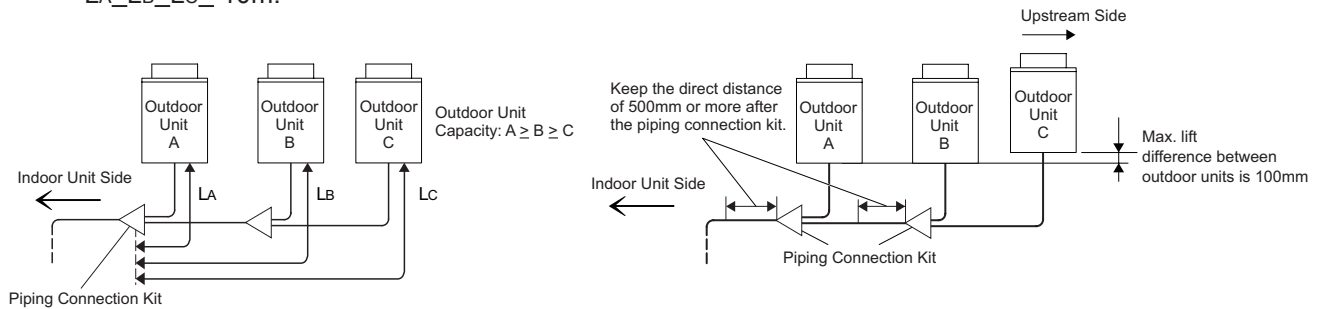
< Outdoor Unit Alignment >

Align the outdoor unit from large capacity as $A \geq B \geq C$ and outdoor Unit "A" should be located at the indoor unit side.



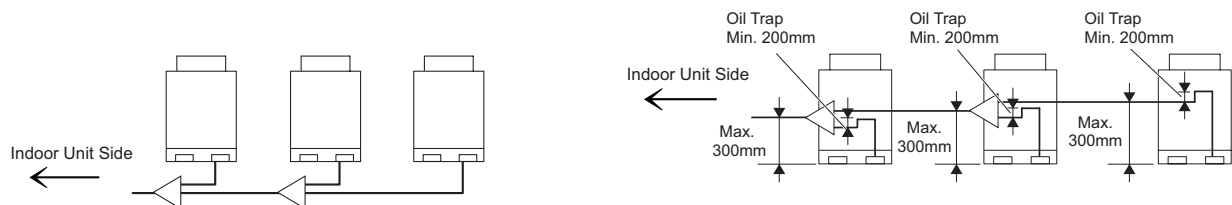
< Piping Work between Outdoor Units >

- (1) Piping length between piping connection kit (at outdoor unit side) and outdoor unit should be $L_A \leq L_B \leq L_C \leq 10\text{m}$.



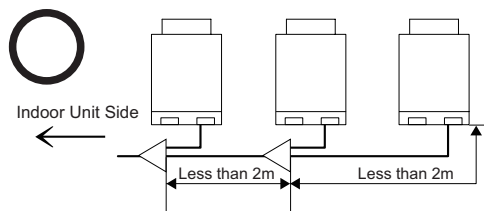
- (2) Place the piping connection kit lower than the outdoor unit piping connection.

In case that the piping connection kit is placed higher than the outdoor unit piping connection, keep 300mm (max.) between the piping connection kit and the bottom of the outdoor unit. Also, provide the oil trap (min. 200mm) between the piping connection kit and the outdoor unit.

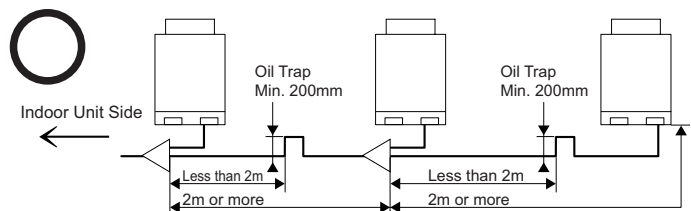


- (3) In case that the piping length between outdoor units is 2m or more, the oil trap should be provided for the gas pipe so that accumulation of refrigerant oil may not occur.

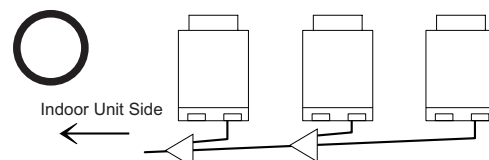
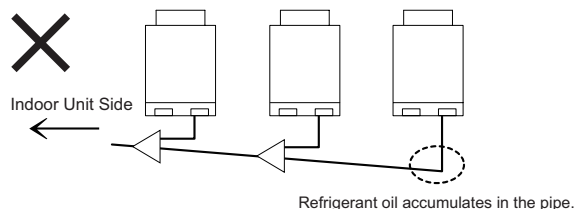
* Less than 2m



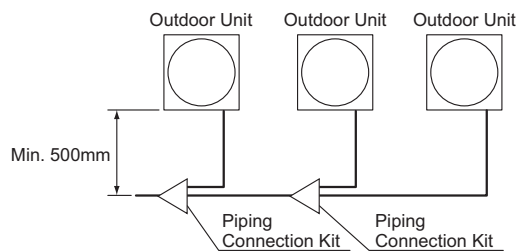
* 2m or More



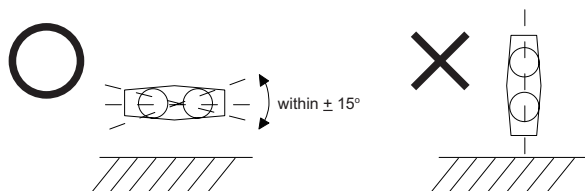
- (4) Place the outdoor unit pipe horizontally or with downward gradient towards the indoor unit side, or refrigerant oil may accumulate in the pipe.



- (5) For servicing, in case that the pipe is placed frontward of the outdoor unit, secure min. 500mm between the outdoor unit and piping connection kit. (When the compressor is replaced, a space of min. 500mm is required.)



- (6) Direction of Piping Connection Kit
Place the piping connection kit vertically towards the ground (within $\pm 15^\circ$) as shown in the figure.



6.4 Piping Connection for Heat Pump System

Perform the piping connection work for each outdoor unit.

NOTE:

Ensure that the refrigerant pipe should be connected to the same refrigerant cycle unit.

- Prepare the refrigerant pipe in the field for the piping work.
Refer to Fig. 6.1 for the position of piping connection.

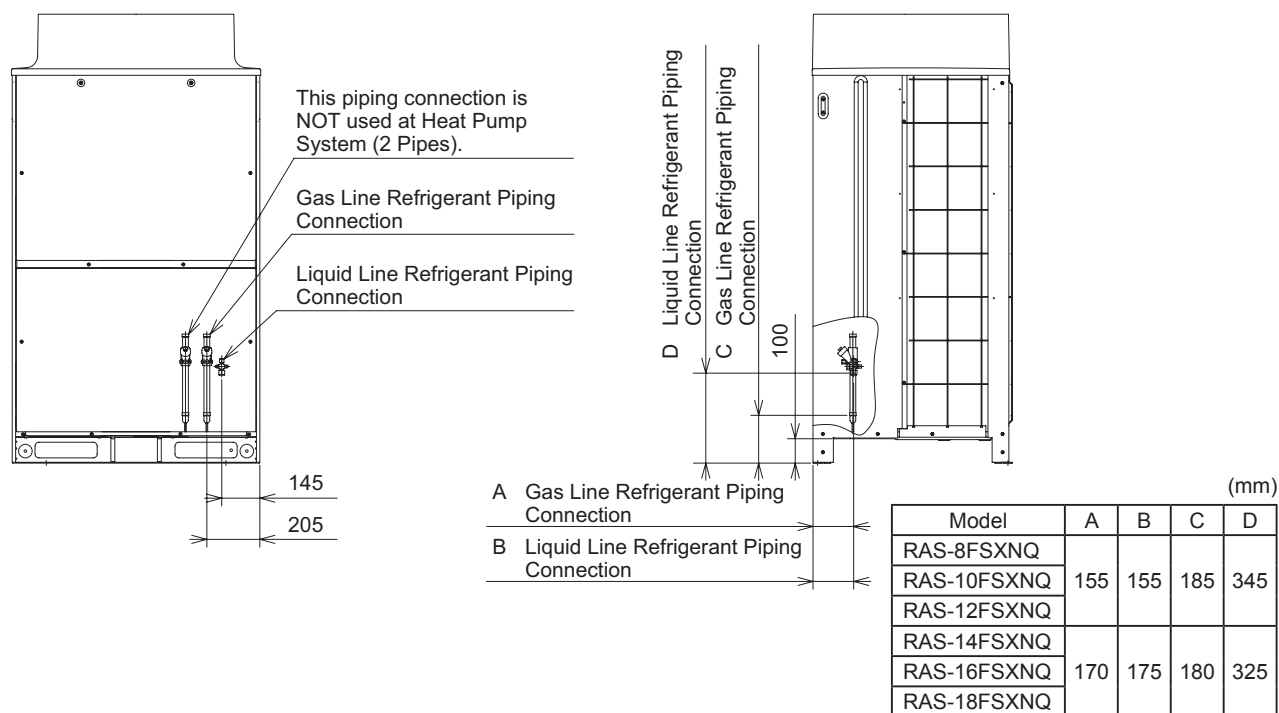
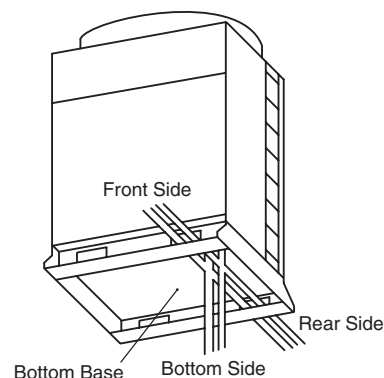


Fig. 6.1 Refrigerant Piping Connection

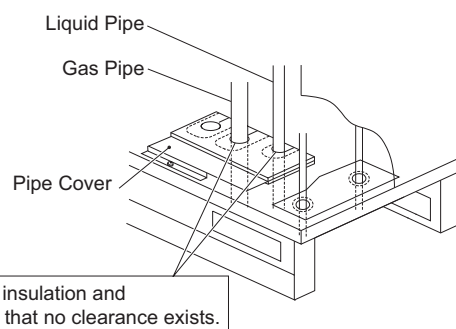
• Piping Direction

Fix the pipes adequately in order to avoid vibration and excessive force to the valve.

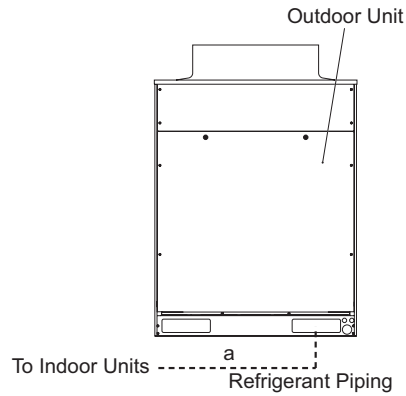
- (1) The pipes are available to connect in three directions (front, rear or bottom side) from the bottom base. For the vibration protection, properly fix the piping connection and check that no excessive force applied to the stop valve.



- (2) Operation of the stop valve should be performed according to Item 6.4.4.
- (3) Connect the pipes according to Table 6.1 and 6.2.
- (4) Completely seal the penetration part of the bottom pipe with insulation in order to prevent rain water entering into the conduit.



6.4.1 Piping Size for RAS-8FSXNQ to RAS-18FSXNQ (Base Unit)



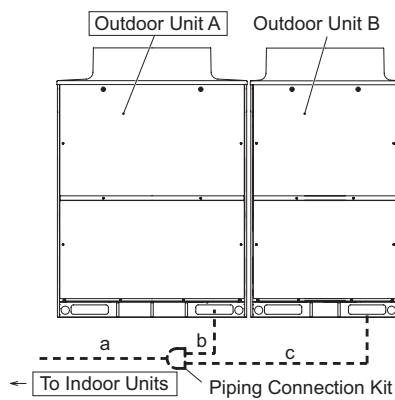
(φmm)

Model		RAS-8FSXNQ	RAS-10FSXNQ	RAS-12FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ
Piping Size	a Gas	19.05	22.2	25.4	25.4	28.6	28.6
	Liquid	9.53	9.53	12.7	12.7	12.7	15.88

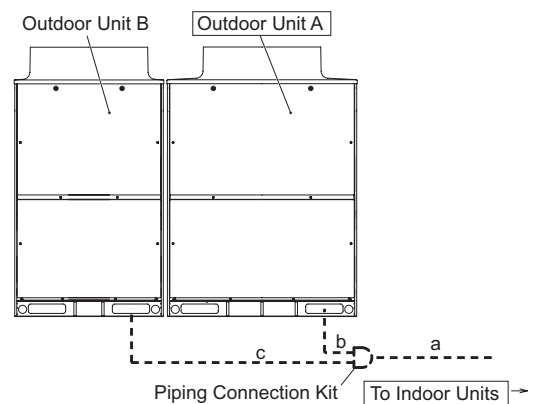
6.4.2 Piping Size for RAS-20FSXNQ to RAS-36FSXNQ (2 Units Combination)

< Figure for RAS-24FSXNQ >

(Indoor Unit on Left Side)



(Indoor Unit on Right Side)



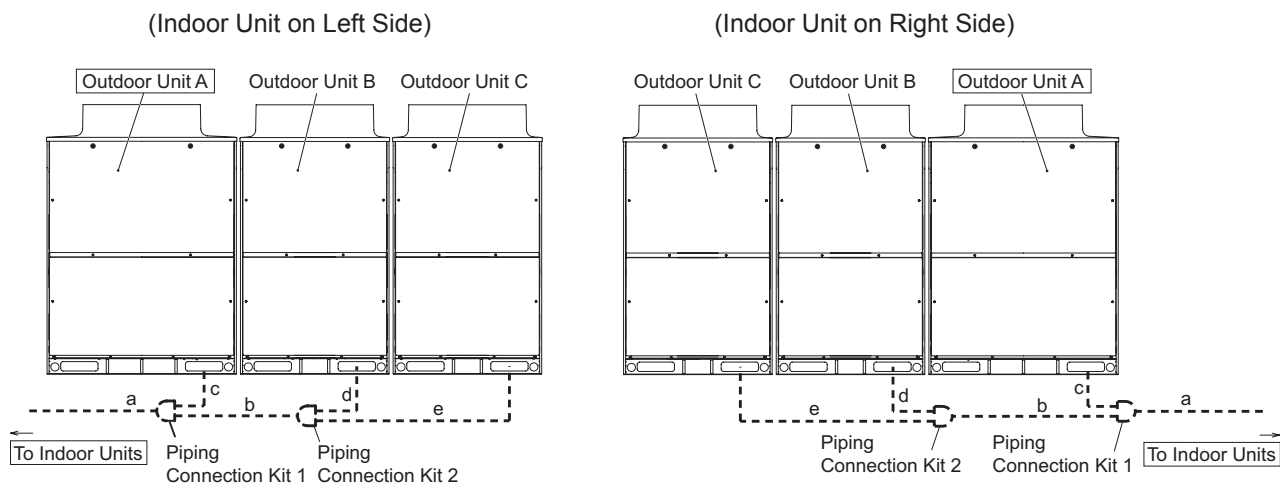
(φmm)

Model		RAS-20FSXNQ	RAS-22FSXNQ	RAS-24FSXNQ	RAS-26FSXNQ	RAS-28FSXNQ	RAS-30FSXNQ	RAS-32FSXNQ	RAS-34FSXNQ	RAS-36FSXNQ
Combination Unit	Outdoor Unit A	RAS-12FSXNQ	RAS-14FSXNQ	RAS-14FSXNQ	RAS-14FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ
	Outdoor Unit B	RAS-8FSXNQ	RAS-8FSXNQ	RAS-10FSXNQ	RAS-12FSXNQ	RAS-14FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ
Piping Connection Kit		M-20SNQ				M-30SNQ				
Piping Size	a	Gas	28.6	28.6	28.6	31.75	31.75	31.75	31.75	38.1
		Liquid	15.88	15.88	15.88	19.05	19.05	19.05	19.05	19.05
	b	Gas	25.4	25.4	25.4	25.4	25.4	28.6	28.6	28.6
		Liquid	12.7	12.7	12.7	12.7	12.7	12.7	15.88	15.88
	c	Gas	19.05	19.05	22.2	25.4	25.4	28.6	28.6	28.6
		Liquid	9.53	9.53	9.53	12.7	12.7	12.7	12.7	15.88

* Perform the installation of the outdoor unit and piping connection according to the figure.
Refer to the table for the outdoor unit model, the piping connection kit model and the piping diameter.

6.4.3 Piping Size for RAS-38FSXNQ to RAS-54FSXNQ (Triple Units Combination)

< Figure for RAS-38FSXNQ >



Model		RAS-38FSXNQ	RAS-40FSXNQ	RAS-42FSXNQ	RAS-44FSXNQ	RAS-46FSXNQ	RAS-48FSXNQ	RAS-50FSXNQ	RAS-52FSXNQ	RAS-54FSXNQ
Combination Unit	Outdoor Unit A	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ
	Outdoor Unit B	RAS-12FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ
	Outdoor Unit C	RAS-12FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ
Piping Connection Kit		M-30SNQ								
Piping Size	a	Gas	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1
		Liquid	19.05	19.05	19.05	19.05	19.05	19.05	19.05	19.05
	b	Gas	28.6	28.6	28.6	31.75	31.75	31.75	31.75	31.75
		Liquid	15.88	15.88	15.88	19.05	19.05	19.05	19.05	19.05
	c	Gas	25.4	28.6	28.6	28.6	28.6	28.6	28.6	28.6
		Liquid	12.7	12.7	15.88	15.88	15.88	15.88	15.88	15.88
	d	Gas	25.4	25.4	25.4	28.6	28.6	28.6	28.6	28.6
		Liquid	12.7	12.7	12.7	12.7	15.88	15.88	15.88	15.88
	e	Gas	25.4	25.4	25.4	25.4	25.4	25.4	28.6	28.6
		Liquid	12.7	12.7	12.7	12.7	12.7	12.7	12.7	15.88

* Perform the installation of the outdoor unit and piping connection according to the figure.
Refer to the table for the outdoor unit model, the piping connection kit model and the piping diameter.

6.4.4 Stop Valve

< Gas Valve >

- (1) Make sure that the all the spindles are closed completely.
- (2) Connect the charging hose to the service port and release gas from the high pressure gas pipe.
- (3) Cut the end of the closing pipe ($\phi 6.35$) and check that no gas exists inside the high pressure gas pipe. Do not cut the end of the closing pipe ($\phi 6.35$) for the low pressure gas pipe in order to prevent refrigerant leakage. If the end of the closing pipe is cut, close it completely.
- (4) Remove the stop valve cover.
- (5) Remove the closing pipe from the brazing portion by using a burner. Pay attention to the flame from the burner not to burn the stop valve body.

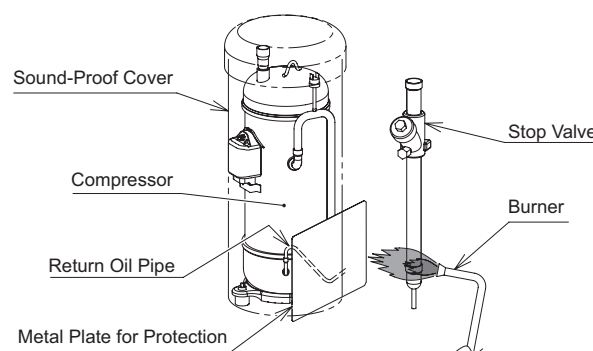
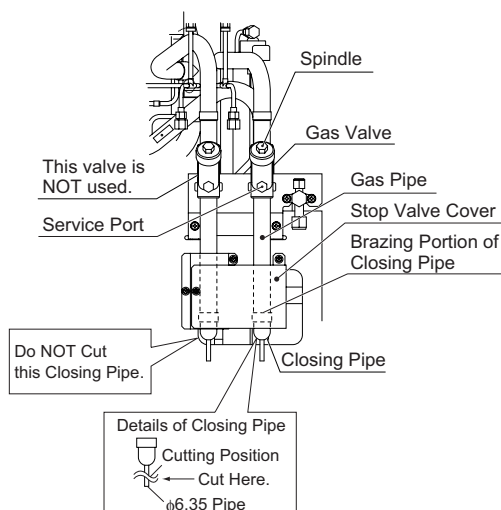


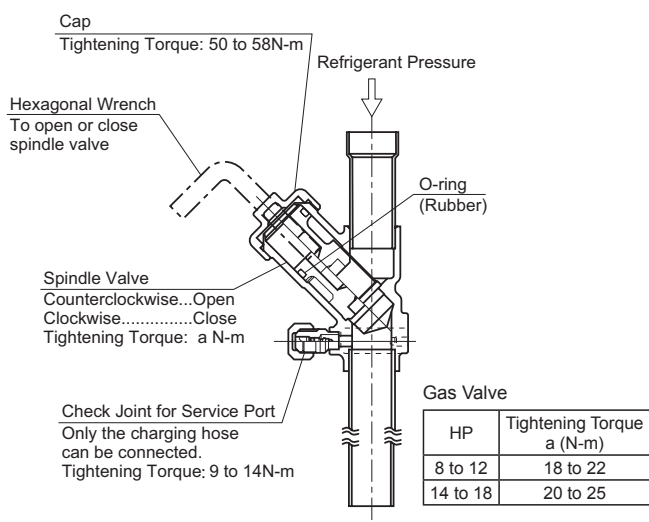
Fig. 6.2

CAUTION

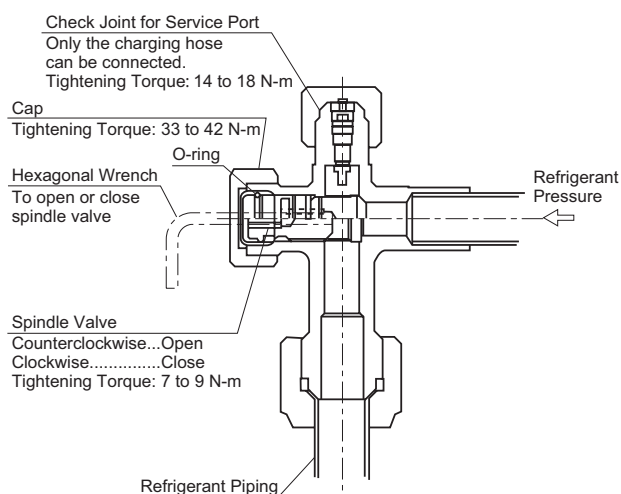
- Ensure that there is no gas inside the pipe when removing the closing pipe. Otherwise, the pipe may be blown out and it may lead to injury.
- Protect the return oil pipe and vibration proof of the compressor with the metal plate when using a burner.

- The details of stop valves are as follows.

< Gas Valve >



< Liquid Valve >



CAUTION

- Do not apply an abnormal big force to the spindle valve at the end of opening. The back seat construction is not provided.
- At the test run, fully open the spindle. If not fully opened, the devices will be damaged.

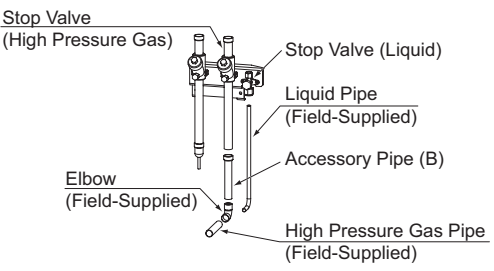
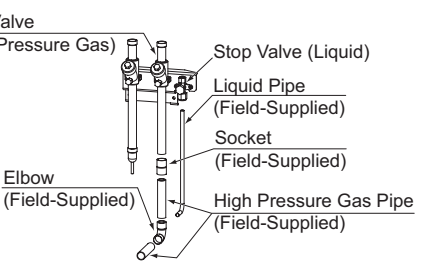
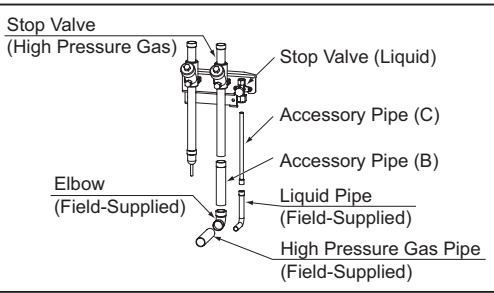
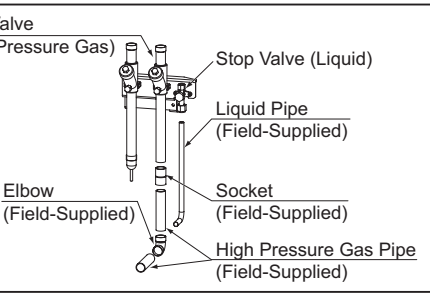
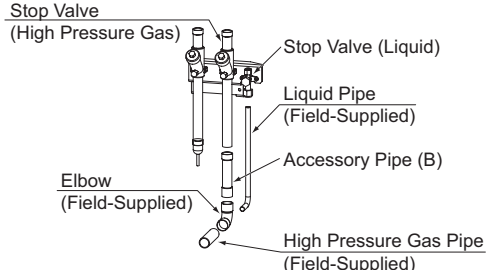
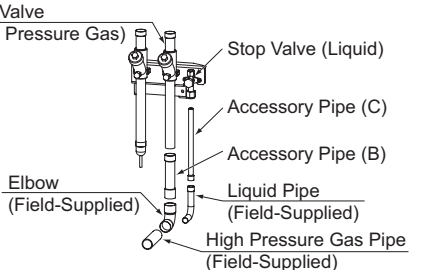
6.4.5 Piping Connection

- (1) Make sure that the stop valves are closed completely.
- (2) Protect the compressor and sound-proof cover with metal plate when brazing the high pressure gas pipe as shown in Fig. 6.2.
Pay attention to the flame from the burner not to burn the stop valve body.
- (3) Connect the indoor unit and the outdoor unit with refrigerant piping.
Prevent the refrigerant piping from touching weak parts of the building such as wall, ceiling, etc.
(Abnormal sound may occur due to the vibration of the piping.)
- (4) As for the flaring work of the field pipe, use the specified tightening torque in Table 6.3.
Put nitrogen gas into the pipe when brazing.
- (5) Insulate the high pressure gas pipe and liquid pipe completely.
- (6) Mount the piping cover equipped with the outdoor unit after the piping connection.
If not, the unit may damaged due to snow or rain water entering.

Table. 6.3 Tightening Work of Flare Nut

Required Tightening Torque (JIS B8607)	
Pipe Size	Tightening Torque
φ6.35 (1/4)	14 to 18 (N-m)
φ9.53 (3/8)	34 to 42 (N-m)
φ12.7 (1/2)	49 to 61 (N-m)
φ15.88 (5/8)	68 to 82 (N-m)
φ19.05 (3/4)	100 to 120 (N-m)

• Details of Stop Valve Piping Connection

RAS-8FSXNQ	RAS-10FSXNQ
	
RAS-12FSXNQ	RAS-14FSXNQ
	
RAS-16FSXNQ	RAS-18FSXNQ
	

NOTES:

1. Ensure that the closing pipe of the high pressure gas stop valve (1 place) is removed firstly.
2. Refer to the item 6.2 for the flaring work.

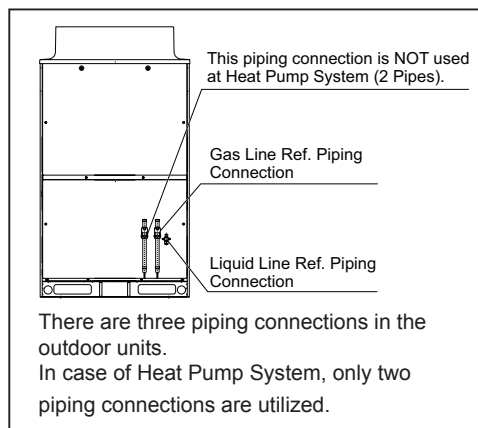
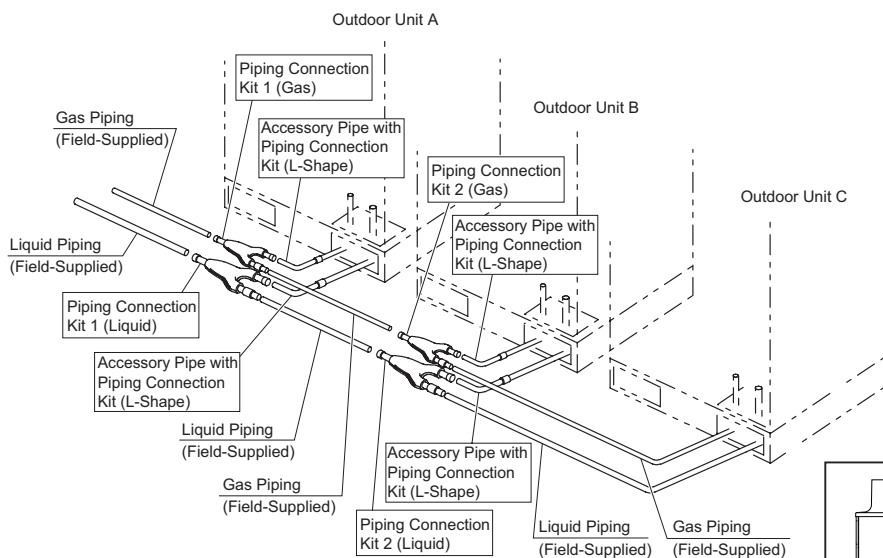
Piping Connection Kit (Optional Parts)

Item	Operation Type	Applicable Outdoor Unit		Model	Remarks
		Outdoor Unit HP	Outdoor Unit Number		
Piping Connection Kit	for Heat Pump Type	20 to 24	2	M-20SNQ	2 Pipes Type * for Gas * for Liquid
		26 to 36	2	M-30SNQ	
		38 to 54	3	M-30SNQ+M-30SNQ	

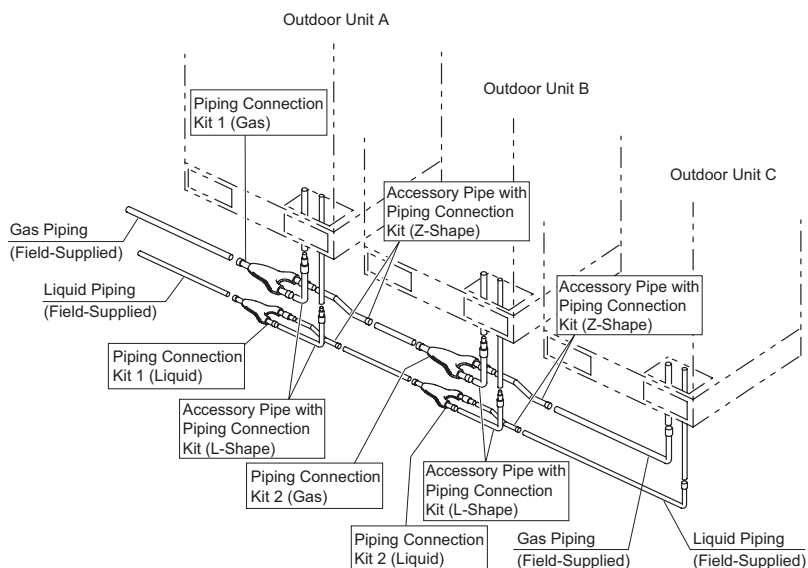
Construction Example (In Case of 38HP: 2 Pipes Type)

Regarding the piping work for 20HP and over, refer to the item 11.3.1 “For Heat Pump System”.

< Front Side or Rear Side Piping Connection >



< Downward Piping Connection >



- Multi-Kit (Optional Parts)

< Line Branch >

First Branch

Outdoor Unit HP	Model
8 and 10	E-102SN
12 to 16	E-162SN
18 to 24	E-242SN
26 to 54	E-302SN

Pipe Diameter and Multi-Kit after First Branch

Total Indoor Unit HP	Gas (φmm)	Liquid (φmm)	Model
Lower than 6	15.88	9.53	E-102SN
6 to 8.99	19.05	9.53	
9 to 11.99	22.2	9.53	
12 to 15.99	25.4	12.7	E-162SN
16 to 17.99	28.6	12.7	
18 to 25.99	28.6	15.88	E-242SN
26 to 35.99	31.75	19.05	E-302SN
Over 36	38.1	19.05	

INSTALLATION & OPERATION

• Piping Size (φmm) and Multi-Kit Selection

① Pipe Diameter for Outdoor Unit

② Main Pipe Diameter (Base Unit or Piping Connection Kit 1 to First Branch) [Multi-Kit of First Branch] (*2)

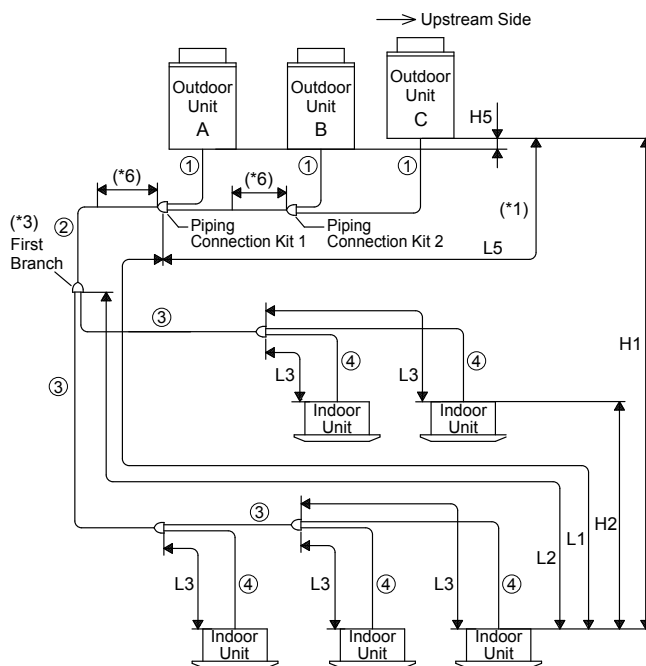
Outdoor Unit HP	Equivalent Piping Length < 100m	
	Gas	Liquid
8	19.05	9.53
10	22.2	9.53
12 and 14	25.4	12.7
16	28.6	12.7
18 to 24	28.6	15.88
26 to 34	31.75	19.05
36 to 54	38.1	19.05

③ [Pipe Diameter after First Branch] (*3)

Total Indoor Unit HP	Gas	Liquid
Lower than 6	15.88	9.53
6 to 8.99	19.05	9.53
9 to 11.99	22.2	9.53
12 to 15.99	25.4	12.7
16 to 17.99	28.6	12.7
18 to 25.99	28.6	15.88
26 to 35.99	31.75	19.05
Over 36	38.1	19.05

④ [Pipe Diameter between Multi-Kit and Indoor Unit] (*4)

Indoor Unit HP	Gas	Liquid
0.8 to 1.5	12.7	6.35 (*5)
1.8 and 2.0	15.88	6.35 (*5)
2.3 to 6.0	15.88	9.53
8.0	19.05	9.53
10.0	22.2	9.53



• Piping Work Conditions

Item		Mark	Allowable Piping Length (*7)	
			≤ the recommended connectable number of Indoor Unit	≥ the recommended connectable number of Indoor Unit
Total Piping Length		Total Liquid Piping Actual Length	≤ 1,000m (*8)	≤ 300m
Maximum Piping Length	Actual Length	L1	≤ 165m	≤ 165m
	Equivalent Length		≤ 190m	≤ 190m
Maximum Piping Length between Multi-kit of 1st Branch and Each Indoor Unit		L2	≤ 90m	≤ 40m
Maximum Piping Length between Each Multi-kit and Each Indoor Unit		L3	≤ 40m	≤ 30m
Piping Length between Piping Connection Kit 1 and Each Outdoor Unit		L5	≤ 10m	≤ 10m
Height Difference between Outdoor Units and Indoor Units	O.U. is Higher	H1	≤ 50m	≤ 50m
	O.U. is Lower		≤ 40m	≤ 40m
Height Difference between Indoor Units		H2	≤ 15m	≤ 15m
Height Difference between Outdoor Units		H5	≤ 0.1m	≤ 0.1m

- (*1): The piping connection kit is counted from the indoor unit side (as Piping Connection Kit 1).
- (*2): When the maximum length of the equivalent refrigerant pipe (L1) from the outdoor unit/piping connection kit 1 to the indoor unit is over 100m, the pipe size of gas/liquid line from the outdoor unit/piping connection kit 1 to first branch should be increased one size with the reducer (field-supplied).
- (*3): Even if the equivalent refrigerant piping length is more than 100m, no need to increase the pipe size after first branch. If the multi-kit size is larger than the first branch, adjust the multi-kit size to the first branch. In case that the selected pipe size after the first branch is larger than the pipe size before the first branch, use the same pipe size as before the branch.
- (*4): The pipe diameter (4) should be the same as the indoor unit piping connection size.
- (*5): When the liquid piping length is longer than 15m, use $\phi 9.53$ pipe and reducer (field-supplied).
- (*6): Keep the straight line distance of 500mm or more after the piping connection kit.
- (*7): The condition of refrigerant piping installation is different depending on the connected indoor unit quantities.
- (*8): Allowable total piping length may become shorter than 1,000m due to the limitation of maximum additional refrigerant amount as following table.

HP	8 and 10	12	14 and 16	18	20 to 24	26 to 54
Max. Additional Refrigerant Charge (kg)	28	33	38.5	42	46	52

NOTES:

1. Check the gas pipe and liquid pipe are equivalent in terms of the piping length and piping system.
2. Use a multi-kit (system components) for the branch pipe of indoor unit.
3. Install the indoor unit and multi-kit according to each "Installation & Maintenance Manual".
4. If the piping length (L3) between each multi-kit and each indoor unit is considerably longer than other indoor unit, refrigerant may not flow well and also performance may be deteriorated compared to other models.
(Recommended Piping Length: within 15m)

INSTALLATION & OPERATION

- Piping Branch Restriction

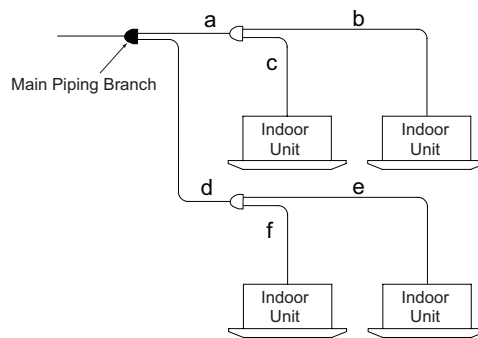
Follow the table below when performing the field-supplied piping work.

Piping Length between Multi-Kit (First Branch) and Each Indoor Unit (L2)	Main Piping Branch *		Indoor Unit Capacity Ratio After Main Branch
	Piping Length After Branch	Number of Main Piping Branch	
$\leq 40\text{m}$	$a+b+c \leq 30\text{m}$ or $d+e+f \leq 30\text{m}$	without Limit	-
	$a+b+c > 30\text{m}$ and $d+e+f > 30\text{m}$	within 2	
within 41m to 90m	-	within 1 (Fig.1)	$\geq 40\%$ (Fig.2)

NOTE:

* Main Piping Branch: Distribution from One (1) Multi-Kit to Two (2) Multi-Kits

The number of main piping branch depends on the piping length after branch (a to f).



Main piping branches are 2 portions.

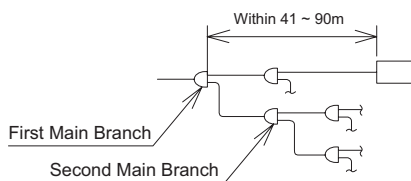


Fig. 1



Indoor unit capacity ratio is less than 40%.

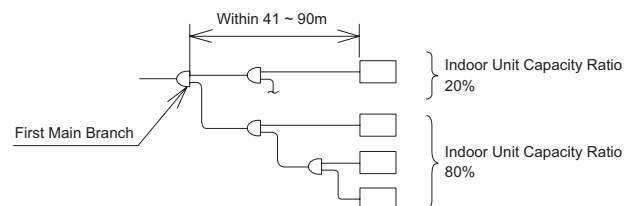


Fig. 2

6.5 Piping Connection for Heat Recovery System

Perform the piping connection work for each outdoor unit.

NOTE:

Ensure that the refrigerant pipe should be connected to the same refrigerant cycle unit.

- Prepare the refrigerant pipe in the field for the piping work.
Refer to Fig. 6.3 for the position of piping connection.

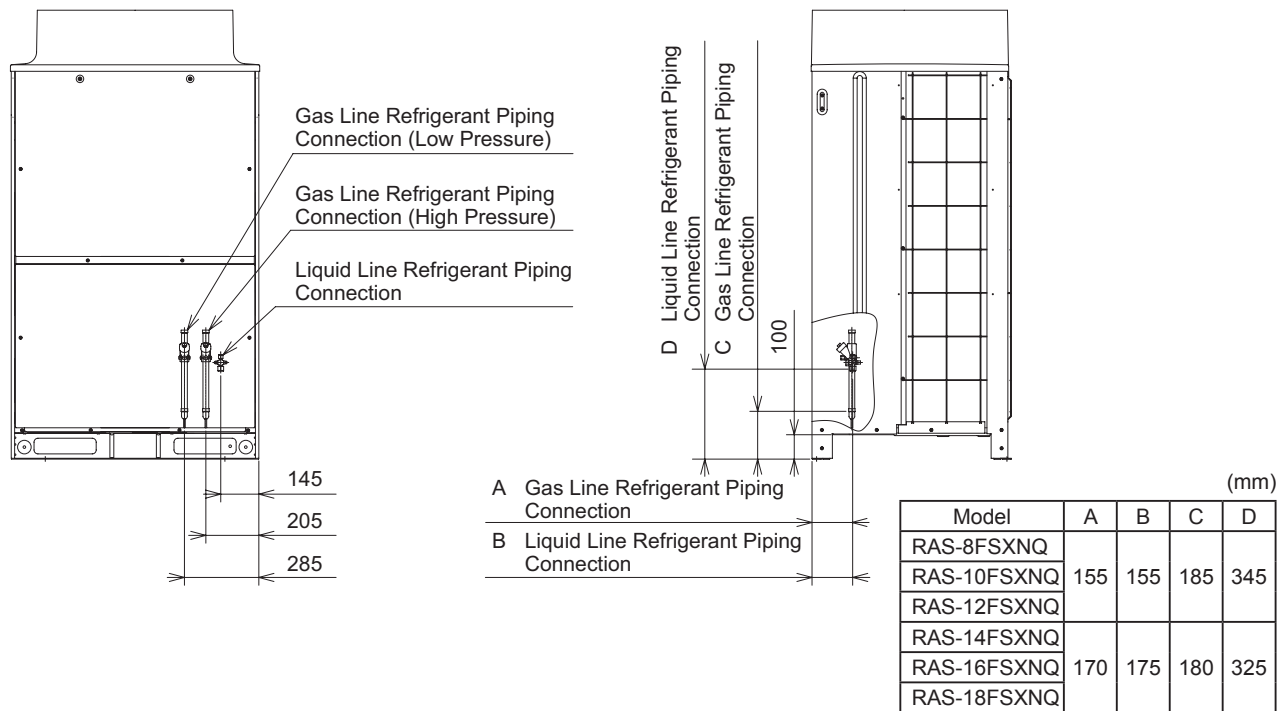
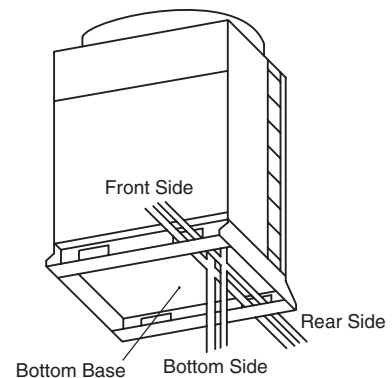


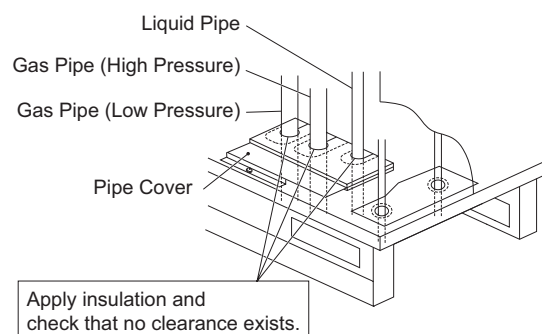
Fig. 6.3 Refrigerant Piping Connection

- Piping Direction
Fix the pipes adequately in order to avoid vibration and excessive force to the valve.

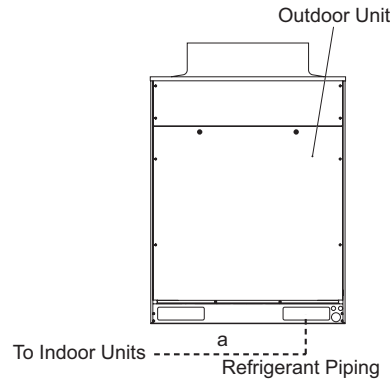
- (1) The pipes are available to connect in three directions (front, rear or bottom side) from the bottom base. For the vibration protection, properly fix the piping connection and check that no excessive force applied to the stop valve.



- (2) Operation of the stop valve should be performed according to Item 6.5.4.
- (3) Connect the pipes according to Table 6.1 and 6.2.
- (4) Completely seal the penetration part of the bottom pipe with insulation in order to prevent rain water entering into the conduit.



6.5.1 Piping Size for RAS-8FSXNQ to RAS-18FSXNQ (Base Unit)



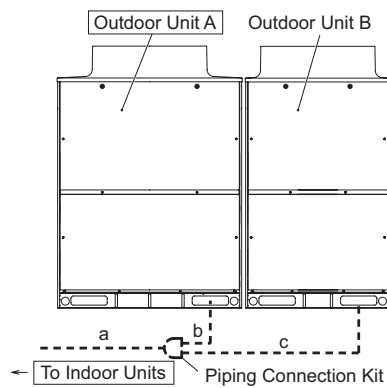
(φmm)

Model		RAS-8FSXNQ	RAS-10FSXNQ	RAS-12FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ	
Piping Size	a	Low Pressure Gas	19.05	22.2	25.4	25.4	28.6	28.6
		High Pressure Gas	15.88	19.05	22.2	22.2	22.2	22.2
		Liquid	9.53	9.53	12.7	12.7	12.7	15.88

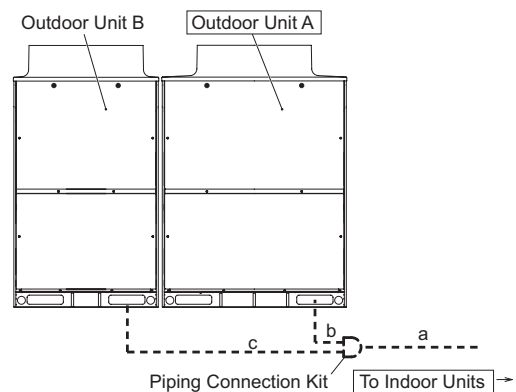
6.5.2 Piping Size for RAS-20FSXNQ to RAS-36FSXNQ (2 Units Combination)

< Figure for RAS-24FSXNQ >

(Indoor Unit on Left Side)



(Indoor Unit on Right Side)



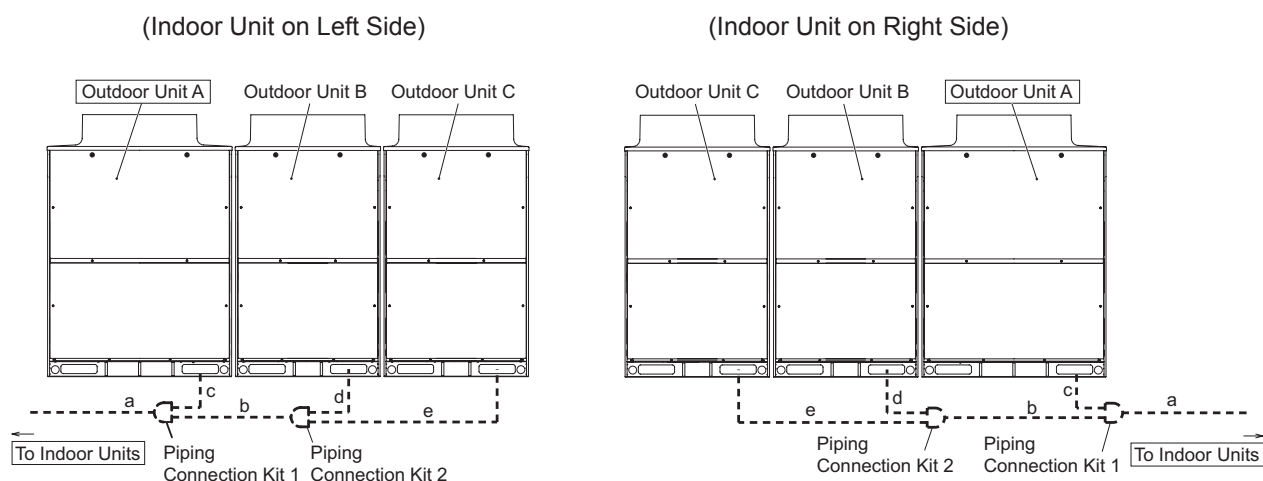
(φmm)

Model		RAS-20FSXNQ	RAS-22FSXNQ	RAS-24FSXNQ	RAS-26FSXNQ	RAS-28FSXNQ	RAS-30FSXNQ	RAS-32FSXNQ	RAS-34FSXNQ	RAS-36FSXNQ
Combination Unit	Outdoor Unit A	RAS-12FSXNQ	RAS-14FSXNQ	RAS-14FSXNQ	RAS-14FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ
	Outdoor Unit B	RAS-8FSXNQ	RAS-8FSXNQ	RAS-10FSXNQ	RAS-12FSXNQ	RAS-14FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ
Piping Connection Kit		M-20XNQ			M-21XNQ					
Piping Size	a	Low Pressure Gas	28.6	28.6	28.6	31.75	31.75	31.75	31.75	31.75
		High Pressure Gas	22.2	25.4	25.4	25.4	28.6	28.6	28.6	28.6
		Liquid	15.88	15.88	15.88	19.05	19.05	19.05	19.05	19.05
	b	Low Pressure Gas	25.4	25.4	25.4	25.4	25.4	28.6	28.6	28.6
		High Pressure Gas	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2
		Liquid	12.7	12.7	12.7	12.7	12.7	12.7	15.88	15.88
	c	Low Pressure Gas	19.05	19.05	22.2	25.4	25.4	25.4	28.6	28.6
		High Pressure Gas	15.88	15.88	19.05	22.2	22.2	22.2	22.2	22.2
		Liquid	9.53	9.53	9.53	12.7	12.7	12.7	12.7	15.88

* Perform the installation of the outdoor unit and piping connection according to the figure.
Refer to the table for the outdoor unit model, the piping connection kit model and the piping diameter.

6.5.3 Piping Size for RAS-38FSXNQ to RAS-54FSXNQ (Triple Units Combination)

< Figure for RAS-38FSXNQ >



(φmm)

Model		RAS-38FSXNQ	RAS-40FSXNQ	RAS-42FSXNQ	RAS-44FSXNQ	RAS-46FSXNQ	RAS-48FSXNQ	RAS-50FSXNQ	RAS-52FSXNQ	RAS-54FSXNQ
Combination Unit	Outdoor Unit A	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ
	Outdoor Unit B	RAS-12FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ	RAS-18FSXNQ
	Outdoor Unit C	RAS-12FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ	RAS-12FSXNQ	RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ
Piping Connection Kit		M-30XNQ								
Piping Size	a	Low Pressure Gas	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1
		High Pressure Gas	31.75	31.75	31.75	31.75	31.75	31.75	31.75	31.75
		Liquid	19.05	19.05	19.05	19.05	19.05	19.05	19.05	19.05
	b	Low Pressure Gas	28.6	28.6	28.6	31.75	31.75	31.75	31.75	31.75
		High Pressure Gas	25.4	25.4	25.4	28.6	28.6	28.6	28.6	28.6
		Liquid	15.88	15.88	15.88	19.05	19.05	19.05	19.05	19.05
	c	Low Pressure Gas	25.4	28.6	28.6	28.6	28.6	28.6	28.6	28.6
		High Pressure Gas	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2
		Liquid	12.7	12.7	15.88	15.88	15.88	15.88	15.88	15.88
	d	Low Pressure Gas	25.4	25.4	25.4	25.4	28.6	28.6	28.6	28.6
		High Pressure Gas	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2
		Liquid	12.7	12.7	12.7	12.7	15.88	15.88	15.88	15.88
	e	Low Pressure Gas	25.4	25.4	25.4	25.4	25.4	25.4	28.6	28.6
		High Pressure Gas	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2
		Liquid	12.7	12.7	12.7	12.7	12.7	12.7	12.7	15.88

* Perform the installation of the outdoor unit and piping connection according to the figure.
Refer to the table for the outdoor unit model, the piping connection kit model and the piping diameter.

6.5.4 Stop Valve

< Gas Valves >

- (1) Make sure that the all the spindles are closed completely.
- (2) Connect the charging hose to the service port and release gas from the high and low pressure gas pipes.
- (3) Cut the end of the closing pipes ($\phi 6.35$) and check that no gas exists inside the high and low pressure gas pipes.
- (4) Remove the stop valve cover.
- (5) Remove the closing pipe from the brazing portion by using a burner.
Pay attention to the flame from the burner not to burn the stop valve body.

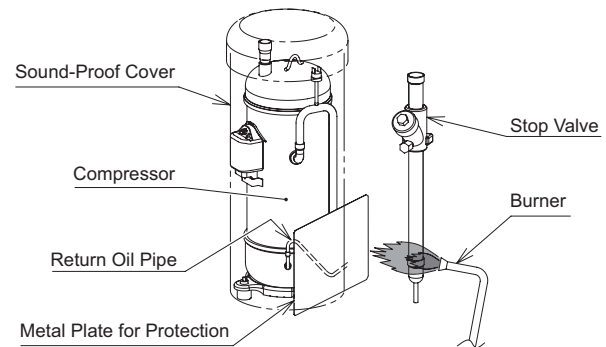
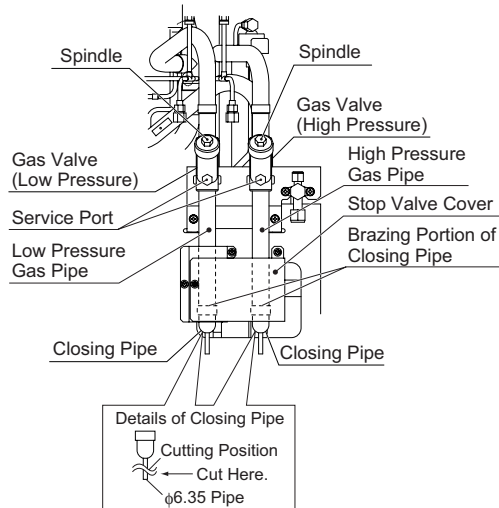


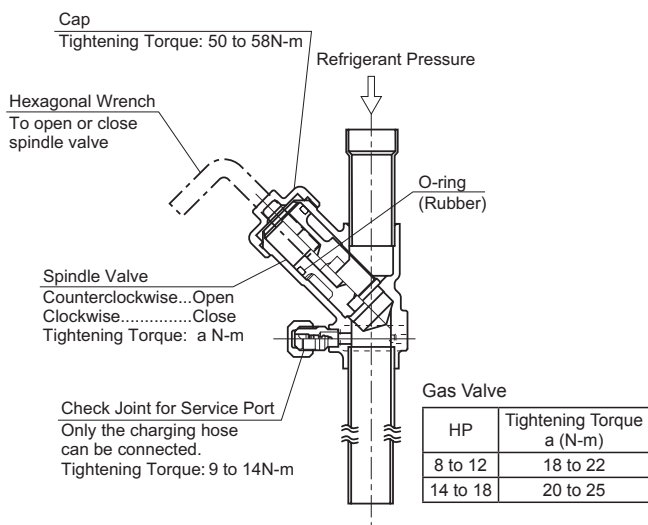
Fig. 6.4

CAUTION

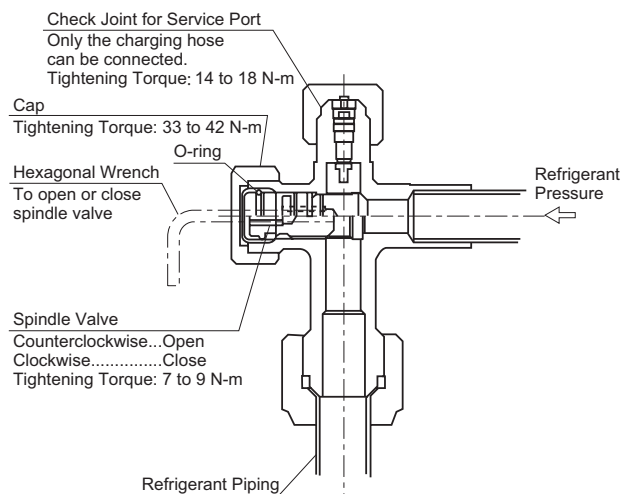
- Ensure that there is no gas inside the pipe when removing the closing pipe. Otherwise, the pipe may be blown out and it may lead to injury.
- Protect the return oil pipe and vibration proof of the compressor with the metal plate when using a burner.

- The details of stop valves are as follows.

< Gas Valves >



< Liquid Valve >



CAUTION

- Do not apply an abnormal big force to the spindle valve at the end of opening. The back seat construction is not provided.
- At the test run, fully open the spindle. If not fully opened, the devices will be damaged.

6.5.5 Piping Connection

- (1) Make sure that the stop valves are closed completely.
- (2) Protect the compressor and sound-proof cover with metal plate when brazing the gas pipes as shown in Fig. 6.4.
Pay attention to the flame from the burner not to burn the stop valve body.
- (3) Connect the indoor unit and the outdoor unit with refrigerant piping.
Prevent the refrigerant piping from touching weak parts of the building such as wall, ceiling, etc.
(Abnormal sound may occur due to the vibration of the piping.)
- (4) As for the flaring work of the field pipe, use the specified tightening torque in Table 6.4.
Put nitrogen gas into the pipe when brazing.
- (5) Insulate the gas pipe and liquid pipe completely.
- (6) Mount the piping cover equipped with the outdoor unit after the piping connection.
If not, the unit may be damaged due to snow or rain water entering.

Table. 6.4 Tightening Work of Flare Nut

Pipe Size	Tightening Torque
φ6.35 (1/4)	14 to 18 (N-m)
φ9.53 (3/8)	34 to 42 (N-m)
φ12.7 (1/2)	49 to 61 (N-m)
φ15.88 (5/8)	68 to 82 (N-m)
φ19.05 (3/4)	100 to 120 (N-m)

• Details of Stop Valve Piping Connection

RAS-8FSXNQ Stop Valve (High Pressure Gas) Stop Valve (Low Pressure Gas) Stop Valve (Liquid) Flaring Liquid Pipe (Field-Supplied) Accessory Pipe (B) Elbow (Field-Supplied) Low Pressure Gas Pipe (Field-Supplied) Accessory Pipe (A) High Pressure Gas Pipe (Field-Supplied)	RAS-10FSXNQ Stop Valve (High Pressure Gas) Stop Valve (Low Pressure Gas) Stop Valve (Liquid) Flaring Liquid Pipe (Field-Supplied) Accessory Pipe (A) Socket (Field-Supplied) Low Pressure Gas Pipe (Field-Supplied) Elbow (Field-Supplied) High Pressure Gas Pipe (Field-Supplied)
RAS-12FSXNQ Stop Valve (High Pressure Gas) Stop Valve (Low Pressure Gas) Stop Valve (Liquid) Flaring Accessory Pipe (C) Accessory Pipe (B) Socket (Field-Supplied) Elbow (Field-Supplied) Liquid Pipe (Field-Supplied) Low Pressure Gas Pipe (Field-Supplied) High Pressure Gas Pipe (Field-Supplied)	RAS-14FSXNQ Stop Valve (High Pressure Gas) Stop Valve (Low Pressure Gas) Stop Valve (Liquid) Flaring Liquid Pipe (Field-Supplied) Accessory Pipe (A) Socket (Field-Supplied) Low Pressure Gas Pipe (Field-Supplied) High Pressure Gas Pipe (Field-Supplied) Elbow (Field-Supplied)
RAS-16FSXNQ Stop Valve (High Pressure Gas) Stop Valve (Low Pressure Gas) Stop Valve (Liquid) Flaring Liquid Pipe (Field-Supplied) Accessory Pipe (B) Elbow (Field-Supplied) Low Pressure Gas Pipe (Field-Supplied) Accessory Pipe (A) High Pressure Gas Pipe (Field-Supplied)	RAS-18FSXNQ Stop Valve (High Pressure Gas) Stop Valve (Low Pressure Gas) Stop Valve (Liquid) Flaring Accessory Pipe (C) Accessory Pipe (B) Elbow (Field-Supplied) Low Pressure Gas Pipe (Field-Supplied) Accessory Pipe (A) Liquid Pipe (Field-Supplied) High Pressure Gas Pipe (Field-Supplied)

NOTES:

1. Ensure that the closing pipe of the high and low pressure gas stop valves (2 places) is removed firstly.
2. Refer to the item 6.2 for the flaring work.

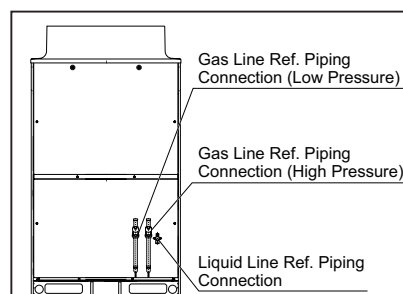
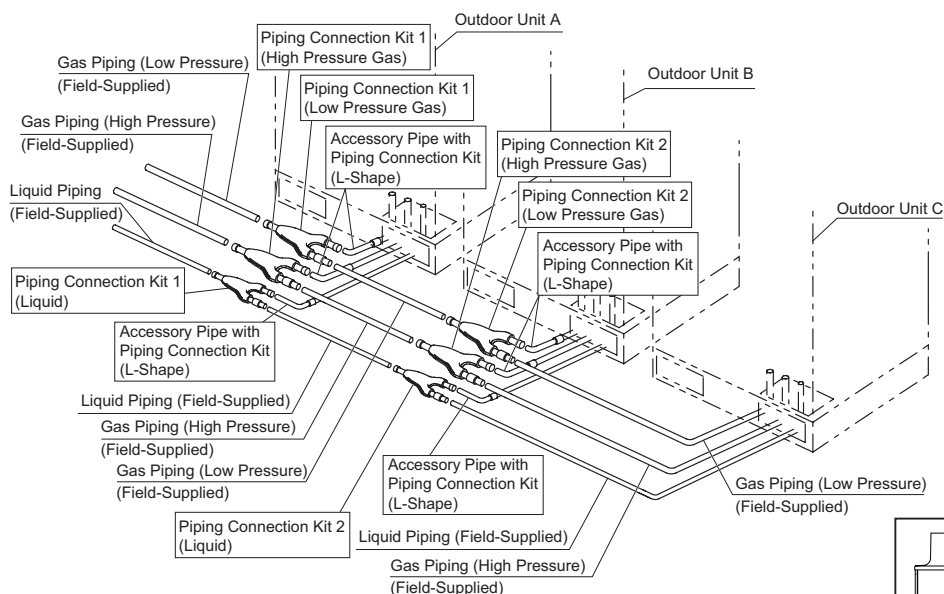
Piping Connection Kit (Optional parts)

Item	Operation Type	Applicable Outdoor Unit		Model	Remarks
		Outdoor Unit HP	Outdoor Unit Number		
Piping Connection Kit	for Heat Recovery Type	20 to 24	2	M-20XNQ	3 Pipes Type
		26 to 36	2	M-21XNQ	* for High Pressure Gas
		38 to 54	3	M-30XNQ+M-30XNQ	* for Low Pressure Gas * for Liquid

Construction Example (In Case of 38HP: 3 Pipes Type)

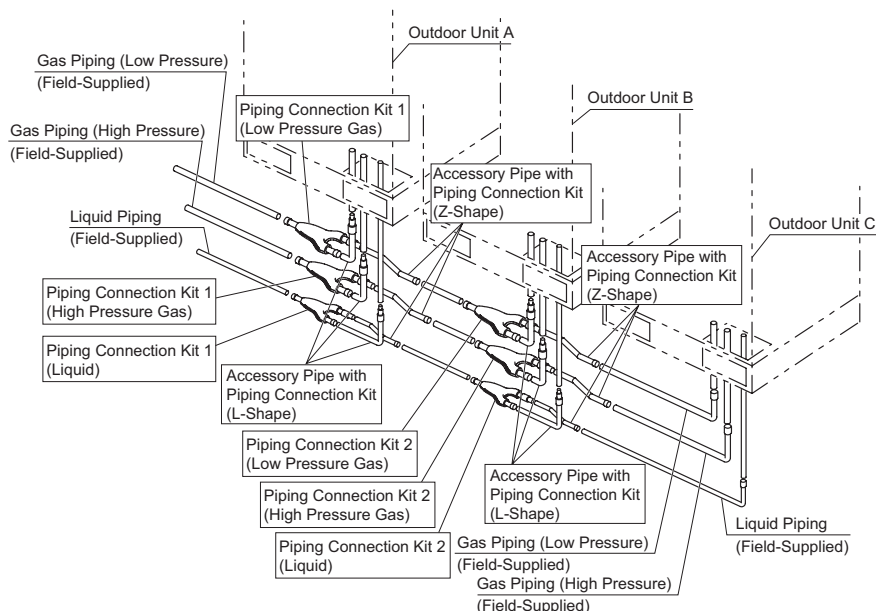
Regarding the piping work for 20HP and over, refer to the item 11.3.2 "For Heat Recovery System".

< Front Side or Rear Side Piping Connection >



There are three piping connections in the outdoor units.

< Downward Piping Connection >



- Multi-Kit (Optional Parts)

< Line Branch >

First Branch

Outdoor Unit HP	Model
8 and 10	M-282XNQ
12 to 16	M-452XNQ
18 and 24	M-562XNQ
26 and 36	M-692XNQ
38 to 54	M-902XNQ

Pipe Diameter and Multi-Kit after First Branch *

Total Indoor Unit HP	Low Pressure Gas (φmm)	High Pressure Gas (φmm)	Liquid (φmm)	Model
Lower than 6	15.88	12.7	9.53	M-142XNQ
6 to 8.99	19.05	15.88	9.53	M-282XNQ
9 to 11.99	22.2	19.05	9.53	
12 to 15.99	25.4	22.2	12.7	M-452XNQ
16 to 17.99	28.6	22.2	12.7	M-562XNQ
18 to 21.99	28.6	22.2	15.88	
22 to 25.99	28.6	25.4	15.88	M-692XNQ
26 to 35.99	31.75	28.6	19.05	
Over 36	38.1	31.75	19.05	M-902XNQ

*: If the piping branch at 2 pipes portion is necessary, use multi-kit of E-102SN, E-162SN, E-242SN for heat pump type.

INSTALLATION & OPERATION

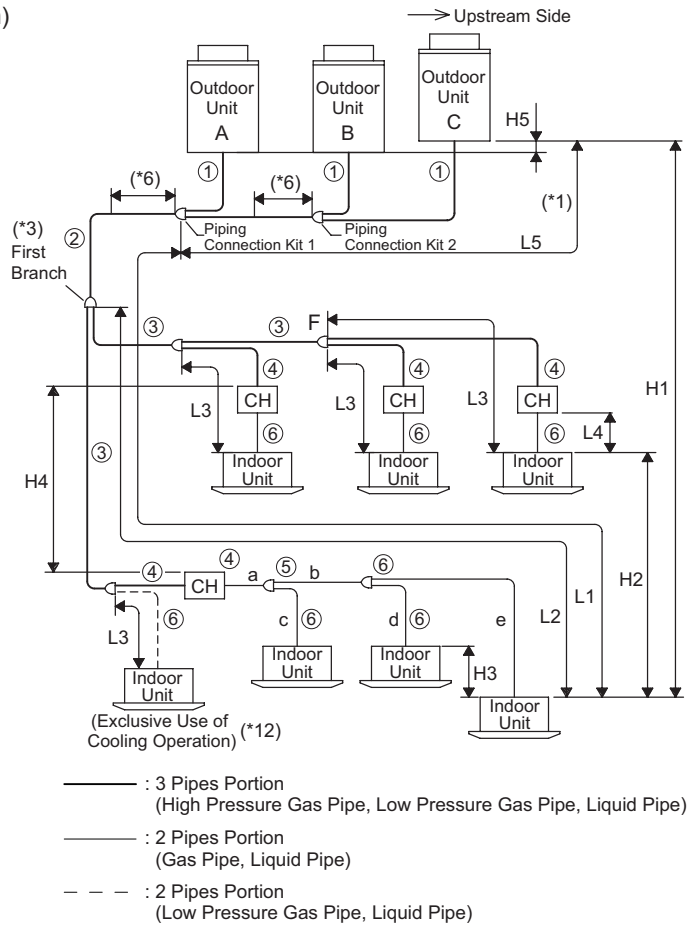
● Piping Size (φmm)

- ① Pipe Diameter for Outdoor Unit
 ② Main Pipe Diameter
 (Base Unit or Piping Connection Kit 1 to First Branch)
 [Multi-Kit of First Branch] (3 Pipes) (*2)

Outdoor Unit HP	Low Pressure Gas	High Pressure Gas	Liquid
8	19.05	15.88	9.53
10	22.2	19.05	9.53
12 and 14	25.4	22.2	12.7
16	28.6	22.2	12.7
18 and 20	28.6	22.2	15.88
22 and 24	28.6	25.4	15.88
26	31.75	25.4	19.05
28 to 36	31.75	28.6	19.05
38 to 54	38.1	31.75	19.05

- ③ [Pipe Diameter after First Branch] (3 Pipes) (*3)(*7)

Total Indoor Unit HP	Low Pressure Gas	High Pressure Gas	Liquid
Lower than 6	15.88	12.7	9.53
6 to 8.99	19.05	15.88	9.53
9 to 11.99	22.2	19.05	9.53
12 to 15.99	25.4	22.2	12.7
16 to 17.99	28.6	22.2	12.7
18 to 21.99	28.6	22.2	15.88
22 to 25.99	28.6	25.4	15.88
26 to 35.99	31.75	28.6	19.05
Over 36	38.1	31.75	19.05



- ④ [Pipe Diameter between CH Unit to Multi-Kit] (3 Pipes and 2 Pipes) (*9)

CH Unit Model	Max. Combination of Indoor Unit (*8)	Available Combination of Indoor Unit Capacity (HP) (*10), (*11)	3 Pipes		2 Pipes	
			Low Pressure Gas	High Pressure Gas	Gas	Liquid
CH-6.0N1	7	0.8 to 1.5	15.88	12.7	12.7 (*15)	9.53
		1.6 to 4.0	15.88	12.7	15.88	9.53
		4.1 to 6.0	19.05	15.88	15.88	9.53
CH-10.0N1	8	6.1 to 8.0	19.05	15.88	19.05	9.53
		8.1 to 10.0	22.2	19.05	22.2	9.53

- ⑤ [Pipe Diameter for 2 Pipes and Multi-Kit]

Total Indoor Unit HP	Gas	Liquid
Lower than 6	15.88	9.53
6 to 8.99	19.05	9.53
9 to 11.99	22.2	9.53
12 to 15.99	25.4	12.7
16 to 17.99	28.6	12.7
18 to 25.99	28.6	15.88

- ⑥ [Pipe Diameter between Multi-Kit and Indoor Unit] (2 Pipes) (*4)

Indoor Unit HP	Gas	Liquid
0.8 to 1.5	12.7	6.35 (*5)
1.8 and 2.0	15.88	6.35 (*5)
2.3 to 6.0	15.88	9.53
8.0	19.05	9.53
10.0	22.2	9.53

- Piping Work Conditions (Refer to the figure of previous page.)

Item		Mark	Allowable Piping Length (*13)	
			≤ the recommended connectable number of Indoor Unit	≥ the recommended connectable number of Indoor Unit
Total Piping Length		Total Liquid Piping Actual Length	≤ 1,000m (*14)	≤ 300m
Maximum Piping Length	Actual Length	L1	≤ 165m	≤ 165m
	Equivalent Length		≤ 190m	≤ 190m
Maximum Piping Length between Multi-kit of 1st Branch and Each Indoor Unit		L2	≤ 90m	≤ 40m
Maximum Piping Length between Each Multi-kit and Each Indoor Unit		L3	≤ 40m	≤ 30m
Total Piping Length between CH Unit and Each Indoor Unit		* L4 * a+b+c+d+e	CH-6.0N1: ≤ 30m	CH-6.0N1: ≤ 30m
			CH-10.0N1: ≤ 10m	CH-10.0N1: ≤ 10m
Piping Length between Piping Connection Kit 1 and Each Outdoor Unit		L5	≤ 10m	≤ 10m
Height Difference between Outdoor Units and Indoor Units	O.U. is Higher	H1	≤ 50m	≤ 50m
	O.U. is Lower		≤ 40m	≤ 40m
Height Difference between Indoor Units		H2	≤ 15m	≤ 15m
Height Difference between Indoor Units using the Same CH Unit		H3	≤ 4m	≤ 4m
Height Difference between CH Units		H4	≤ 15m	≤ 15m
Height Difference between Outdoor Units		H5	≤ 0.1m	≤ 0.1m

(*1): The piping connection kit is counted from the indoor unit side (as Piping Connection Kit 1).

(*2): When the maximum length of the equivalent refrigerant pipe (L1) from the outdoor unit/piping connection kit 1 to the indoor unit is over 100m, the pipe size of liquid line from the outdoor unit/piping connection kit 1 to first branch should be increased one size with the reducer (field-supplied).

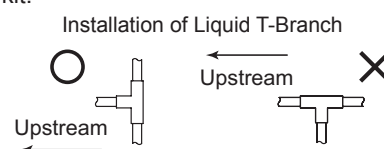
(*3): Even if the equivalent refrigerant piping length is more than 100m, no need to increase the pipe size after first branch. If the multi-kit size is larger than the first branch, adjust the multi-kit size to the first branch. In case that the selected pipe size after the first branch is larger than the pipe size before the first branch, use the same pipe size as before the branch.

(*4): The pipe diameter ⑥ should be the same as the indoor unit piping connection size.

(*5): When the liquid piping length is longer than 15m, use φ9.53 pipe and reducer (field-supplied).

(*6): Keep the straight line distance of 500mm or more after the piping connection kit.

(*7): In case of the line branch, if the length of the pipe between the terminal branch of 3 pipes (specified in the figure of mark F) and the farthest indoor unit exceeds 5m, use a T-branch to the applicable liquid pipe of 3 branches. (Corresponding to the Same Diameter as JIS B8607)



(*8): In case that the number of connectable indoor unit exceeds four, the high/low pressure gas pipe, gas pipe and liquid pipe ④⑤⑥ need to increase one size respectively.

(*9): The liquid pipe is not required to connect to the CH unit. Refer to Table ⑥ for the liquid pipe diameter between multi-kit and indoor unit.

(*10): In case that the combination of indoor unit capacity is 10HP for CH-10.0N1, the performance may decrease approximate 5% in cooling and 10% in heating.

(*11): The excess of the total capacity may cause insufficient performance and abnormal sound. Be sure to connect within the allowable total capacity.

(*12): For the exclusive cooling operation, connect indoor units with low pressure gas pipe and liquid pipe (without CH unit). The total capacity of the exclusive cooling operation should be smaller than 50% of the total indoor unit capacity.

(*13): The condition of refrigerant piping installation is different depending on the connected indoor unit quantities.

(*14): Allowable total piping length may become shorter than 1,000m due to the limitation of maximum additional refrigerant amount as following table.

HP	8 and 10	12	14 and 16	18	20 to 24	26 to 54
Max. Additional Refrigerant Charge (kg)	28	33	38.5	42	46	52

(*15): In case that a branch is located downstream of the CH unit and also the connected indoor unit capacity is 0.8~1.5HP, use φ15.88 for the gas pipe.

NOTES:

1. Check the gas pipe and liquid pipe are equivalent in terms of the piping length and piping system.
2. Use a multi-kit (system components) for the branch pipe of indoor unit and CH unit.
3. Install the indoor unit, multi-kit and CH unit according to each "Installation & Maintenance Manual".
4. If the piping length (L3) between each multi-kit and each indoor unit is considerably longer than other indoor unit, refrigerant may not flow well and also performance may be deteriorated compared to other models. (Recommended Piping Length: within 15m)

INSTALLATION & OPERATION

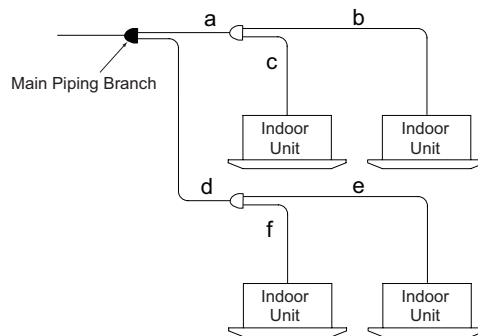
• Piping Branch Restriction

Follow the table below when performing the field-supplied piping work.

Piping Length between Multi-Kit (First Branch) and Each Indoor Unit (L2)	Main Piping Branch *		Indoor Unit Capacity Ratio After Main Branch
	Piping Length After Branch	Number of Main Piping Branch	
$\leq 40\text{m}$	$a+b+c \leq 30\text{m}$ or $d+e+f \leq 30\text{m}$	without Limit	-
	$a+b+c > 30\text{m}$ and $d+e+f > 30\text{m}$	within 2	
within 41m to 90m	-	within 1 (Fig.1)	$\geq 40\%$ (Fig.2)

NOTE:

* Main Piping Branch: Distribution from One (1) Multi-Kit to Two (2) Multi-Kits
The number of main piping branch depends on the piping length after branch (a to f).



Main piping branches are 2 portions.

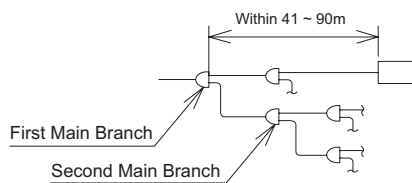


Fig. 1



Indoor unit capacity ratio is less than 40%.

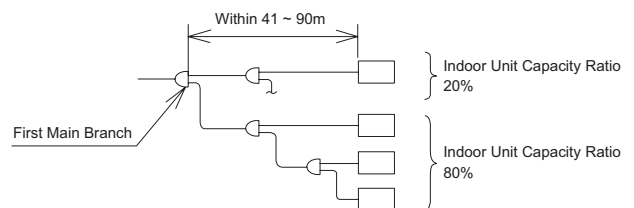


Fig. 2

7. Electrical Wiring

WARNING

- Turn OFF the main power switch to the indoor unit and the outdoor unit and wait for more than 3 minutes before electrical wiring work or a periodical check is performed.
- Check to ensure that the indoor fan and the outdoor fan have stopped before electrical wiring work or a periodical check is performed.
- Protect the wires, electrical parts, etc. from rats or other small animals.
If not protected, rats may gnaw at unprotected parts and which may lead to a fire.
- Avoid the wirings from touching the refrigerant pipes, plate edges and electrical parts inside the unit. If not do, the wires will be damaged and at the worst, a fire will occur.
- Use a medium sensing speed type ELB (Earth Leakage Breaker, activation speed of 0.1 sec. or less). If not used, it will cause an electric shock or a fire.
- Fix the cables securely. External forces on the terminals could lead to a fire.
- Tighten screws according to the following torque.
 - M4: 1.0 to 1.3 N-m
 - M5: 2.0 to 2.4 N-m
 - M6: 4.0 to 5.0 N-m
 - M8: 9.0 to 11.0 N-m
 - M10: 18.0 to 23.0 N-m
- Set DSW7 on the PCB1 according to each power supply as shown in the figure below.

DSW7		Power Supply Setting			
Setting is required.					
220V		415V		380V	
ON		ON		ON	
OFF		OFF		OFF	
	1 2		1 2		1 2

7.1 General Check

- (1) Make sure that the field-selected electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to the electrical data indicated in Table 7.1. Make sure that the components comply with National Electrical Code (NEC).
 - Supply electrical power to each outdoor unit. An ELB, fuse and main switch should be used for each outdoor unit. If not, it will be cause of fire or electrical shock.
 - The power supply for the indoor unit and outdoor unit should be provided separately. Connect a power supply wiring to each indoor unit group to be connected to the same outdoor unit. (Max. capacity of one indoor unit group is 26HP.)
 - As for the Heat Recovery system, the CH unit and indoor unit in the same refrigerant cycle can be supplied with one main switch.
- (2) Check to ensure that the power supply voltage is within $\pm 10\%$ of the rated voltage.
If the power supply voltage is too low, the system cannot be started due to the voltage drop.
- (3) Check the size of the electrical wires.
- (4) In some cases, the packaged air conditioner may not be operated normally under the following cases.
 - In case that the packaged air conditioner is supplied with the same power transformer as the device with high electricity consumption*
 - In case that the power source wires for the device* and the packaged air conditioner are located close to each other.

* (ex) Lift, container crane, rectifier for electric railway, inverter power device, arc furnace, electric furnace, large-sized induction motor and large-sized switch.

For the cases mentioned above, induction surge of the power supply wiring for the packaged air conditioner may occur due to a rapid change in electricity consumption of the device and an activation of switch. Therefore check the field regulations and standards before performing electrical work in order to protect the power supply wiring for the packaged air conditioner.
- (5) Check to ensure that the earth wire of the outdoor unit, indoor unit, CH unit are connected.

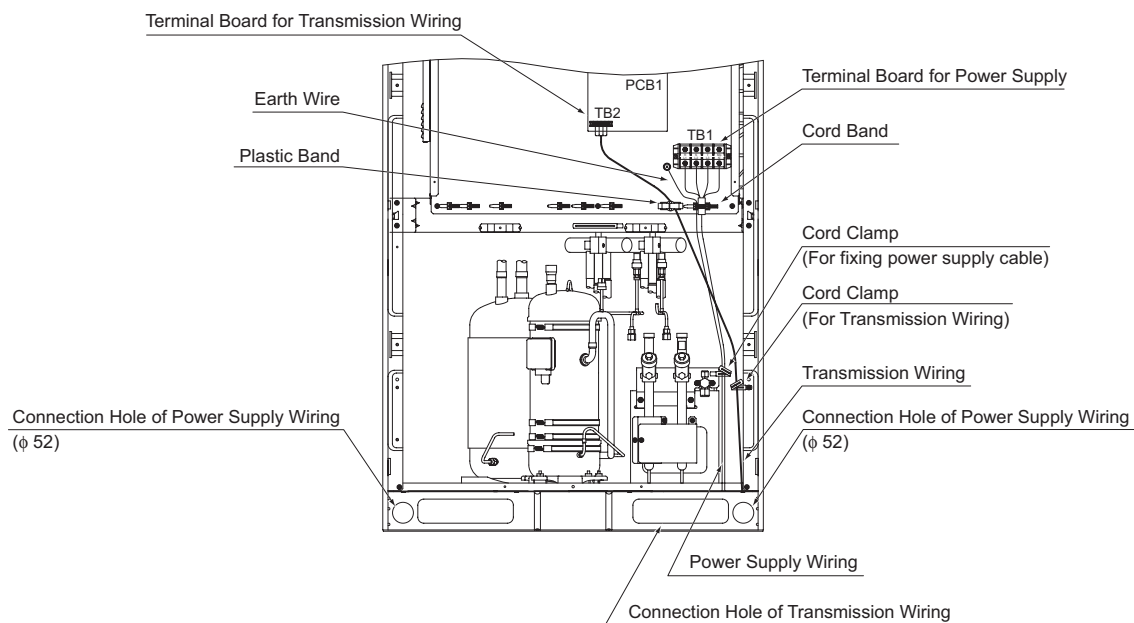


Fig. 7.1 Wiring Connection

7.2 Electrical Wiring Connection

! WARNING

The ELB (earth leakage breaker), FUSE and S (main switch) must be installed to the each power source of outdoor unit. If not, it may cause of electrical shock or fire.

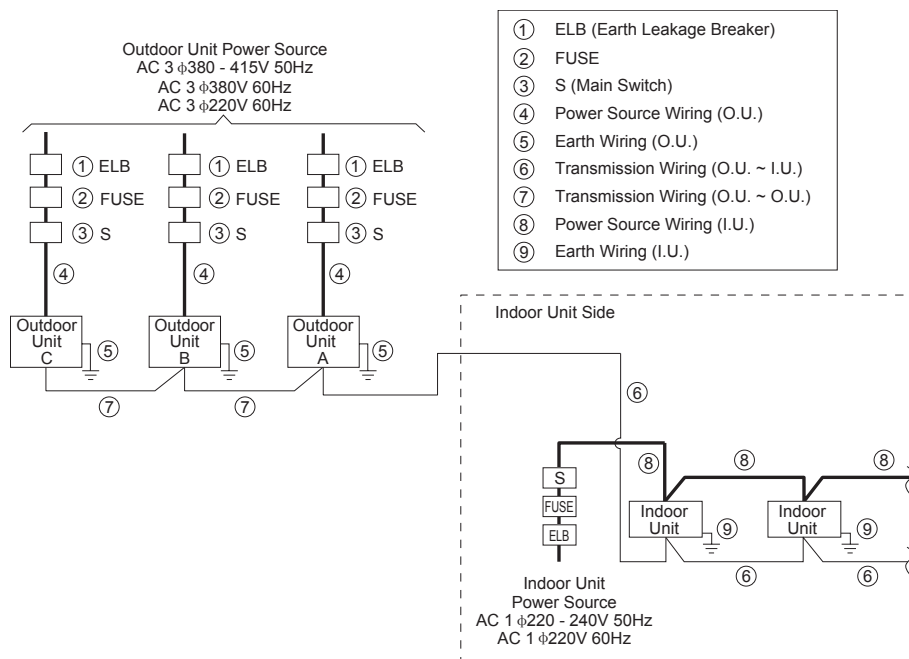
NOTE:

Supply the power source of outdoor units and indoor units respectively.

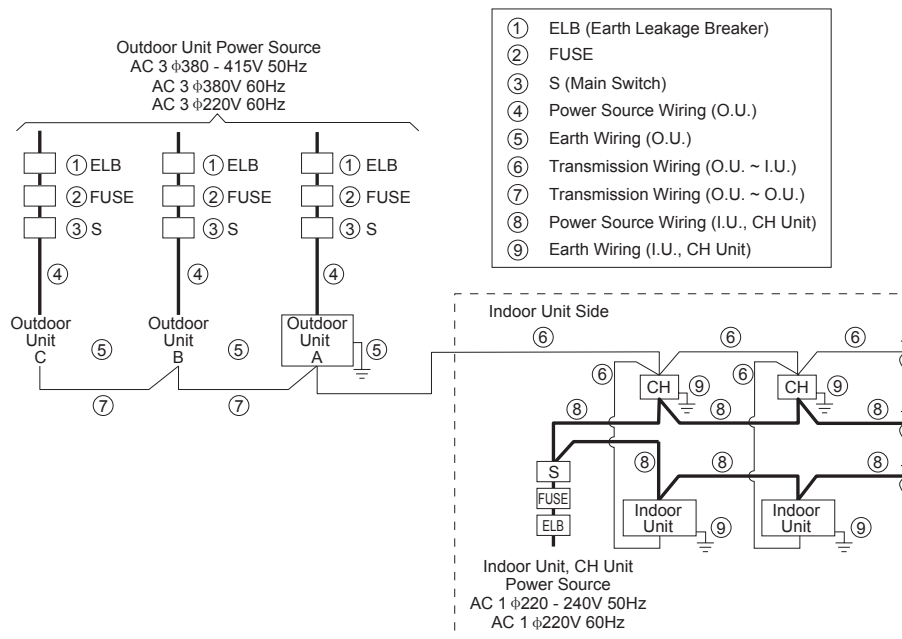
(1) Power Source Wiring

Supply the power sources to the each outdoor unit respectively.
Power source wiring is fundamentally according to this method.

< Heat Pump System >



< Heat Recovery System >



(2) The recommended wiring, ELB, breaker size are shown in Table 7.1

Table 7.1 Electrical Data and Recommended Wiring, Breaker Size/1 Outdoor Unit

Model	Power Supply	Maximum Running Current (A)	Power Supply Line (φmm)	ELB		Fuse (A)
				Nominal Current (A)	Nominal Sensitive Current (mA)	
RAS-8FSXNQ	380-415V/50Hz 380V/60Hz	16.1	MLFC 2.0SQ	20	30	20
RAS-10FSXNQ		17	MLFC 3.5SQ	30	30	30
RAS-12FSXNQ		23	MLFC 5.5SQ	40	30	40
RAS-14FSXNQ		28	MLFC 5.5SQ	50	30	40
RAS-16FSXNQ		31	MLFC 8SQ	50	30	50
RAS-18FSXNQ		33	MLFC 8SQ	50	30	50
RAS-8FSXNQ	220V/60Hz	23	MLFC 5.5SQ	40	30	40
RAS-10FSXNQ		29	MLFC 5.5SQ	50	30	40
RAS-12FSXNQ		40	MLFC 8SQ	50	30	50
RAS-14FSXNQ		49	MLFC 14SQ	75	100	70
RAS-16FSXNQ		55	MLFC 14SQ	75	100	70
RAS-18FSXNQ		59	MLFC 14SQ	100	100	70

ELB: Earthleakage Breaker, MLFC: Flame Retardant Polyflex Wire

■ Field Minimum Wire Sizes for Power Source

Model	Power Supply	Maximum Running Current (A)	Power Source Cable Size		Transmitting Cable Size		Earth Wire Size (mm ²)
			EN60 335-1 *1 (mm ²)	MLFC *2 (mm ²)	EN60 335-1 *1 (mm ²)	MLFC *2 (mm ²)	
RAS-8FSXNQ	380-415V/50Hz 380V/60Hz	16.1	2.5	2.0	0.75	0.75	2.0
RAS-10FSXNQ		17	4	3.5	0.75	0.75	2.0
RAS-12FSXNQ		23	6	5.5	0.75	0.75	3.5
RAS-14FSXNQ		28	10	5.5	0.75	0.75	3.5
RAS-16FSXNQ		31	10	8	0.75	0.75	3.5
RAS-18FSXNQ		33	10	8	0.75	0.75	3.5
RAS-8FSXNQ	220V/60Hz	23	6	5.5	0.75	0.75	3.5
RAS-10FSXNQ		29	10	5.5	0.75	0.75	3.5
RAS-12FSXNQ		40	10	8	0.75	0.75	3.5
RAS-14FSXNQ		49	-	14	0.75	0.75	5.5
RAS-16FSXNQ		55	-	14	0.75	0.75	5.5
RAS-18FSXNQ		59	-	14	0.75	0.75	5.5

* Refer to the NOTES for selection of the power source cable size.

NOTES:

- 1) Follow local codes and regulations when selecting field wires.
- 2) The wire sizes marked with *1 in the table of previous page are selected at the maximum current of the unit according to the European Standard, EN60 335-1. Use the wires which are not lighter than the ordinary tough rubber sheathed flexible cord (code designation H05RN-F) or ordinary polychloroprene sheathed flexible cord (code designation H05RN-F).
- 3) The wire sizes marked with *2 in the table of previous page are selected at the maximum current of the unit according to the wire, MLFC (Flame Retardant Polyflex Wire) manufactured by Hitachi Cable Ltd., Japan.
- 4) Use a shielded cable for the transmitting circuit and connect it to ground.
- 5) In the case that power cables are connected in series, add each unit maximum current and select wires below.

Selection According to EN60 335-1

Current i (A)	Wire Size (mm ²)
i ≤ 6	0.75
6 < i ≤ 10	1
10 < i ≤ 16	1.5
16 < i ≤ 25	2.5
25 < i ≤ 32	4
32 < i ≤ 40	6
40 < i ≤ 63	10
63 < i	*3

Selection According to MLFC (at Cable Temperature of 90°C)

Current i (A)	Wire Size (mm ²)
i ≤ 19	0.75
19 < i ≤ 24	1.25
24 < i ≤ 34	2
34 < i ≤ 47	3.5
47 < i ≤ 63	5.5
63 < i ≤ 78	8
78 < i ≤ 113	14
113 < i ≤ 148	22
148 < i ≤ 179	30

*3: In the case that current exceeds 63A, use MLFC cables.

⚠ CAUTION

Install a multi-pole main switch with a space of 3.5mm or more between each phase.

NOTES:

1. When the power supply wiring is longer, select the minimum wiring size which the voltage drop is within 2%.
2. Power supply voltage should be satisfied with the followings.
 - Supply Voltage: Rated Voltage within ±10%
 - Starting Voltage: Rated Voltage within -15%
 - Operating Voltage: Rated Voltage within ±10%
 - Imbalance between Phases: within 3%
3. Do not connect the earth wire to the gas pipe, water pipe, lightening conductor.
 - Gas Pipe: An explosion and ignition may occur when gas leaks.
 - Water Pipe: There is no effect of earth wire when a hard vinyl pipe is used.
 - Lightening Conductor: The earth electric potential abnormally increases when a lightening conductor is used.

7.3 Electrical Wiring for Outdoor Unit

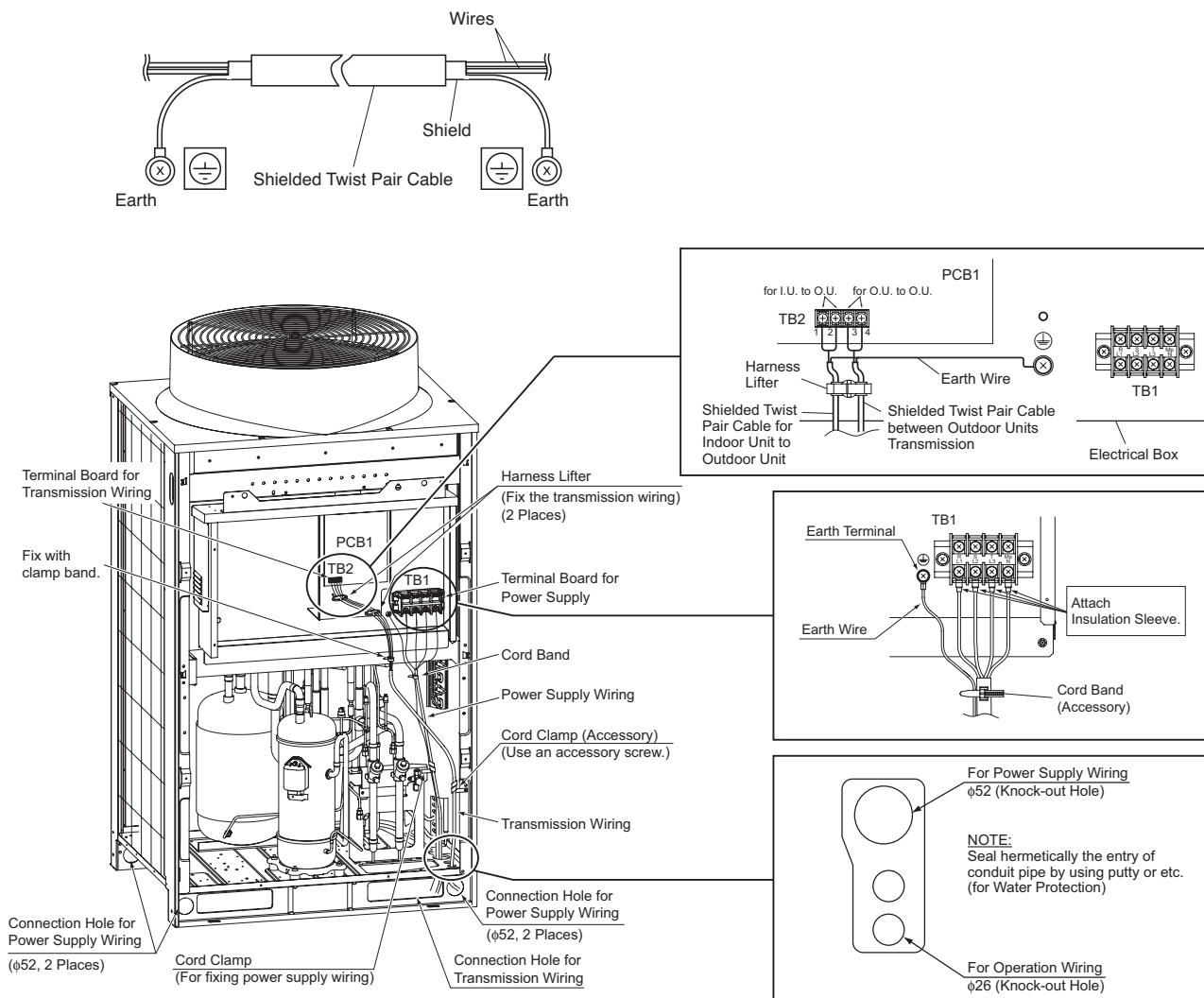
Connect the electrical wirings according to the following figure.

- Connect the power supply wires to L1, L2, L3, and N (for 380-415V) for the three phase power source on the terminal board TB1 and earth wire to the terminal in the electrical control box. Connect the power supply wires to R, S, T (for 220V/60Hz) for the three phase power source on the terminal board TB1 and earth wire to the terminal in the electrical control box.
- Connect the transmission wires between the outdoor and indoor units to the TB2 terminals 1 and 2 on the PCB1. As for the transmission wires between outdoor units in the same refrigerant cycle, connect them to the TB2 terminals 3 and 4 on the PCB1.
- Tighten screws for the terminal board according to the following table.

< Required Tightening Torque >

Size	Tightening Torque
M4	1.0 to 1.3 N-m
M5	2.0 to 2.4 N-m
M6	4.0 to 5.0 N-m
M8	9.0 to 11.0 N-m
M10	18.0 to 23.0 N-m

- When installing the unit in Australia, connect the both ends of shielded twist pair cable (remote control switch cable and transmission cable) to the earth as shown below.



CAUTION

Pay attention to the followings to run through the cables under the unit using conduit tube.
(The pipe cover is required to remove before performing piping and wiring works.)

NOTES:

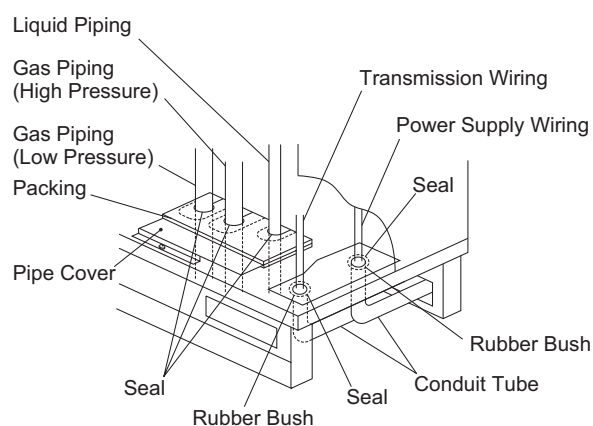
1. Do not lead the power supply wiring and transmission wiring through the same conduit tube.
Moreover, keep at least 5cm between the power supply wiring and transmission wiring.
2. Cut cross line at rubber bush (accessory) and securely attach it to the knock-out hole for cable protecting.
3. Attach the pipe cover to avoid entering rats or other small animals into the unit.
4. Avoid the wirings from touching the refrigerant pipes, plate edges and electrical parts inside the unit.
5. Completely seal the end of conduit tube with sealing materials to avoid entering rain into the conduit tube.
6. Make a drain hole at the lowest part of the conduit tube.

CAUTION

Tightly secure the power source wiring using the cord clamp inside the unit.

NOTE

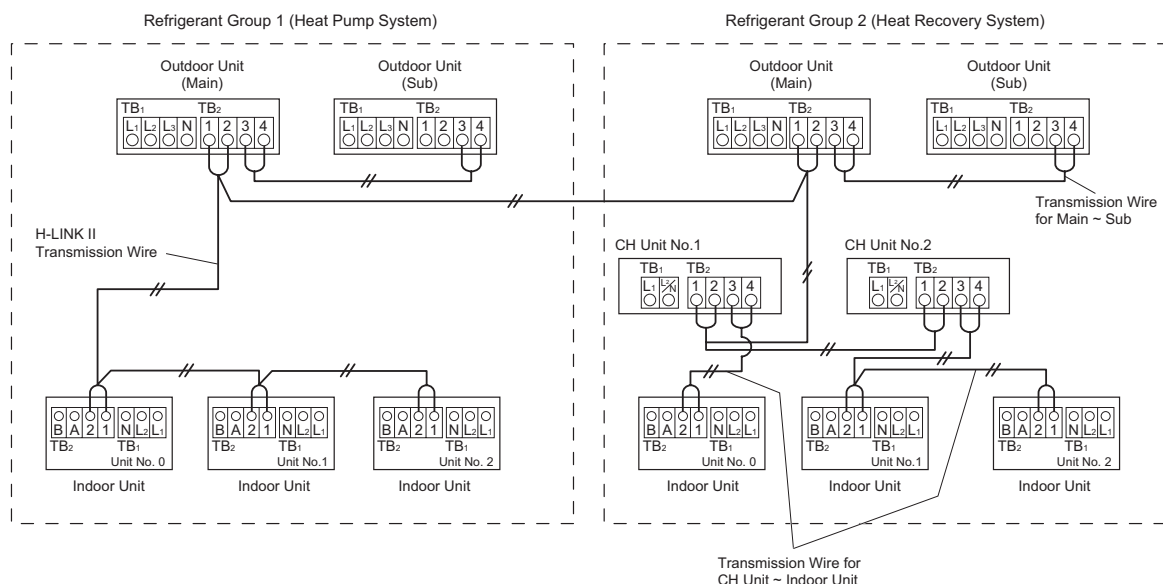
Fix the rubber bushes with adhesive when conduit tubes to the outdoor unit are not used.



7.4 Electrical Wiring Connection of Indoor Unit, Outdoor Unit and CH Unit

- (1) Connect a power supply wiring to each outdoor unit. Connect an ELB, fuse and main switch (S) to each outdoor unit.
- (2) Connect a power supply wiring to each indoor unit group to be connected to the same outdoor unit. (Max. capacity of one indoor unit group is 26HP.)
Connect an ELB, fuse and main switch (S) to each indoor unit group.
- (3) Connect the transmission wiring between indoor units, CH units and outdoor units, as shown in Fig. 7.2 and 7.3.
- (4) Connect the transmission wiring in the same refrigerant cycle unit. (In case that the refrigerant pipe of indoor unit is connected to the outdoor unit, connect the transmission wiring to the same indoor unit.)
Connecting the refrigerant pipe and transmission wiring to the different refrigerant cycle systems may lead to malfunction.
- (5) Use 2-Core lead wires such as shielded twist pair cable for the transmission wiring.
(Do not use 3-Core or over.)
- (6) Use the same kind of cables for the H-LINK system of the same refrigerant cycle.
- (7) The transmission wiring is required to be separated from the power supply wiring.
Keep at least 5cm between the transmission wiring and the power supply wiring, and also min. 1.5m between the transmission wiring and power supply wiring for other electrical device. If the above is not secured, put the power supply wiring into the metal conduit tube to separate from other wirings.
- (8) Connect the following transmission wiring to the terminals 1 and 2 of TB2 in the outdoor unit A (main unit).
 - between outdoor unit and indoor unit
 - between outdoor unit and CH unit
 - between outdoor unit and indoor unit in other refrigerant cycles
- (9) Do not connect the power supply wiring to the terminal board for transmission wiring (TB2).
Printed circuit board may be damaged.
- (10) For Heat Recovery System, connect the transmission wiring from indoor unit (exclusively used for cooling) to the terminals 1 and 2 of TB2 in the CH Unit.
- (11) Connect the earth wire for the outdoor/indoor units and CH unit. The earth wiring work under the condition of 100Ω (max.) ground resistance should be performed by the qualified person.

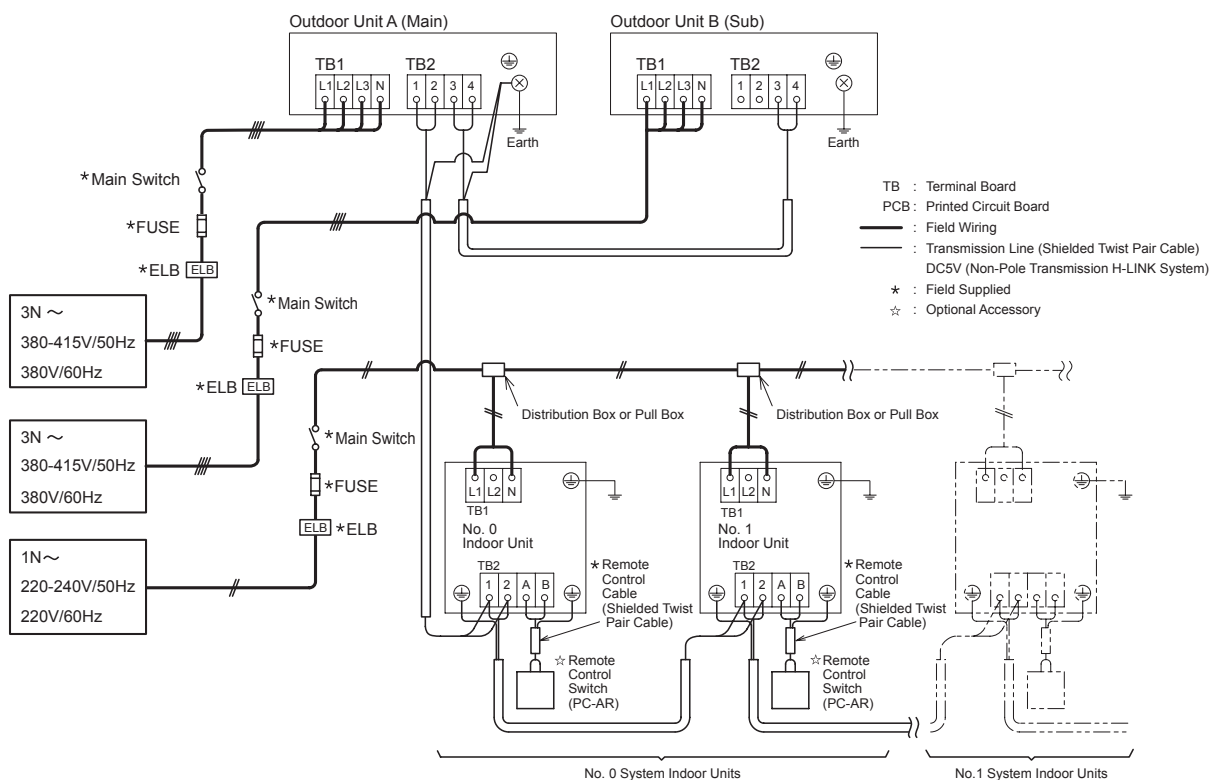
- Transmission Wiring



NOTES:

1. For the combination units (20~54HP), DSW settings of Main and Sub are required.
2. Alarm occurs if the transmission wires between outdoor units are connected to the terminals 1 and 2 for H-LINK II.
3. In case that alarm is indicated on the LCD of Main outdoor unit, follow the "7-segment" indication of the Main outdoor unit for checking.
4. Perform function setting from Main outdoor unit.
5. Maximum refrigerant groups with one central controller are 64.
Maximum indoor units to be connected are 160.

< 380-415V/50Hz, 380V/60Hz >



< 220V/60Hz >

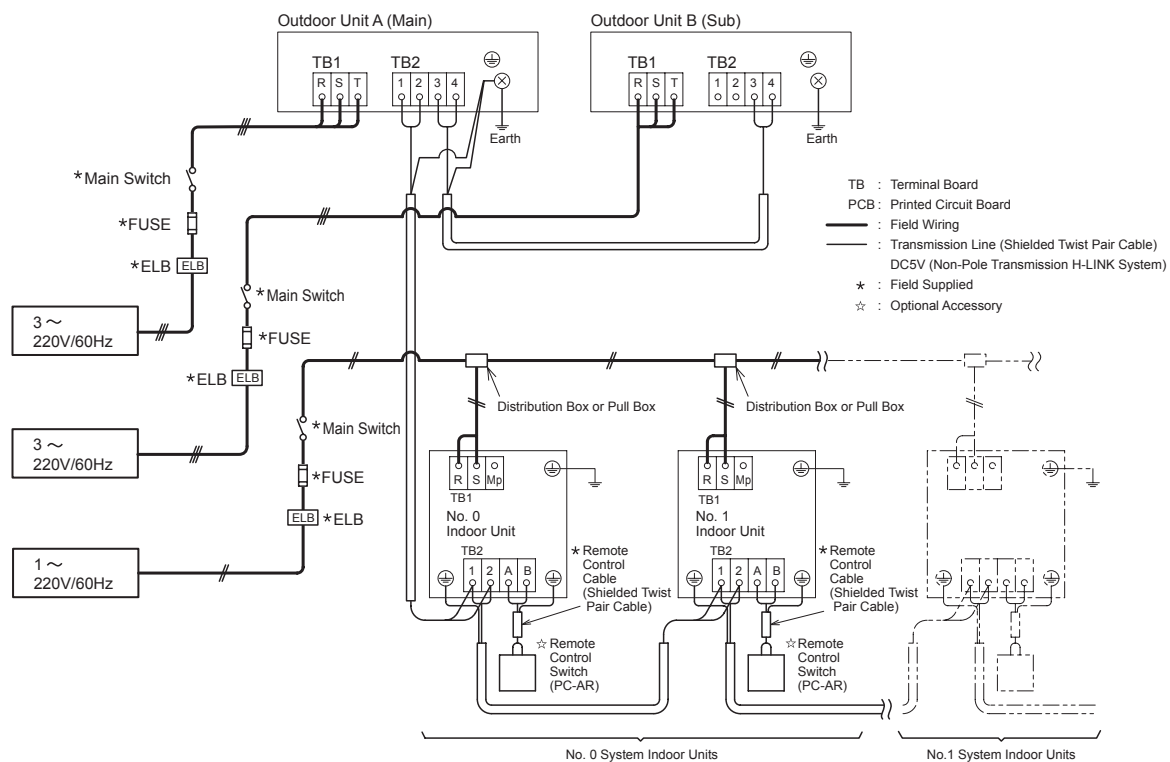
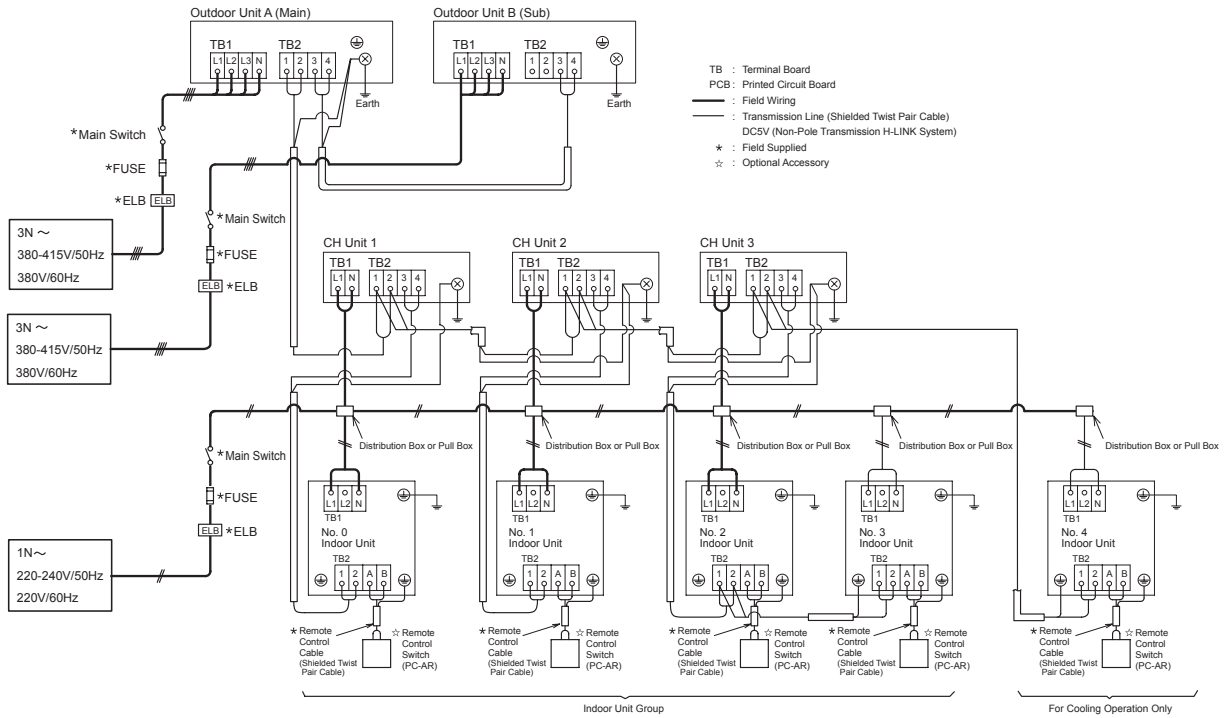


Fig. 7.2 Instruction for Electrical Wiring Connection (Heat Pump System)

< 380-415V/50Hz, 380V/60Hz >



< 220V/60Hz >

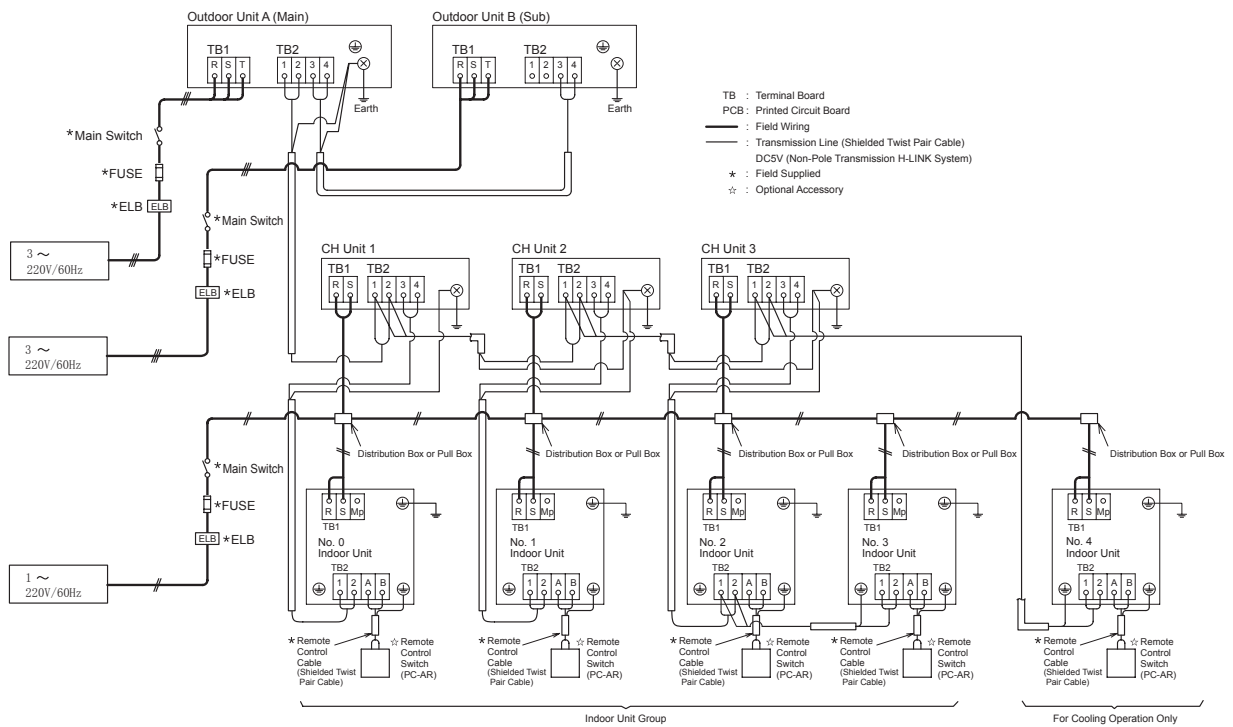


Fig. 7.3 Instruction for Electrical Wiring Connection (Heat Recovery System)

7.5 Dip Switch Setting of Outdoor Unit

TURN OFF all power sources before setting.

Without turning OFF, the switches do not work and the contents of the setting are invalid.

(However, DSW4-No.1, 2, 4 can be operated during power source is ON.)

The mark of “■” indicates the position of dip switches. Set the dip switches according to the Fig.7.4.

NOTE

- By using switch DSW4, the unit is started or stopped after 10 to 20 seconds after the switch is operated.
- Number this outdoor unit to distinguish from other outdoor units for service and maintenance.
And write the number in the space right.



Arrangement of Dip Switch Setting

Push Switches

DSW1 Ref. Cycle No. Setting

Setting is required.

Setting Before Shipment

Tens Digit Last Digit

Set the unit number of outdoor unit at each refrigerant cycle.
(Setting before shipment is unit 0.)

DSW2 Capacity Setting

No setting is required.

DSW4 Test Operation and Service Setting

Setting is required.

For Test Operation and Operating Compressor

Setting Before Shipment Test Cooling Operation Test Heating Operation

Compressor Forced Stop

DSW5 Emergency Operation / Test Operation and Service Setting

No setting is required.

Turn ON the dip switch when use the below functions.

Setting Before Shipment

Setting Item	Pin No.
Except No.1 Compressor Operation	1
Except No.2 Compressor Operation	2
Refrigerant Amount Judgement	4

DSW6 Outdoor Unit No. Setting

Setting is required.

Single Setting (Setting Before Shipment)

Combination Setting

Unit A (No.0 Unit)	Unit B (No.2 Unit)	Unit C (No.3 Unit)
ON	ON	ON

IMPORTANT NOTICE

The outdoor unit is not single, the combination setting is necessary. Be sure to do this setting.

DSW3

Setting is required.

DSW7 Power Supply Setting

Setting is required.

220V Unit: 220V Setting Before Shipment
380V Unit: 380V Setting Before Shipment
415V Unit: 415V Setting Before Shipment

DSW10 Transmission Setting

Setting is required.

For End Resistance Cancellation

Setting Before Shipment End Resistance Cancellation

If the transmission circuit fuse is short circuited, the printed circuit board PCB1 will be recovered only once by turning DSW10 #2 pin on.

Fig. 7.4 DSW Setting

Setting for Transmitting

It is required to set the outdoor unit Nos., refrigerant cycle Nos. and end terminal resistance for this H-LINK or H-LINK II system.

Setting of Outdoor Unit No.

In case of the combination of base unit, set DSW6 as shown below.

Base Unit (Before Shipment)	Combination of Base Unit		
	Unit A (No.0) (Main)	Unit B (No.2)	Unit C (No.3)

Setting of Refrigerant Cycle No.

In the same refrigerant cycle, set the same refrigerant cycle No. for the outdoor unit and the indoor units as shown below.

As for setting indoor unit refrigerant cycle No., set the RSW2 and DSW5 on the indoor unit PCB.

	Setting Switch	
	10 digit	1 digit
		Setting Position Set by inserting slotted screwdriver into the groove.
Outdoor Unit	DSW1	RSW1
Indoor Unit (H-LINK II)	DSW5	RSW2

Ex.: In Case of Setting Refrigerant Cycle No. 25



Turn ON No. 2 pin.



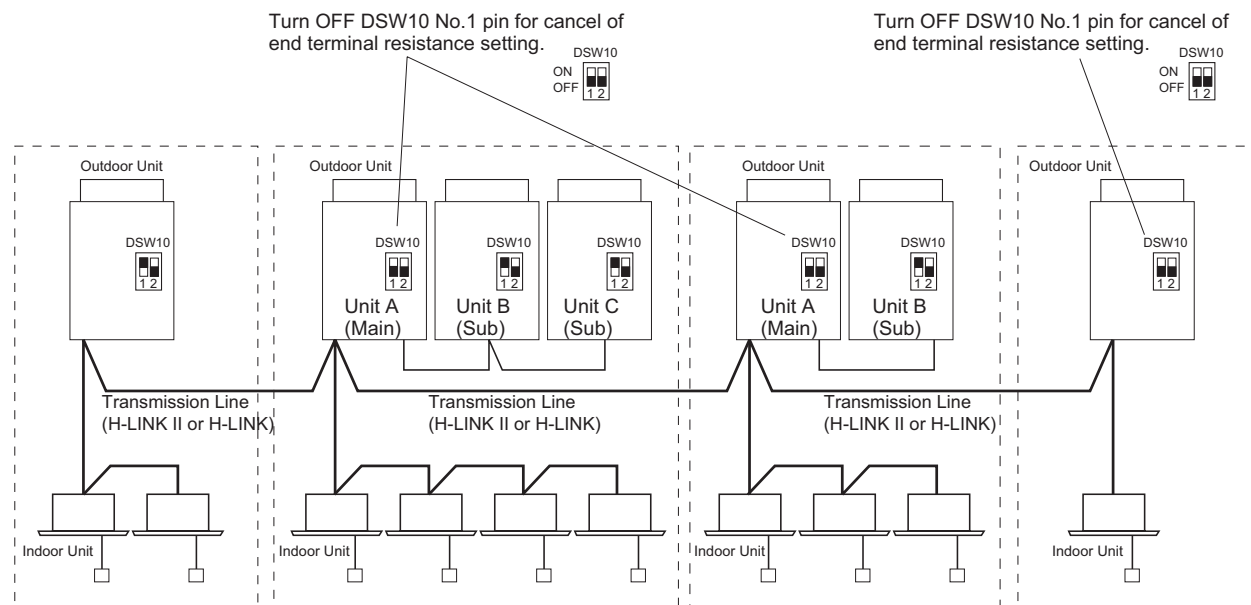
Set Dial No.5.

DSW and RSW setting before shipment is 0.
Maximum in setting refrigerant cycle No. is 63.

Setting of End Terminal Resistance

Before shipment, No. 1 pin of DSW10 is set at the "ON" side. In the case that the outdoor units quantity in the same H-LINK or H-LINK II is 2 or more, set No. 1 pin of DSW10 at the "OFF" side from the 2nd refrigerant group outdoor unit. If only one outdoor unit is used, no setting is required.

Setting of End Terminal Resistance	
DSW10	
Before Shipment	Cancellation



• Function Setting

External Input/Output and Function Setting

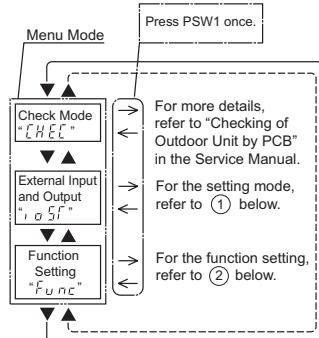
■ Start of Setting

Turn ON DSW4-No.4.
Press PSW1 for 3 seconds or more.
"Menu Mode" will be indicated.

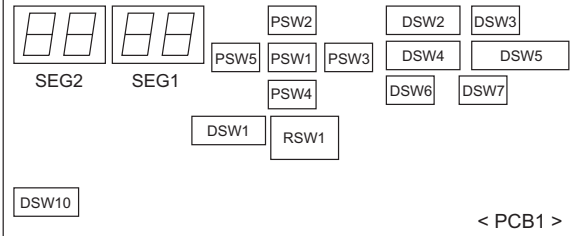
■ End of Setting

Press PSW1 for 3 seconds or more.
The display indication become to normal indication.
Turn OFF DSW4-No.4.

NOTE:
Release "Menu Mode" after the setting is completed.
Otherwise, the air conditioner may not operate appropriately.



Arrangement of Dip Switch Setting



① [External Input and Output Setting]

By pressing the push-switches PSW3 (▶) and PSW5 (◀), the function No. can be selected.
PSW4 (▼): forward, PSW2 (▲): backward

Fill out the selected function setting No. in the space of the table as shown.

< Example >
1

Item	SEG2	SEG1	SET
1 Input Setting 1 CN17 [1-2 pin]	11	1	
2 Input Setting 2 CN17 [2-3 pin]	12	2	
3 Input Setting 3 CN18 [1-2 pin]	13	3	
4 Output Setting 1 CN16 [1-2 pin]	01	1	
5 Output Setting 2 CN16 [1-3 pin]	02	2	

(Setting before shipment)
Before shipping, the input/output function settings are specified to each input/output terminal according to above table. The details of function No. and external input/output settings are as shown below.

Setting of External Input and Output Function

Function No.	Input	Output
1	Fixing Heating Operation Mode	Operation Signal
2	Fixing Cooling Operation Mode	Alarm Signal
3	Demand Stoppage	Compressor ON Signal
4	Outdoor Fan Motor Start/Stop	Defrost Signal
5	Forced Stoppage	-
6	Demand Current Control 40%	-
7	Demand Current Control 60%	-
8	Demand Current Control 70%	-
9	Demand Current Control 80%	-
10	Demand Current Control 100%	-
11	Low Noise Setting 1	-
12	Low Noise Setting 2	-
13	Low Noise Setting 3	-
0	No Setting	No Setting

The same input/output function setting can not be set to different input/output terminals.
If set, a setting of larger function number is became invalid.

② [Function Setting]

By pressing the push-switches PSW3 (▶) and PSW5 (◀), the setting can be changed.
PSW4 (▼): forward, PSW2 (▲): backward
Refer to the Service Manual for more details.

Fill out the selected function setting No. in the space of the table as shown.

< Example >
1

Item	SEG2	SEG1	SET	Item	SEG2	SEG1	SET
1 Circulator at Heating Function Thermo-Off	FR	0		14 Not Prepared	cl	0	
2 Night-Shift	ni	0		15 Not Prepared	cb	0	
3 Cancellation of Outdoor Ambient Temperature Limit	CS	0		16 Not Prepared	ch	0	
4 Defrost for Cold Area (Change of Defrost Condition)	Jo	0		17 Not Prepared	db	0	
5 SLo (Fan Speed) Defrost Setting	bu	0		18 Demand	de	0	
6 Cancellation of Hot Start	hr	0		19 Wave Function Setting	ue	0	
7 Priority Capacity Mode	nu	0		20 Protection of Decrease in Outlet Temperature for Cooling	fb	0	
8 Compressor Frequency Control Target Value for Cooling	Hc	0		21 Not Prepared	fr	0	
9 Compressor Frequency Control Target Value for Heating	Hh	0		22 Adjustment of Fan Rotation (for multiple installation)	fo	0	
10 Indoor Expansion Valve Control Target Value for Cooling	Sc	0		23 Not Prepared	lr	0	
11 Indoor Expansion Valve Control Target Value for Heating	Sh	0		24 Not Prepared	fl	0	
12 Not Prepared	Si	0		25 Not Prepared	f2	0	
13 Not Prepared	So	0		26 Not Prepared	f3	0	

8. Additional Refrigerant Charge

8.1 Air-Tight Test

- (1) Check to ensure that the stop valves are closed completely before air-tight test.

< Tightening Check of Stop Valves >

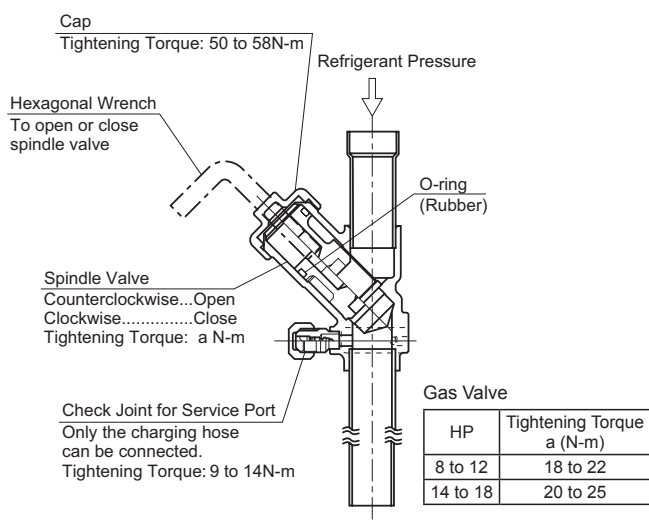
- a) After connecting the pipe, remove the cap of stop valve for high pressure gas, low pressure gas (heat recovery system only) and liquid gas.

Tighten the open-close spindle in the close direction with a torque *1).

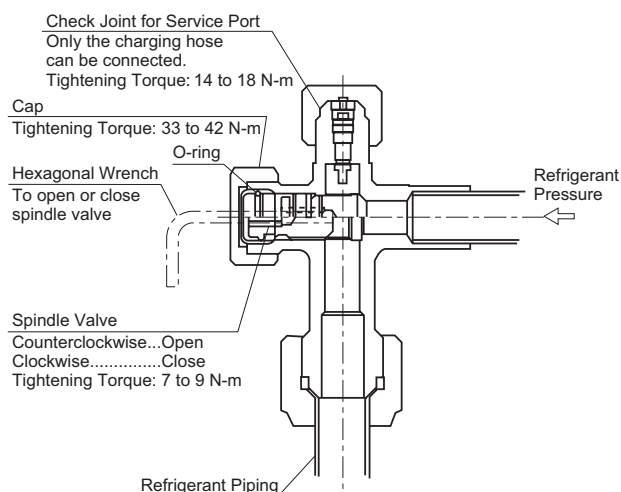
*1)	Stop Valve for High Pressure Gas and Low Pressure Gas	8 to 12HP	18 to 22 N-m
		14 to 18HP	20 to 25 N-m
	Stop Valve for Liquid Gas		7 to 9 N-m

- b) Perform the air-tight test after the above check.

< Gas Valve >



< Liquid Valve >



- (2) Connect the indoor unit and the outdoor unit with field-supplied refrigerant piping. Suspend the refrigerant piping at specified points and prevent the refrigerant piping from touching weak parts of the building such as wall, ceiling, etc. (Abnormal sound may occur due to the vibration of the piping. Pay special attention in case of short piping length.)
- (3) Connect the gauge manifold using charging hoses with a vacuum pump or a nitrogen cylinder to the check joints of the liquid line and the gas line stop valves. Perform the air-tight test. Connect a manifold gauge to the check joints of the liquid and gas stop valves in the outdoor unit. Do not open the stop valves. Apply nitrogen gas pressure of **4.15MPa** for FSXNQ series.

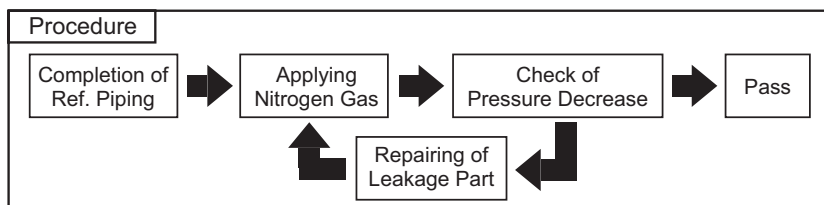
⚠ DANGER

Be sure to use Nitrogen Gas for air-tight test. If other gases such as oxygen gas, acetylene gas or fluorocarbon gas are accidentally used, it may cause explosion or gas intoxication.

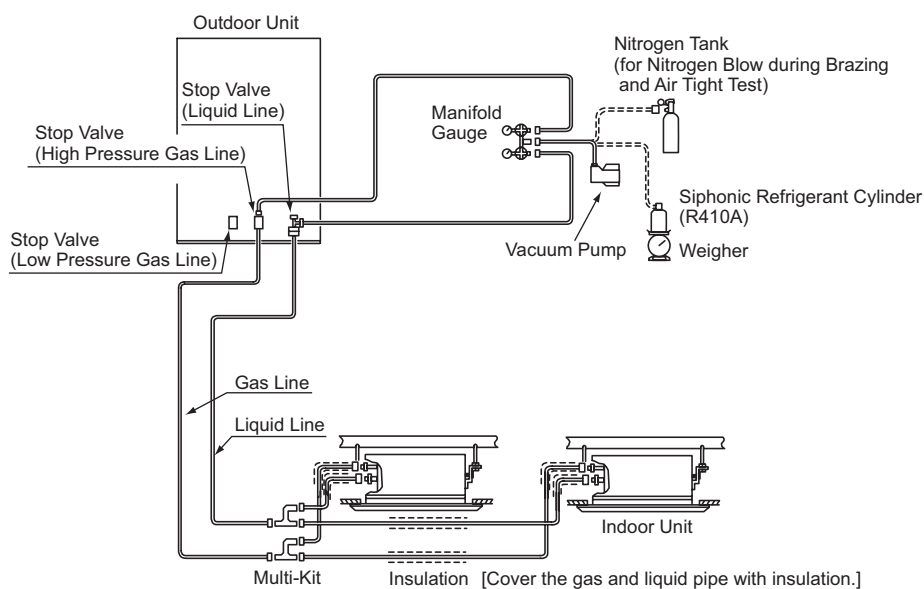
- (4) Check for any gas leakage at the flare nut connections, or brazed parts by gas leakage tester or by use of a foaming agent or gas leak detector.

Recommended Forming Agent	Manufacturer
Güproflex	Yokogawa & CO.,Ltd

- (5) Insulate high pressure and low pressure (heat recovery system only) gas piping side and liquid piping side.
- (6) Mount the piping cover equipped with the outdoor unit after connecting the pipe.



< Heat Pump System >



< Heat Recovery System >

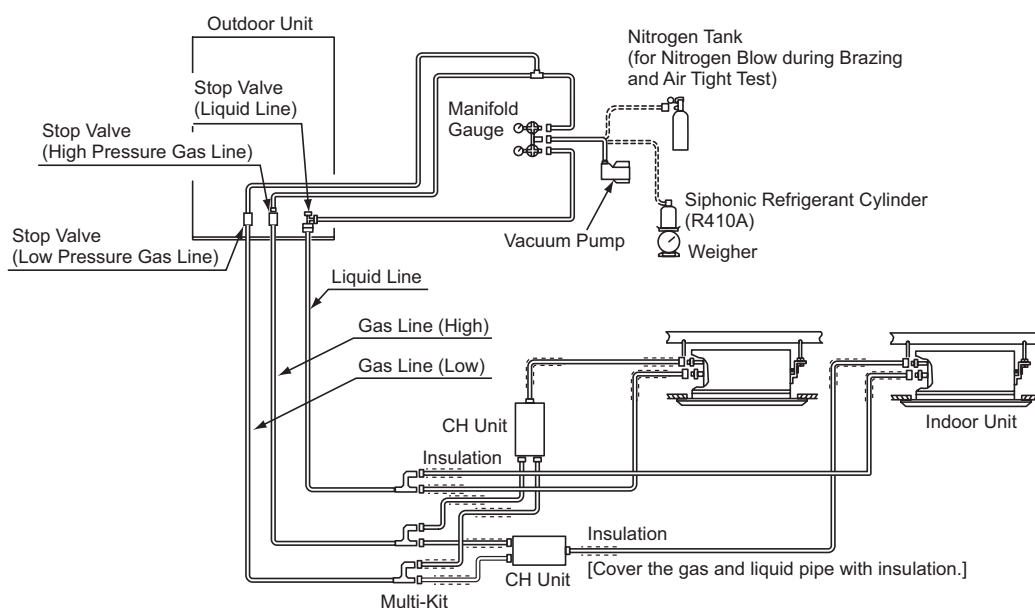


Fig. 8.1 Vacuum Pumping and Refrigerant Charge

8.2 Vacuuming

- Connect a manifold gauge and vacuum pump to the check joints*.

* Heat Pump System	High Pressure Gas Stop Valve Liquid Stop Valve
Heat Recovery System	High Pressure Gas Stop Valve Low Pressure Gas Stop Valve Liquid Stop Valve

- Continue vacuum pumping work until the pressure reaches -0.1MPa (-756mmHg) or lower for one to two hours.
After vacuum pumping work, stop the manifold valve's valve, stop the vacuum pump and leave it for one hour. Check to ensure that the pressure in the manifold gauge does not increase.
- Tighten the cap of check joint (9 to 14N-m for high/low pressure gas valve, 14 to 18N-m for liquid valve) after the vacuum pumping work.

NOTES:

- If tools or measuring instruments come into contact with the refrigerant, use the tools or the measuring instruments exclusive for R410A.
- If vacuum degree of -0.1MPa (-756mmHg) is not available, it is considered that there is a gas leakage. Check for any gas leakage once again. If no leakage exists, operate the vacuum pump for one to two hours.

NOTICE

- Insulate the refrigerant pipes as shown in Fig. 8.2.
After connecting the refrigerant piping, seal the refrigerant pipes by using the field-supplied insulation material. Insulate the unions and flare nuts at the piping connections completely. Insulate the liquid piping and gas piping completely to avoid decreasing of performance and dewing on the surface of the pipe.

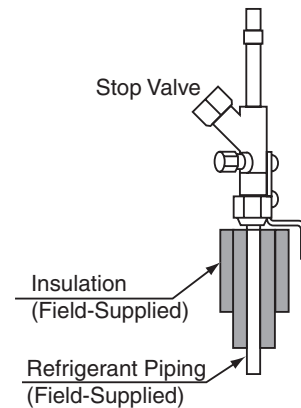


Fig. 8.2 Insulation on Pipes

8.3 Additional Refrigerant Charge Calculation

Table 8.1 Additional Refrigerant Charge Calculation

Although refrigerant has been charged into this unit, additional refrigerant charge is required according to piping length.

Determine the additional refrigerant quantity according to the following procedure, and charge it into the system. Record the additional refrigerant quantity to facilitate maintenance and servicing activities thereafter.

1. Calculating Method of Additional Refrigerant Charge (W kg)

No.	Symbol	Contents	Additional Charge (kg)			
1	W1	Additional Refrigerant Charge Calculation for Liquid Piping (W1 kg)				
		Pipe Diameter	Total Piping Length (m)		Refrigerant Amount for 1m Pipe	Additional Charge (kg)
		φ22.2	m		×0.39 =	
		φ19.05	m		×0.28 =	
		φ15.88	m		×0.19 =	
		φ12.7	m		×0.12 =	
		φ9.53	m		×0.06 =	
		φ6.35	m		×0.03 =	
		Total Additional Charge For Liquid Piping =				
			kg			
2	W2	Additional Refrigerant Charge Calculation for Indoor Unit (W2 kg) Additional refrigerant charge is 1kg/unit of 8HP and 10HP indoor unit. Additional refrigerant charge of less than 8HP indoor units is not needed. 8 and 10HP Total Indoor Unit Numbers Additional Charge × 1.0kg/unit =				
			kg			
3	W3	The Ratio of Indoor Unit Connection Capacity (Indoor Unit Total Capacity/ Outdoor Unit Capacity) Additional Charge Determine the ratio of indoor unit connection capacity. Condition Refrigerant Amount • I.U.Capacity Ratio is less than 100% : 0.0kg • I.U.Capacity Ratio is 100~115% : 0.5kg • I.U.Capacity Ratio is 116~130% : 1.0kg				
			kg			
4	W	Calculation of Additional Charge (W kg) = W1 + W2 +W3		kg		

Note:

Ensure that the total additional charge should not be exceeded the max. additional refrigerant charge quantity as shown in the table below.

< Max. Additional Refrigerant Charge Quantity >

Outdoor Unit	RAS-8, 10FSXNQ	RAS-12FSXNQ	RAS-14, 16FSXNQ	RAS-18FSXNQ	RAS-20~24FSXNQ	RAS-26~54FSXNQ
Max. Additional Ref. Charge Quantity (kg)	28.0	33.0	38.5	42.0	46.0	52.0

2. Charging Work

Charge refrigerant (R410A) into the system according to Item 8.4.

3. Record of Additional Charge

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

Total Ref. Charge = W + Wo
This System = + = kg

Total Additional Charge: W kg
Total Ref. Charge: kg
Date of Ref. Charge Work: / /

Ref. Charge Amount of O.U. Before Shipment (W0) kg

Outdoor Unit	W0 Outdoor Unit Ref. Charge (kg)
RAS-8FSXNQ	6.5
RAS-10FSXNQ	6.5
RAS-12FSXNQ	9.9
RAS-14FSXNQ	9.0
RAS-16FSXNQ	10.5
RAS-18FSXNQ	10.5

Note:

- W0 is outdoor unit ref. charge before shipment.
- In case of the combination of the base unit, calculate the total ref. charge before shipment of the outdoor units to be combined.

8.4 Charging Work

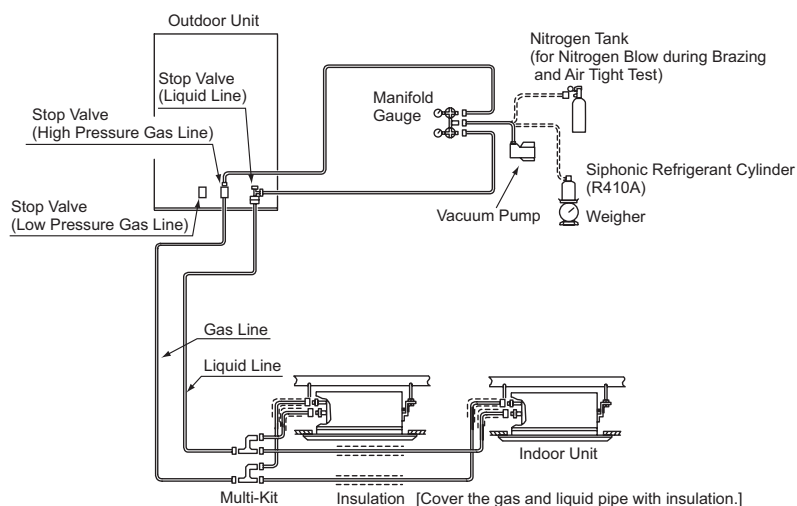
After vacuum pumping work, check that the high pressure gas valve, low pressure gas valve (low pressure gas valve is for heat recovery system only) and liquid stop valve are fully closed.

Charge the additional refrigerant (refer to Table 8.1) from the check joint of liquid stop valve (Charging Refrigerant Amount Tolerance: 0.5kg).

If the specified refrigerant quantity can not be charged, follow the procedure below.

- (1) Fully open the stop valve for high pressure gas*.
(* In case of heat recovery system, fully open the stop valve for high pressure and low pressure gas.)
- (2) Operate the compressor at the cooling mode and add the refrigerant from the check joint of the liquid stop valve. At this time, the liquid stop valve is slightly opened (Charging Refrigerant Amount Tolerance: 0.5kg).
- (3) After refrigerant is charged, fully open the liquid stop valve and gas stop valve (high pressure and low pressure (heat recovery system only)).

< Heat Pump System >



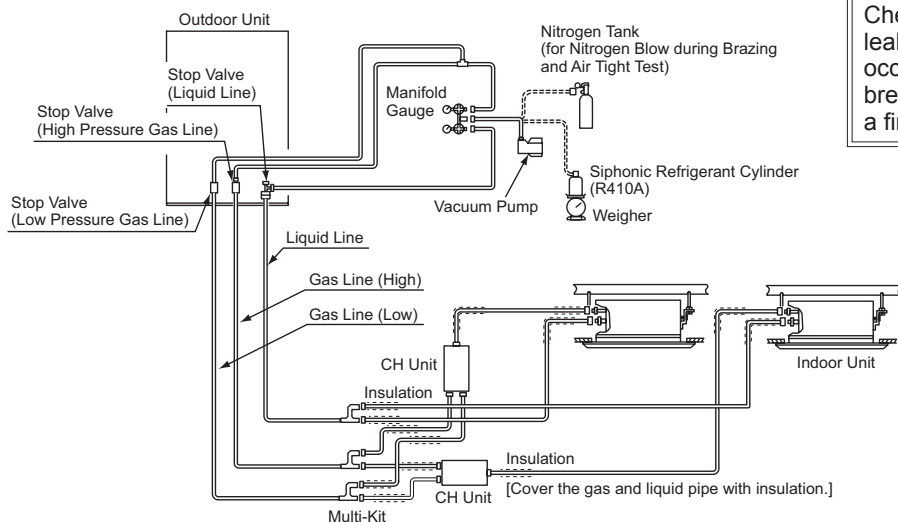
Charge the correct refrigerant quantity according to Table 8.1. If not, a compressor may be damaged due to an excess or insufficient refrigerant charge.

Refrigerant charge from check joint of gas stop valve may lead to compressor failure. Be sure to charge refrigerant from the check joint of liquid stop valve.

Insulate the liquid piping and gas piping completely to avoid decreasing of performance and dewing on the surface of the pipe.

Insulate the flare nut and union of the piping connection with insulation.

< Heat Recovery System >



Check to ensure that there is no gas leakage. If a large refrigerant leakage occurs, it will cause difficulty with breathing or harmful gases would occur if a fire was being used in the room.

8.5 Automatic Simple Judgement System for Refrigerant Amount

NOTE

1. This function is applicable when outdoor air temperature is 0 to 43°C DB and indoor air temperature is 10 to 32°C DB.
2. For 20 to 54HP, the operation and 7-segment indication check should be performed at outdoor unit A (main). Close all the covers of outdoor unit B and C (sub).

Perform the refrigerant amount check operation according to the automatic judgement function after the refrigerant charging work.

When the judgement result is excessive refrigerant, insufficient refrigerant or abnormal termination, find out the cause of abnormality and perform the refrigerant amount check operation again.

< Procedure of Refrigerant Amount Check Operation >

- (1) Reassemble all the cover except for the electrical control box cover and service cover of No.1 unit.
- (2) Turn ON the power supply of indoor unit and outdoor unit in the refrigerant cycle to be performed the refrigerant amount check operation. (Supply electrical power to the system 12 hours before starting this check operation to warm the compressor oil.)
- (3) Turn No.4 of DSW5 (PCB1) ON.

7-segment Display

F C H

- (4) Check the 7-segment display and press PSW1.
The outdoor fan and compressor will be activated and the 7-segment display will be indicated the following figure.

c h 0 2

The judgement takes 30 to 40 minutes. Refer to the table below for the result indication.

When the judgement result is excessive refrigerant, insufficient refrigerant or abnormal termination, find out the cause of abnormality and perform the refrigerant amount check operation again.

Judgement Result Indication

7-segment Indication	Result	Remarks
E n d	Sufficient Refrigerant	The refrigerant amount is sufficient. * Turn No.4 of DSW5 OFF and perform Test Run.
c h H I	Excessive Refrigerant	The refrigerant amount is excessive. * Calculate the additional refrigerant amount according to the piping length. Collect the refrigerant using a collector and charge the correct refrigerant amount.
c h L o	Insufficient Refrigerant	The refrigerant amount is insufficient. * Check if the additional refrigerant has been charged. * Calculate the additional refrigerant amount according to the piping length and charge the refrigerant.
c h	Abnormal Termination	Find out the cause of abnormal termination as shown below. After resolved the cause of abnormal termination, restart the check operation. (1) Is No.4 pin of DSW5 ON before turning on the power supply? (2) Are all indoor units ready and waiting, before turned ON No.4 pin of DSW5? (3) Is the outdoor ambient temperature within the applicable range (0 to 43°C)? (In some cases, when the connected indoor unit number exceeds the recommended number and the outdoor ambient temperature exceeds 35°C, this check operation cannot be performed.) (4) Is the total indoor units operation capacity 30% (indoor units capacity ratio) or less? (5) Is No.4 of DSW4 (compressor forced stoppage) OFF?

- (5) Turn No.4 of DSW5 OFF when the refrigerant amount is sufficient.
Wait 3 minutes (at least) after turning No.4 of DSW5 OFF and then the outdoor unit is ready to operate.

NOTE:

The 7-segment indication during the check operation may be changed to the protection control code by the activation of protection control, however it is normal. As for the protection control code, refer to the sheet attached to the inside of the outdoor unit service cover.

NOTE:

1. Emissions of the fluorocarbons are prohibited.
2. In case of disposal and maintenance of this product, collection of fluorocarbons is required.
3. Regarding the fluorocarbon, the specification label or refrigerant label attached to the product should be followed. After the additional refrigerant charge, record the total refrigerant (= refrigerant before shipment + additional refrigerant in the field) in the refrigerant label.

INSTALLATION & OPERATION

- Special Attention Regarding Refrigerant Gas Leakage

Pay attention to the critical gas concentration to avoid accidental refrigerant gas leakage before installing air conditioning systems.

$$\frac{\text{Totally Charged Refrigerant Quantity in System (kg)}}{\text{Room Space for each Indoor Unit (m}^3\text{)}} \leq \text{Critical Concentration (kg/m}^3\text{)}$$

0.3 kg/m³ *

* In case of KHK S 0010, this value should be decided according to the each country's regulation such as ISO5149 and EN378.

In the case that the calculated critical concentration is higher than 0.3kg/m³, take the following actions.

- 1) Provide a gas leakage detector and exhaust fan(s) controlled by its gas leakage detector.
- 2) Provide each effective opening at the wall or door for ventilation to next door so that the critical gas concentration can be maintained lower than the above value.
(Provide an opening more than 0.15% of floor surface at the lower part of a door.)

CAUTION

1. Maximum Permissible Concentration of HFC GAS R410A

The refrigerant R410A is an incombustible and non-toxic gas.

However, if leakage occurs and gas fills a room, it may cause suffocation. The maximum permissible concentration of HFC gas, R410A in air is 0.3kg/m³, according to the refrigeration and air conditioning facility standard (KHK S 0010) by the KHK (High Pressure Gas Protection Association) Japan. Therefore, some effective measure must be taken to lower the R410A concentration in air below 0.3kg/m³, in case of leakage. As for R410A, this consideration is applied similarly.

2. Calculation of Refrigerant Concentration

- (1) Calculate the total quantity of refrigerant R (kg) charged in the system connecting all the indoor units of objective rooms.
- (2) Calculate the room space where this unit is to be installed V (m³) of each objective room.
- (3) Calculate the refrigerant concentration C (kg/m³) of the room according to the following equation.

R: Total Quantity of Charged Refrigerant (kg)

V: Room Space Where This Unit Is to Be Installed (m³)

= C: Refrigerant Concentration ≤ 0.3 (kg/m³) *

If local codes or regulations are specified, follow them.

<Example>

Japanese Standard KHK S 0010 C=0.3 (kg/m³)

9. Test Run

Test run should be performed according to the Item 9.2. And use the Table 9.1 for recording test run.

WARNING

- **Do not operate the system until all the check points have been cleared.**
As for the test run of indoor unit, check “Installation & Maintenance Manual” attached to the indoor unit and CH unit.

9.1 Before Test Run

- (1) Check to ensure that the refrigerant piping and transmission between outdoor unit and indoor units are connected to the same refrigerant cycle. If not, it will cause an abnormal operation and a serious accident.
Check that the dip switch setting of the refrigerant cycle No. (DSW1 & RSW1 [O.U.], DSW5 & RSW2 [I.U.]) and the unit number (RSW) for the indoor units apply to the system.
Confirm that the dip switch setting on the printed circuit board of the indoor units and the outdoor units are correct. Especially, pay attention to the setting of outdoor unit No., the refrigerant cycle No. and the end terminal resistance. Refer to the chapter “7. Electrical Wiring”.
- (2) Check to ensure that the electrical resistance is more than 1 megohm, by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electrical leakage is found and repaired (Refer to “Caution for Insulation Resistance” for details.).
Do not impress the voltage on the terminals for transmission (Outdoor Unit: TB2 1, 2, 3, 4 / Indoor Unit: TB2 1, 2, A, B / CH Unit: TB2 1, 2, 3, 4).
- (3) Check to ensure that each wire, L1, L2, L3 and N (R, S and T) is correctly connected at the power source.
If incorrectly connected, the unit will not operate and the remote control switch will indicate the alarm code “05”. In this case, check and change the phase of the power source according to the attached sheet on the reverse side of the service cover.
- (4) **Check to ensure that the switch on the main power source has been ON for more than 12 hours, to warm the compressor oil by the oil heater.**
FSXNQ series outdoor units does not operate within 4 hours after power supply (Stoppage Code d1-22).
In case of operating within 4 hours, release the protection control as follows:
 1. Supply power to the outdoor unit.
 2. Wait for 30 seconds.
 3. Push PSW5 on the outdoor PCB more than 3 seconds in order to release the d1-22.
In case of using remote control switch for release, push “Air Flow” and “Auto Louver” switch simultaneously for 3 seconds.
- (5) Main Unit Label
In case of the combination of base units, **attach the main unit label on a visible spot of the main unit (outdoor unit A)**, so that the outdoor unit A can be identified easily. Do not attach the main label on the sub unit (outdoor unit B and C).

⚠ CAUTION

Caution for Insulation Resistance

If total unit insulation resistance is lower than 1 megohm, the compressor insulation resistance may be low due to retained refrigerant in the compressor. This may occur if the unit has not been used for long periods.

1. Disconnect the cables to the compressor and measure the insulation resistance of the compressor itself. If the resistance value is over 1 megohm, then insulation failure has occurred of other electrical parts.
2. If the insulation resistance is less than 1 megohm, disconnect the compressor cable from the inverter PCB. Then, turn on the main power to apply current to the crankcase heater. After applying current for more than 3 hours, measure insulation resistance again. (Depending on the air conditions, pipe length or refrigerant conditions, it may be necessary to apply the current for a longer period of time.) Check the insulation resistance and reconnect the compressor.

If the leakage breaker is activated, check the recommended size shown in Table 7.1.

NOTICE

1. Confirm that field-supplied electrical components (main switch fuse, fuse-free breaker, earth leakage breakers, wires, conduit connectors and wire terminals) have been properly selected according to the electrical data shown in Table 7.1 and ensure that the components comply with national and local codes.
2. Use shielded wires ($\geq 0.75\text{mm}^2$) for field wiring to protect electrically noise obstacle. (Total length of shielded wire shall be less than 1000m, and size of shielded wire shall comply with local codes.)
3. Check to ensure that the terminal for power source wiring (terminals "L1" to "L1" and "N" to "N" of each terminal board: AC 380-415V, terminals "R" to "L1" and "S" to "L2" of each terminal board: AC 220V). If not, some component will be damaged.

9.2 Test Run

- (1) Check to ensure that the stop valves of the outdoor unit are fully opened (low pressure gas: heat recovery system only), and then start the system.
(In case of the combination of base units, check that the stop valves of all the connected outdoor units are fully opened.)
- (2) Perform the test run of indoor units one by one sequentially and then check accordance of the refrigerant piping system and electrical wiring system. (If the multiple indoor units are operated simultaneously, the system can not be inspected the system accordance.)
- (3) Perform the test run according to the following procedure. Ensure that the test run is carried out without any problem.

NOTE:

In case of 2-remote control switch (main and sub), firstly perform the test run of the main remote control switch.

- a) Set the "TEST RUN" mode by pressing the "MODE" and "CHECK" switch of PC-AR simultaneously for at least 3 seconds.

→ "TEST RUN" is displayed on the LCD.

The total number of the indoor units connected is indicated on the LCD.

05 unit

Example when 5 indoor units are connected.

- Regarding other optional remote control switch (wireless remote control or half-size remote control), follow "Installation & Maintenance Manual" attached to each optional remote control switch and perform the test run.
- In case that the multiple indoor units are operated simultaneously controlled by one remote control switch, check the connected number of indoor unit is indicated on LCD.
- In case that the indicated number is not correct, the auto-address function is not performed correctly due to incorrect wiring, the electric noise or etc. Turn OFF the power supply and correct the wiring after checking the following points; (Do not repeat turning ON and OFF within 10 seconds.)
 - * Power Supply for Indoor Unit is Not Turned ON or Incorrect Wiring.
 - * Incorrect Connection of Connecting Cable between Indoor Units or Incorrect Connection of Controller Cable.
 - * Incorrect Setting of Rotary Switch and Dip Switch (The setting is overlapped.) on the Indoor Units PCB.

- b) Set the operation mode by pressing "MODE" switch.

- c) Press "RUN/STOP" switch.

→ The operation lamp will be turned ON before the test run starts.

2-hour OFF Timer will be set automatically, and "OFF Timer" and "2HR" will be indicated on LCD. Although the air flow initial setting is "HI", the setting can be changed.

- Check the following operation range.

		Cooling Operation	Heating Operation
Indoor Temperature	Minimum	21°C DB / 15°C WB	15°C DB
	Maximum	32°C DB / 23°C WB	27°C DB
Outdoor Temperature	Minimum	-5°C DB (*)	-20°C WB (**)
	Maximum	43°C DB	15°C WB

DB: Dry Bulb, WB: Wet Bulb

NOTES:

(*) 10°C DB ~ -5°C DB, Operation Control Range

(**) -12°C WB ~ -20°C WB, Operation Control Range

- Pay attention to the following items while the system is running.
 - * Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 90°C.
 - * DO NOT PUSH THE BUTTON OF THE MAGNETIC SWITCH(ES).
It will cause a serious accident.
- Do not touch any electrical components for at least 3 minutes after turning OFF the main switch.
- Check that the refrigerant piping setting and electrical wiring setting are for the same system, by operating the indoor unit one by one.

- d) Depress "AUTO LOUVER" switch and check that the louver is activated normally without abnormal sound. Depress "AUTO LOUVER" again so that the louver will stop. If abnormal sound is heard, remove the panel and adjust the fitting condition of connection parts in the panel corner cover. Ensure that the panel is mounted correctly to the unit body, otherwise the panel may be deformed.
- e) The temperature control will be invalid though the protection device will be activated during the test run. If alarm occurs, find out the cause of abnormality according to Table 9.2 "Alarm Code". And again perform the test run after solving the problems.
- f) According to the label "Checking of Outdoor Unit by 7-segment Display on PCB1" attached to the rear side of the front cover of the outdoor unit, inspect temperature, pressure, operation frequency, and connected indoor unit numbers by the 7-segment displays.
- g) To end the test run, wait for 2 hours or push "RUN/STOP" switch again.

Table 9.1 Test Run and Maintenance Record

MODEL:	SERIAL. No.	COMPRESSOR MFG. No.
CUSTOMER'S NAME AND ADDRESS:		DATE:

1. Is the rotation direction of the indoor fan correct? ☐
2. Is the rotation direction of the outdoor fan correct? ☐
3. Are there any abnormal compressor sounds? ☐
4. Has the unit been operated at least twenty (20) minutes? ☐
5. Check Room Temperature

Inlet:	No. 1 DB	/WB	°C,	No. 2 DB	/WB	°C,	No. 3 DB	/WB	°C,	No. 4 DB	/WB	°C
Outlet:	DB	/WB	°C,	DB	/WB	°C,	DB	/WB	°C,	DB	/WB	°C
Inlet:	No. 5 DB	/WB	°C,	No. 6 DB	/WB	°C,	No. 7 DB	/WB	°C,	No. 8 DB	/WB	°C
Outlet:	DB	/WB	°C,	DB	/WB	°C,	DB	/WB	°C,	DB	/WB	°C
6. Check Outdoor Ambient Temperature

Inlet: DB	°C,	WB	°C
Outlet: DB	°C,	WB	°C
7. Check Refrigerant Temperature

Liquid Temperature:	°C
Discharge Gas Temperature:	°C
8. Check Pressure

Discharge Pressure:	MPa
Suction Pressure:	MPa
9. Check Voltage

Rated Voltage:	V
Operating Voltage:	L ₁ -L ₂ V, L ₁ -L ₃ V, L ₂ -L ₃ V
Starting Voltage:	V
Phase Imbalance:	$1 - \frac{V}{V_m} =$
10. Check Compressor Input Running Current

Input:	kW
Running Current:	A
11. Is the refrigerant charge adequate? ☐
12. Do the operation control devices operate correctly? ☐
13. Do the safety devices operate correctly? ☐
14. Has the unit been checked for refrigerant leakage? ☐
15. Is the unit clean inside and outside? ☐
16. Are all cabinet panels fixed? ☐
17. Are all cabinet panels free from rattles? ☐
18. Is the filter clean? ☐
19. Is the heat exchanger clean? ☐
20. Are the stop valves open? ☐
21. Does the drain water flow smoothly from the drain pipe? ☐

Table 9.2 Alarm Code

Code	Category	Content of Abnormality	Leading Cause
01	Indoor Unit	Activation of Protection Device (Float Switch)	Activation of Float Switch (High Water Level in Drain Pan, Abnormality of Drain Pipe, Float Switch or Drain Pan)
02	Outdoor Unit	Activation of Protection Device (High Pressure Cut)	Activation of PSH (Pipe Clogging, Excessive Refrigerant, Inert Gas Mixing)
03	Transmission	Abnormality between Indoor and Outdoor	Incorrect Wiring, Loose Terminals, Disconnect Wire, Blowout of Fuse, Outdoor Unit Power OFF
04		Abnormality between Inverter PCB and Outdoor PCB	Inverter PCB - Outdoor PCB Transmission Failure (Loose Connector, Wire Breaking, Blowout of Fuse)
04.		Abnormality between Fan Controller and Outdoor PCB	Fan Controller - Outdoor PCB Transmission Failure (Loose Connector, Wire Breaking, Blowout of Fuse)
05	Supply Phase	Abnormality Power Source Phases	Incorrect Power Source, Connection to Reversed Phase, Open-Phase
06	Voltage	Abnormal Inverter Voltage	Outdoor Voltage Drop, Insufficient Power Capacity
06.		Abnormal Fan Controller Voltage	Outdoor Voltage Drop, Insufficient Power Capacity
07	Cycle	Decrease in Discharge Gas Superheat	Excessive Refrigerant Charge, Failure of Thermistor, Incorrect Wiring, Incorrect Piping Connection, Expansion Valve Locking at Opened Position (Disconnect Connector)
08		Increase in Discharge Gas Temperature	Insufficient Refrigerant Charge, Pipe Clogging, Failure of Thermistor, Incorrect Wiring, Incorrect Piping Connection, Expansion Valve Locking at Closed Position (Disconnect Connector)
0A	Transmission	Abnormality between Outdoor and Outdoor	Incorrect Wiring, Breaking Wire, Loose Terminals
0b	Outdoor Unit	Incorrect Outdoor Unit Address Setting	Duplication of Address Setting for Outdoor Units (Sub Units) in Same Refrigerant Cycle System
0C		Incorrect Outdoor Unit Main Unit Setting	Two (or more) Outdoor Units Set as "Main Unit" Exist in Same Refrigerant Cycle System
11	Sensor on Indoor Unit	Inlet Air Thermistor	Incorrect Wiring, Disconnecting Wiring Breaking Wire, Short Circuit
12		Outlet Air Thermistor	
13		Freeze Protection Thermistor	
14		Gas Piping Thermistor	
19	Fan Motor	Activation of Protection Device for Indoor Fan	Fan Motor Overheat, Locking
21	Sensor on Outdoor Unit	High Pressure Sensor	Incorrect Wiring, Disconnecting Wiring Breaking Wire, Short Circuit
22		Outdoor Air Thermistor	
23		Discharge Gas Thermistor on Top of Compressor	
24		Heat Exchanger Liquid Pipe Thermistor	
25		Heat Exchanger Gas Pipe Thermistor	
29		Low Pressure Sensor	

Code	Category	Content of Abnormality	Leading Cause
31	System	Incorrect Capacity Setting of Outdoor Unit and Indoor Unit	Incorrect Capacity Code Setting of Combination Excessive or Insufficient Indoor Unit Total Capacity Code
35		Incorrect Setting of Indoor Unit No.	Duplication of Indoor Unit No. in same Ref. Gr.
36		Incorrect of Indoor Unit Combination	Indoor Unit is Designed for R22
38		Abnormality of Picking up Circuit for Protection in Outdoor Unit	Failure of Protection Detecting Device (Incorrect Wiring of Outdoor PCB)
39	Compressor	Abnormality Running Current at Constant Speed Compressor	Overcurrent, Blowout Fuse, Current Sensor Failure, Instantaneous Power Failure, Voltage Drop, Abnormal Power Supply
3A	Outdoor Unit	Abnormality of Outdoor Unit Capacity	Outdoor Unit Capacity > 54HP
3b		Incorrect Setting of Outdoor Unit Models Combination or Voltage	Incorrect Setting of Main and Sub Unit(s) Combination or Voltage
3d		Abnormality Transmission between Main Unit and Sub Unit(s)	Incorrect Wiring, Disconnect Wire, Breaking Wire, PCB Failure
43	Protection Device	Activation of Low Compression Ratio Protection Device	Defective Compression (Failure of Compressor of Inverter, Loose Power Supply Connection)
44		Activation of Low Pressure Increase Protection Device	Overload at Cooling, High Temperature at Heating, Expansion Valve Locking (Loose Connector)
45		Activation of High Pressure Increase Protection Device	Overload Operation (Clogging, Short-Pass), Pipe Clogging, Excessive Refrigerant, Inert Gas Mixing
47		Activation of Low Pressure Decrease Protection Device (Vacuum Operation Protection)	Insufficient Refrigerant, Refrigerant Piping, Clogging, Expansion Valve Locking at Open Position (Loose Connector)
48		Activation of Inverter Overcurrent Protection Device	Overload Operation, Compressor Failure
51	Sensor	Abnormal Inverter Current Sensor	Current Sensor Failure
53	Inverter	Inverter Error Signal Detection	Driver IC Error Signal Detection (Protection for Overcurrent, Low Voltage, Short Circuit)
54		Abnormality of Inverter Fin Temperature	Abnormal Inverter Fin Thermistor, Heat Exchanger Clogging, Fan Motor Failure
55		Inverter Failure	Inverter PCB Failure
57	Fan Controller	Activation of Fan Controller Protection	Driver IC Error Signal Detection (Protection for Overcurrent, Low Voltage, Short Circuit), Instantaneous Overcurrent
5A		Abnormality of Fan Controller Fin Temperature	Fin Thermistor Failure, Heat Exchanger Clogging, Fan Motor Failure
5b		Activation of Overcurrent Protection	Fan Motor Failure
5C		Abnormality of Fan Controller Sensor	Failure of Current Sensor (Instantaneous Overcurrent, Increase of Fin Temperature, Low Voltage, Earth Fault, Step-Out)
EE	Compressor	Compressor Protection Alarm (It is can not be reset from remote Controller)	This alarm code appears when the following alarms* occurs three times within 6 hours. *02, 07, 08, 39, 43 to 45, 47
b1	Outdoor Unit No. Setting	Incorrect Setting of Unit and Refrigerant Cycle No.	Over 64 Number is Set for Address or Refrigerant Cycle.
b5	Indoor Unit No. Setting	Incorrect Indoor Unit Connection Number Setting	More than 17 Non-Corresponding to H-LINK II Units are Connected to One System.
C1	CH Unit	Incorrect Indoor Unit Connection	2 or more CH Units are connected between outdoor unit and indoor unit.
C2		Incorrect Indoor Unit Connection No. Setting	9 or More Indoor Units Connected to CH Unit
C3		Incorrect Indoor Unit Connection	The indoor units of different refrigerant cycle is connected to CH unit.

10. Safety and Control Device Setting

- Compressor Protection

The compressor is protected by the following devices and their combinations.

- (1) High Pressure Switch: This switch cuts out the operation of the compressor when the discharge pressure exceeds the setting.
- (2) Oil Heater: This band type heater protects against oil foaming during cold starting, as it is energized while the compressor is stopped.

Model			RAS-8FSXNQ	RAS-10FSXNQ	RAS-12FSXNQ
For Compressor Pressure Switches			Automatic Reset, Non-Adjustable (each one for each compressor)		
High	Cut-Out	MPa	$4.15 \begin{smallmatrix} -0.05 \\ -0.15 \end{smallmatrix}$	$4.15 \begin{smallmatrix} -0.05 \\ -0.15 \end{smallmatrix}$	$4.15 \begin{smallmatrix} -0.05 \\ -0.15 \end{smallmatrix}$
	Cut-In	MPa	3.20 ± 0.15	3.20 ± 0.15	3.20 ± 0.15
Fuse Capacity					
3 ϕ , 220V, 60Hz			60 x 2	60 x 2	60 x 2
3 ϕ , 380-415V, 50Hz					
3 ϕ , 380V, 60Hz			40 x 2	40 x 2	40 x 2
Oil Heater Capacity					
Capacity			40 x 2	40 x 2	40 x 2
CCP Timer Setting Time			Non-Adjustable		
Setting Time			3	3	3
For DC Fan Module Fuse Capacity					
3 ϕ , 220V, 60Hz			16 x 2	16 x 2	16 x 2
3 ϕ , 380-415V, 50Hz					
3 ϕ , 380V, 60Hz			20 x 1	20 x 1	20 x 1

Model			RAS-14FSXNQ	RAS-16FSXNQ	RAS-18FSXNQ
For Compressor Pressure Switches			Automatic Reset, Non-Adjustable (each one for each compressor)		
High	Cut-Out	MPa	$4.15 \begin{smallmatrix} -0.05 \\ -0.15 \end{smallmatrix}$	$4.15 \begin{smallmatrix} -0.05 \\ -0.15 \end{smallmatrix}$	$4.15 \begin{smallmatrix} -0.05 \\ -0.15 \end{smallmatrix}$
	Cut-In	MPa	3.20 ± 0.15	3.20 ± 0.15	3.20 ± 0.15
Fuse Capacity					
3 ϕ , 220V, 60Hz			60 x 2 + 50 x 2	60 x 2 + 50 x 2	60 x 4
3 ϕ , 380-415V, 50Hz					
3 ϕ , 380V, 60Hz			40 x 2 + 32 x 2	40 x 2 + 32 x 2	40 x 2 + 32 x 2
Oil Heater Capacity					
Capacity			40 x 4	40 x 4	40 x 4
CCP Timer Setting Time			Non-Adjustable		
Setting Time			3	3	3
For DC Fan Module Fuse Capacity					
3 ϕ , 220V, 60Hz			16 x 2	16 x 2	16 x 2
3 ϕ , 380-415V, 50Hz					
3 ϕ , 380V, 60Hz			20 x 1	20 x 1	20 x 1

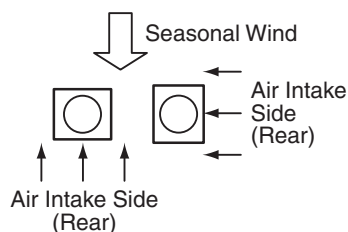
11. Common

11.1 Caution of Outdoor Unit Installation

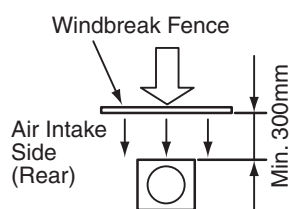
(1) Consideration to Seasonal Wind

Avoid the installation that the air intake side (Rear) of the unit is faced directly against a seasonal strong wind.

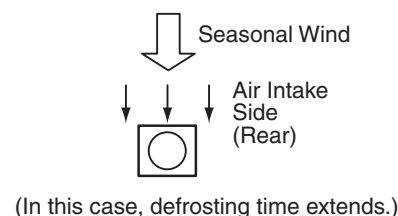
Correct



Correct



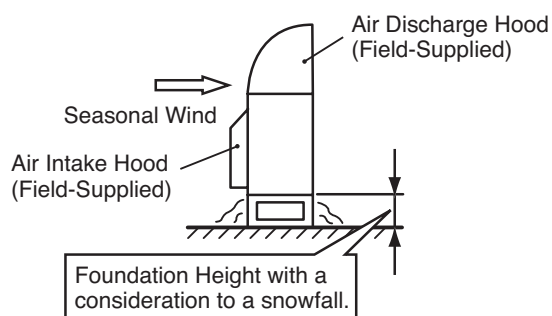
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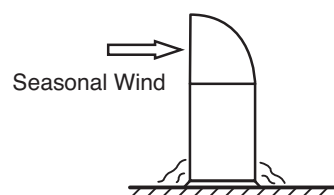
(2) Consideration to Snow

Apply an air discharge hood, an air intake hood and a higher foundation to prevent accumulation of snow on the air outlet and air inlet.

Correct



Incorrect

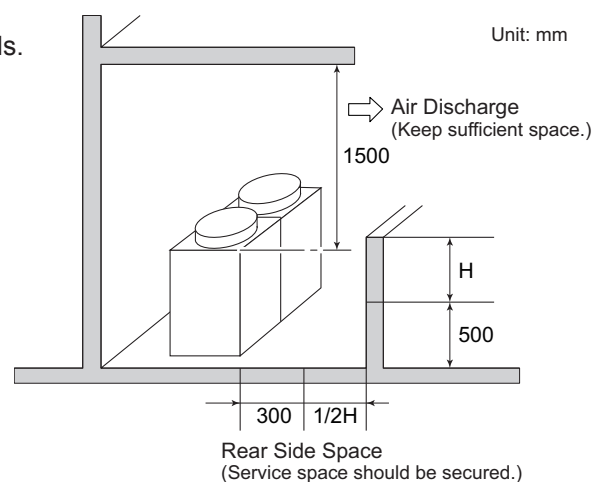


NOTES:

1. Refer to the (4) "Dimensions of the Hood (Field-Supplied)".
2. Install the unit on a sunny place to prevent accumulation of snow.

(3) Prevention of Short-circuiting

Refer to the item 5.3 "Service Space" for more details.



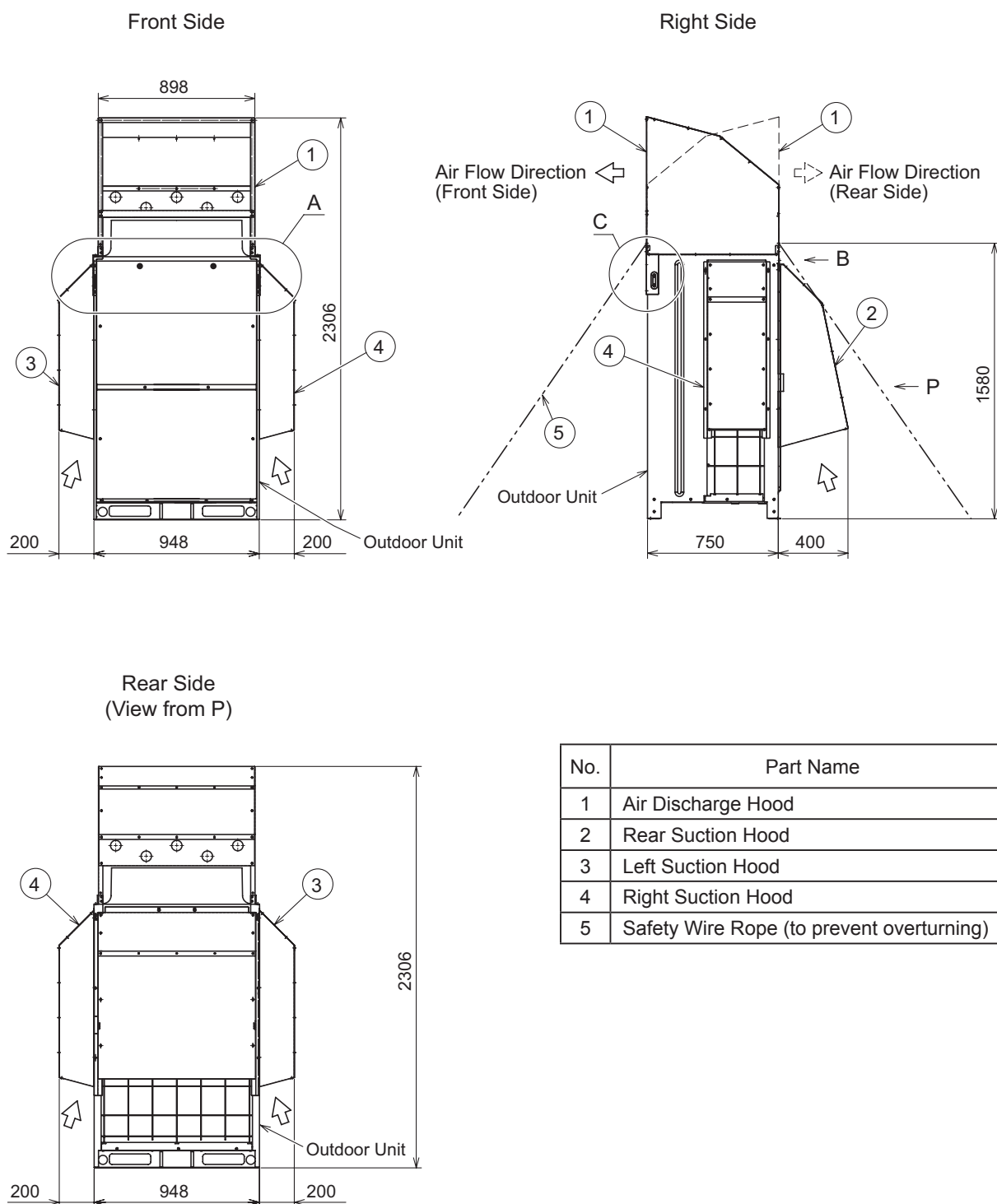
(Example: for Single Unit Installation)

(4) Dimensions of the Hood (Field-Supplied)

- Following figures show the recommended dimensions of air discharge hood and air intake hood for the outdoor unit.
- Apply steel plate of thickness 1mm for hood part, and of thickness 1.6mm for flange part and stay part.
- Apply steel plate with holes for hood part of air intake hood.
- Apply munsell code 1.0Y 8.5/0.5 beige color for painting the hood
- Apply M5 tapping screws for fixing the hood.
- Reinforce the hood with supports, if they are necessary in consideration of the weather such as a strong wind.

RAS-8~12FSXNQ (Cabinet: W948mm)

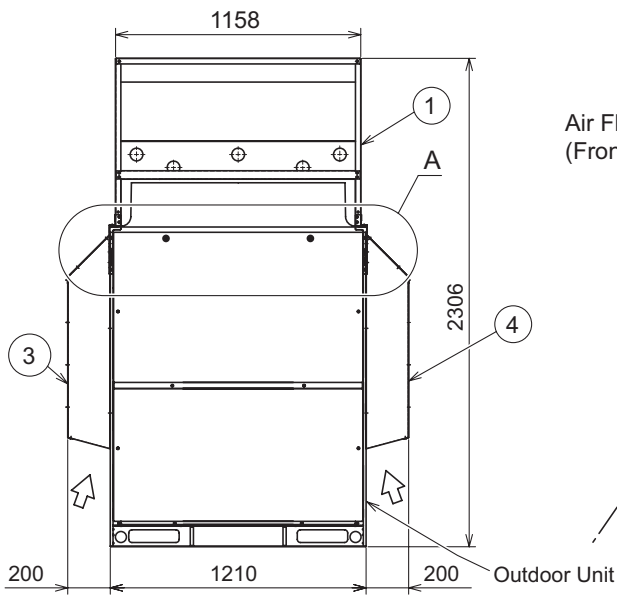
Unit: mm



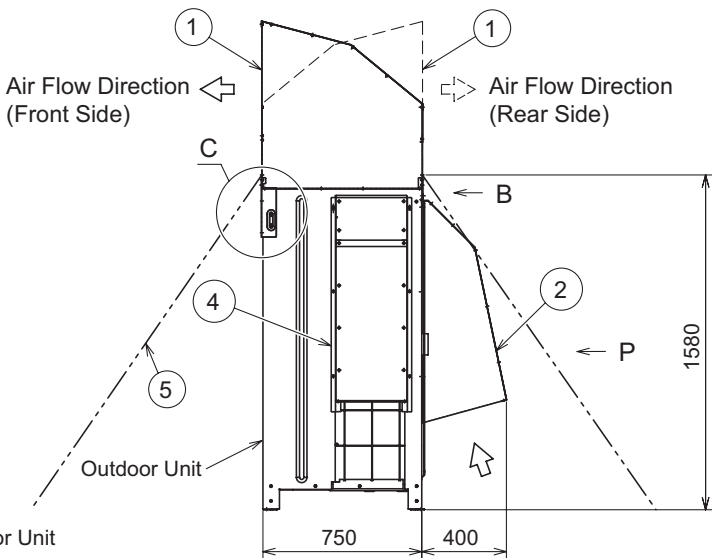
RAS-14~18FSXNQ (Cabinet: W1210mm)

Unit: mm

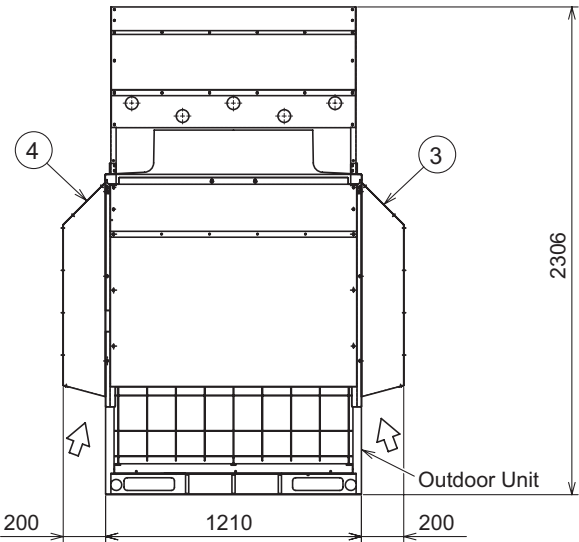
Front Side



Right Side



Rear Side
(View from P)

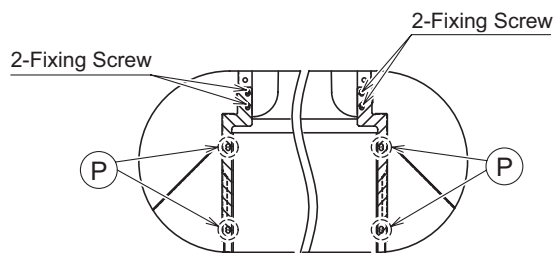


No.	Part Name
1	Air Discharge Hood
2	Rear Suction Hood
3	Left Suction Hood
4	Right Suction Hood
5	Safety Wire Rope (to prevent overturning)

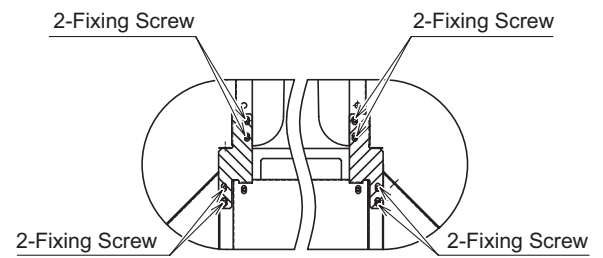
INSTALLATION & OPERATION

< Enlarged View of A, B and C >

Enlarged View of A



Enlarged View of B

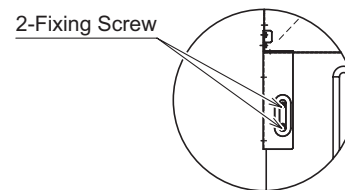


Enlarged View of (P)

Punch Mark (4 places)

Drill a pilot hole into the punch mark and mount the fixing plate.

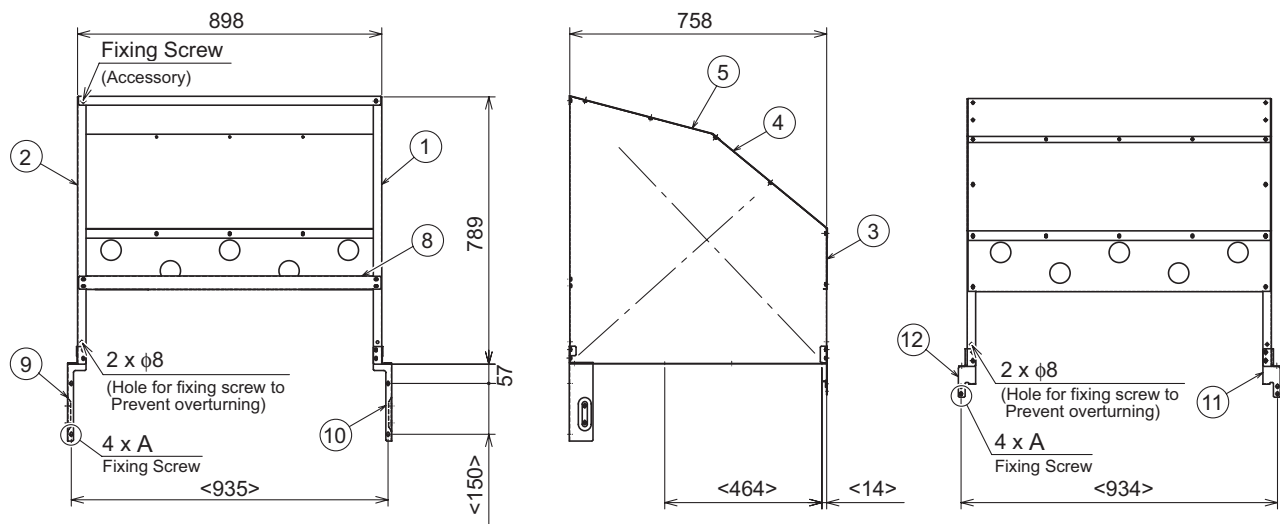
Enlarged View of C



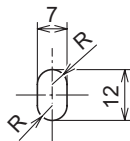
< Air Discharge and Rear Suction Hood for RAS-8~12FSXNQ >

Unit: mm

• Air Discharge Hood

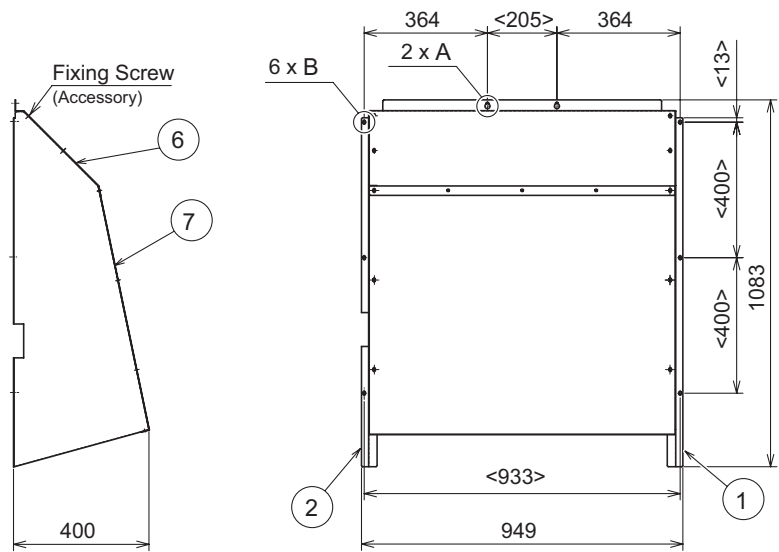


Enlarged View of A

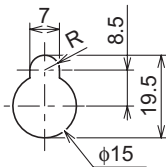


No.	Part Name	Quantity	
		Air Discharge Hood	Rear Suction Hood
1	Right Plate	1	1
2	Left Plate	1	1
3	Front Panel (1)	1	-
4	Front Panel (2)	1	-
5	Front Panel (3)	1	-
6	Front Panel (Upper)	-	1
7	Front Panel (Lower)	-	1
8	Side Plate	1	-
9	Left Fixing Plate for Front	1	-
10	Right Fixing Plate for Front	1	-
11	Left Fixing Plate for Rear	1	-
12	Right Fixing Plate for Rear	1	-

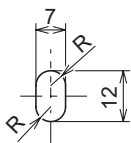
• Rear Suction Hood



Enlarged View of A



Enlarged View of B

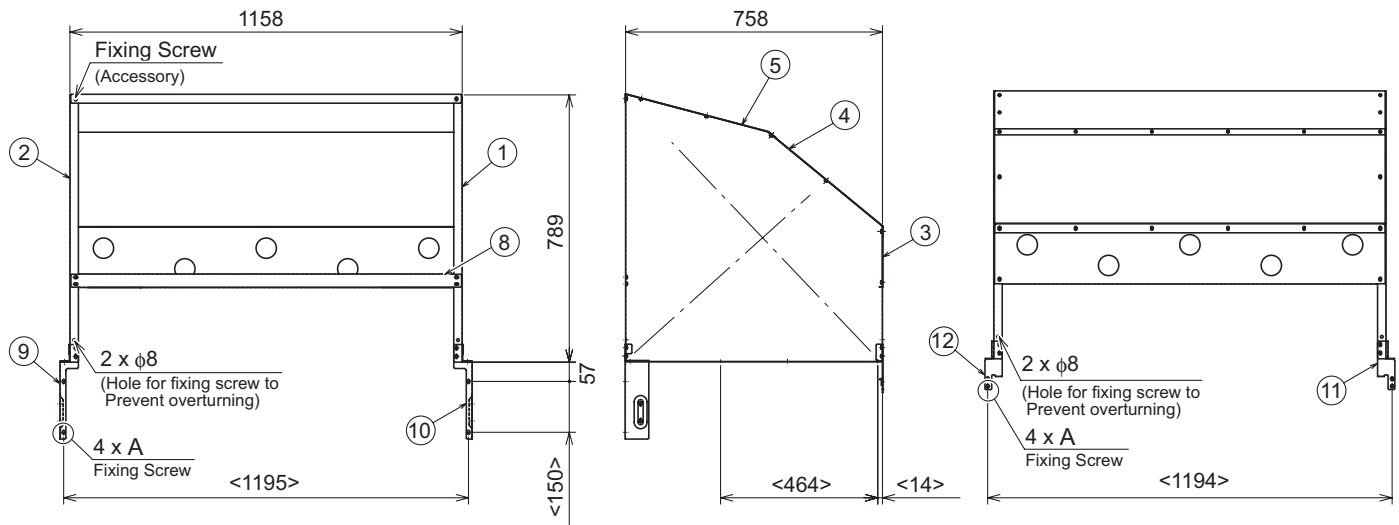


< >: Installation Dimension

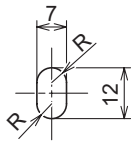
< Air Discharge and Rear Suction Hood for RAS-14~18FSXNQ >

Unit: mm

• Air Discharge Hood

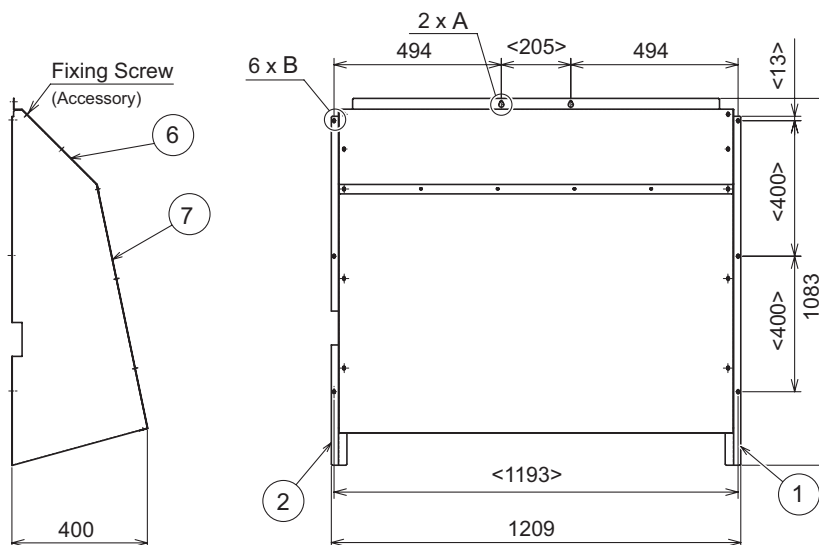


Enlarged View of A

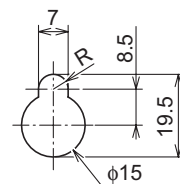


No.	Part Name	Quantity	
		Air Discharge Hood	Rear Suction Hood
1	Right Plate	1	1
2	Left Plate	1	1
3	Front Panel (1)	1	-
4	Front Panel (2)	1	-
5	Front Panel (3)	1	-
6	Front Panel (Upper)	-	1
7	Front Panel (Lower)	-	1
8	Side Plate	1	-
9	Left Fixing Plate for Front	1	-
10	Right Fixing Plate for Front	1	-
11	Left Fixing Plate for Rear	1	-
12	Right Fixing Plate for Rear	1	-

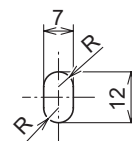
• Rear Suction Hood



Enlarged View of A



Enlarged View of B

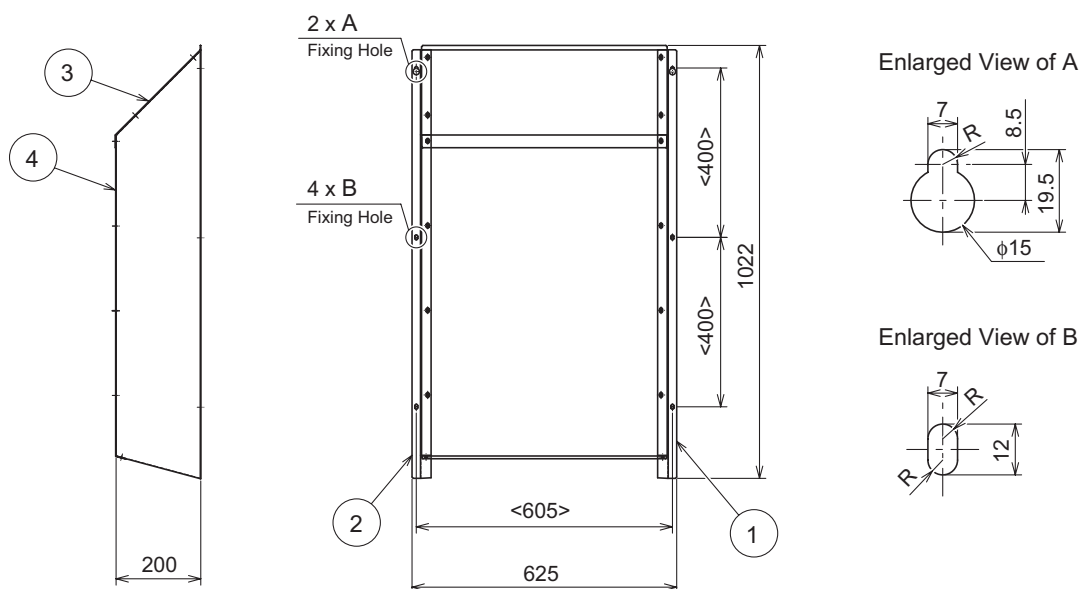


< >: Installation Dimension

< Left and Right Suction Hood for RAS-8~18FSXNQ>

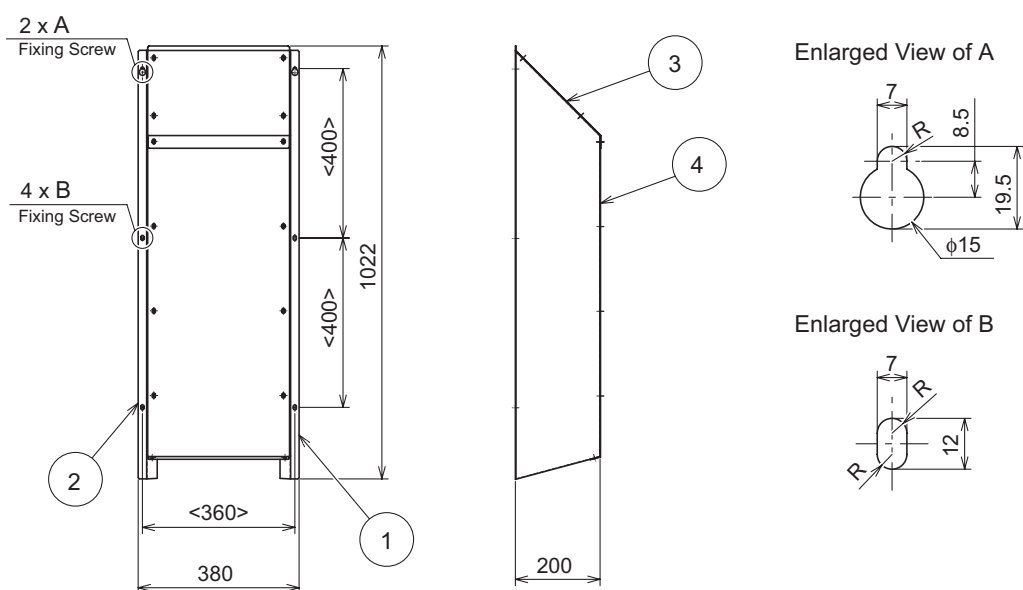
Unit: mm

• Left Suction Hood



No.	Part Name	Quantity	
		Left Suction Hood	Right Suction Hood
1	Right Plate	1	1
2	Left Plate	1	1
3	Front Panel (1)	1	1
4	Front Panel (2)	1	1

• Right Suction Hood



< >: Installation Dimension

11.2 Refrigerant Piping Provision

< Suspension of Refrigerant Piping >

! DANGER

Use the specified non-flammable refrigerant (R410A) to the outdoor unit in the refrigerant cycle. Do not charge material other than R410A into the unit such as hydrocarbon refrigerants (propane or etc.), oxygen, flammable gases (acetylene or etc.) or poisonous gases when installing, maintaining and moving. These flammables are extremely dangerous and may cause an explosion, a fire, and injury.

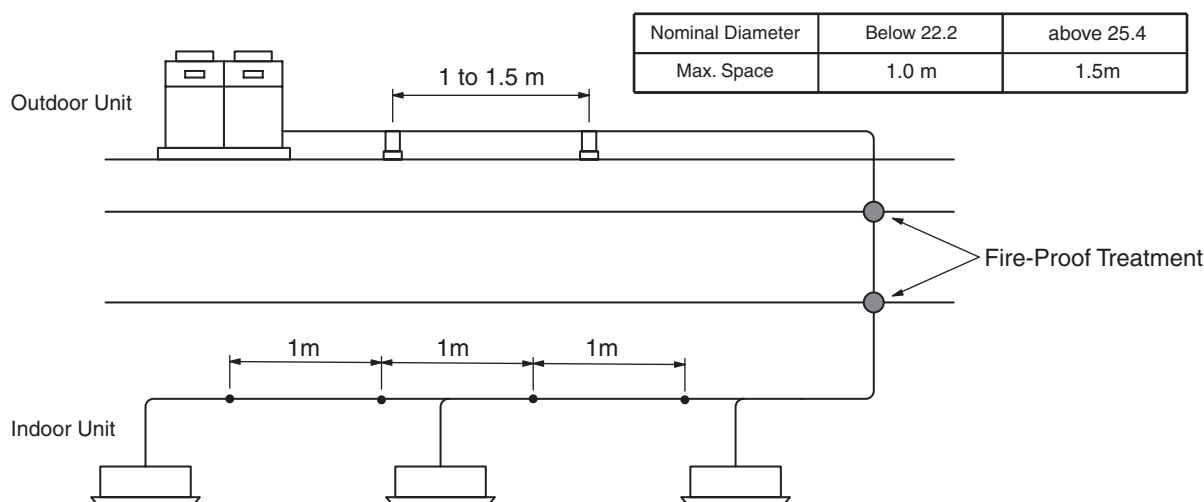
(1) Piping Materials

- Prepare field-supplied copper pipes.
- The piping size should be selected using the following figures.
- Select clean copper pipes. Make sure there is no dust and moisture inside. Before connecting pipes, blow the inside of the pipes with nitrogen or dry air, to remove any dust and foreign materials.

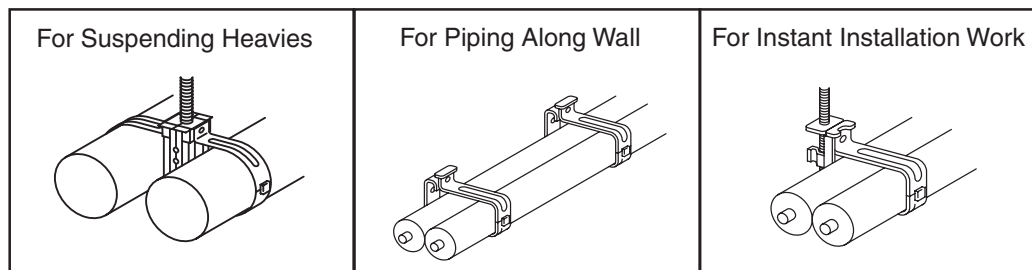
(2) Suspension of Refrigerant Piping

Suspend the refrigerant piping at certain points and prevent the refrigerant piping from touching the weak part of the building such as wall, ceiling, etc.

(If touched, abnormal sound may occur due to the vibration of the piping. Pay special attention in case of short piping length.)



Do not fix the refrigerant piping directly with the metal fittings (The refrigerant piping may expand and contract). Some examples for suspension method are shown below.



There are 2 kinds of surface treatment such as; standard chromating and ceramic coating treatment (*).

< Ceramic Coating >

Coating Treatment with triple strong coating on the iron material surface, and has the following characters.

- Corrosion Resistance: Superior in adhesion and corrosion resistance due to triple coating
- Weather Resistance and Heat Resistance: Strong resistance to ultra-violet rays and solar heat due to ceramic coating
- Surface Hardness: Superior in excoriation resistance due to high hardness of the surface

11.3 Distribution Method by Multi-Kit (Optional Parts)

■ Applicable Outdoor Units

These multiple pipe connecting kits can be applied to the R410A SET-FREE FSXNQ series.

■ Transportation

Transport the product as close to the installation location as practical before unpacking.

■ Before Installation

Confirm the number of the following parts by referring to the model printed on the package before unpacking.

Do NOT put any foreign material into the parts. Check to confirm that no foreign materials are inside the parts before installation.

CAUTION

Do not put any material on the product.

11.3.1 For Heat Pump System

< Piping Connection Kit (Models: M-20SNQ, M-30SNQ) >

[Installation Work]

■ Piping Connection Size

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

CAUTION

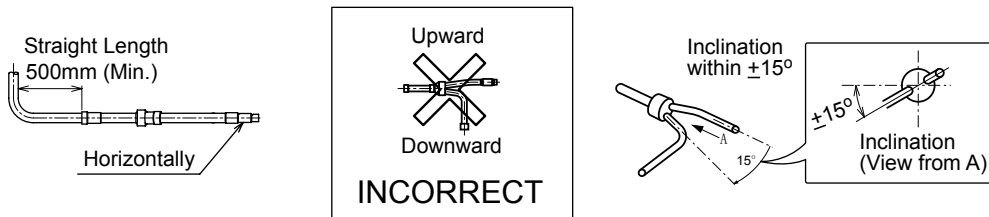
Piping shall be supported with adequate space. Bent pipes and bypass piping (horizontal loop) shall also be installed in order to absorb piping elasticity caused by temperature changes.

Model	Gas Line	Liquid Line	Reducer for Gas Line	Reducer for Liquid Line
M-20SNQ			Q'ty: 2	—
M-30SNQ			Q'ty: 1 Q'ty: 1 Q'ty: 1	—

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

■ Installation Position (Horizontal Installation)

Locate the branch pipes on the same horizontal plane. (Inclination within $\pm 15^\circ$)
 Make the straight length a minimum of 500mm after the vertical bend.
 Incorrect installation may lead to a failure of outdoor unit.

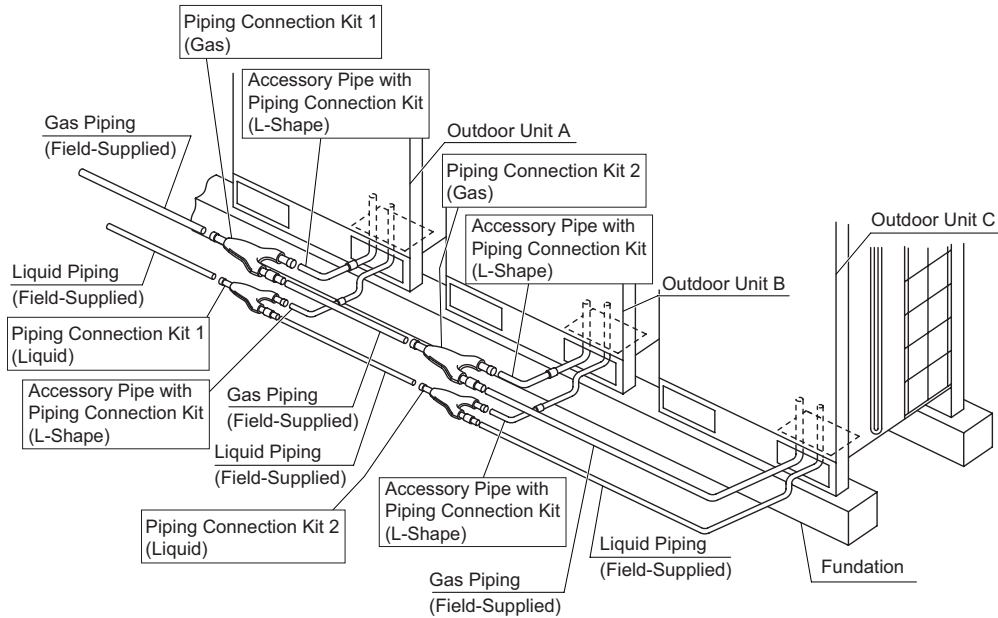


■ Piping Connection

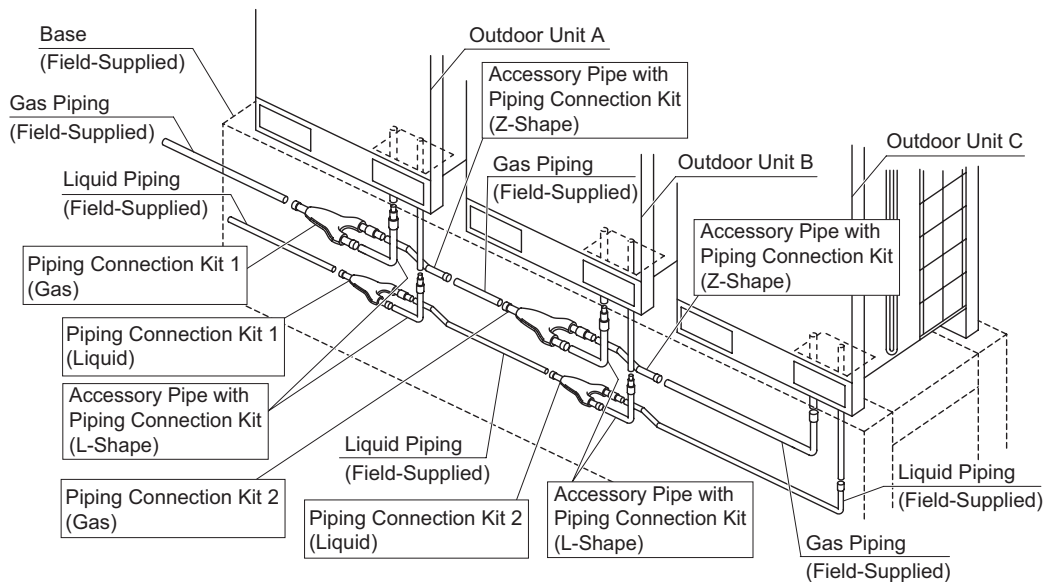
Perform the piping connection work by referring to the figure below.
 Refer to the item 6.3 "Caution about Outdoor Unit Installation" for the piping length between outdoor units and between piping connection kits.

Example: 38HP (The combination of 3 outdoor units)

< Front Side or Rear Side Piping Connection >



< Downward Piping Connection >

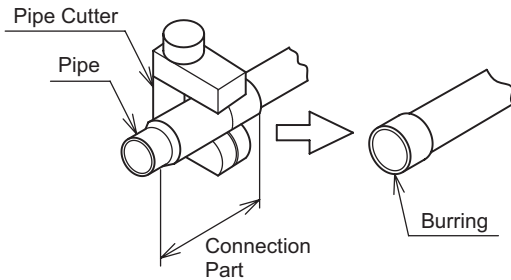


■ Piping Connection

- (1) Use clean copper pipes without any moisture or foreign materials on inner surface of pipes. When connecting refrigerant pipe, cut the copper pipes with a pipe cutter as shown below.

Also blow the pipes with nitrogen or air to remain no dust inside the pipe.

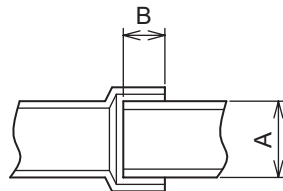
Do NOT use a saw, a grindstone or others which causes a large amount of cutting powder.



- (2) When cutting the pipe, secure the adequate depth for brazing as shown in the following table.

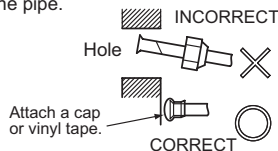
(mm)

A: Outer Diameter	B: Minimum Depth
Over 5, Below 8	6
Over 8, Below 12	7
Over 12, Below 16	8
Over 16, Below 25	10
Over 25, Below 35	12
Over 35, Below 45	14

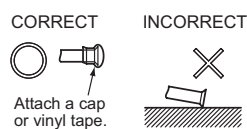


● Caution for Refrigerant Piping

When installing pipe through the wall, secure a cap at the end of the pipe.



Do NOT place the pipe directly on the ground.



CORRECT

INCORRECT



- (3) Make sure that all stop valves of the outdoor unit are closed completely.
- (4) Blow the inside of the pipes with nitrogen gas when brazing.

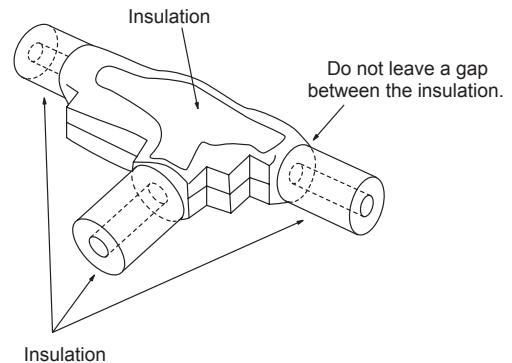
⚠ DANGER

Check for the refrigerant leakage carefully. If large amount of refrigerant leakage occurs, it will cause to breathe with difficulty or to generate harmful gas due to the fire.

- (5) The air tight test pressure of this product is 4.15MPa.
- (6) Apply the insulation supplied with this multi-kits to each branch (liquid side and gas side) with a tape. Also apply the field-supplied insulation to the field-supplied pipes.

NOTE

When polyethylene foam is applied, a thickness of 10mm for liquid piping and 15mm to 20mm for gas piping is recommended. (Use the insulation with heat resistance of 100°C for gas piping.)



⚠ CAUTION

- Perform the insulation work when the pipe surface temperature decreases to the room temperature. If insulation work is performed immediately after brazing, insulation may melt.
- If the ends of pipe are open to the atmosphere for a while after performing piping work, securely put caps or plastic bags over the pipe ends for avoiding moisture or dust.

< Line Branch (Models: E-102SN, E-162SN, E-242SN, E-302SN) >

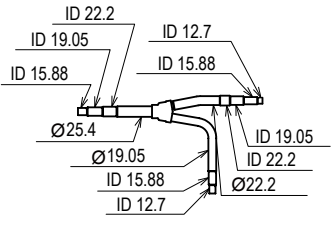
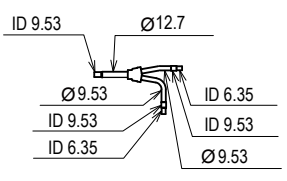
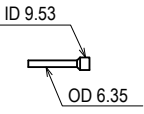
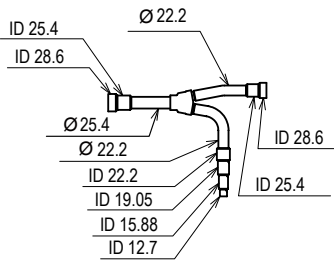
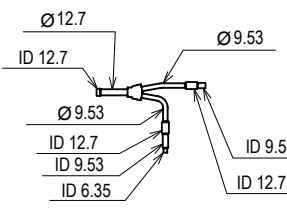
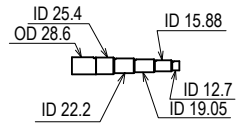
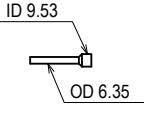
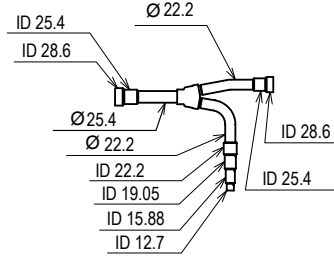
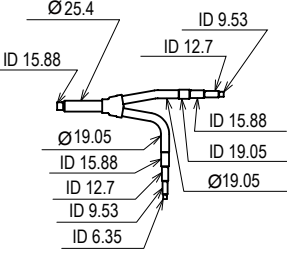
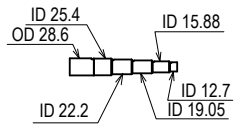
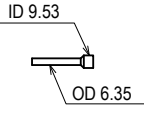
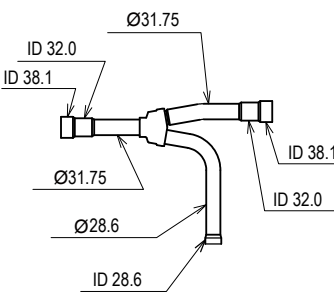
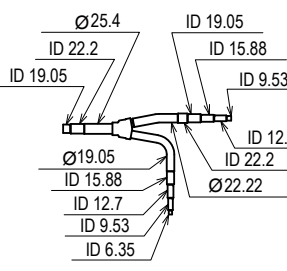
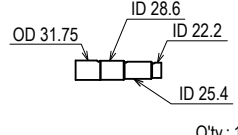
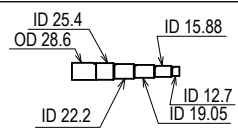
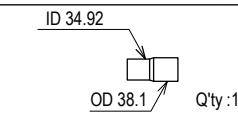
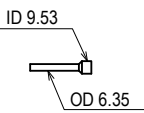
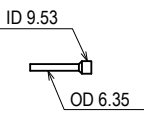
[Installation Work]

■ Piping Connection Size

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

CAUTION

Piping shall be supported with adequate space. Bent pipes and bypass piping (horizontal loop) shall also be installed in order to absorb piping elasticity caused by temperature changes.

Models	Gas Line	Liquid Line	Reducer for Gas Line	Reducer for Liquid Line
E-102SN			—	 Q'ty: 2
E-162SN			 Q'ty: 1	 Q'ty: 1
E-242SN			 Q'ty: 1	 Q'ty: 1
E-302SN			 Q'ty: 1  Q'ty: 1  Q'ty: 1	 Q'ty: 1  Q'ty: 1

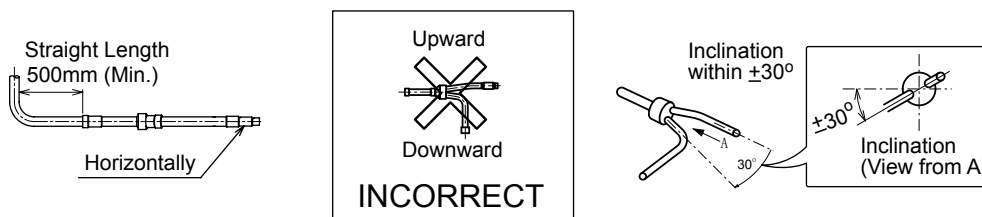
Unit: mm, ID: Inner Diameter, OD: Outer Diameter

■ Installation Position

(1) Horizontal Installation

Locate the branch pipes on the same horizontal plane. (Inclination within 30°)

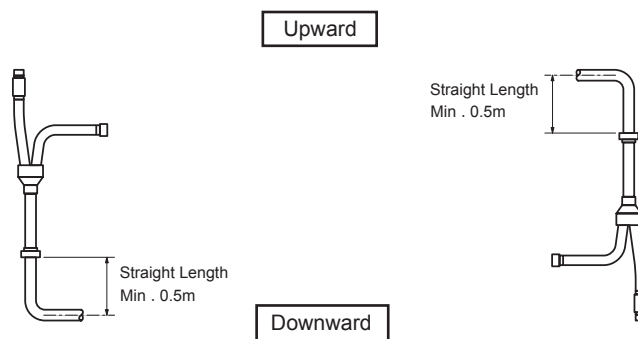
Make the straight length a minimum of 0.5m after the vertical bend.



(2) Vertical Installation

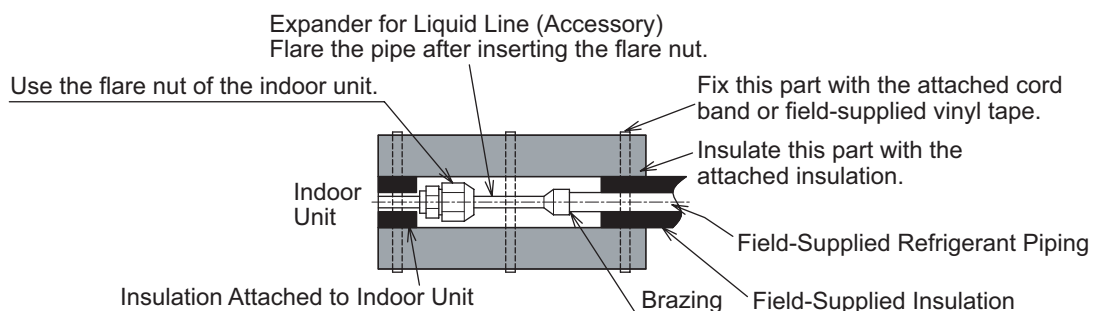
Straight length of the pipe connection on the outdoor unit side is made as follows:

- The collective pipe connection part is installed upward, the straight length must be min. 0.5m.
- The collective pipe connection part is installed downward, the straight length must be min.0.5m.



■ Connection Procedure for Piping Joint

When connecting liquid piping for the unit with a capacity 2.0HP or smaller, and with the length of piping is 15 meters or longer, apply the piping size of $\phi 9.53\text{mm}$. Fix the connecting pipe as shown in the below figure. Use the insulation attached to the indoor unit.

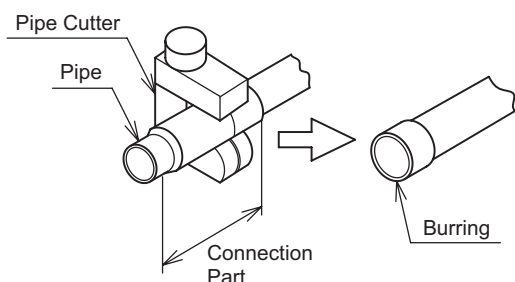


■ Piping Connection

- (1) Use clean copper pipes without any moisture or foreign materials on inner surface of pipes. When connecting refrigerant pipe, cut the copper pipes with a pipe cutter as shown below.

Also blow the pipes with nitrogen or air to remain no dust inside the pipe.

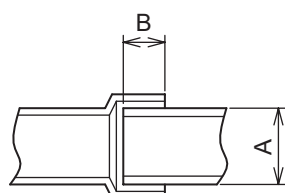
Do NOT use a saw, a grindstone or others which causes a large amount of cutting powder.



- (2) When cutting the pipe, secure the adequate depth for brazing as shown in the following table.

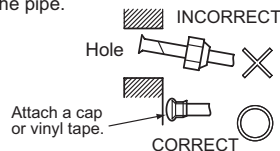
(mm)

A: Outer Diameter	B: Minimum Depth
Over 5, Below 8	6
Over 8, Below 12	7
Over 12, Below 16	8
Over 16, Below 25	10
Over 25, Below 35	12
Over 35, Below 45	14

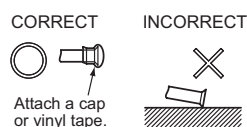


● Caution for Refrigerant Piping

When installing pipe through the wall, secure a cap at the end of the pipe.



Do NOT place the pipe directly on the ground.



CORRECT

INCORRECT



- (3) Make sure that all stop valves of the outdoor unit are closed completely.
- (4) Blow the inside of the pipes with nitrogen gas when brazing.

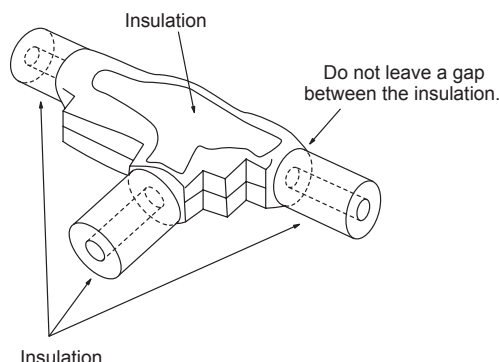
⚠ DANGER

Check for the refrigerant leakage carefully. If large amount of refrigerant leakage occurs, it will cause to breathe with difficulty or to generate harmful gas due to the fire.

- (5) The air tight test pressure of this product is 4.15MPa.
- (6) Apply the insulation supplied with this multi-kits to each branch (liquid side and gas side) with a tape. Also apply the field-supplied insulation to the field-supplied pipes.

NOTE

When polyethylene foam is applied, a thickness of 10mm for liquid piping and 15mm to 20mm for gas piping is recommended. (Use the insulation with heat resistance of 100°C for gas piping.)



⚠ CAUTION

- Perform the insulation work when the pipe surface temperature decreases to the room temperature. If insulation work is performed immediately after brazing, insulation may melt.
- If the ends of pipe are open to the atmosphere for a while after performing piping work, securely put caps or plastic bags over the pipe ends for avoiding moisture or dust.

11.3.2 For Heat Recovery System

< Piping Connection Kit (Models: M-20XNQ, M-21XNQ, M-30XNQ) >

[Installation Work]

■ Piping Connection Size

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

CAUTION

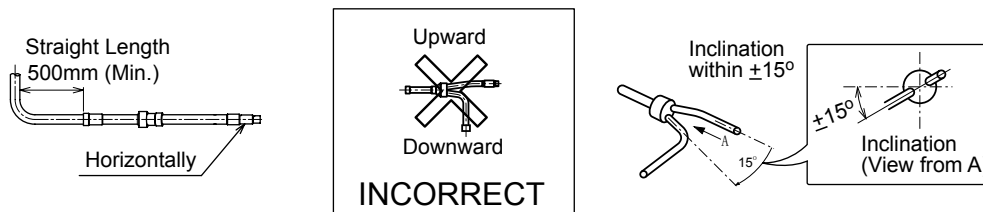
Piping shall be supported with adequate space. Bent pipes and bypass piping (horizontal loop) shall also be installed in order to absorb piping elasticity caused by temperature changes.

Model	Low Pressure Gas Line	High Pressure Gas Line	Liquid Line	Reducer for Low Pressure Gas Line	Reducer for High Pressure Gas Line	Reducer for Liquid Line
M-20XNQ						—
M-21XNQ						—
M-30XNQ						—

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

■ Installation Position (Horizontal Installation)

Locate the branch pipes on the same horizontal plane. (Inclination within $\pm 15^\circ$)
 Make the straight length a minimum of 500mm after the vertical bend.
 Incorrect installation may lead to a failure of outdoor unit.

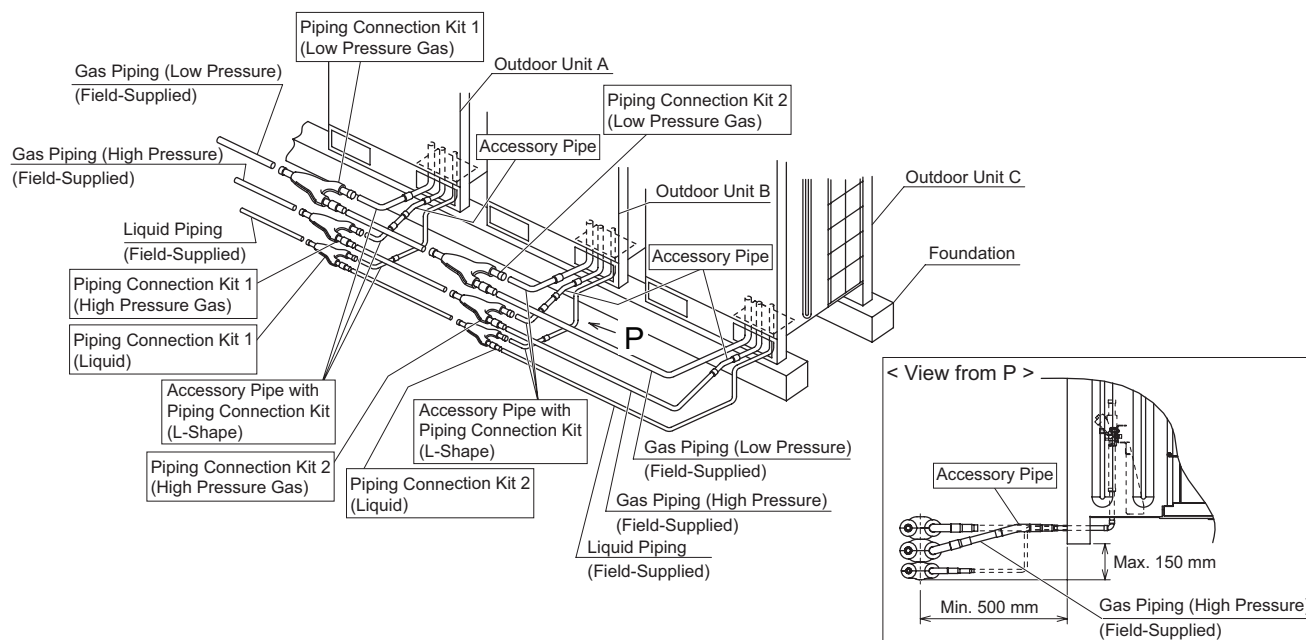


■ Piping Connection

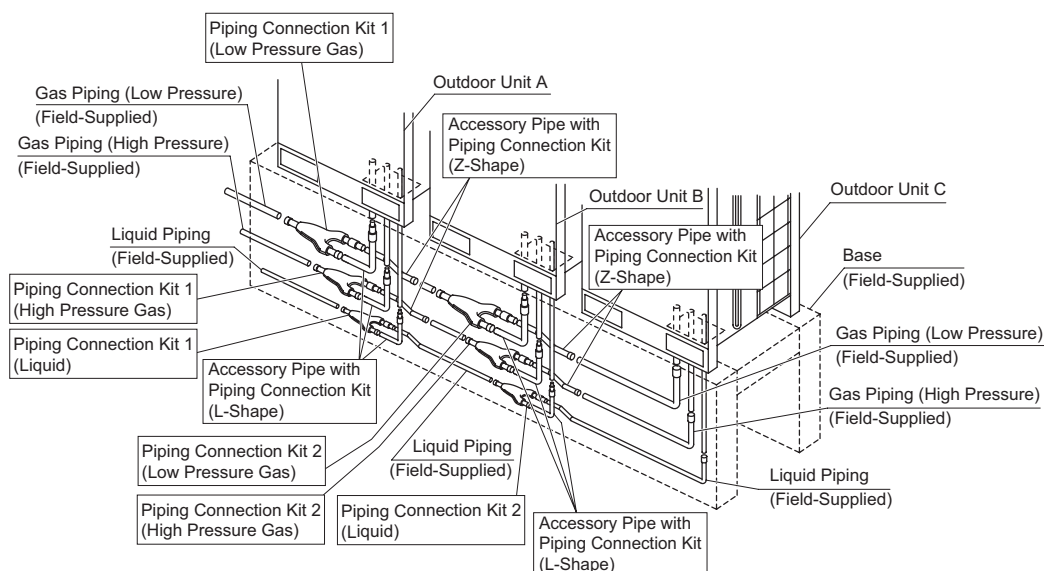
Perform the piping connection work by referring to the figure below.
 Refer to the item 6.3 “Caution about Outdoor Unit Installation” for the piping length between outdoor units and between piping connection kits.

Example: 38HP (The combination of 3 outdoor units)

< Front Side or Rear Side Piping Connection >



< Downward Piping Connection >

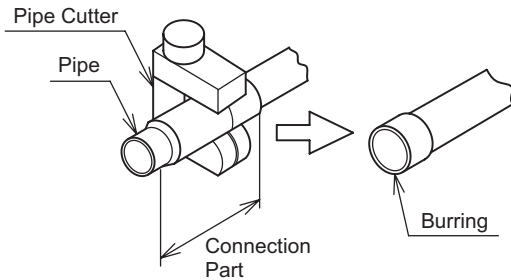


■ Piping Connection

- (1) Use clean copper pipes without any moisture or foreign materials on inner surface of pipes. When connecting refrigerant pipe, cut the copper pipes with a pipe cutter as shown below.

Also blow the pipes with nitrogen or air to remain no dust inside the pipe.

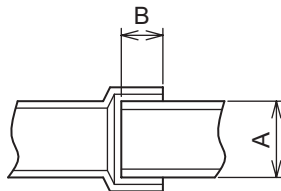
Do NOT use a saw, a grindstone or others which causes a large amount of cutting powder.



- (2) When cutting the pipe, secure the adequate depth for brazing as shown in the following table.

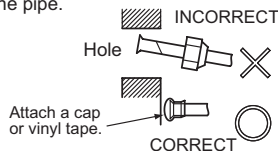
(mm)

A: Outer Diameter	B: Minimum Depth
Over 5, Below 8	6
Over 8, Below 12	7
Over 12, Below 16	8
Over 16, Below 25	10
Over 25, Below 35	12
Over 35, Below 45	14

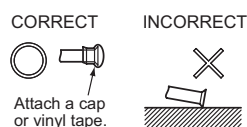


● Caution for Refrigerant Piping

When installing pipe through the wall, secure a cap at the end of the pipe.



Do NOT place the pipe directly on the ground.



CORRECT INCORRECT



- (3) Make sure that all stop valves of the outdoor unit are closed completely.
- (4) Blow the inside of the pipes with nitrogen gas when brazing.

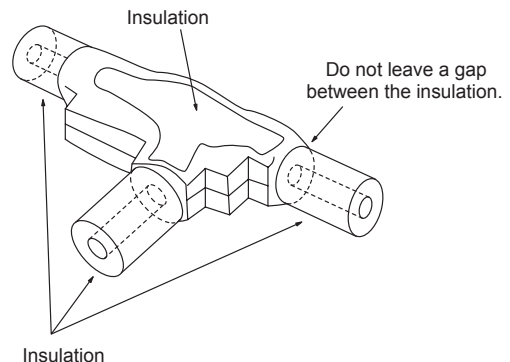
⚠ DANGER

Check for the refrigerant leakage carefully. If large amount of refrigerant leakage occurs, it will cause to breathe with difficulty or to generate harmful gas due to the fire.

- (5) The air tight test pressure of this product is 4.15MPa.
- (6) Apply the insulation supplied with this multi-kits to each branch (liquid side and gas side) with a tape. Also apply the field-supplied insulation to the field-supplied pipes.

NOTE

When polyethylene foam is applied, a thickness of 10mm for liquid piping and 15mm to 20mm for gas piping is recommended. (Use the insulation with heat resistance of 100°C for gas piping.)



⚠ CAUTION

- Perform the insulation work when the pipe surface temperature decreases to the room temperature. If insulation work is performed immediately after brazing, insulation may melt.
- If the ends of pipe are open to the atmosphere for a while after performing piping work, securely put caps or plastic bags over the pipe ends for avoiding moisture or dust.

< Line Branch (Models: M-142XNQ, M-282XNQ, M-452XNQ, M-562XNQ, M-692XNQ, M-902XNQ >

[Installation Work]

■ Piping Connection Size

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

CAUTION

Piping shall be supported with adequate space. Bent pipes and bypass piping (horizontal loop) shall also be installed in order to absorb piping elasticity caused by temperature changes.

Model	Low Pressure Gas Line	High Pressure Gas Line	Liquid Line	Reducer for Low Pressure Gas Line	Reducer for High Pressure Gas Line	Reducer for Liquid Line
M-142XNQ				—	—	
M-282XNQ				—	—	
M-452XNQ						
M-562XNQ						
M-692XNQ						
M-902XNQ						

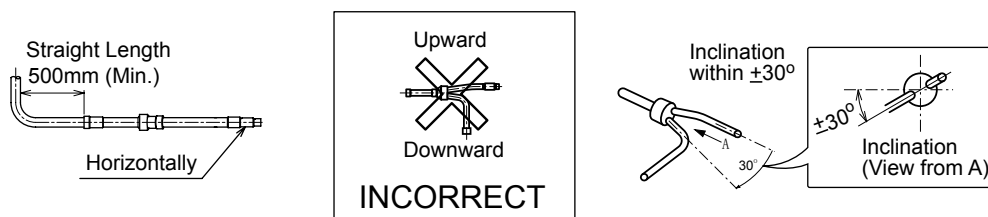
Unit: mm, ID: Inner Diameter, OD: Outer Diameter

■ Installation Position

(1) Horizontal Installation

Locate the branch pipes on the same horizontal plane. (Inclination within 30°)

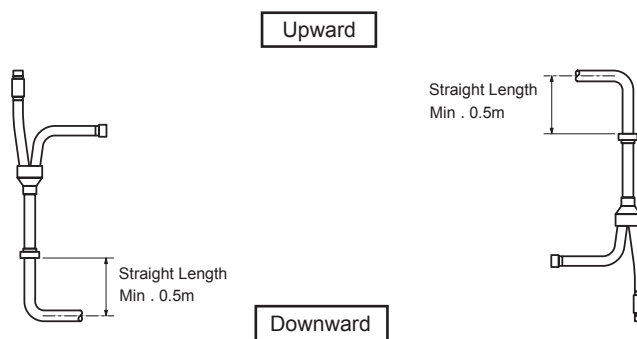
Make the straight length a minimum of 0.5m after the vertical bend.



(2) Vertical Installation

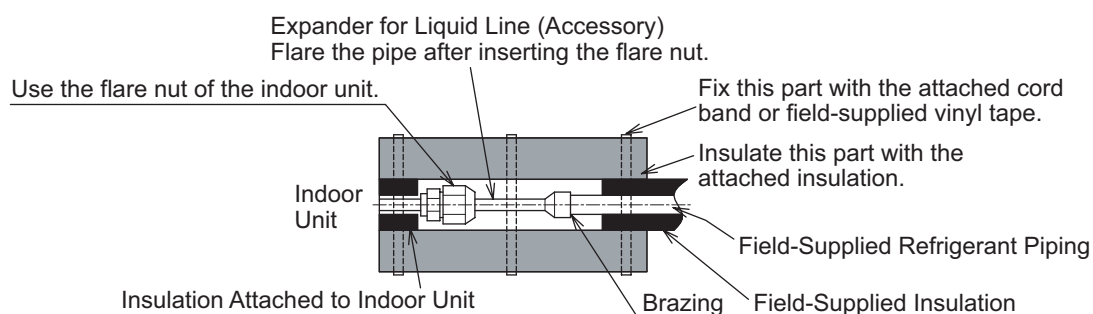
Straight length of the pipe connection on the outdoor unit side is made as follows:

- The collective pipe connection part is installed upward, the straight length must be min. 0.5m.
- The collective pipe connection part is installed downward, the straight length must be min. 0.5m.



■ Connection Procedure for Piping Joint

When connecting liquid piping for the unit with a capacity 2.0HP or smaller, and with the length of piping is 15 meters or longer, apply the piping size of $\phi 9.53\text{mm}$. Fix the connecting pipe as shown in the below figure. Use the insulation attached to the indoor unit.

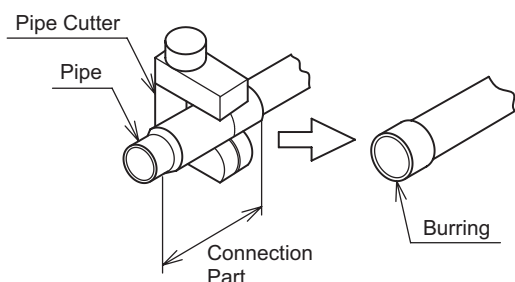


■ Piping Connection

- (1) Use clean copper pipes without any moisture or foreign materials on inner surface of pipes. When connecting refrigerant pipe, cut the copper pipes with a pipe cutter as shown below.

Also blow the pipes with nitrogen or air to remain no dust inside the pipe.

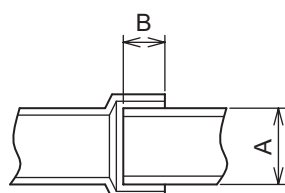
Do NOT use a saw, a grindstone or others which causes a large amount of cutting powder.



- (2) When cutting the pipe, secure the adequate depth for brazing as shown in the following table.

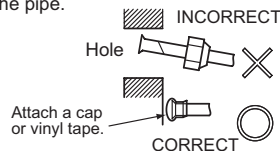
(mm)

A: Outer Diameter	B: Minimum Depth
Over 5, Below 8	6
Over 8, Below 12	7
Over 12, Below 16	8
Over 16, Below 25	10
Over 25, Below 35	12
Over 35, Below 45	14

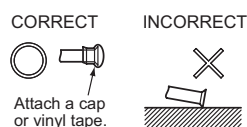


● Caution for Refrigerant Piping

When installing pipe through the wall, secure a cap at the end of the pipe.



Do NOT place the pipe directly on the ground.



CORRECT

INCORRECT



- (3) Make sure that all stop valves of the outdoor unit are closed completely.
- (4) Blow the inside of the pipes with nitrogen gas when brazing.

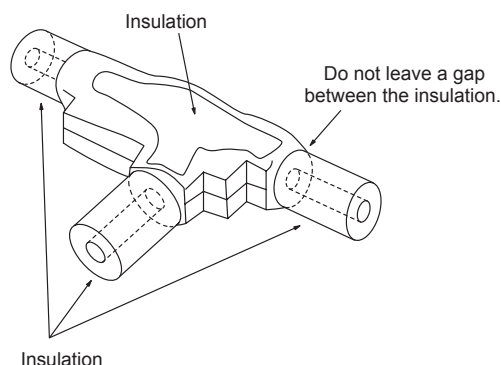
⚠ DANGER

Check for the refrigerant leakage carefully. If large amount of refrigerant leakage occurs, it will cause to breathe with difficulty or to generate harmful gas due to the fire.

- (5) The air tight test pressure of this product is 4.15MPa.
- (6) Apply the insulation supplied with this multi-kits to each branch (liquid side and gas side) with a tape. Also apply the field-supplied insulation to the field-supplied pipes.

NOTE

When polyethylene foam is applied, a thickness of 10mm for liquid piping and 15mm to 20mm for gas piping is recommended. (Use the insulation with heat resistance of 100°C for gas piping.)



⚠ CAUTION

- Perform the insulation work when the pipe surface temperature decreases to the room temperature. If insulation work is performed immediately after brazing, insulation may melt.
- If the ends of pipe are open to the atmosphere for a while after performing piping work, securely put caps or plastic bags over the pipe ends for avoiding moisture or dust.

11.4 CH Unit (Optional Parts)

11.4.1 Safety Summary

! WARNING

- Do not perform installation work, refrigerant piping work and electrical wiring connection without referring to our installation manual.
- Check that the ground wire is securely connected.
- Connect a fuse of specified capacity.

! CAUTION

Do not install the CH unit and cable within approximately 3 meters from strong electromagnetic wave radiators such as medical equipment.

11.4.2 Structure

■ Dimensions & Refrigerant Cycle

Regarding dimensional drawings and refrigerant cycle diagram, please refer to Technical Data in this Technical Catalog.

■ Necessary Tools and Instrument List for Installation

No.	Tool	No.	Tool
1	Handsaw	11	Spanner
2	Phillips Screwdriver	12	Charging Cylinder
3	Vacuum Pump	13	Gauge Manifold
4	Refrigerant Gas Hose	14	Cutter for Wires
5	Megohmmeter	15	Gas Leak Detector
6	Copper Pipe Bender	16	Leveller
7	Manual Water Pump	17	Clamper for Solderless Terminals
8	Pipe Cutter	18	Hoist (for Indoor Unit)
9	Brazing Kit	19	Ammeter
10	Hexagon Wrench	20	Voltage Meter

11.4.3 Transportation and Handling

■ Transportation

Transport the product as close to the installation location as practical before unpacking.

! CAUTION

Do not put any material on the product.

■ Handling of CH Unit

! WARNING

Do not put any foreign material into the indoor unit and check to ensure that none exists in the CH unit before the installation and test run. Otherwise, a fire or failure, etc. may occur.

! CAUTION

Be careful not to damage on insulation materials of unit's surface when lifting.

■ Combination of CH Unit and Indoor Unit

Combination is as follows.

Combination of Indoor Unit

CH Unit Model	Indoor Unit	
	Quantity	Total Capacity
CH-6.0N1	1 to 7	less than 6.0HP
CH-10.0N1	1 to 8	6.1HP to 10.0HP

NOTE:

- The excess of the total capacity may cause insufficient performance and abnormal sound. Be sure to connect within the allowable total capacity.
- In case that the indoor unit total capacity is 10.0HP for CH-10.0N1, the performance may decrease approximately 5% in cooling and 10% in heating.

11.4.4 CH Unit Installation

⚠ DANGER

- Do not install the CH unit in a flammable environment to avoid fire or an explosion.

⚠ WARNING

- Check to ensure that the ceiling slab is strong enough.
- Do not install the CH unit outdoors.
If installed outdoors, an electric hazard or electric leakage will occur.

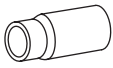
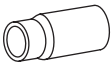
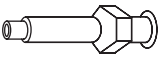
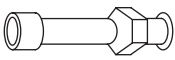
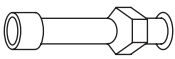
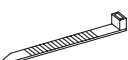
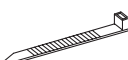
■ Factory-Supplied Accessories

Check to ensure that the following accessories are packed with the CH unit.

NOTE

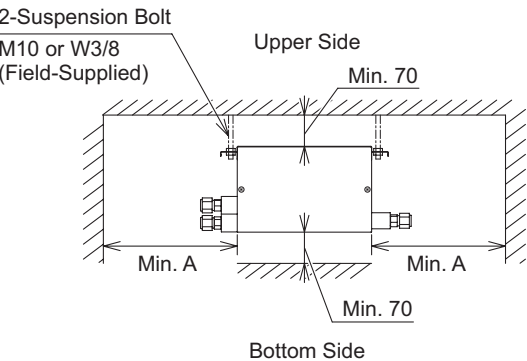
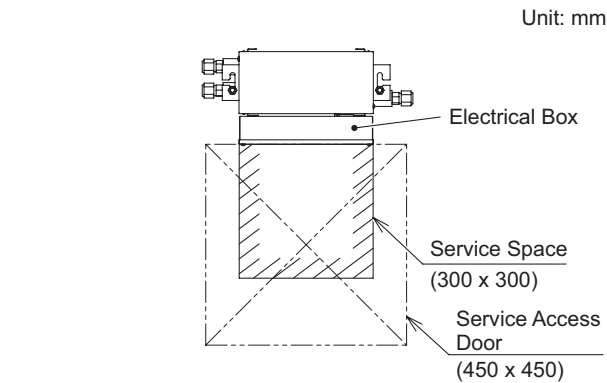
If any of these accessories are not packed with the unit, please contact your contractor.

Factory-Supplied Accessories

Accessory \ Model		CH-6.0N1	PCS	CH-10.0N1	PCS
Reducer		ID15.88  ID19.05	1	ID15.88  ID19.05	1
Accessory Pipe (for Flare Nut)		ID12.7  ID15.88	2	-	-
		-	-	ID22.2  ID19.05	2
		-	-	ID19.05  ID19.05	2
Insulation Material	ID16		2	-	-
	ID38		3	-	-
	ID20	-	-		1
	ID22	-	-		2
	ID43	-	-		3
Clamp			6		6

■ Initial Check

- Install the CH unit with a proper clearance around it for maintenance working space, as shown in the below figure.



Model	Size	A
CH-6.0N1	300	
CH-10.0N1	400	

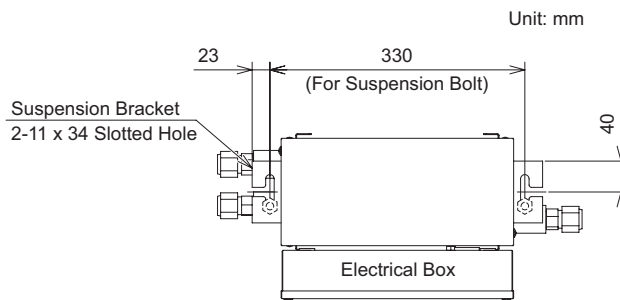
Maintenance Space

- Check to ensure that the ceiling is sufficiently strong to sustain the CH unit. If the ceiling is weak, abnormal sound and vibration may occur.
- The refrigerant flow sound may be heard from the CH unit when the electric expansion valve in the CH unit is activated. Therefore, take the following action to minimize the sound.
 - (A) Install the CH unit inside the ceiling. As for the ceiling material, select a material like a plaster board (at least 9mm) which minimizes operation sound.
 - (B) Do not install the CH unit in a place near bedrooms or hospital rooms.
 - The refrigerant flow sound may be heard from the CH unit when the operation is changed to cooling/heating mode. Therefore install the CH unit in the ceiling of corridor so that refrigerant flowing sound may not be heard in the room.
- Do not install the CH unit in a hot or humid place like kitchen to prevent dew condensation on the outer surface of the CH unit. When installing the CH unit in such places, apply additional insulation.
- Pay attention to the following points when the CH unit is installed in a hospital or other facilities where there are electronic waves from medical equipment.
 - (A) Do not install the CH unit where the electromagnetic wave is directly radiated to the electrical box or intermediate wiring. (Operating Line)
 - (B) Install the CH unit and components as far as practical or at least 3 meters from the electromagnetic wave radiator.
 - (C) Install a noise filter when the power supply emits harmful noises.
- The installation place should be convenient for the refrigerant piping or electrical wiring connection.
- Do not install the CH unit in the place with organic solvent atmospheres, such as painting and cleaning factories. Synthetic resin material may be damaged.
- Do not install the CH unit in the place where flammable gas may generate, drift or accumulate. Also avoid the place where the carbon fabric may float.

■ Suspension Bolts

Step 1

- (1) Select a final location and installation direction of the CH unit paying careful attention to the space for the piping, wiring and maintenance.
- (2) Mount suspension bolts after selecting the final location of the CH unit.
- (3) Mount the suspension bolts in the slotted hole on the electrical box side as shown in the right figure.
- (4) Contact the qualified constructor or carpenter for the ceiling treatment.

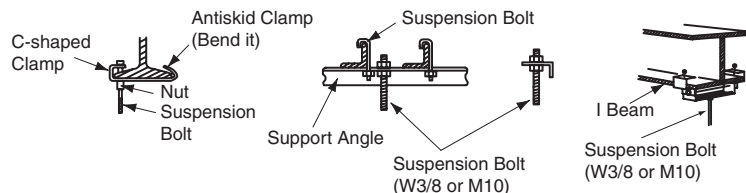


Position of Suspension Bolts

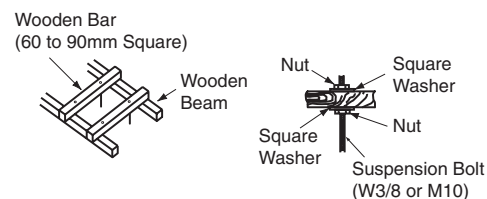
Step 2

Mount suspension bolts, as shown in the below figure.

● For Steel Beam

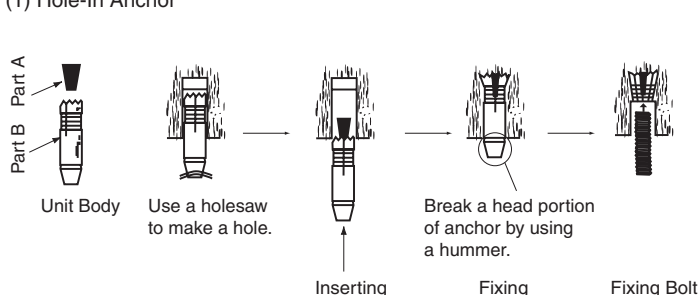


● For Wooden Beam Suspension

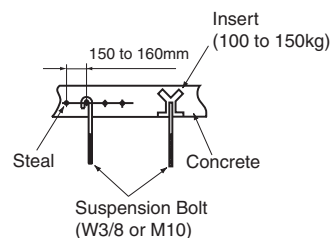


● For Concrete Slab

(1) Hole-In Anchor

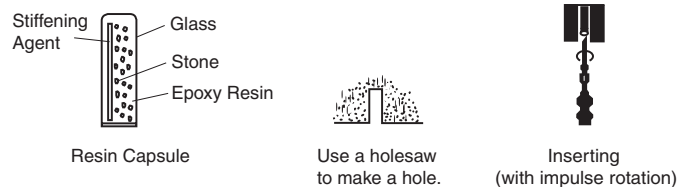


● For Reinforcing Steel



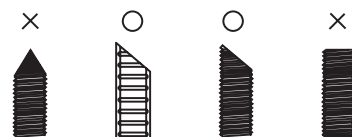
(2) Resin Capsule

Use the resin capsule within a warranty period.
It effects for 6 months from the manufacturing date.



After inserting, do not rotate or put any force until resin is hardened.
Required time is as shown in the right table.

Use a suspension bolt with 30 to 45° sloping edge.



Ambient Temp. (°C)	Time
20	Min. 30min.
15	Min. 1hr.
10	Min. 2hr.
5	Min. 4hr.
0	Min. 8hr.

NOTE:

- Use a suspension bolt (W3/8, Metric screw thread: M10).
- Prepare suitable washer and nut.

Mounting of Suspension Bolts

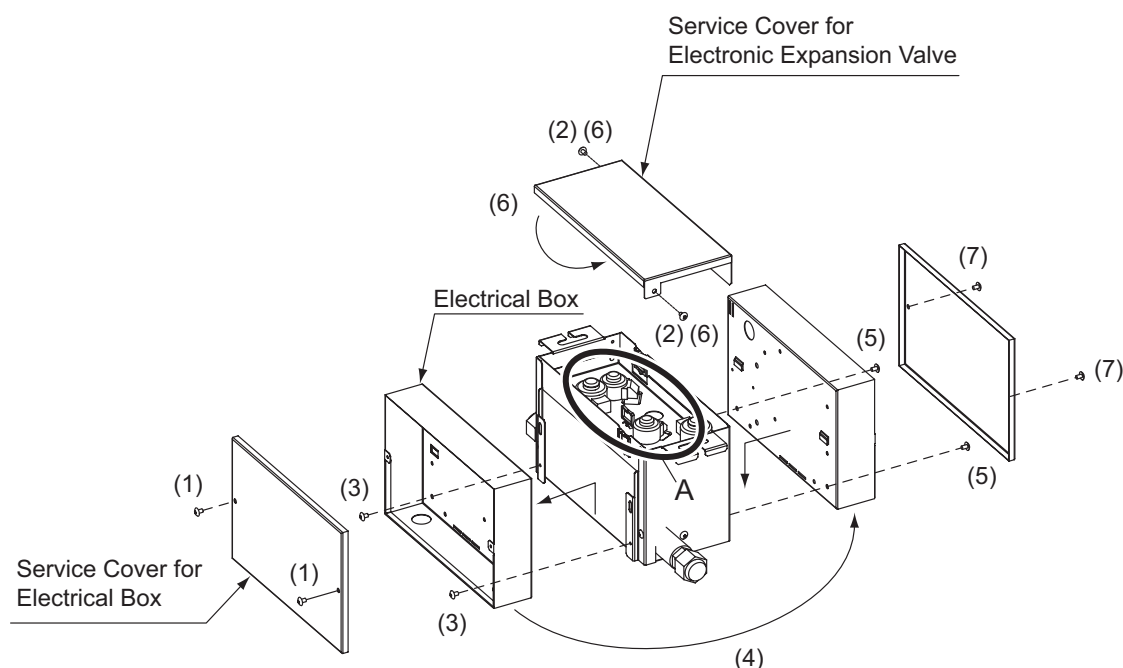
■ Installation

< Changing the Location of Electrical Box >

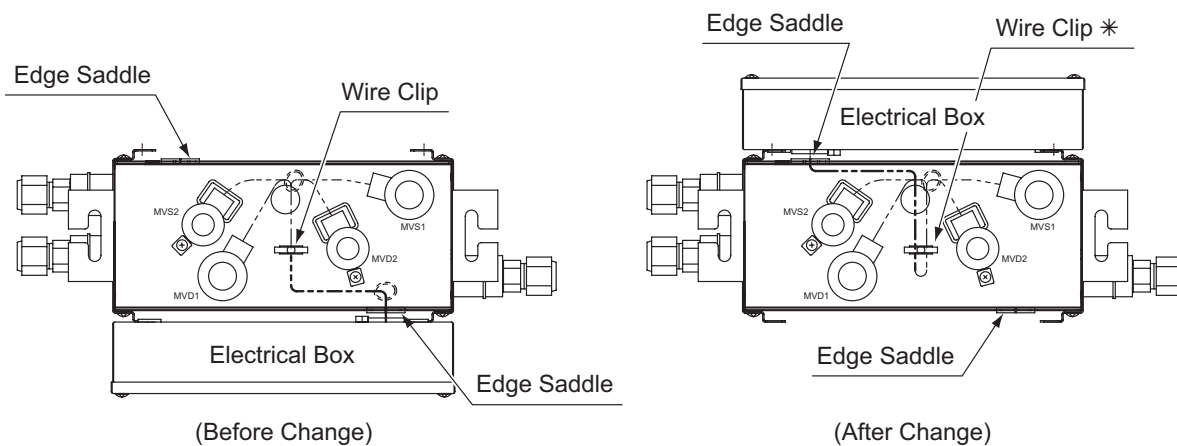
Depending on the installation space, changing the location of electrical box is available.

In case of changing the location of electrical box, follow the procedure below.

- (1) Remove the service cover for the electrical box.
- (2) Remove the service cover for the electronic expansion valve.
- (3) Remove the electrical box.
- (4) Remove the wiring from the wire clip and edge saddle, and move the electrical box.
After moving the electrical box, the wiring should be put into the edge saddle and bounded with the wire clip. (Refer to "Enlarged View of A" below.)
- (5) Mount the electrical box.
- (6) Rotate the service cover for the electronic expansion valve 180 degrees and mount it.
- (7) Mount the service cover for the electrical box.



< Enlarged View of A >



*: Make sure that the wirings are bounded with the wire clips in order to prevent the electrical box from entering water.

Marking of the Positions of the Suspension Bolts and Wiring Connections

- (1) Mark the positions of the suspension bolts, refrigerant piping connections and wiring connection.
- (2) Installation dimensions are shown in Technical Data.

Mounting the CH Unit

- (1) How to put Nuts
Put nuts on each of the two suspension bolts before hanging the CH unit, as shown in the below figure.

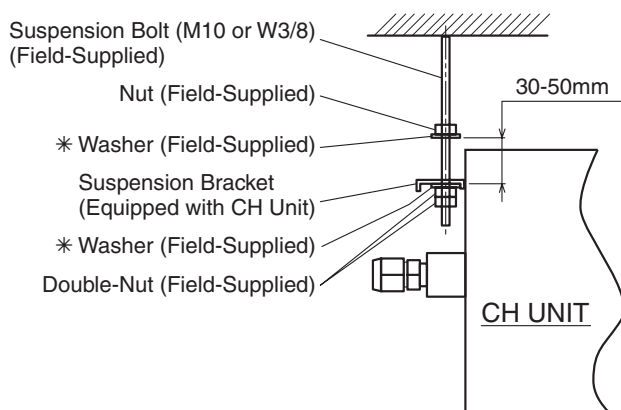
* : Mounting washers are required in order to fix the suspension bracket to the suspension bolt.

Field-Supplied Parts

* Suspension Bolt: 2-M10 or W3/8

* Nut: 6-M10 or W3/8

* Washer: 4-M10 or W3/8

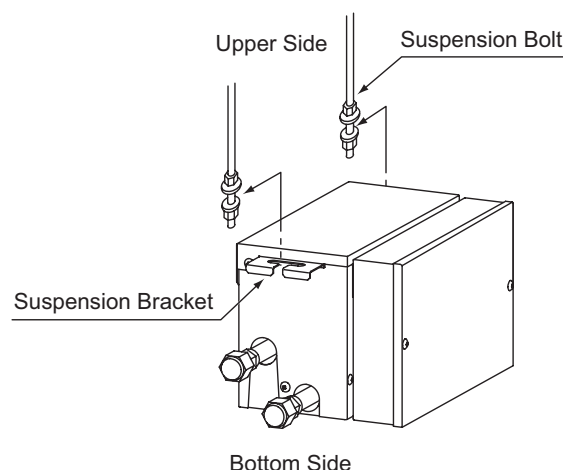


Putting Nut

(2) Hanging the CH Unit

- (a) Hang the CH unit by putting hands on the bottom of the cabinet.
- (b) Insert the suspension bolt into the groove part of the suspension bracket as shown in the below figure. Ensure that the washers are correctly fixed to the suspension bracket.
- (c) After the hanging work, the piping and wiring connection work will be required inside the ceiling. Therefore, determine the drawing direction of the pipe after selecting the installation location of the CH unit. If the ceiling was existed, the piping and wiring work should be carried out up to the connecting positions before the hanging work.
- (d) Keep the CH unit level to the ceiling surface. If the CH unit is not level, a malfunction may occur.
- (e) Tighten the nuts of the suspension bolt with the suspension bracket after adjustment is completed.

Special plastic paint must be applied to the nuts in order to prevent them from loosening.



Hanging Method

11.4.5 Refrigerant Piping Work

! DANGER

Use the specified non-flammable refrigerant (R410A) to the outdoor unit in the refrigerant cycle. Do not charge material other than R410A into the unit such as hydrocarbon refrigerants (propane or etc.), oxygen, flammable gases (acetylene or etc.) or poisonous gases when installing, maintaining and moving. These flammables are extremely dangerous and may cause an explosion, a fire, and injury.

■ Refrigerant Piping

- (1) Prepare locally-supplied copper pipes.
- (2) Select clean copper tubes making sure there is no dust and moisture inside the tubes. Before connecting pipes, blow the inside of the tubes with nitrogen or dry air, to remove any dust or foreign materials.
- (3) Select the piping size as shown in the tables below. Furthermore, check for the flare nut and flaring dimension according to the following figure and table.

● Joint Selection

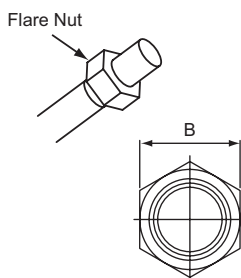
When using 1/2H material, the flaring work is not available. In this case, use a joint selected from the chart below.

< Minimum Thickness of Joint (mm) >

Diameter	R410A
φ6.35	0.5
φ9.53	0.6
φ12.7	0.7
φ15.88	0.8
φ19.05	0.8
φ22.2	0.9
φ25.4	0.95
φ28.6	1.0
φ31.75	1.1
φ38.1	1.35
φ41.3	1.45
φ44.45	1.55

< Flare Nut Dimension B (mm) >

Diameter	R410A
φ6.35	17
φ9.53	22
φ12.7	26
φ15.88	29
φ19.05	36

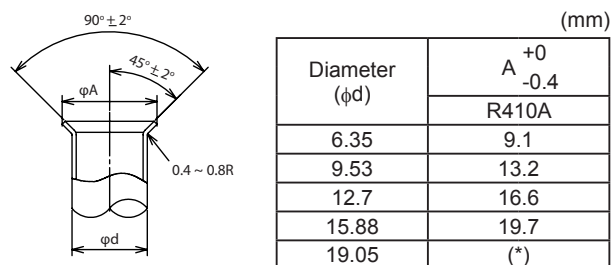


NOTE:

Do not use the joint other than those specified in the table above.

● Flaring Dimension

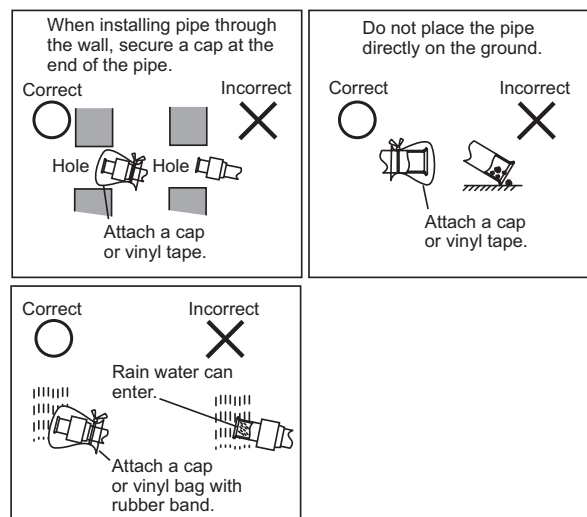
Perform the flaring work as shown below.



(*) It is impossible to perform the flaring work with 1/2H material. In this case, use an accessory pipe (with a flare).

NOTICE

● Cautions for Refrigerant Pipe Work (Example)



- Cautions for Piping Connection Work
 - (a) Connect the indoor/outdoor connecting pipes. Fix the pipes and pay attention not to contact with weak materials such as ceiling. (Otherwise, abnormal sound may be heard due to the vibration of the piping.)
 - (b) Apply refrigerant oil slightly on the sheet surface of the pipe and flare nut before the flaring work. And then tighten the flare nut with the specified tightening torque using two spanners. Perform the flaring work on the liquid piping side before the gas piping side. Check the gas leakage after the flaring work.

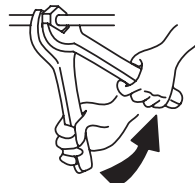
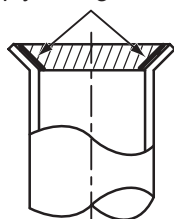
NOTE:

Refrigerant oil is field-supplied.

[Ethereal Oil FVC50K, FVC68D (Idemitsu Kousan Co. Ltd.)]

- (c) In case that temperature and humidity inside the ceiling exceed 27°C/RH80%, apply additional insulation (approx. 10mm thickness) to the accessory insulation. It prevents dew condensation on the surface of the insulation (refrigerant pipe only).
- (d) Perform the air-tight test (4.15MPa for the test pressure). Refer to the item 8.1 "Air-Tight Test" for more details.
- (e) Perform cold insulation work by insulating and taping the flare connection and reducer connection. Also insulate all the refrigerant pipes.

Apply Refrigerant Oil.



Two Spanners Work

< Required Tightening Torque >

Pipe Size	Tightening Torque
φ6.35 (1/4)	14 ~ 18 N-m
φ9.53 (3/8)	34 ~ 42 N-m
φ12.7 (1/2)	49 ~ 61 N-m
φ15.88 (5/8)	68 ~ 82 N-m
φ19.05 (3/4)	100 ~ 120 N-m

CAUTION

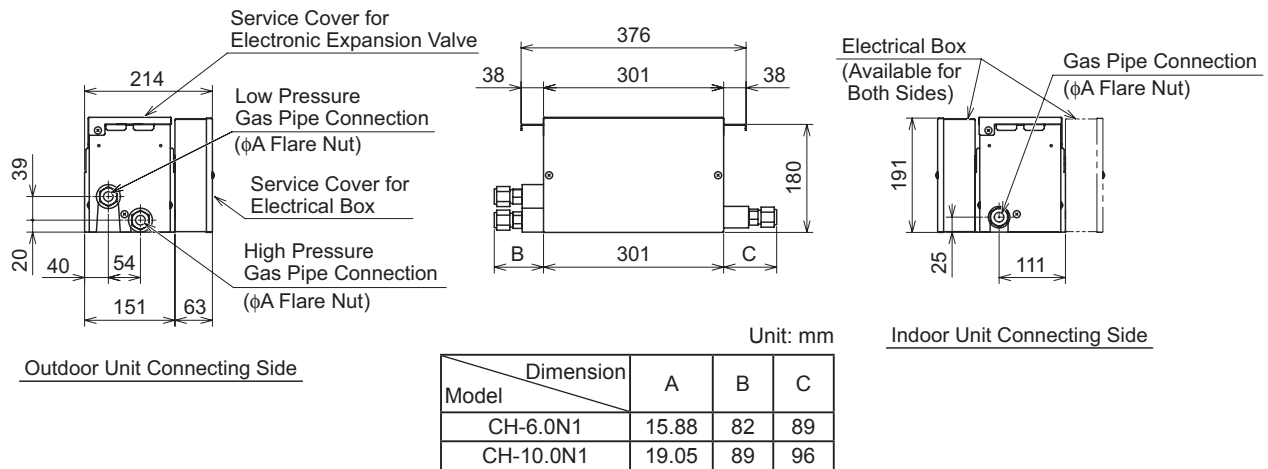
- Do not apply excessive force to the flare nut when tightening. If applied, the flare nut may crack due to aged deterioration and refrigerant leakage may occur. Use the specified tightening torque.
- For more details of the refrigerant piping work, vacuum pumping and refrigerant charge, refer to the item 6 "Refrigerant Piping Work" and the item 8 "Additional Refrigerant Charge".

■ Refrigerant Piping Work

Provide the refrigerant pipe in the field.

Make sure that the refrigerant pipe should be connected to the same refrigerant cycle unit.

(1) Position of Piping Connection



(2) Selecting Piping Size

- Select the size for the high pressure gas pipe, low pressure gas pipe and gas pipe according to the table A. The size depends on the indoor unit total capacity connected downstream of the CH unit.
- In case that the piping size from Table A and the piping connection size for CH unit from Table B are different, use an accessory pipe according to the next page.
- As for the multi-kit branch or header branch, refer to the Item 11.3.

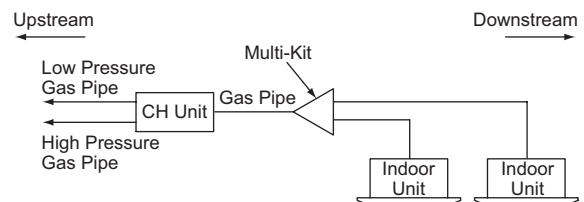
Table A Connected Indoor Unit Capacity and Piping Size

Model	Connected Indoor Unit Capacity (HP)	Low Pressure Gas Pipe (mm)	High Pressure Gas Pipe (mm)	Gas Pipe (mm)
CH-6.0N1	0.8~1.5	φ15.88	φ12.7	φ12.7 *
	1.6~4.0	φ15.88	φ12.7	φ15.88
	4.1~6.0	φ19.05	φ15.88	φ15.88
CH-10.0N1	6.1~8.0	φ19.05	φ15.88	φ19.05
	8.1~10.0	φ22.2	φ19.05	φ22.2

*: In case that a branch is located downstream of the CH unit and also the connected indoor unit capacity is 0.8~1.5HP, use φ15.88 for the gas pipe.

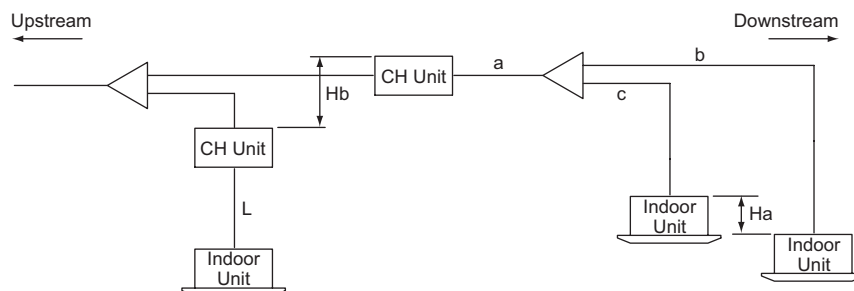
Table B Piping Connection Size for CH Unit

Model	Low Pressure Gas Pipe (mm)	High Pressure Gas Pipe (mm)	Gas Pipe (mm)
CH-6.0N1	φ15.88	φ15.88	φ15.88
CH-10.0N1	φ19.05	φ19.05	φ19.05



● Piping Work for CH Unit

Perform the piping work for CH unit according to the following table.



Condition of Piping Work

Item		Allowable Piping Length	
Total Piping Length between CH Unit and Indoor Unit	L	CH-6.0N1	within 30m
	a+b+c	CH-10.0N1	within 10m
Height Difference between Indoor Units Connected to the Same CH Unit	Ha	within 4m	
Height Difference between CH Units	Hb	within 15m	

(3) Piping Connection

Perform the piping connection according to “Refrigerant Piping” in Item 11.4.5.

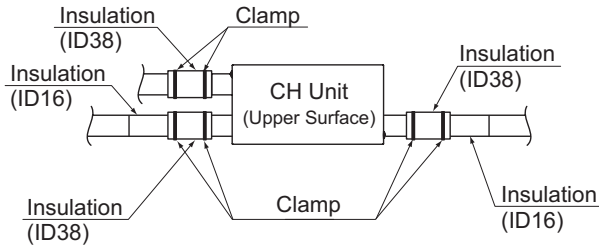
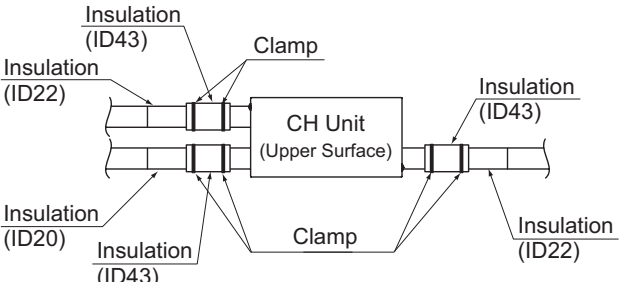
Connected Indoor Unit Capacity (HP)	CH-6.0N1
0.8 to 1.5	Low Pressure Gas Pipe (Field-Supplied) (φ15.88) High Pressure Gas Pipe (Field-Supplied) (φ12.7) CH Unit (Upper Surface) Accessory Pipe Accessory Pipe Gas Pipe (Field-Supplied) (φ15.88) *2 Field Flaring Work *1
1.6 to 4.0	Low Pressure Gas Pipe (Field-Supplied) (φ15.88) High Pressure Gas Pipe (Field-Supplied) (φ12.7) CH Unit (Upper Surface) Accessory Pipe Gas Pipe (Field-Supplied) (φ15.88) *2 Field Flaring Work *2 Field Flaring Work
4.1 to 6.0	Reducer Low Pressure Gas Pipe (Field-Supplied) (φ19.05) High Pressure Gas Pipe (Field-Supplied) (φ15.88) CH Unit (Upper Surface) Accessory Pipe (Cut the end of the spinning part.) Gas Pipe (Field-Supplied) (φ15.88) *2 Field Flaring Work *2 Field Flaring Work

* 1: In case that a branch is located downstream of the CH unit and also the connected indoor unit capacity is 0.8~1.5HP, perform the flaring work of the field gas pipe and connect it to the CH unit.

* 2: Refer to “Refrigerant Piping” in Item 11.4.5 for the flaring work.

Connected Indoor Unit Capacity (HP)	CH-10.0N1
6.1 to 8.0	Low Pressure Gas Pipe (Field-Supplied) (φ19.05) High Pressure Gas Pipe (Field-Supplied) (φ15.88) CH Unit (Upper Surface) Accessory Pipe Accessory Pipe (Cut the end of the expanded part of pipe.) Reducer Gas Pipe (Field-Supplied) (φ19.05)
8.1 to 10.0	Low Pressure Gas Pipe (Field-Supplied) (φ22.2) High Pressure Gas Pipe (Field-Supplied) (φ19.05) CH Unit (Upper Surface) Accessory Pipe Accessory Pipe Gas Pipe (Field-Supplied) (φ22.2)

(4) Piping Insulation

CH-6.0N1	
CH-10.0N1	

NOTE:

In case that the humidity inside the ceiling is high, apply additional insulation to the flare nut connection. Refer to “Initial Check” in Item 11.4.4 for more details.

11.4.6 Electrical Wiring

⚠ DANGER

- Turn off the main power switch to the CH unit, the indoor unit and the outdoor unit before electrical wiring work or a periodical check is performed.
- Protect the wires, drain pipe, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts and at the worst, a fire will occur.

⚠ WARNING

- Use a medium sensing speed type ELB (Electric Leakage Breaker, activation speed of 0.1 sec. or less). If not used, it will cause an electric shock or a fire.
- Fix the cables securely. External forces on the terminals could lead to a fire.
- Tighten screws according to the following torque.
M4: 1.0 to 1.3 N-m (TB1, TB2)

⚠ CAUTION

- Use twisted shielded pair cable or shield pair cable for transmission wires between the indoor and the outdoor units (Max. 1000m), and connect the shielded part to the earth screw in the electrical box of the indoor unit as shown the next page figure.
- Wrap the field supplied insulation around the wires, and plug the wiring connection hole with the seal material to protect the product from any condensate water or insects.
- Tightly secure the wires with the cord clamp inside the CH unit.
- Do not connect the earth wire to the gas pipe, water pipe and lightening conductor.
Gas pipe: An explosion and ignition may occur when gas leaks.
Water pipe: There is no effect of earth wire when a hard vinyl pipe is used.
Lightening conductor: The earth electric potential abnormally increases when a lightening conductor is used.

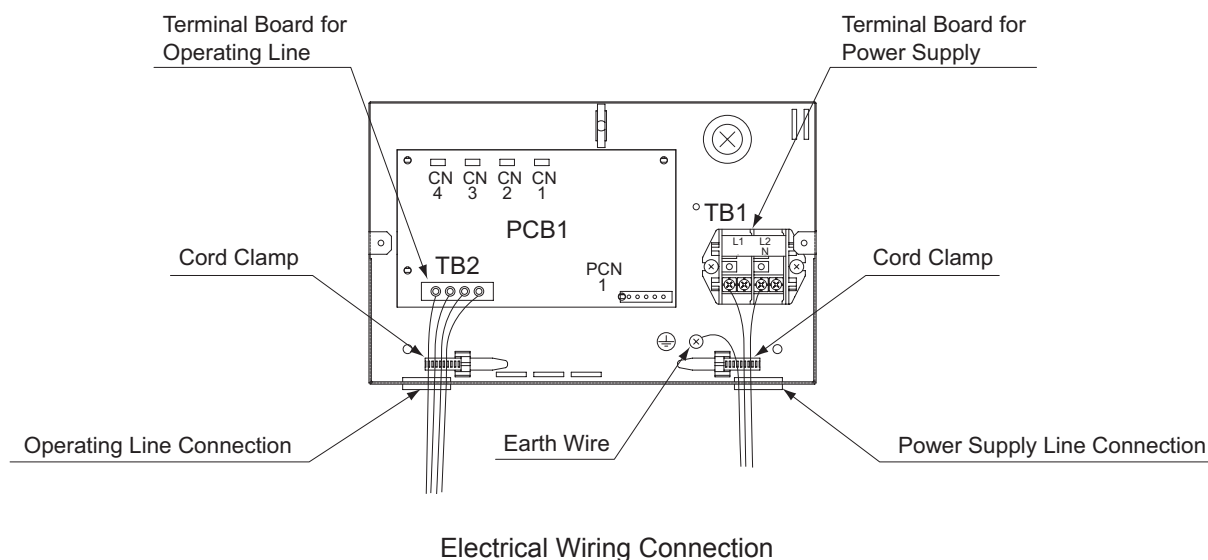
■ General Check

- (1) Make sure that the field-selected electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to the next page table. Make sure that the components comply with National Electrical Code (NEC).
- (2) Check to ensure that the power supply voltage is within $\pm 10\%$ of the rated voltage.
- (3) Check the capacity of the electrical wires. If the power source capacity is too low, the system cannot be started due to the voltage drop.
- (4) Check to ensure that the ground wire is connected.

■ Electrical Wiring Connection

The electrical wiring connection for the CH unit is shown in the below figure.

- (1) Turn OFF the main power switch and take off the electrical box cover of CH unit.
- (2) Connect the power supply and earth wires to the terminals in the electrical box.
- (3) Connect the wires of the operating line to the terminals in the electrical box.
- (4) Tightly clamp the wires using the cord clamp inside the electrical box.
- (5) Fix the electrical box cover after wiring work.



• Field Minimum Wire Sizes

- (1) Perform the electrical wiring work for the CH units. Determine the cable size according to the table below.
- (2) Pay attention to the marks on the terminal board when connecting wires for CH unit and I.U./O.U. Refer to “Example of Electrical Wiring” for the wiring connection on the next page.

Model	Power Source	Maximum Current	Power Source Cable Size		Transmitting Cable Size		Earth Wire Size
			EN60 335-1 *1	MLFC *2	EN60 335-1 *1	MLFC *2	
CH-6.0N1	220-240V/1Φ/50Hz	1A	0.75mm ²	0.5mm ²	0.75mm ²	0.5mm ²	2.0mm ²
CH-10.0N1	220V/1Φ/60Hz						

NOTES:

- 1) Follow local codes and regulations when selecting field wires.
- 2) The wire sizes marked with *1 in the above table are selected at the maximum current of the unit according to the European Standard, EN60 335-1. Use the wires which are not lighter than the ordinary tough rubber sheathed flexible cord (code designation H05RN-F) or ordinary polychloroprene sheathed flexible cord (code designation H05RN-F).
- 3) The wire sizes marked with *2 in the above table are selected at the maximum current of the unit according to the wire, MLFC (Flame Retardant Polyflex Wire) manufactured by Hitachi Cable Ltd., Japan.
- 4) Use a shielded cable for the transmitting circuit and connect it to ground.
- 5) In the case that power cables are connected in series, add each unit maximum current and select wires below.

Selection According to EN60 335-1

Current i (A)	Wire Size (mm ²)
i ≤ 6	0.75
6 < i ≤ 10	1
10 < i ≤ 16	1.5
16 < i ≤ 25	2.5
25 < i ≤ 32	4
32 < i ≤ 40	6
40 < i ≤ 63	10
63 < i	*3

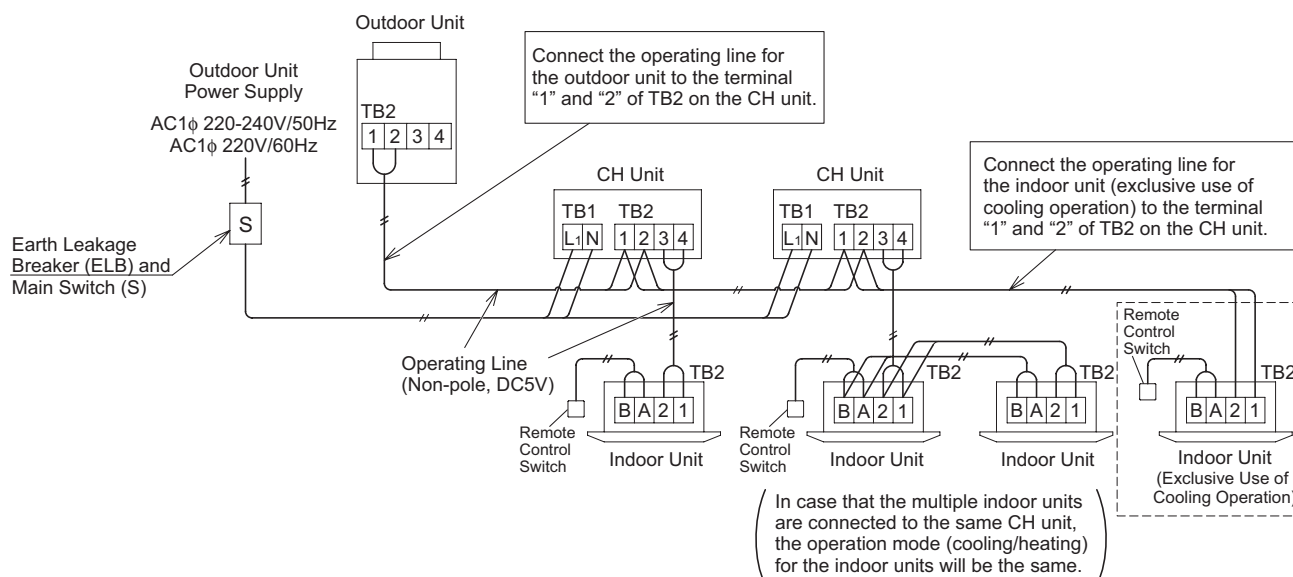
Selection According to MLFC (at Cable Temperature of 90°C)

Current i (A)	Wire Size (mm ²)
i ≤ 15	0.5
15 < i ≤ 19	0.75
19 < i ≤ 24	1.25
24 < i ≤ 34	2
34 < i ≤ 47	3.5
47 < i ≤ 63	5.5
63 < i ≤ 78	8
78 < i ≤ 113	14
113 < i ≤ 148	22
148 < i ≤ 179	30

*3: In the case that current exceeds 63A, do not connect cables in series.

• Example of Electrical Wiring

The following figure shows the example of electrical wiring around the CH units. Refer to the item 7.4 regarding the electrical wiring of the whole system.



NOTE:

- Do not apply excessive voltage to the operating line (DC5V (non-pole)) between outdoor unit and CH unit, between CH unit and indoor unit, between CH units.
- Use 2-Core cable for the operating line. (Do not use 3-Core cable or over.)
- Connect the operating line for the outdoor unit to the terminal "1" and "2" of TB2 on the CH unit.
- Connect the operating line for the indoor unit exclusively for cooling operation to the terminal "1" and "2" of TB2 on the CH unit.
- For the CH unit in the same refrigerant cycle, electrical power source can be supplied by one switch.
- Do not connect the power supply line (220V~240V) to the terminal board for operating line.
- Connect the earth wire for the outdoor/indoor units and CH unit. The ground wiring work under the condition of 100Ω (max.) ground resistance should be performed by the qualified electrician.

• Setting of Dip Switches

Ensure that DSWs on the PCB1 are set before shipping as shown below and no setting is required.

• DSW1



• DSW101



• DSW301



NOTE

The "■" mark indicates position of dip switches. Figures show setting before shipment.

CAUTION

Before setting dip switches, firstly turn OFF power source and set the position of the dip switches. If the switches are set without turning OFF the power source, the switches can not function.

11.4.7 Test Run

NOTICE

Refrigerant piping and connecting wires should be connected to the same refrigerant cycle system. If they are connected to the dissimilar refrigerant cycle systems, a malfunction may occur.

! WARNING

- **Special Attention Regarding Refrigerant Gas Leakage**
Pay attention to the critical gas concentration to avoid accidental refrigerant gas leakage before installing air conditioning systems.

Totally Charged Refrigerant Quantity in System (kg)

Room Space for each Indoor Unit (m³)

≤Critical Concentration (kg/m³)

0.3 kg/m³

*

Test run should be performed according to Item 9.

! WARNING

- **Do not operate the system until all the check points have been cleared.**
 - (A) Check to ensure that the electrical resistance is more than 1 megohm, by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electrical leakage is found and repaired.
 - (B) Check to ensure that the stop valves of the outdoor unit are fully opened, and then start the system.
 - (C) Check to ensure that the switch on the main power source has been ON for more than 12 hours, to warm the compressor oil by the crankcase heater.
- **Pay attention to the following items while the system is running.**
 - (A) Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 90°C.
 - (B) **DO NOT PUSH THE BUTTON OF THE MAGNETIC SWITCH(ES).** It will cause a serious accident.

11.4.8 Safety and Control Device Setting

CH Unit		
Model		CH-6.0N1, CH-10.0N1
For Control Circuit Fuse Capacity	A	5

11.5 H-LINK System and H-LINK II System

H-LINK and H-LINK II are the wiring system that multiple refrigerant cycles link together with transmission wires connecting indoor units and outdoor units.

There is no limitation on the connecting order of the units and the number of wiring branch.

(It is essential to ensure that all units are connected.)

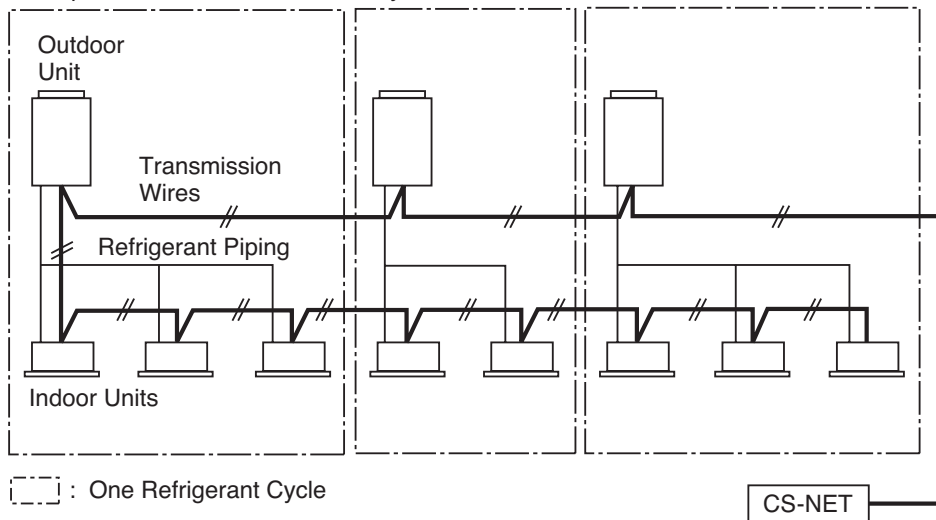
This H-LINK system facilitates wiring design and field wiring work, and also it helps total cost reduce.

■ Connecting with CS-NET

CS-NET can be simply set by connecting to a terminal board in any unit close to CS-NET.

Centralized control is easily realized.

Example of H-LINK and H-LINK II System



■ Compare with H-LINK System

Item	H-LINK	H-LINK II
Number of Max. Ref. Group / System	16	64
Address Setting Range of Indoor Units / Ref. Group	0 to 15	0 to 63
Number of Max. Indoor Unit / System	128	160
Total Devices Q'ty in the same H-LINK	145	200
Max. Wiring Length	Total 1,000m (5,000m*)	
Recommended Cable	Twist Pair Cable with Shield, Over 0.75mm ² (Equivalent to KPEV-S)	

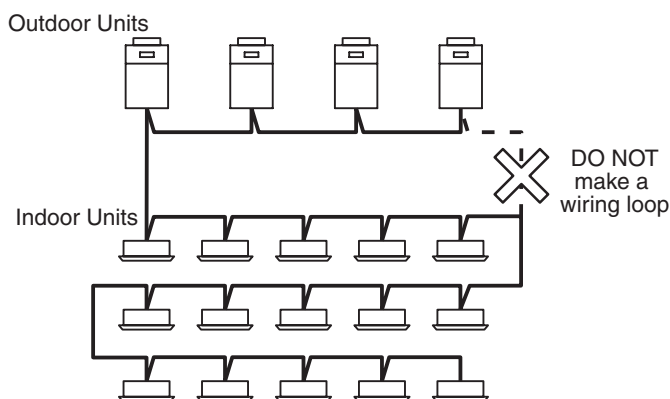
*: In case 4 (four) units of PSC-5HR is used.

(1) System Example of H-LINK (II)

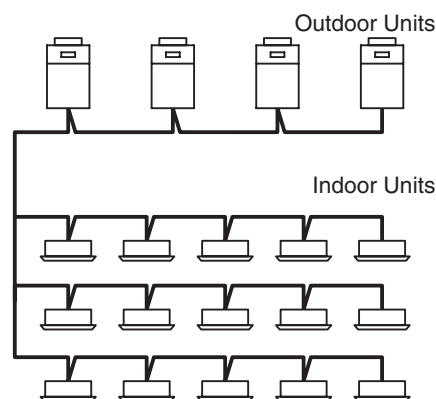
(a) Using H-LINK (II) System For Only Air Conditioners

There are two typical cases of using H-LINK (II) system; (1) Using H-LINK (II) System For Only Air Conditioners, and (2) Using H-LINK (II) System For Air Conditioners with Central Control Device, and the system examples are as shown below.

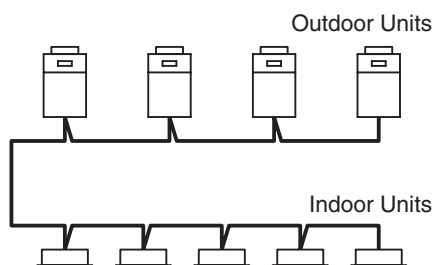
① Line Connection with All Units



② Line Connection for Each Floor

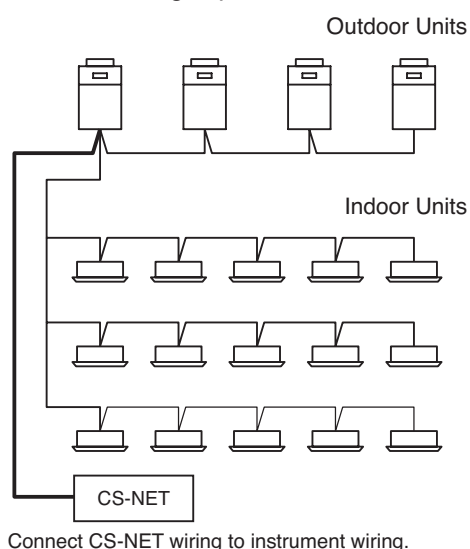


③ Connection with One Main Line and Branch Lines for Units

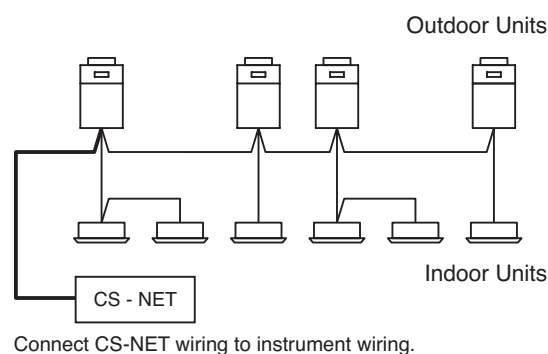


(b) Using H-LINK (II) System For Air Conditioners with Central Control Device

① In case that H-LINK (II) is applied when electrical wiring is performed.



② In case that H-LINK (II) is not applied when electrical wiring is performed.



NOTE

1. Do not make a wiring in a loop.
2. In the case of (b)-② as shown above, H-LINK (II) is applied after the instrument wiring is completed. Therefore, the dip switches are required to be set according to "Dip Switch Setting Example" in the next page.

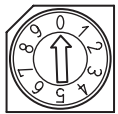
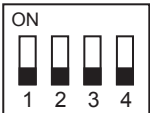
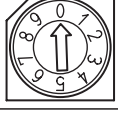
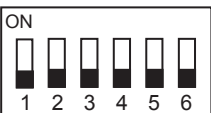
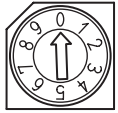
(2) Dip Switch Setting of Indoor PCB and Outdoor PCB

In case of applying H-LINK (II) system, the setting of refrigerant cycle No., unit No. and end terminal resistance for indoor and outdoor units are required.

<Dip Switch Setting Example>

Setting Item		H-LINK (Non-H-LINK II)		H-LINK II	
		Cycle No. 0	Cycle No. 1	Cycle No. 17	
Outdoor Unit	End Terminal Resistance				
	Refrigerant Cycle No.				
Indoor Unit	Refrigerant Cycle No.				
	Unit No.				

(a) Dip Switch Setting

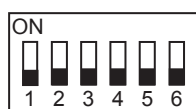
Item	Dip Switch No.		Setting Range	Setting before Shipment	Function
Outdoor Unit	End Terminal Resistance	No. 1 pin of DSW10		ON/OFF 	For matching impedance of transmission circuit. Set the DSW in order to operate only one (1) outdoor unit in the H-Link (II) system.
	Refrigerant Cycle No.	H-LINK	DSW1	0~15 	For setting refrigerant cycle address of outdoor unit. Set DSW not to overlap the setting of other outdoor units in the H-LINK II system.
		H-LINK II	DSW1 RSW1	0~63  	Same as the above. Refer to the next page for more details.
Indoor Unit	Refrigerant Cycle No.	H-LINK	DSW5	0~15 	For setting refrigerant cycle address of indoor units. Set the same refrigerant cycle No. for outdoor unit and indoor unit.
		H-LINK II	DSW5 RSW2	0~63  	Same as the above.
	Unit No.	H-LINK	RSW	0~15 	For setting indoor unit address. Set the RSW not to overlap the setting of other indoor units in the same refrigerant cycle.
		H-LINK II	DSW6 RSW1	0~63  	Same as the above. Refer to the next page for more details.

NOTE:

- Automatic address function is performed when turning on the power supply of the indoor unit (setting before shipment). This address will be memorized after the power supply is turned off. Therefore, check the actual address again even though "No. 0 unit" is displayed.
- For the unit corresponding to H-LINK II, refrigerant cycle No. and unit No. can be set from the remote control switch. In this case, this address may be different from the one set by DSW.
- When the unit corresponding to H-LINK II is connected to the central control equipment (non-corresponding to H-LINK II), the setting range of refrigerant cycle No. and unit No. is 0 to 15.

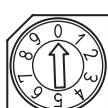
<Setting of Refrigerant Cycle No. and Unit No. for H-LINK II>

DSW-6P



Set 10 digit of refrigerant Cycle No. and Unit No. to the "ON" side.

RSW



Set 1 digit of refrigerant Cycle No. and Unit No.

(Setting Example)

21	
52	
9	

Note:

The setting is invalid when 64 (and over) is set and 2 pins (and over) of DSW-6P are at "ON" side.

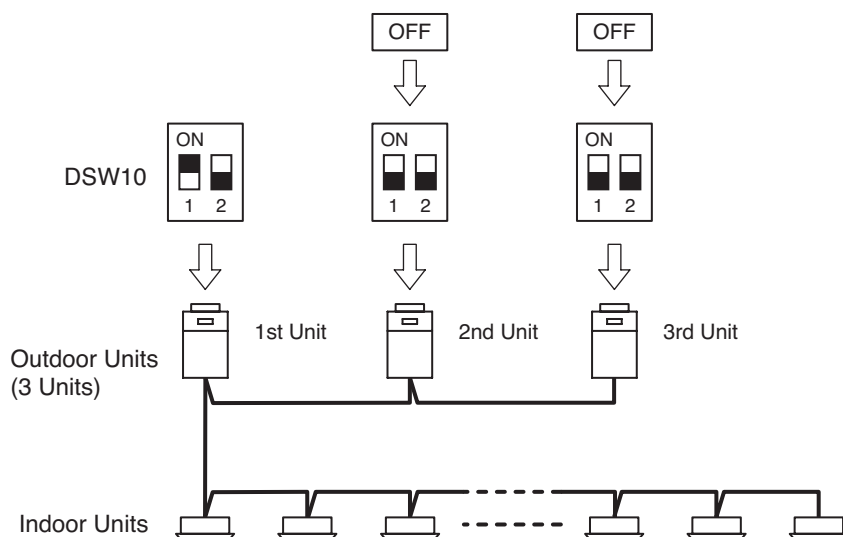
(b) Setting of End Terminal Resistance

Before shipment, No.1 pin of DSW10 is set at the "ON" side.

In the case that the outdoor units quantity in the same H-LINK is 2 or more, set No.1 pin of DSW10 to the "OFF" side at the 2nd unit. If only one outdoor unit is used, no setting is required.

Setting of End Terminal Resistance DSW10

Before Shipment Cancellation



(3) Electrical Cable Model

Maker	NIHON DENSEN KOGYOKAI	HITACHI DENSEN	NIHON DENSEN INDUSTRIES
Without Shield	JKEV	KPEV	KNPEV
With Shield (Copper Foil)	JKEV-S	KPEV-S	KNPEV-S
With Shield (Braiding)	JKEV-SB	KPEV-SB	KNPEV-SB

NOTE:

Both the cable with shield and the cable without shield are available.

Table 11.1 HITACHI Air Conditioner SET-FREE Maintenance Record

Customer's Name _____

DATE: _____

Outdoor Unit Model (Serial No. _____)		RAS- _____ (Serial No. _____)								RAS- _____ (Serial No. _____)									
(1) Operation Mode																			
(2) Test Run Start Time																			
(3) Data Collect Start Time																			
(4) Read Out Data from 7-Segment in Outdoor Unit																			
Protection Control Code																			
Operating Capacity																			
Outdoor Total Connecting Capacity		oCP																	
Outdoor Connecting Quantity		oAA																	
Indoor Total Connecting Capacity		iCP																	
Indoor Connecting Quantity		iAA																	
Refrigerant System Address		GA																	
Indoor Operating Capacity		oP																	
Total Frequency		Hz																	
Accumulated Operation Time of Unit		UJ																	
Outdoor Unit Information																			
Outdoor Capacity		CA																	
Outdoor Microcomputer Output		SC	52C ₁	52C ₂	CH ₁	CH ₂	A ₁	A ₂	21 ₁	21 ₂	52C ₁	52C ₂	CH ₁	CH ₂	A ₁	A ₂	21 ₁	21 ₂	
			FAN	20B	20C	20F ₁	20F ₂	20CHG	X ₁	X ₂	FAN	20B	20C	20F ₁	20F ₂	20CHG	X ₁	X ₂	
Inverter Frequency		H1																	
Compressor Running Quantity		CC																	
Outdoor Fan Step		Fo																	
Outdoor Expansion Valve Opening		E1																	
		Eb																	
Discharge Pressure		Pd																	
Suction Pressure		Ps																	
Outdoor Temperature		To																	
Discharge Gas Temperature		Td1																	
		Td2																	
Heat Exchanger Liquid Temperature		TE																	
Heat Exchanger Gas Temperature		TG																	
Automatic Refrigerant Charge Temperature		TCH																	
Gas Bypass Temperature		TbG																	
Inverter Fin Temperature		TFi																	
Fan Controller Temperature		TFF																	
Compressor Running Current		A1																	
		A2																	
Fan Running Current		AF																	
Accumulated Operation Time of Compressor		UJ1																	
		UJ2																	
Accumulated Operation Time of Compressor (Available for Timer Reset)		cU1																	
		cU2																	
Inverter Stoppage Cause Code		iT																	
Fan Controller Stoppage Cause Code		FT																	
Indoor Unit Information																			
Indoor Capacity		CA																	
Indoor Expansion Valve Opening		iE																	
Heat Exchanger Liquid Temperature		TL																	
Heat Exchanger Gas Temperature		TG																	
Intake Air Temperature		Ti																	
Outlet Air Temperature		To																	
Indoor Unit Stoppage Cause Code		d1																	