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SET FREE SERIES
FSN(1)(E)/FXN(E)/FSVNE

Technical Catalogue

Outdoor Units: 3 ~ 42 HP
Indoor Units Type:
- 4-Way Cassette
- 2-Way Cassette
- Wall
- Ceiling
- In-the-Ceiling
- Floor
- Floor Concealed

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

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Units Code List

List of indoor and outdoor units, complementary systems and accessories included in this catalog.

NOTE:

MODEL CODIFICATION	Please consult, according to the model name, which type of air conditioning it has and how it is abbreviated. Use the description and abbreviation to refer to the technical information in the Technical Catalog.

System Free series indoor units

FSN(1)(E) indoor units

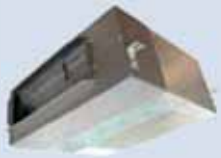
4-way cassette		4-Way-Cassette Mini		2-way cassette		Ceiling	
unit	Code	unit	Code	unit	Code	unit	Code
-	-	-	-	-	-	-	-
RCI-1.0FSN1E	7E861619	RCIM-1.0FSN	60277887	RCD-1.0FSN	60277813	-	-
RCI-1.5FSN1E	7E861619	RCIM-1.5FSN	60277889	RCD-1.5FSN	60277814	-	-
RCI-2.0FSN1E	7E861621	RCIM-2.0FSN	60277890	RCD-2.0FSN	60277815	RPC-2.0FSNE	7E872055
RCI-2.5FSN1E	7E861620	-	-	RCD-2.5FSN	60277816	RPC-2.5FSNE	7E872030
RCI-3.0FSN1E	7E871770	-	-	RCD-3.0FSN	60277817	RPC-3.0FSNE	7E872058
RCI-3.5FSN1E	7E871779	-	-	-	-	RPC-3.5FSNE	7E872057
RCI-4.0FSN1E	7E871780	-	-	RCD-4.0FSN	60277818	RPC-4.0FSNE	7E872059
RCI-5.0FSN1E	7E871790	-	-	RCD-5.0FSN	60277819	RPC-5.0FSNE	7E872060
RCI-6.0FSN1E	7E871794	-	-	-	-	RPC-6.0FSNE	7E872061
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
							
RCI		RCIM		RCD		RPC	
❄ ☀ 1~							

RPC-3.0 FSN (1) (E)

- Unit Type (indoor unit) RCI(M) - RCD - RPC - RPI - RPK - RPF - RPF(I)
- Capacity (HP) 0,8-1,0-1,5-2,0-2,5-3,0-4,0-5,0-6,0-8,0-10,0
- H-Link Set-free/ System Free
- R410A Refrigerant
- Series
- E: Made in Europe
- -: Made in Japan

System Free series indoor units

FSN(1)(E/M) indoor units

Duct				Wall		Floor		Floor concealed enclosure	
unit	Code	unit	Code	unit	Code	unit	Code	unit	Code
RPI–0.8FSN1E	7E887302	RPIM–0.8FSN1E	7E897302 NEW			-	-	-	-
RPI-1.0FSN1E	7E887303	RPIM-1.0FSN1E	7E897303 NEW	RPK-1.0FSN2M	60277941 NEW	RPF-1.0FSNE	7E877715	RPFI-1.0FSNE	7E877719
RPI-1.5FSN1E	7E887304			RPK-1.5FSN2M	60277942 NEW	RPF-1.5FSNE	7E877716	RPFI-1.5FSNE	7E877720
RPI-2.0FSN1E	7E882024			RPK-2.0FSN2M	60277943 NEW	RPF-2.0FSNE	7E877309	RPFI-2.0FSNE	7E877311
RPI-2.5FSN1E	7E882025			RPK-2.5FSN2M	60277944 NEW	RPF-2.5FSNE	7E877310	RPFI-2.5FSNE	7E877312
RPI-3.0FSN1E	7E882031			RPK-3.0FSN2M	60277945 NEW	-	-	-	-
RPI-3.5FSN1E	7E882035					-	-	-	-
RPI-4.0FSN1E	7E882032			RPK-4.0FSN2M	60277946 NEW	-	-	-	-
RPI-5.0FSN1E	7E882033								
RPI-6.0FSN1E	7E882034								
RPI-8.0FSNE	70886723								
RPI-10.0FSNE	70886733								
									
RPI		RPIM		RPK		RPF		RPFI	
❄ ☀ 1~									

Coding description:

RPI-3.0 FSN (1) (E/M)

- RPI: Unit Type (indoor unit) RCI - RCD - RPC - RPI - RPK - RPF - RPF(I)
- 3.0: Capacity (HP) 0,8-1,0-1,5-2,0-2,5-3,0-4,0-5,0-6,0
- FSN: H-Link Set-free/ System Free
- (1): R410A Refrigerant
- (E/M): Series
  - E: Made in Europe
  - M: Made in Malaysia
  - -: Made in Japan

Set Free series outdoor units

FSN(1)(E) OUTDOOR UNITS						FXN(E) OUTDOOR UNITS			
unit	Code	unit	Code	unit	Code	unit	Code	unit	Code
RAS–5FSN	60278771	-	-	-	-	-	-	-	-
RAS–8FSN1E	7E878778 NEW	-	-	-	-	RAS–8FXNE	7E878774	-	-
RAS–10FSN1E	7E878779 NEW	-	-	-	-	RAS–10FXNE	7E878775	-	-
RAS-12FSN1E	7E878780 NEW	-	-	-	-	RAS–12FXNE	7E878777	-	-
RAS-14FSN1	60288067 NEW	-	-	-	-	-	-	-	-
RAS–16FSN1	60288068 NEW	-	-	-	-	-	-	RAS–16FXN	60278841
-	-	RAS-18FSN1	60288069 NEW	-	-	-	-	RAS–18FXN	60278928
-	-	RAS–20FSN1	60288070 NEW	-	-	-	-	RAS–20FXN	60278821
-	-			-	-	-	-		
-	-	RAS–24FSN1	60288072 NEW	-	-	-	-	RAS–24FXN	60278842
-	-			-	-	-	-		
-	-	RAS–28FSN1	60288074 NEW	-	-	-	-	-	-
-	-			-	-	-	-	RAS–30FXN	60278822
-	-	RAS-32FSN1	60288076 NEW	-	-	-	-	RAS–32FXN	60278931
-	-	-	-	RAS-36FSN	60288002	-	-	-	-
-	-	-	-	RAS–42FSN	60288005	-	-	-	-
									
RAS									
❄ ☀ 3~									

Coding description:

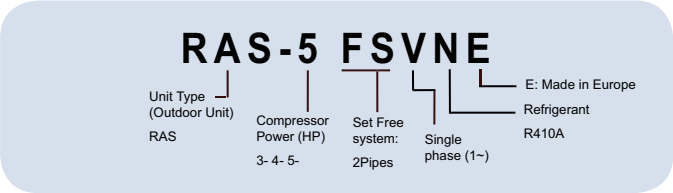
RAS-10 (FS/FX)N(1)(E)

- Unit Type (Outdoor unit): RAS
- Compressor power (HP): 5- 8- 10- 12- 14- 16- 18- 20- 22- 24- 26- 28- 30- 32- 36- 42-
- Set Free System: 2 Pipes
- Set Free System: 3 Pipes
- Refrigerant: R410A
- Series: N
- E: Made in Europe
- -: Made in Japan

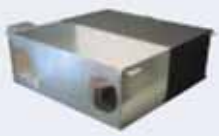
◈ Mini Set Free series outdoor units

FSVNE OUTDOOR UNITS			
unit	Code	unit	Code
RAS–3FSVNE	7E878654	-	-
-	-	RAS–4FSVNE	7E878655
-	-	RAS–5FSVNE	7E878656
			
RAS			
❄ ✺ 3~			

◆ Coding description:



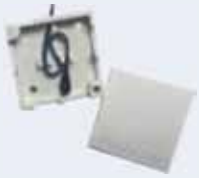
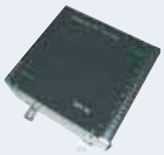
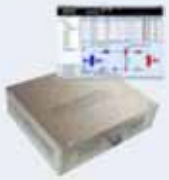
◈ Complementary system units

COMPLEMENTARY UNITS			
unit	Indication Content	Code	Figure
KPI-2521	Total heat exchanger	60277481	
KPI-5021	Total heat exchanger	60277482	
KPI-8021	Total heat exchanger	60277483	
KPI-10021	Total heat exchanger	60277484	
EF-5GE	Econofresh kit	7E774148	

System accessories

ACCESSORIES			
unit	Indication Content	Code	Figure
PC-P2HTE	Remote control with Timer	7E899954 NEW	
PC-P1HE	Remote Control SW	7E799954	
PSC-5S	Central station	60291050	
PSC-5T	Seven-day timer	60291052	
PC-P5H	Optional remote controller	60290879	
PC-LH3A	Wireless control switch	60291056	
PC-RLH8	Receiver kit (for RCI-FSN1E –on the panel–)	60291106	
PC-RLH9	Receiver kit (for RCD –on the panel–)	60291107	
PC-RLH11	Receiver Kit (for RCI, RCD, RPC, RPI, RPK, RPF(I) -on the wall-)	60291109	
PC-RLH13	Receiver kit	60291294	

System accessories (Cont.)

ACCESSORIES			
unit	Indication Content	Code	Figure
PSC-5HR	H-LINK relay	60291105	
PCC -1A	Optional function connector	60199286	
PRC-10E1	2P-extension cord	7E790211	
PRC-15E1	2P-extension cord	7E790212	
PRC-20E1	2P-extension cord	7E790213	
PRC-30E1	2P-extension cord	7E790214	
THM-R2AE	Remote sensor (THM4)	7E799907	
HARC-BXE (A)	Lonwork BMS Interface (7 inputs, up to 64 units)	60290874	
HARC-BXE (B)	Lonwork BMS Interface (4 inputs, up to 32 units)	60290875	
CSNET WEB	CSNET WEB + Interface (HARC-WEB)	7E891924	
DBS-26	Drain discharging connection	60299192	

System accessories (Cont.)

ACCESSORIES			
unit	Indication Content	Code	Figure
P-G23WA2	Air panel for RCI	60290534	
P-N23WAM	Air panel for RCIM	60197160	
P-G23DWA1	Air panel for RCD	60299570	
P-G46DWA1	Air panel for RCD	60299571	
B-23H4	Adapter for deodorant filter	60199790	
F-23L4-K	Antibacteria filter	60199791	
F-23L4-D	Deodorant filter	60199793	
F-46L4-D	Deodorant filter	60199794	
PDF-23C3	Duct connection flange	60199795	
PDF-46C3	Duct connection flange	60199796	
OACI-232	Fresh air intake kit	60199797	
PD-75	Fresh air intake kit	60199798	
PI-23LS5	3 -way outlet parts	60199799	
TKCI-232	T-duct connecting kit	60199801	
CH-4.0NE	CH Box	7E890278	
CH-8.0NE	CH Box	7E890197	
CH-12.0N	CH Box	60291260	

ACCESSORIES

unit	Indication Content	Code	Figure
E-102SN	Branch pipe	60291202	
E-162SN	Branch pipe	60291201	
E-242SN	Branch pipe	60291200	
E-302SN	Branch pipe	60291199	
E-52XN	Branch pipe	60291266	
E-102XN	Branch pipe	60291267	
E-162XN	Branch pipe	60291268	
E-202XN	Branch pipe	60291269	
E-242XN	Branch pipe	60291270	
E-322XN	Branch pipe	60291271	
E-84HSN	Header	60291197	
E-108HSN	Header	60291198	
E-84HSN1	Header	70291197	
E-108HSN1	Header	70291198	

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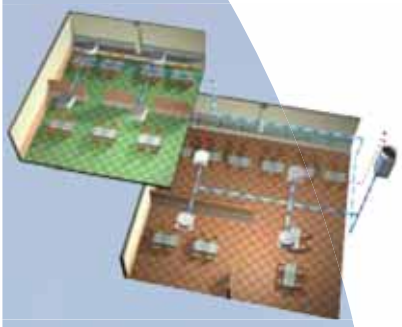
Introduction:System Description



System description

– The SET FREE air conditioning system is a VRF (Variant Refrigerant Flow) type system that allows multiple indoor units, of different power and model, to be set up with independent control for each of them.
– The Hitachi SET FREE systems offer high efficiency, reliability and comfort, features that make the SET FREE system one of the best on the market.

Benefits of the system

– The SET-FREE air-conditioning system incorporates a set of technical benefits that make it one of the most attractive on the market.
– Right from the selection of the ideal type of equipment in each case, up to its maintenance, and through installation, start up and operation, SET FREE always provides the best solution for every user, and greatly simplifies and eases the user's selection process.

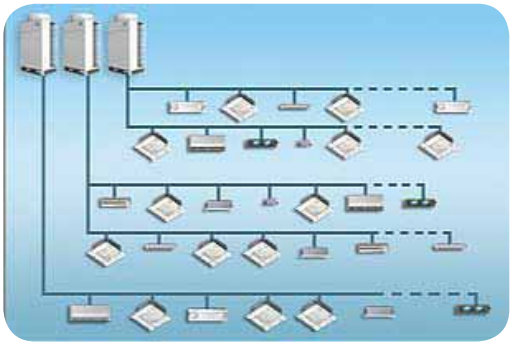
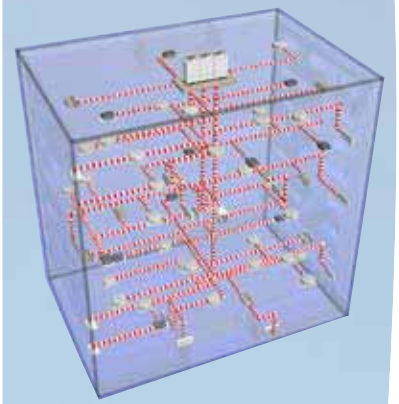


Diagram showing the multiple combinations of a SET FREE system



– HITACHI offers the same type of indoor unit, the SYSTEM FREE system. Until now each range of outdoor units had its own indoor units. SYSTEM FREE allows users to design a system without having to think what kind of indoor units are needed for it.
– Another benefit of this system is that it allows better stock control and optimizes the number of references. Thanks to this, both installers and distributors obtain a significant reduction in stock and storage costs.

New FSN(1)(E) series

– The new FSN1E units, which replace the FSNE series, improve the system's efficiency with the aid of a new compressor and a refrigerant circuit.

The new units being presented are the following:

– FSN1(E) units with the following horse power: 8,10,12,14,16,18,20,24,28,32 HP.
– RPIM units, a duct-type machine designed for hotels.
– RPK units, more compact and lighter.

New SN1(E) series

New RPIM units

More compact RPK unit

◆ Environment friendly

– They use refrigerant R410A.

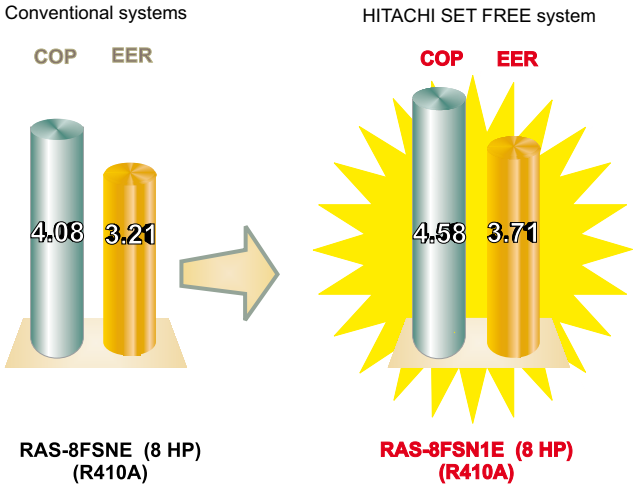
Hitachi Set Free units are ecological because they use refrigerant R410A , while the RoHS and green dot regulations are applied in their assembly process, showing Hitachi to be highly aware and respectful of the environment.

R410A is totally environmentally-friendly since it does not contain any substances that are harmful to the ozone layer; ODP (Ozone Depleting Product) =0.

Refrigerant

– High energy efficiency

HITACHI's SET-FREE units are very efficient and permit significant savings in energy when compared with the conventional systems. This energy efficiency means that less CO_2, which causes the greenhouse effect, is produced.



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1. Benefits of SET-FREE

This chapter describes the features and benefits of the new SET-FREE FSN(1)(E)/FXN(E)/FSVNE series outdoor unit, which through its system flexibility and modularity will provide you with the complete solution for your air conditioning requirements.

Contents

☛ Choice benefits:

1.1. Choice benefits

1.1.1.A wide range of choice

◈ Wide range of outdoor units

The range of new FSN(1)(E)/FXN(E)/FSVNE outdoor units includes 25 models, from 3 to 42 HP.

Outdoor units	Capacity (HP)		
	3	4	5
Set Free Mini - FSVNE	●		
		●	●

Outdoor units	Capacity (HP)												
	5	8	10	12	14	16	18	20	24	28	32	36	42
Set Free - FSN(1)(E)	●												
		●	●	●									
					●	●							
							●	●					
									●	●	●		
												●	●

Outdoor units	Capacity (HP)								
	8	10	12	16	18	20	24	30	32
Set Free - FXN(E)	●	●	●						
				●	●	●			
							●	●	●

HITACHI label of the Set-Free mini series.

HITACHI label of the Set-Free series.

☛ Choice benefits:

HITACHI
Indoor
System Free

- Unit of constant capacity
- Unit whose capacity can be adjusted to a higher limit via the DIP switch.
- Unit whose capacity can be adjusted to a lower limit via the DIP switch.
- Unit whose capacity can be adjusted to a higher or lower limit via the DIP switch.
- Capacity available with the DIP switch setting.

NOTE:
For more information see chapter 9 on electric cabling.

◈ FSN(1)(E) or FXN(E)

SET FREE allows choice of from a wide range of outdoor units that go from 5 to 42 HP in the FSN(1)(E) series, and from 8 to 32 HP in the FXN(E) 3 tube system, permitting a totally stand alone operation of the indoor units, independently of whether some of these operate in refrigeration and others in heating mode.

◆ **Wide range of indoor units**

The capacity of the SET FREE system can be adjusted according to the specific thermal requirements of each installation. System Free indoor units can reduce or increase their capacity by adjusting a DIP switch, which allows you to “redesign” an installation without having to modify it.

☛ Choice benefits:

◈ Main features of the HITACHI SET-FREE indoor units:

- Silent
- Efficient
- Compact

Thanks to all these features mean that HITACHI offer a range of indoor units that can adapt to any installation, while always respecting the parameters of quality that their users need.

◆ **Wide range of systems and complementary accessories**

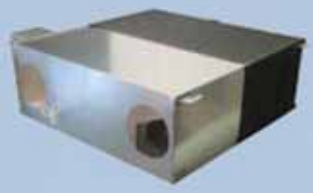
All the units have a large set of accessories that facilitate installation, operation and maintenance.

These accessories are designed to improve and adapt the unit to the type of installation the system needs, always keeping in mind the parameters of quality that the SET-FREE system requires.

These accessories are of type:

- Remote control switches
- Panels
- Filters
- Multikits

The complementary systems have been designed as elements attached to the installation. They improve its performance in terms of power consumption and the quality of the conditioned air.



KPI

◈ KPI

Energy Recovery unit (temperature and humidity).
Wide capacity range, from 250 m^3/h to 1000 m^3/h

Econofresh

◈ Econofresh

Air renewal unit that also permits a saving in energy. It attaches to the RPI-5FSN1E unit.
Permits different operating modes according to the type of installation.

1.1.2. Complete range of remote controls

HITACHI has three different remote control systems that can be used with SET-FREE outdoor units.

- Individual control systems
- Centralized control systems
- Computer control systems

Additionally, SET FREE is made up of different types of systems that permit the units to be controlled individually, collectively and even centrally.

CSNET-WEB software is used for this purpose. It permits supervision and control of the system via Internet or local area network, of up to 128 indoor units and 16 outdoor units.

HITACHI also has interface equipment to integrate its machines in installations with intelligent control or BMS (Building Management System) .

☛ Choice benefits:

PC-P2HTE
Wall mounted remote control switch with timer

PC-P1HE
Wall mounted remote control switch

PC-LH3A
Wireless remote control switch

PC-P5H
Basic wiring remote control switch

PSC-5T
Timer

◆ Individual control systems

◈ PC-P2HTE

Remote control switch with timer :

- LCD display.
- 4 timer settings per week.
- Optional functions like locking, energy saving, and intelligent room temperature maintenance.
- Automatic testing to solve problems that provides information continually with an alarm code.
- Access to all function settings for the indoor units
- Thermostat function available.
- Details of all settings are given on screen, facilitating system functionality checking.
- If there are problems with the power supply the backup functions keep the timer working.
- Indoor unit control groups (from 1 to 16 units in each group).

◈ PC-P1HE

Remote control switch:

- Large-sized LCD display.
- Timer adjustable to intervals ranging between half an hour and 24 hours.
- Self-diagnosis function: When a problem occurs, an alarm code immediately shows the details of the error.
- All the functions of the indoor unit can be selected from the remote control switch.
- Equipped with thermostat function.

◈ PC-LH3A

A wireless remote control switch that removes the need for wiring and provides simple one-touch operation. Permits control of two or more units simultaneously.

◈ PC-P5H

Remote control switch that is smaller than the conventional one, and whose main function is temperature adjustment. It is ideal for facilities such as hotels, thanks to its ease of use.

Two remote control switches or a group control (for a maximum of 16 units) can be used. in a similar way to the standard remote control switch.

When a problem occurs, an alarm code immediately shows the details of the error.

◈ PSC-5T

Programmable timer used to set operating schedules for air conditioning systems.

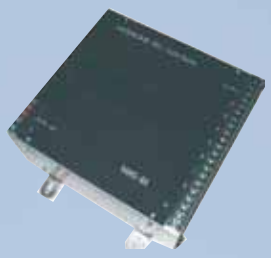
Along with the PSC-5S and PC-P1HE controllers, the air conditioners they control can be operated according to the schedule below:

- The timer can be set at 7-day intervals. and operation/stop can be set three times a day.
- Remote Control can be prohibited during the OFF time (when used with PSC-5S and PC-P1HE).
- Two types of weekly schedule (A and B) can be set and easily changed for summer and winter operation.
- Settings are all digitally displayed, allowing operations and settings to be easily checked.

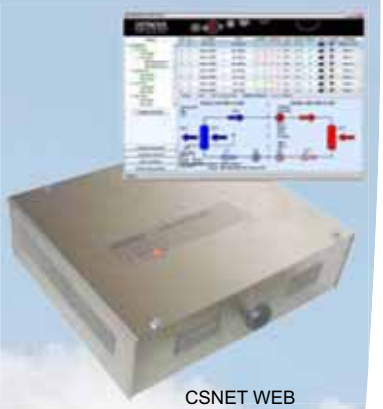
The power failure backup function prevents the timer from stopping because of a power failure (even if it lasts for weeks).

☛ Choice benefits:

PSC-5S
Central station



Lonwork BMS Interface



CSNET WEB
Control System

- **Centralized control systems**
  - **PSC-5S** (central station)
    - A group of up to 16 remote control switches can be connected to an H-Link to control up to 128 indoor units.
    - Up to 8 PSC-5S units can be connected to an H-Link.
    - In addition to the basic functions, operation mode and temperature setting, it is possible to set the air flow or auto louver.
    - When a problem occurs, an alarm code immediately shows the details of the error.
    - A signal terminal is provided as standard for external inputs, controlling the following functions:
      - On/Off
      - Emergency stoppage
      - Central operation output
      - Central alarm output
- **Computer control systems**
  - **HARC-BX**. Integration with installations with intelligent control (Building Management System)
    - Gateway interface with LON-WORKS BMS systems (installations with intelligent control or BMS). HARC-BX allows control of up to 5 setting points and remote monitoring of up to 9 values.
      Connecting the HARC-BX to an H-Link (communication line between machines) allows the use of up to 8 refrigerant cycles and control of up to 64 indoor units.
    - Up to eight HARC-BX can be connected to the same H-Link.
    - The HARC-BX can be connected to any point in the H-Link system.
  - **CSNET WEB** control system
    - HITACHI has developed the CSNET WEB system enabling equipment to be controlled remotely from any point of the local corporate network, or even via the Internet.
    - CSNET WEB can be connected to the H-Link network from any point on the network using a non-polarity two-wire cable, facilitating the installation task to the maximum. 16 outdoor units and 128 indoor units can be controlled by each H-Link.
    - CSNET WEB offers the following functions:
      - Locking of the different setting points.
      - Temperature selection.
      - Cooling and heating mode selection.
      - Fan Speed Selection.
      - Monitoring of energy consumption percentage.
      - Automatic cooling/heating mode.
      - Annual timer.

☛ Choice benefits:

1.1.3. Flexibility of the system

- **Large variety of options in the standard commands**

  SET FREE units have a great number of standard commands. These options can be easily configured by means of any of the wide variety of HITACHI remote-control switches, or through the PCBs of the indoor and outdoor units. In this way the SET FREE system adapts to each installation.

- **Variable installation capacity**

  HITACHI SET-FREE systems allow the connection of indoor units with a nominal combined power that exceeds the nominal power of the outdoor unit by 30%.

  Thanks to this, it can adapt to the requirements of each installation according to the power needed at each moment.

  With this feature of the SET-FREE system, an installation can be expanded, taking into account that you can install indoor units with a capacity of up to 130% of the outdoor capacity.

1.1.4. Availability of Hi-Tool Kit selection software

- **HI-Tool Kit. Selection software**

  HITACHI provides the installation designer with the project management support software, Hi-Tool Kit.

  Hi-Tool Kit is a tool that allows you to design installations and automatically generate all the information necessary to carry out the works. This information is:

  - A table to select products
  - Refrigerant and electric diagram generated automatically according to the installation design.
  - List of products necessary to carry out the installation.
  - Start-up management.

Selection software
Hi-Tool Kit

A table to select products

Refrigerant layout

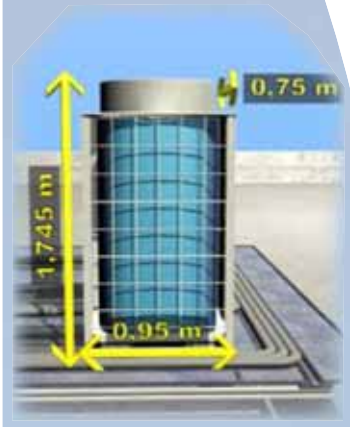
☛ Installation benefits:

1.2. Installation Advantages

1.2.1. Compact Size

SET-FREE outdoor units need less installation space since they are some of the smallest and most compact units on the market. The differences between installing a traditional SET FREE RAS-10FSNE machine and a new RAS-10FSN1E model are shown below:

Model	Weight (Kg)	No. of compressors
Set Free FSNE (traditional)	270	2
Decreases	↓ 17%	↓ 50%
Set Free FSN1E (new)	225	1



Compact Size

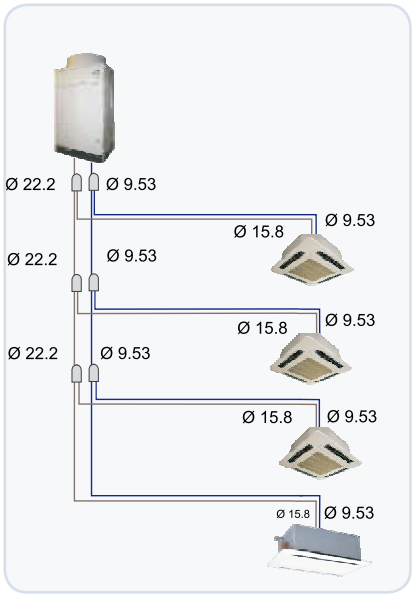
1.2.2. Easy and flexible piping installation

HITACHI's SET-FREE installation system is one of the most flexible and easy systems on the market, allowing large cost savings at installation time and during subsequent maintenance.

- Uni-Piping System (for FSN(1)(E)/FSVNE only)

The Uni-Piping system, developed by HITACHI, uses the same diameter of refrigerant piping throughout the installation, which greatly simplifies the whole process.

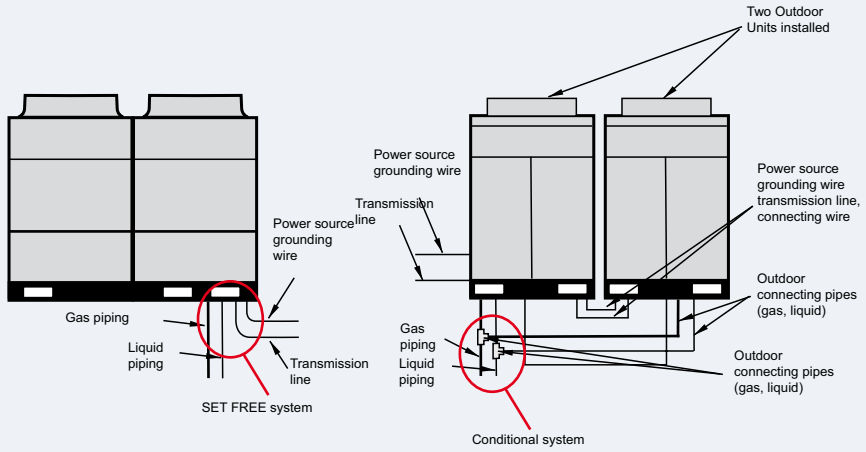
You can perform any installation, no matter how complex, with only two or three different pipe diameters.



☛ Installation benefits:

Integral Pipe System

SET FREE uses an integral piping system that prevents having to place piping between outdoor units and accepts lengths of up to 150 m between the outdoor unit and indoor units. This system reduces installation time, simplifying the installation of piping and cabling and increasing maintenance reliability.



Pipe Size Reduction

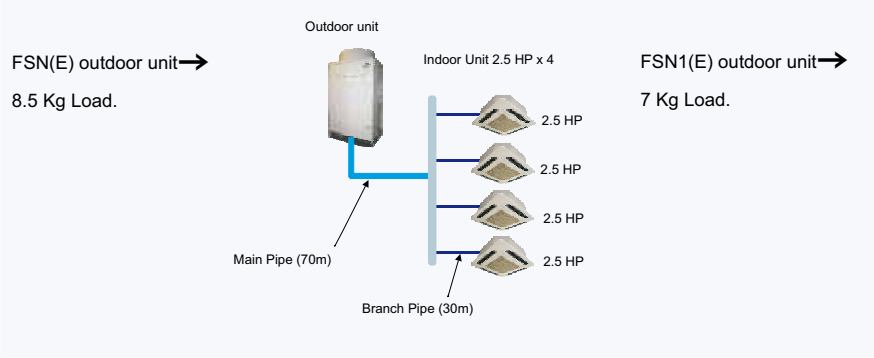
The R410A refrigerant allows reduction of pipe sizes, as well as the refrigerant charge. The diameter of the piping can be less than with R407C refrigerant because refrigerant discharge is reduced, and loss of compression is therefore smaller for the same capacity as with R407C.

HP	Liquid Piping		Gas piping	
	R407C	R410A	R407C	R410A
3	Ø9,53	Ø9,53	Ø15,88	Ø15,88
4	Ø9,53	Ø9,53	Ø19,05	Ø15,88
5	Ø9,53	Ø9,53	Ø19,05	Ø15,88
6	Ø9,53	Ø9,53	Ø19,05	Ø15,88
8	Ø12,70	Ø9,53	Ø22,2	Ø19,05
10	Ø12,70	Ø9,53	Ø25,4	Ø22,2
12	-	Ø12,70	-	Ø25,4
14	-	Ø12,70	-	Ø25,4
16	Ø15,88	Ø12,70	Ø28,6	Ø28,6
18	-	Ø15,88	-	Ø28,6
20	Ø19,05	Ø15,88	Ø34,9	Ø28,6
22	-	Ø15,88	-	Ø28,6
24	Ø19,05	Ø15,88	Ø34,9	Ø28,6
26	-	Ø19,05	-	Ø31,75
28	-	Ø19,05	-	Ø31,75
30	Ø22,20	Ø19,05	Ø41,3	Ø31,75
32	-	Ø19,05	-	Ø31,75
36	-	Ø19,05	-	Ø38,1
42	-	Ø19,05	-	Ø38,1

☛ Installation benefits:

Refrigerant charge

The refrigerant charge is greatly reduced by the design and technology of the new compressor. The result of use of this technology in the new FSN1E Series is a significant reduction of charge of between 10% and 15%.



For FSN(E)	For FSN(1)(E)
Additional Refrigerant Charge for liquid piping ∅9.53: (70 m + 30 m x 4) x 0.07 = 13.3 kg	Additional Refrigerant Charge for liquid piping ∅9.53: (70 m + 30 m x 4) x 0.07 = 13.3 kg
TOTAL = 8.5+13.3 = 21.8 Kg	**TOTAL = 7+13.3 = 20.3 Kg**

Flexible installation. Multikits and distributors

Hitachi's Set Free system provides great flexibility, accepts different types of systems, and allows up to 32 indoor units, depending on the model of the outdoor unit. The figures below show the different types of installation:

☛ Examples for RAS-10FSN1E:


Hybrid system


System with distributor


Multikit system

Hitachi provides all the accessories required for mounting the piping system, such as multikits and distributors. Hybrid installations can be applied between multikits and distributors, which makes the installation more flexible and greatly simplifies the problems that using a rigid system can create.

NOTE:
For additional information concerning the multiple connection kits that Hitachi offers, refer to chapter 7.

CH Box

HITACHI's SETFREE FXN(E) system has a new CH Box that permits use of cooling or heating mode in the indoor unit, regardless of the working mode of the outdoor unit.

The principal characteristic is the reduction in piping connections. These piping connections have been reduced from five (three coming from the outdoor unit and two going to the indoor unit) to three (two from the outdoor unit and one going to the indoor unit). As well as the height difference between CH units, which can be up to 15 m.

Another advantage is that the electrical box can be connected to the either side of the unit As a result of this new design, installation work has become much easier.


CH Box

☛ Installation benefits:

1.2.3. Easy and flexible electrical installation

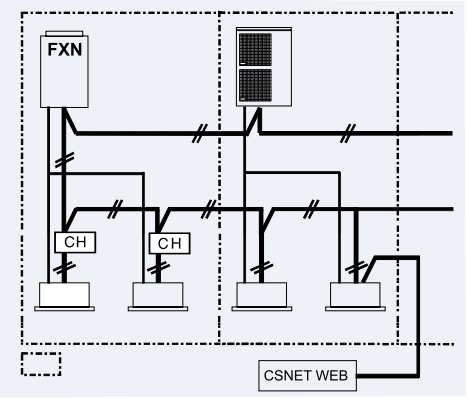
◆ **Interconnection of units via H-Link**

The units interconnect via a bus called H-LINK, consisting of 2 non-polarity cables and accepting lengths of up to 1,000 m. Accessories are available if required to increase this length to 5,000 m.

◆ **Up to 128 indoor units connected to each circuit**

Each H-LINK bus can communicate up to 128 indoor units. Taking into account the lack of polarity and the length permitted, the flexibility of interconnection between machines is very high. This permits, for example, the H-LINK of an indoor unit of a refrigeration system to be connected to the H-LINK of another indoor unit of another system.

☛ Example of H-LINK system:



Specifications:	
Transmission cable:	2-wire
Polarity of transmission cable:	Non-polar wire
Maximum outdoor units	16 units per H-LINK system
Maximum indoor units	128 units per H-LINK system
Maximum wiring length:	Total 1000 m (including CSNET WEB)
Recommended cable:	Shielded twisted pair cable or shielded pair cable, over 0.75 mm² (equivalent to KPEV-S)
Voltage:	DC5V

NOTES:

When using the H-LINK system, DIP switches have to be adjusted. If the DIP switches are not set or set incorrectly, an alarm may occur due to transmission failure. Total wiring length for the remote control switch can be extended to up to 5,000 m. If total wiring length less than 30 m, it is possible to use the normal wiring (0.3 mm²).

The H-LINK system provides maximum flexibility for system design; installation is easy, and total costs are reduced. Furthermore, it can be controlled centrally by connecting CSNET WEB to H-LINK wiring located in the room next to the room where CSNET WEB is installed.

You can also control of installation by means of the Internet via CSNET WEB

1.2.4. Easy and flexible connection of controls (Central Station, BMS Interface, CSNET WEB)

◆ **No polarity**

Thanks to the absence of polarity, any centralized control can be connected directly to the H-LINK bus, which means that special lines are not needed.

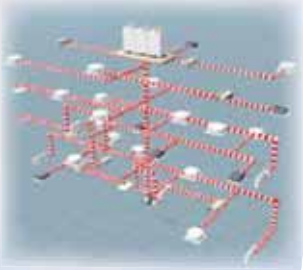
◆ **Auto-configuration**

Aside from the customized configuration, the control systems are also auto-configurable; for example, they have the capacity of interpreting the type of machine they are connected to, and detecting the type of indoor unit or its power.

1.2.5. Flexible adaptation to the installation's location

◆ **Capacity adjusted by Dip Switch**

The combination of different types of indoor units, as well as their power, which can always be adjusted via a DIP switch in the PCB of the indoor unit, give the SET FREE system the possibility of redesigning and readjusting an installation after it has been installed. The flexible system allows installers and consultants to make changes at a later stage.



Connections layout

☛ Startup benefits:

1.3. Startup benefits

1.3.1. Automatic startup test

◆ **Test run**

The automatic test run can be activated through outdoor unit DIP switch or indoor unit remote control switch. The outdoor unit 7-segment display gives all the necessary information to verify the correct operation of the system.

- Connected Outdoor Units Identification system:
  Using a Remote Control Switch, you can confirm what series the operational outdoor units belong to (e.g. Single or Multiple).
- Automatic address coding system:
  Able to automatically give a unit number to each indoor unit. (Units can also be allocated a unit number manually, using their rotary DIP switch.)

◆ **Test run from the remote control switch**

- Auto-diagnostic

  A high quality control has been obtained with the new remote control switch, which includes the new self-diagnosis function that allows to quickly check the operation conditions of the indoor units and the outdoor unit. Furthermore, alarm data can be stored in a microcomputer memory when an abnormality occurs.

  Printed circuit boards (PCBs) can be checked using the Liquid Crystal Display (LCD) of the remote Control Switch. Therefore, diagnosis for PCBs at the site is quickly and accurately performed.

- Data Memory in the Remote Control Switch

  If an abnormality occurs. the LCD remote control switch shows an alarm code so that quick diagnosis is available at the site.

- Optional Function Setting by Remote Control Switch

  Cancellations of a four-degree shift in the heating mode or the fan speed increasing setting are set via Remote Control Switch.

  This way, multiple Indoor Units can be set at the same time. Also, even after installation is completed you can easily change the configuration.

◆ **Test run procedure from the outdoor unit**

The PCB in the outdoor unit is equipped with three 7-segment displays.

This display indicates operation information such as:

- Outdoor temperature
- Discharge gas temperature
- Evaporating Temperature during Heating Operation
- Condensing Temperature
- Discharge pressure
- Compressor Run Time

This allows quick and accurate diagnosis of the installation during normal or trial operation.

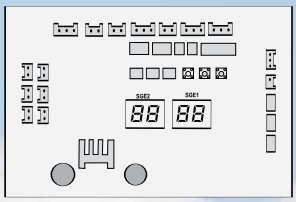
1.3.2. Service check

◆ **Hitachi Service Tools**

Hitachi also offers a powerful software tool, the Hitachi Service Tools, which can be run from any laptop computer to retrieve all the data read from the different machines by means of an interface connected to the H-LINK bus. This monitors the information in different formats so that problems that might occur during setup can be rapidly located.

Set Free units electrical control box

PC-P1HE/PC-P2HTE

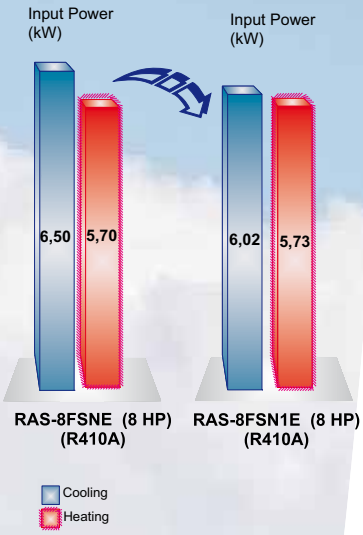


Example of PCB for FSN(1)(E):

Hitachi Service Tools Software

☛ Functionality benefits:

New DC Scroll compressor



1.4. Functionality benefits

1.4.1. Designed for maximum comfort

Hitachi's Set-Free technology results in very functional machines, designed to provide maximum comfort to their users.

An example of this are the new technologies used in the Hi-Multi Set Free Series air conditioning systems:

1.4.2. High efficiency system

- **Increased system capacity**

  SET-FREE systems are highly efficient, which is due to the following technical features:

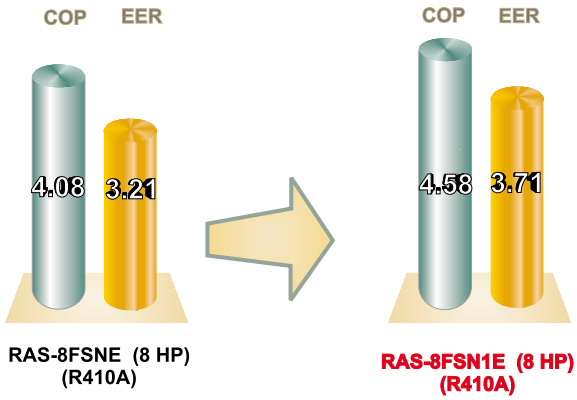
  - A double fin tubular heat exchanger.
  - Supercooling Circuit.

- **Reduced power consumption**

  - New Scroll DC compressor of high efficiency and increased power. Use of neodymium magnets in the compressor rotor.
  - Use of the new Inverter control IPM (Intelligent Power Module).
  - New design of the rotation of the compressor shaft, much smaller, making it more durable and reliable.

- **High COP and EER**

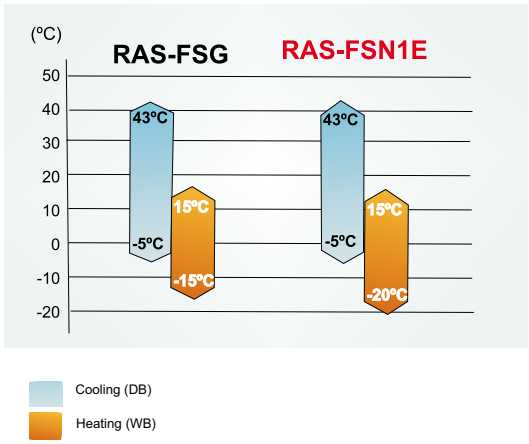
  As an example of this high level, the increase capacity operation power (COP) and the energy efficiency ratio (EER) for the RAS-8FSN1E unit (new model) are shown compared to the RAS-8FSNE (traditional model).



1.4.3. New temperature limit

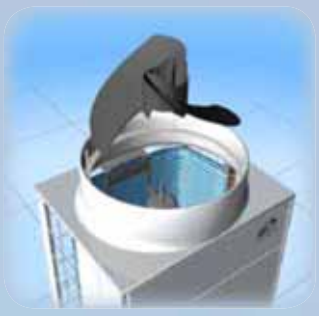
- **Temperatures**

  The optimization of the new refrigeration cycle implies an increase in the temperature limit



☛ Functionality benefits:

Compressor with acoustic insulation



New, more silent fan

1.4.4. Silent compressor

SET FREE units have been designed with a compressor that reduces to the maximum the noise level.

The combined use of scroll compressors and an insulation jacket reduces noise.

The neodymium magnets in the rotor of the DC compressor improve the performance of the compressor at low frequencies, and a significant reduction of electromagnetic disturbance has been achieved by separating the rotor into two parts.

1.4.5. Silent fan

SET-FREE units have been designed with a fan that optimizes to the maximum the noise level.

The fan system has a revolutionary two blade Propeller, that is much more aerodynamic than the previous models, which provides an increase in contact surface with the air.

At the same time, the use of DC motors with PWM control increase the system's efficiency and reduce electromagnetic noise.

☛ Maintenance benefits:

1.5. Maintenance benefits

1.5.1. High reliability

◆ **Minimum maintenance**

Faithful to Hitachi's usual philosophy, SET FREE units have been designed to guarantee great reliability and robustness in order to reduce maintenance operations to a minimum.

Easy access

1.5.2. Easy maintenance

◆ **Easy access**

It is easy to access all components of the SET FREE systems. You can access all the components of the unit to carry out necessary tasks via a simple cover

The whole system is designed to facilitate and simplify maintenance.

◆ **45 alarm codes for easy maintenance**

– These units use up to 45 very precise alarm codes in order to rapidly locate any problem that might occur.

– The alarms are grouped by elements within the system in order to facilitate maintenance work and optimize the installer's job.

Alarms reception by means of PC-P1HE

◆ **Alarm information in the remote control switch through the PCB**

– Alarm signals can be received through the remote control switches (whether individual or centralized), the CSNET/CSNET WEB software, or via the electric plate of the outdoor unit, thus facilitating maintenance work.

1.5.3. Availability of maintenance tools

All the functions of the Hitachi Service Tools for setup are applicable to unit maintenance, both preventive and corrective, so that any problem can be detected and solved immediately.

CSNET WEB is also useful for maintenance tasks.

CSNET WEB as maintenance tool

☛ Main features of the units:

☛ RCI:

1.6. Main features of the units

1.6.1. Indoor units

This section describes the various indoor units that can be used with the new outdoor units of the range, and the features of each.

◆ **RCI – 4-way cassette type**

The main features of the RCI 4-way cassette type unit are:

◈ **Quiet operation**

By employing a super-high-stream turbo fan (high efficiency three-dimensional twisted blade with large bore), the wind flow efficiency has been improved by 20% over conventional machines. Electromagnetic noise is reduced by mounting the lower damping slot near the center of the revolving shaft. This electromagnetic noise is unique to DC motors and is caused by the number of magnetic poles and revolution speed of the motor.

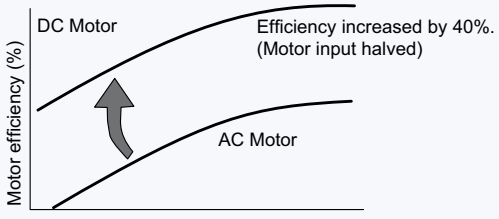
The following table lists air flow rates for the new RCI:

Air flow rate / Model	Standard operation dB(A)		
	Hi	Med	Low
RCI-1.0FSN1E	32	30	28
RCI-1.5FSN1E	32	30	28
RCI-2.0FSN1E	32	30	28
RCI-2.5FSN1E	32	30	28
RCI-3.0FSN1E	34	32	30
RCI-3.5FSN1E	34	32	30
RCI-4.0FSN1E	38	35	33
RCI-5.0FSN1E	39	37	35
RCI-6.0FSN1E	42	40	36

◈ **Reduced electrical power consumption due to new DC motor**

The DC fan motor greatly improves efficiency compared to conventional products with AC motors. In addition, air blasts are reduced by controlling the rotation speed of the fan.

The motor's electrical power consumption is reduced by employing a ferrite magnetic surface-mounted rotor, centralized winding system and split core system. The motor's efficiency has been improved in all aspects, and it is 50% smaller and lighter than conventional machines.



☛ Main features of the units:

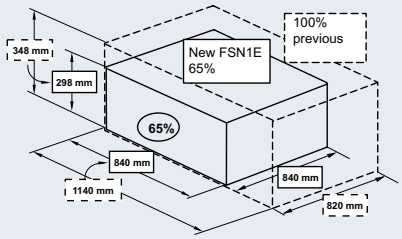
☛ RCI:

1

◈ Installation benefits

– Compact and thin can be installed in a small space

The height of the units is just 298 mm, among the lowest on the market, so they can be installed in a reduced space inside a false ceiling.



– Adaptable to high ceilings

This model has been adapted for high ceiling (4.2 m) installations by incorporating high speeds. This feature provides comfortable air conditioning in suburban stores and showrooms.

(m)

High ceiling	1.0/1.5/2.0/2.5/3.0 HP			3.5/4.0/5.0/6.0 HP		
	4-way	3-way	2-way	4-way	3-way	2-way
Standard	2,7	3	3,3	3,2	3,6	4
Speed-up (1)	3	3,3	3,5	3,6	4	4,2
Speed-up (2)	3,5	3,6	-	4,2	4,3	-

– Smaller ceiling opening for installation and renewal

The ceiling opening size has been changed from the conventional 910mm to a range between 860-910mm. so the ceiling panel cut-out will be smaller.

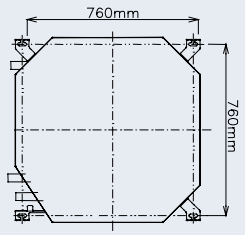
– Flexibility in the installation of piping

Piping flexibility improved because the body-suspending positions are square-shaped.

The suspending bolt pitch size is 760 mm, positioned at each corner of the unit.

The direction of the unit can thus be changed easily to match the pipe connection without changing the bolt positions. Design is simple even forcontinuous installations.

By setting the refrigerant pipe and drain pipe at separate corners. the working efficiency is improved.



– Equipped with drain mechanism with high pump lift

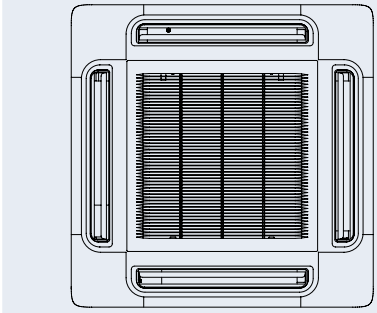
A drain pump lift of up to 850 mm from the ceiling surface is achieved by employing a drain-up mechanism with high pump lift (500 mm in the previous model).

☛ Main features of the units:

☛ RCI:

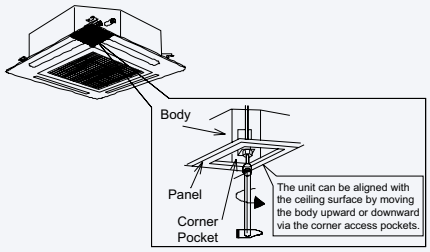
– Uniform panel size

Panel sizes are standardized to 950 mm square to facilitate easy interchange with other models with different capacities.



– Unit height easily adjustable from the corner pocket

A pocket is provided for each of the four panel corners, so that the body height can be easily adjusted without removing the panel.



◆ **RCIM – 4-way (small) cassette type**

The main features of the RCIM small 4-way cassette type unit are:

◈ **Quiet operation**

– By employing DC motor the electromagnetic noise is reduced.
– The following table shows the noise levels of the different models:

☛ RCIM:

Model \ Air flow rate	Standard operation dB(A)		
	Hi	Med	Low
RCIM-1.0FSN	36	34	32
RCIM-1.5FSN	38	35	33
RCIM-2.0FSN	42	39	37

☛ Main features of the units:

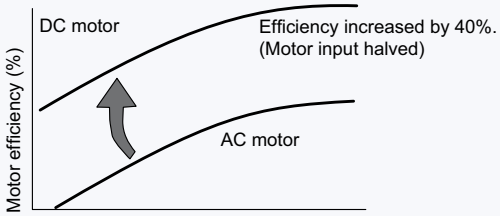
☛ RCIM:

1

◈ Reduced electrical power consumption due to new DC motor

– The DC fan motor greatly improves efficiency compared to conventional products with AC motors. In addition, air blasts are reduced by controlling the rotation speed of the fan.

– The motor's electrical power consumption is reduced by employing a ferrite magnetic surface-mounted rotor, centralized winding system and split core system. The motor's efficiency has been improved in all aspects, and it is 50% smaller and lighter than conventional machines.



◈ Installation benefits

– Adaptable to high ceilings

This model has been adapted to high ceiling installations (3.5 m).

(m)

High ceiling	1.0 HP	1.5 HP	2 HP
Standard	Below 2.5	Below 2.5	Below 2.7
Speed-up (1)	2.5 to 2.9	2.5 to 2.9	2.7 to 3.1
Speed-up (2)	2.9 to 3.9	2.9 to 3.9	3.1 to 3.5

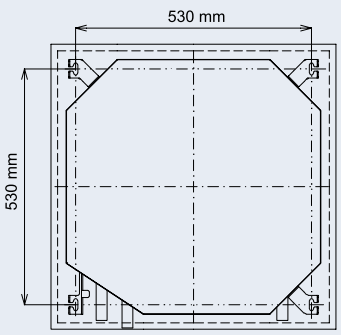
– Flexibility in the installation of piping

Improved piping flexibility because the unit-suspending positions are square-shaped

The suspending bolt pitch size is 530 mm, positioned at each corner of the unit. The direction of the unit can thus be changed easily to match the pipe connection without changing the bolt positions. The design is simpleeven for continuous installations.

By setting the refrigerant pipe and drain pipe at separate corners. the installation is more efficient.

The water level automatically activates the pump when the draining process is required..



– Equipped with drain mechanism with high pump lift

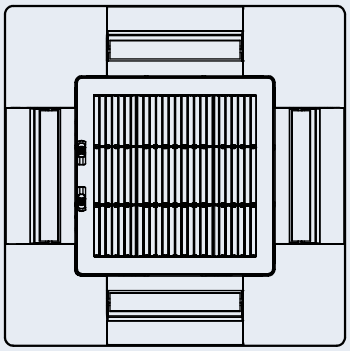
A drain pump lift of up to 600 mm from the ground surface is achieved by employing a drain-up mechanism with high pump lift

☛ Main features of the units:

☛ RCIM:

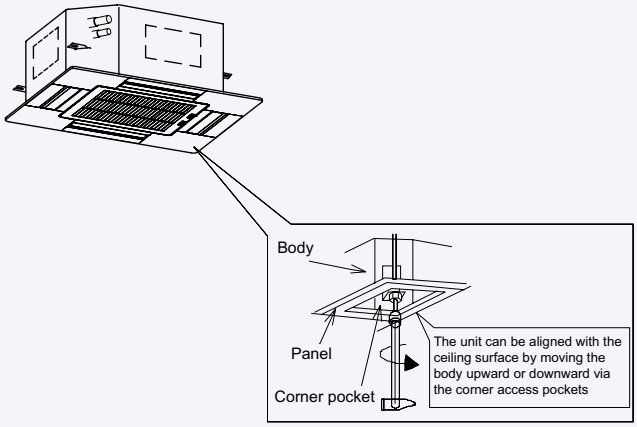
– Uniform panel size

The panels are 700x700 mm.
To facilitate installation in standard European grid ceilings (600x600 mm), the unit measures 570x570 mm.



– Unit height easily adjustable from the corner pocket

An access pocket is provided in each of the four panel corners, so that the body height can be easily adjusted without removing the panel.



☛ RCD:

◆ **RCD – 2-way cassette type**

The main features of the RCD 2-way cassette type indoor unit are:

◈ **Quiet operation**

– The following table shows the noise levels of the different models.

Model \ Air flow rate	Standard operation dB(A)		
	Hi	Med	Low
RCD-1.0FSN	34	32	30
RCD-1.5FSN	35	32	30
RCD-2.0FSN	35	32	30
RCD-2.5FSN	38	34	31
RCD-3.0FSN	40	36	33
RCD-4.0FSN	40	36	33
RCD-5.0FSN	43	40	36

– By using the multi-blade centrifugal fan, the noise level has been reduced to 30 dB(A), which is an improvement in the noise level with respect to previous models

☛ Main features of the units:

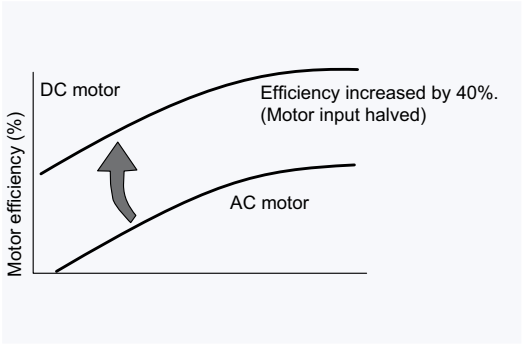
☛ RCD:

1

◈ Energy efficiency

– The DC fan motor greatly improves efficiency compared to conventional products with AC motors. In addition, air blasts are reduced by controlling the rotation speed of the fan.

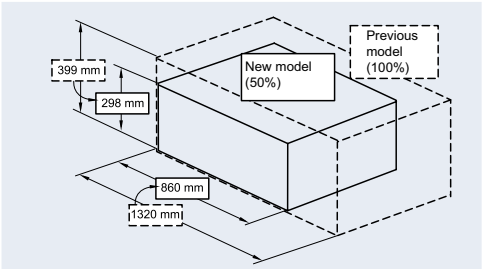
– The motor's electrical power consumption is reduced by employing a ferrite magnetic surface-mounted rotor, centralized winding system and split core system. The motor's efficiency has been improved in all aspects, and it is 50% smaller and lighter than conventional machines.



◈ Installation benefits

– Compact. thin and can be installed in a small space

A compact turbo fan simplifies the structure and reduces the height of the unit to 298 mm. The unit's low profile design allows easy installation in confined spaces inside a ceiling.



– Adaptable to high ceilings
This model has been adapted to high ceiling installations (3.4 m).

(m)

High ceiling	1.0~2.5 HP	3.0/4.0 HP	5.0 HP
Standard	Below 2.4	Below 2.7	Below 2.9
Speed-up (1)	2.4 to 2.7	2.7 to 3.0	2.9 to 3.2
Speed-up (2)	2.7 to 2.9	3.0 to 3.2	3.2 to 3.4

☛ Main features of the units:

☛ RPC:

◆ RPC – Ceiling type

The main features of the RPC ceiling type indoor unit are:

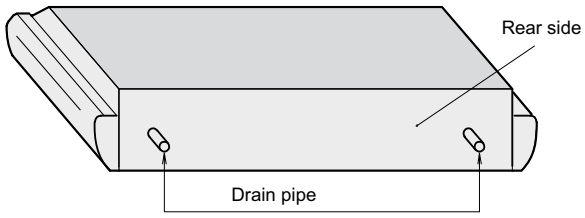
◈ Profile design

- The RPC units have a stylized aspect, which along with the new color, make them one of the most elegant units of this market segment.
- The unit is equipped with an automatic swing louver to ensure even distribution of the air.

◈ Installation benefits

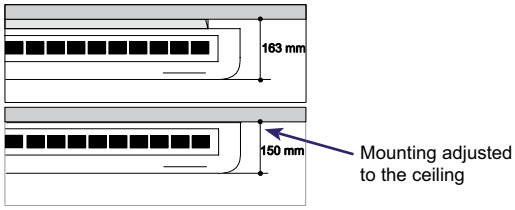
- Versatile mounting

  To increase the installation and positioning options. HITACHI has added a second drain pipe connector; one more than in the conventional units.



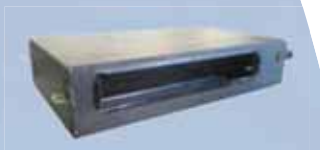
- Mounting brackets

  Adjustable mounting brackets allowing the machine to be installed flush with the ceiling.



☛ Main features of the units:

☛ RPI:



0.8~1.5HP

2.0~6.0 HP

8.0/10.0 HP

☛ RPIM

0.8/1.0 HP

◆ RPI - in-the-ceiling type

The main features of the RPI(M) ceiling type indoor unit are:

◈ Quiet operation

- A new fan unit combining innovative design with new materials results in important noise reductions, and makes Hitachi's RPI(M) units some of the most silent on the market.
- RPIM, new hotel application, with low noise.
- The following table shows the noise levels of the different models:

Models	Sound level dB(A)	
	High	Low
RPIM-0.8	31	27
RPIM-1.0	31	27
RPI-0.8	34	31
RPI-1.0	34	31
RPI-1.5	35	32
RPI-2.0	33	29
RPI-2.5	35	30
RPI-3.0	35	31
RPI-3.5	35	31
RPI-4.0	37	35
RPI-5.0	39	36
RPI-6.0	40	39

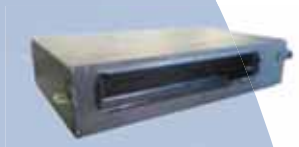
◈ Installation benefits

- **Equipped with drain mechanism with high pump lift**

  A drain pump lift of up to 850mm from the ceiling surface is achieved by employing a drain-up mechanism with high pump lift (500mm in the previous model).

☛ Main features of the units:

☛ RPI:

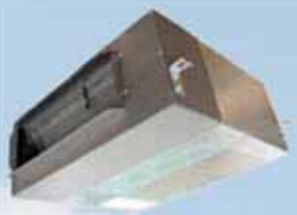


0.8~1.5 HP

2.0~6.0 HP

8.0/10.0 HP

☛ RPIM

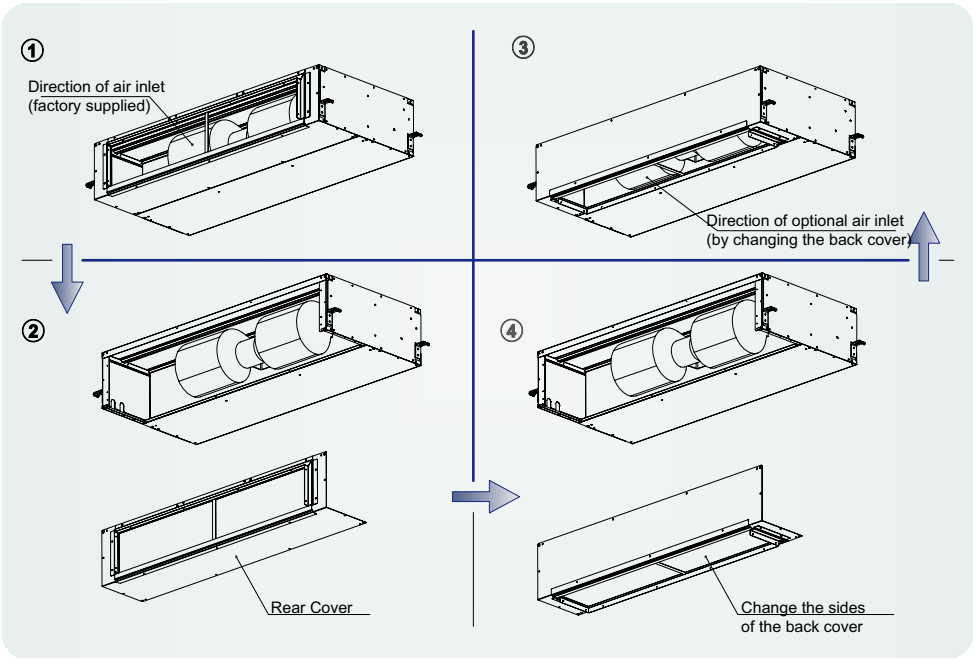


0.8/1.0 HP

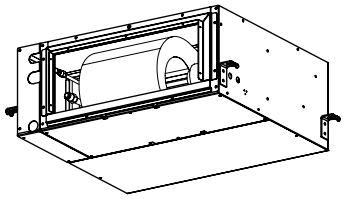
– **Change of inlet air direction.**

The direction of the inlet air can be modified by changing the back cover position, as shown in the following diagrams:

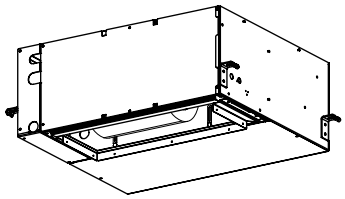
– RPI-2.0~6.0FSN1E



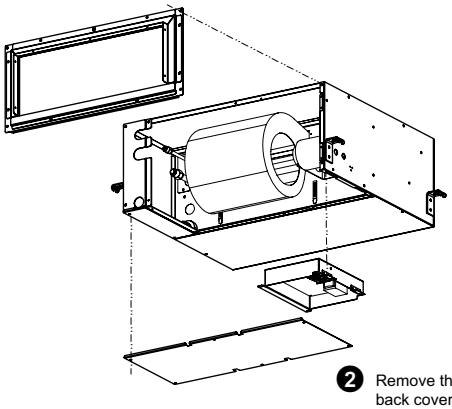
– RPIM-0.8/1.0FSN1E



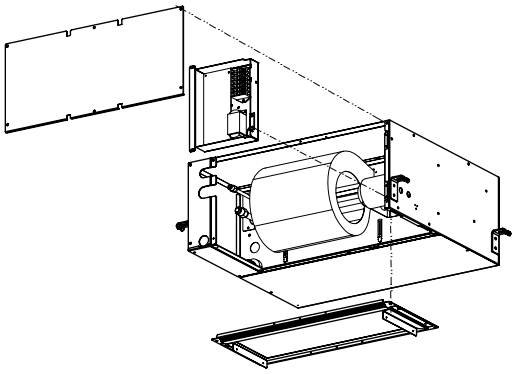
❶ Direction of air suction supplied by the factory.



❹ Optional air suction



❷ Remove the front and back covers and the electrical box from the unit.



❸ Exchange the position of the front cover and the back cover

Change the direction of the electrical box as shown in the figure.

☛ Main features of the units:

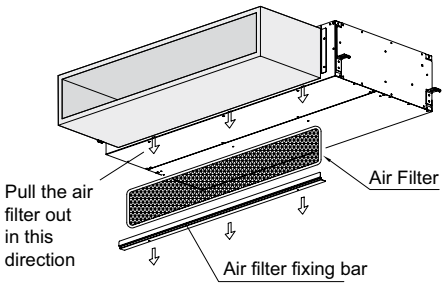
– **Static pressure selection.**

– (For RPI-0.8~6.0 FSN1E/RPIM-0.8/1.0 FSN1E units)
Static pressure selection with the remote control switch.
It is possible to select the static pressure through the remote control switch.

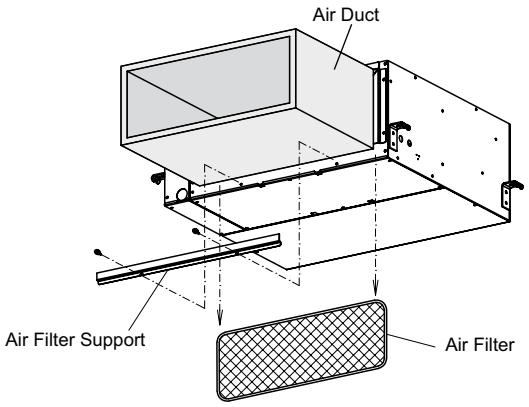
– **Filter servicing.**

– (For RPI-2.0~6.0FSN1E/RPIM-0.8/1.0FSN1E units)
Filter servicing has been improved for the RPI(M)-FSN1E unit. The filter is now accessed through the lower part of the unit.
For servicing, remove the three screws of the filter support, and pull the filter downward, as shown in the diagram.

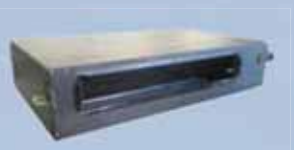
– RPI-2.0~6.0FSN1E



– RPIM-0.8/1.0FSN1E



☛ RPI:

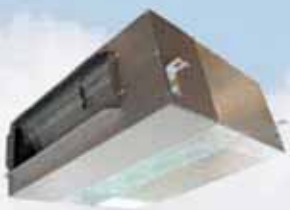


0.8~1.5 HP

2.0~6.0 HP

8.0/10.0 HP

☛ RPIM



0.8/1.0 HP

☛ Main features of the units:

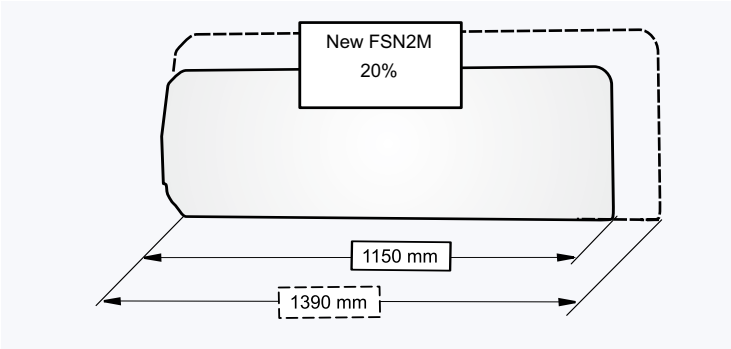
☛ RPK FSN2M:

◆ RPK – FSN2M wall type

The main features of the RPK-FSN2M wall type indoor unit are:

◈ Compact design

– The RPK-FSN2M unit is very compact and stylized, thus ensuring that important reduction in size (up to 20%) as compared to other units.



◈ Installation benefits

– Simple installation of the PC-P2HTE.
It is possible to connect the PC-P2HTE to the terminal board without the optional cable.

◈ Maintenance work

– The alarm signals, when the PC-LH3A is used, are indicated in the “Filter” and “Timer” LEDs of the unit’s casing.

☛ Main features of the units:

☛ RPF:

◆ RPF – Floor type

◈ **Slim design only 220 mm deep**

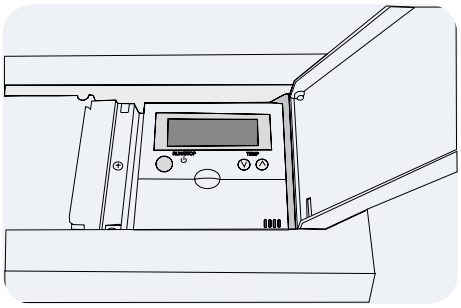
– Due to its slim design the indoor unit can be installed along the wall without wasting valuable floor space.

◈ **Height only 630 mm**

– The height of the indoor unit is only 630 mm, making it ideal for perimeter zone air conditioning.

◈ **Optional location for PC-P1HE (RPF)**

– In the case of the RPF Unit, it is possible to install the PC-P1HE under the plastic cover as shown in the figure below:



◆ RPFI – Floor concealed type

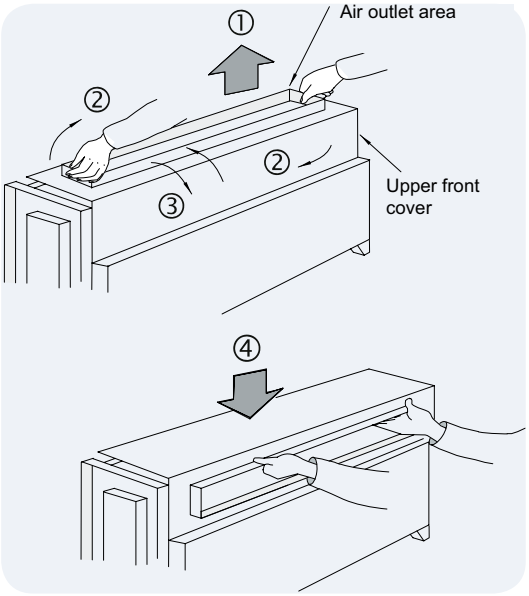
☛ RPFI:

◈ **Compact design**

– This unit is normally installed inside walls under windows, without alterations to the interior. Its compact design - 620 mm in height, 220 mm in depth and 863 mm in width for the 1.5 HP model, and 1238 mm wide for the 2/2.5 HP model - means that the unit can be installed in a limited space in most buildings.

◈ **Air discharge direction change**

– The alarm signals, when the PC-LH3A is used, are indicated in the “Filter” and “Timer” LEDs of the unit’s casing.



1.6.2. Outdoor units

The SET-FREE systems are characterized by their great efficiency, thanks to all the technology applied.

☛ Main features of the units:

FSN(1)(E)/FXN(E)

FSN

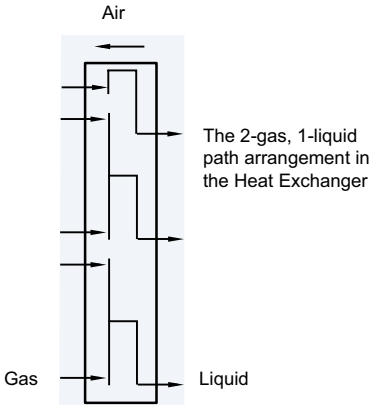
FSVNE

◆ Highly efficient

◈ High efficiency refrigerant cycle for FSN(1)(E)/FXN(E)

The new SET-FREE Series, provides increased efficiency in the refrigerant cycle. HITACHI has developed a new and more efficient heat exchanger and a new supercooling circuit.

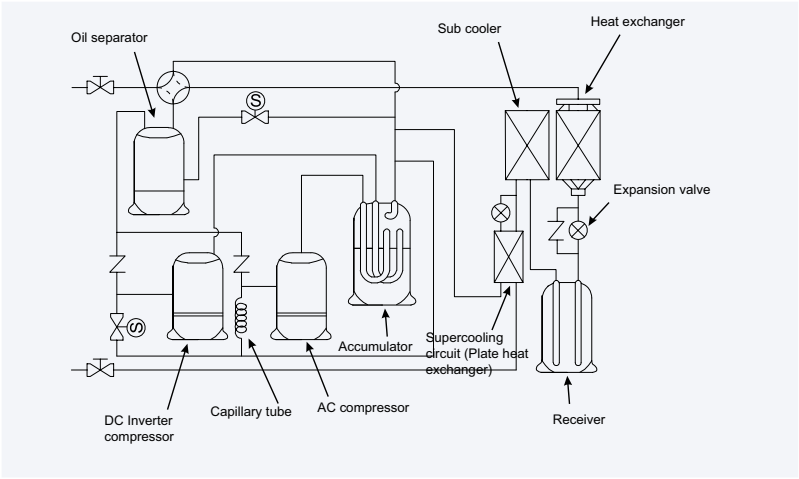
– Heat exchanger more efficient



– Supercooling circuit
The high efficiency plate type (FXN(E)) or double fin (FSN1(E)) of heat exchanger improves performance.

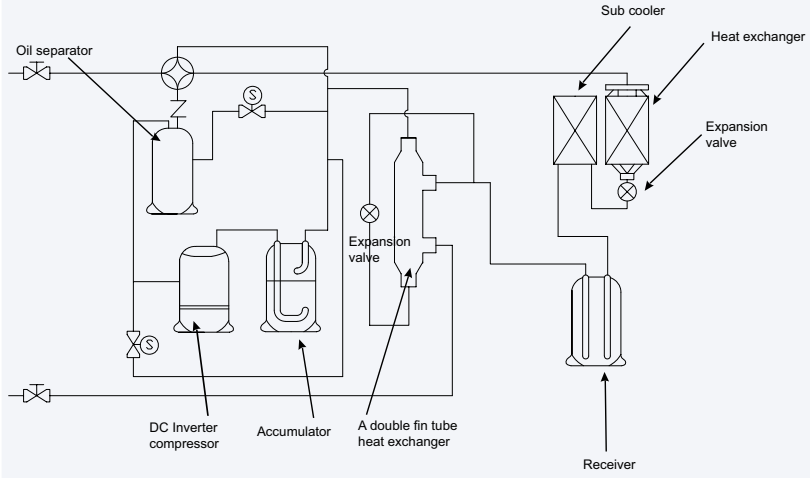
☛ Circuit for FSN(E):

FSN(1)(E) circuit



☛ Circuit for FSN1(E):

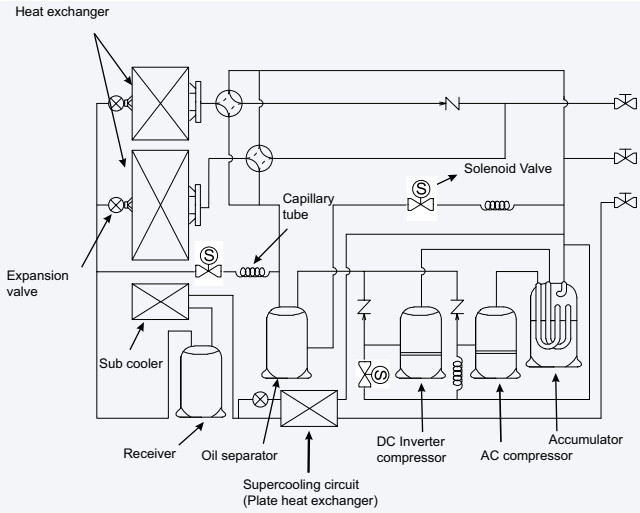
FSN1(E) circuit



☛ Main features of the units:

☛ Circuit for FXN(E):

FXN(E) circuit



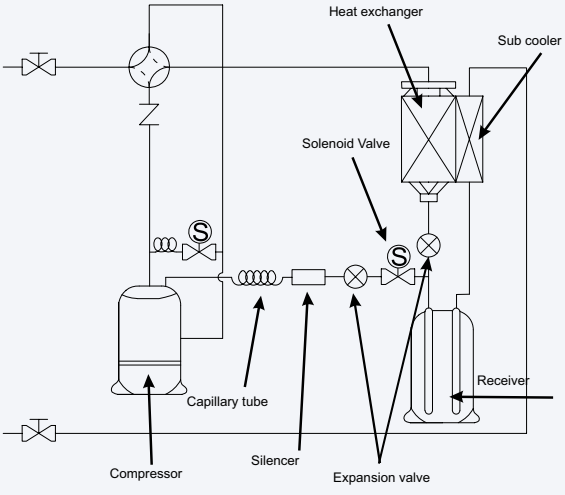
◈ **High efficiency refrigerant cycle for FSVNE**

– Supercooling Circuit

The new FSVNE series has increased efficiency in the refrigerant cycle. HITACHI has developed a new and more efficient heat exchanger.

☛ Circuit for FSVNE:

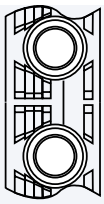
FSVNE circuit



☛ Main features of the units:

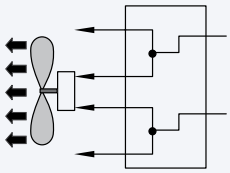
– New aluminum fins for the heat exchanger

The new smaller flow resistance heat exchanger using new aluminum fins reduces pressure loss in pipes by means of an optimized path alignment in order to save energy. Also, it has achieved a lower sound operation due to lower fan revolution.



Air flow resistance decreased by 20%.

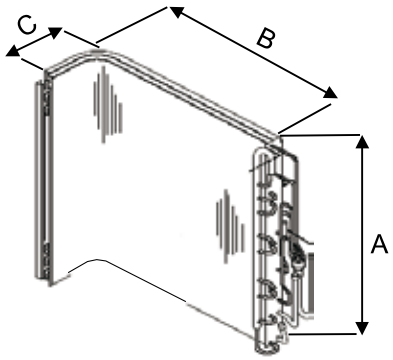
The optimized slit shape minimizes noise by reducing air intake resistance.



Pressure drop in heat exchanger pipe has been decreased.

– Heat exchanger with bigger exchange surface

The new bigger heat exchanger increases efficiency. A lower flow resistance provides more silent operation.

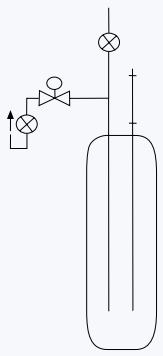


PREVIOUS MODEL			NEW MODEL	
Dim (mm)	3/4FSVG	5FSVG	3FSVNE	4/5FSVNE
A	760	1200	760	1200
B	691	691	691	791
C	234	234	234	234

– New Liquid Injection System

New high pressure liquid injection directly to the compressor provides discharge pressure increasing and sufficient capacity in heating at low ambient temperature.

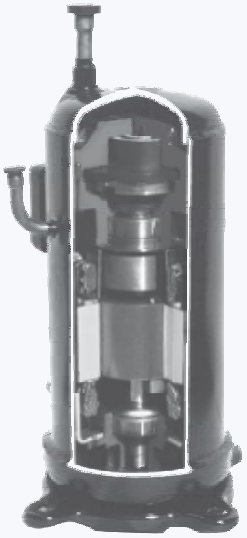
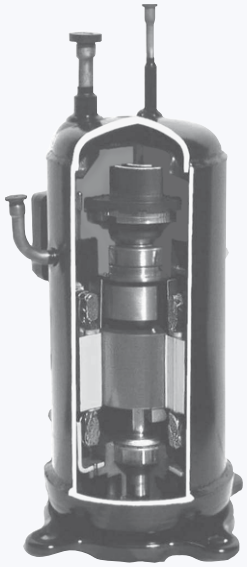
Detail of receiver and Liquid bypass



☛ Main features of the units:

HITACHI compressor

◈ Highly efficient scroll compressor

FSN(1)(E)/FXN(E)	FSVNE
	

HITACHI's exclusive Scroll Compressor

– The strong points of the new Hitachi high pressure scroll compressor

1. Optimized bearing (2-bearing structure) greatly improves reliability.
2. Asymmetric scroll lap largely reduces intake and leakage loss.
3. Oil return circuit design largely reduces heat loss.
4. Improved lubrication system to provide accurate oiling for the compressor.

– High Pressure Shell

1. It acts as an oil separator reducing the amount of oil circulating in the refrigeration system giving better heat exchanger efficiency.
2. Motor heat is not added to the suction gas before compression, which reduces the discharge gas temperature. This is particularly important at low suction temperatures. The discharge gas adequately cools the motor.
3. Refrigerant cannot enter the shell during the off cycle causing oil dilution and oil foaming at start up.

– Lubrication

HITACHI compressors have been developed to be the most efficient and reliable ones on the market. Lubrication is one of the most important points in the life of a compressor. HITACHI has developed a system based on the pressure differences between suction and discharge, with a system using a support pump at the base of the compressor. Lubrication is perfect, proving to be highly reliable throughout its range of operation, even at low frequencies

☛ Main features of the units:

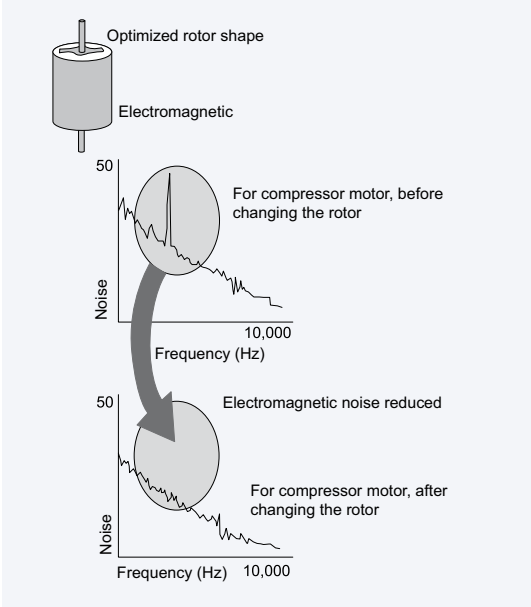
Scroll Compressor

Exchange fin

◆ **Low noise level**

– Noise and vibration

1. The scroll compressor offers low sound and vibration levels because the compression points are spread evenly over the compression stroke, resulting in a very flat torque curve.
2. The minimal number of components used coupled with a high-pressure shell that acts as a silencer further enhances the noise reduction.
3. Because the noise pattern is high-frequency sound it is simple to reduce it to a very low level by using an insulation jacket.
4. Reducing electromagnetic compressor noise.



– Protection against liquid return

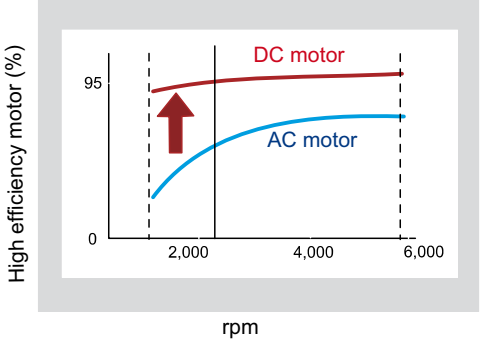
When the compressor is at rest, the moving scroll rests on the casing. When the compressor starts to run, the pressure in the chamber under the scroll builds up through two bleed holes in the medium pressure section of the compression stroke. This pressure then forces the scroll up against the housing and seals the compression chamber. If liquid returns to the compressor, the resulting increase in pressure forces the Scroll downwards breaking the seal which allows the liquid to pass back into the compressor body where it will boil off due to the higher temperature.

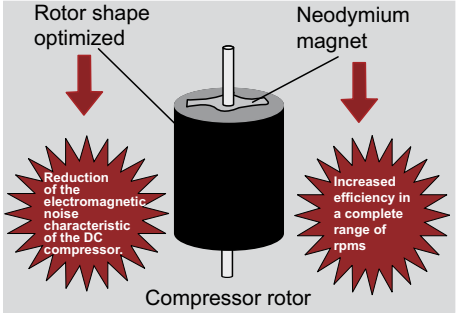
◆ **Efficiency**

– DC Compressor using Neodymium Magnet.

The use of a DC compressor improves the performance at around the 30 –40 Hz range where the operation time of the inverter compressor is longest. Additionally, to suppress electromagnetic noise interference and achieve low noise, the rotor has been divided into two parts and the electric pole displaced.

There have been significant improvements in low-speed features, which affect the annual running cost.



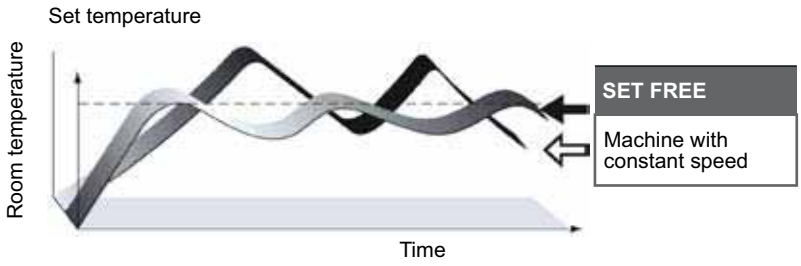


☛ Main features of the units:

◈ Inverter control

The inverter controls compressor speeds from 30 Hz to 115 Hz, quickly reaching the set temperature and maintaining a stable energy-saving operation, thus reducing the noise since the compressor is not running continuously.

Diagram of operation (in heating mode):

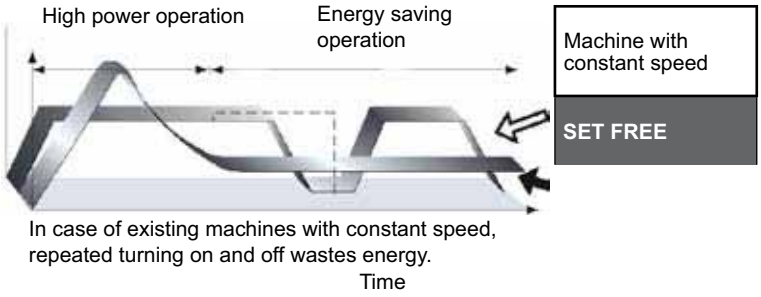


– In the case of Set-Free

Quickly reaches set temperature with high power, then maintains stable energy-saving operation.

– In the case of other constant speed machines:

Slowly reaches the set temperature, then turns on and off repeatedly to maintain the temperature, causing uneconomical operation and “power waste”

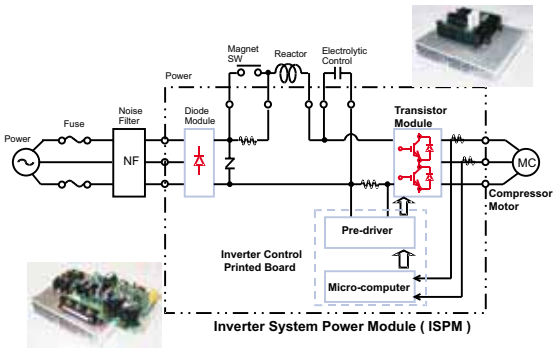


◈ New DC inverter PCB (Only for FSVNE / FXN(E) Units)

Newly developed Digital PAM 180º control and New PWM without speed and current sensors.

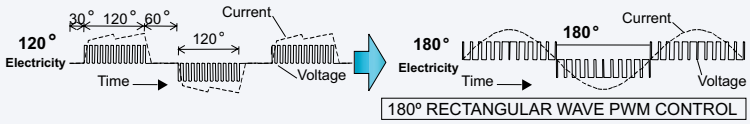
These two new designs reduce harmonic currents.
At the same time they reduce volume and weight by 50%.

Diagram of operation:



☛ Main features of the units:

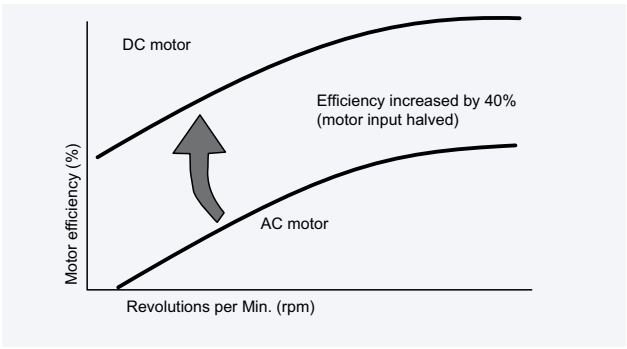
– DC Motor Drive Control System



◈ **Enhanced fan motor features**

– DC Fan Motor with Outstanding Efficiency

The DC fan motor greatly improves efficiency compared to conventional products with AC motors. In addition, air blasts are reduced by controlling the rotation speed of the fan. Stable operation is provided against strong head winds of approximately 10 m/s on the front face of the outdoor unit.



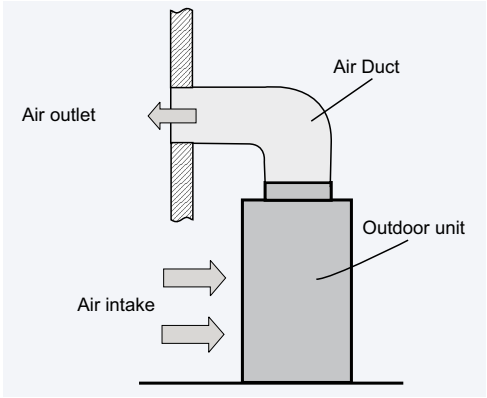
– PWM (pulse width modulation) concept of speed control

The switching element (a power MOSFET) switches back and forth at a frequency of several tens of kHz. This controls the ON/OFF duty rate per cycle and changes the voltage applied to the fan motor to control the rotation speed.

◈ **Enhanced fan motor features for FSN(1)(E)/FXN(E)**

– High static pressure

Hitachi uses a long bell mouth to achieve an increase static pressure of up to 60 Pa.



☛ Main features of the units:

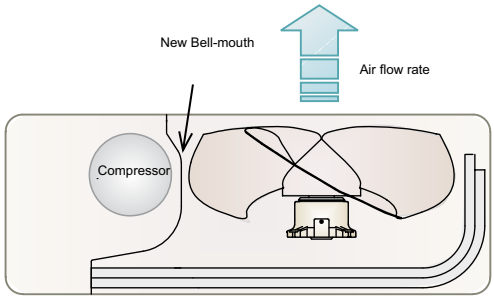
– New fan propeller

Hitachi uses high technology to achieve the lowest noise. The new two bladed propeller, rather then four bladed, achieves a reduction of 2 dB of noise level, increases air flow volume by up to 25%, and at the same time provides an important reduction of motor power input (approximately in 8%).

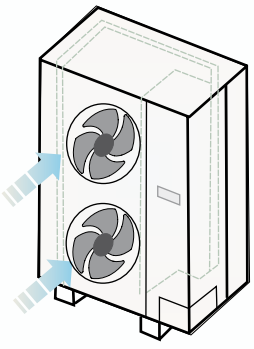
1

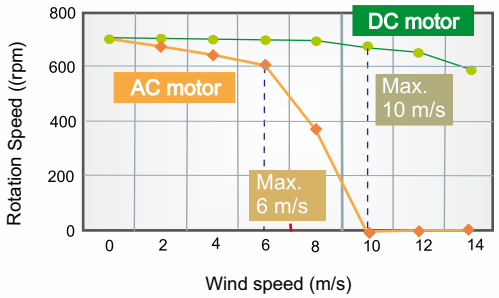
◈ **Enhanced fan motor features for FSVN(E)**

– The following technologies allow to optimize sound levels:
  – SuperHigh Stream Fan
  – Delta shaped edges reduce fan size and noise.
  – Bellmouth
  – The bell-mouth minimizes flow friction, resulting in smooth flow and low sound.



– Stable Operations against Strong Winds
  A headwind of 6 m/s or faster will slow down the rotation speed sharply in conventional AC motors, but with a DC motor, the rotation speed will hardly change even for a headwind of up to 10 m/s.


Head wind



☛ Main features of the units:

– Top Class Silence Operation
HITACHI uses the latest high technologies to efficiently obtain a lower sound output than their competitors. The applications of the following technologies allow HITACHI to achieve the results shown in the following table.

Outdoor unit model	Heating Mode (dB-A)	Cooling Mode (dB-A)	Night Shift Mode (dB-A)
RAS-3FSVG	47	46	42
RAS-3FSVNE	46	45	41
RAS-4FSVG	48	47	43
RAS-4FSVNE	48	47	43
RAS-5FSVG	51	50	46
RAS-5FSVNE	50	49	45

CSNET-WEB

PC-P1HE/PC-P2HTE

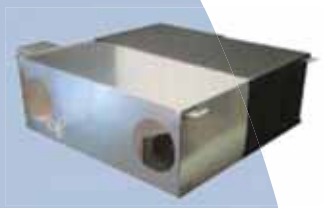
◆ **Large variety of operating possibilities**

The use of these machines together with CSNET WEB can increase the performance of these installations even more by the following:

– With a program that avoids continuous functioning in rooms without users and allows heating and cooling just before rooms are occupied.
– Limiting the set temperatures, which means that machines do not work at maximum capacity when comfort does not require it.
– Locking functions from the central control, thus avoiding incorrect or ineffective use of the units.
– All these and many more functions mean that the use of the installation as a whole can be optimized.
– And it is worth remembering that because of the wide range of indoor units you can always find the unit with the power and type of installation that best suits your needs.

☛ Main features of the units:

☛ KPI:



1.6.3. Complementary systems

Hitachi has various complementary systems that are very useful for air conditioning.

◆ KPI total heat exchanger system

HITACHI has developed an energy-recovery system. The system is based on recovering heat from the indoor-outdoor temperature and moisture differential. In some installations the continuous renewal of air through the input of outdoor air to ensure maximum user comfort leads to energy waste. The KPI unit was developed to avoid this waste.

KPI is a unit that reduces energy loss produced by the input of fresh air without modifying the quality of the indoor air.

An installation with KPI not only keeps the temperature stable, but the humidity is maintained as much as possible as well.

We have developed a large range of units to provide a suitable system for any type of installation.

Model	KPI-2521	KPI-5021	KPI-8021	KPI10021
Flow (m^3/h)	250	500	800	1.000
Temperature exchange efficiency	83	82	81	81

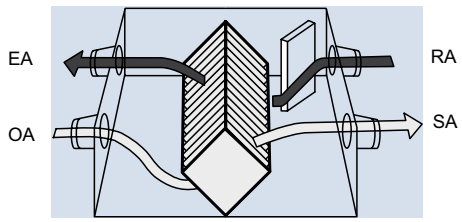
The KPI unit can the combined with any other indoor unit.

◈ System description

The KPI unit has different operating modes which are configured via the remote control switch.

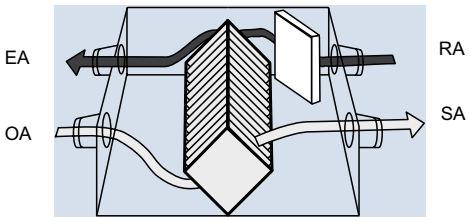
– Total heat exchange mode

Air returned from the indoor side passes through the total heat exchanger and is exhausted outdoors.



– Ventilation Mode

Air returned from the indoor side is exhausted without heat exchange.

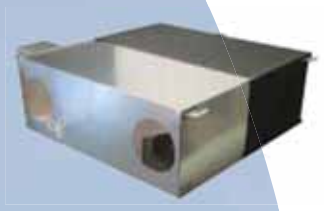


NOTES:

OA: Outdoor fresh air
EA: Exhaust air
SA: Supply air
RA: Return air

☛ Main features of the units:

☛ KPI:



– Automatic choice mode
Operation mode is automatically selected according to the temperature (outdoor, indoor and set temperature) conditions.

Operation mode	Temperature Conditions	KPI operation mode
Cooling	Indoor temp > outdoor temp	Bypass ventilation mode
	Indoor temp < outdoor temp	Total heat exchange mode
Heating mode	Indoor temp > outdoor temp	Total heat exchange mode
	Indoor temp < outdoor temp	Bypass ventilation mode

◈ **Features**

– Low noise level, only the fans are moving
– Flexible installation, the inlets of the ducts of the outdoor part can change position (two directions)
– The heat exchanger is made up of highly permeable materials that allow an interchange of latent and perceivable heat between the indoor and the outdoor air. A simple structure and the absence of moving parts reduces the risk of mixing the indoor and outdoor air.

◈ **Optional functions:**

The KPI unit has two operating modes which are configured via the remote control switch. These options are:

– Precooling and Preheating Period:
The timer function makes it possible to delay the startup of the unit between 30 and 60 minutes. When a system starts up, at first ventilation is not necessary and the unit starts up some time later.

– Increasing Supply Air Volume:
This option increases the supply air during the operation of the total heat exchanger. This makes the room pressure higher than the surrounding rooms and prevents polluted air and smells from entering into the room.

☛ Main features of the units:

☛ EF:

☛ Example for RPI-5HP

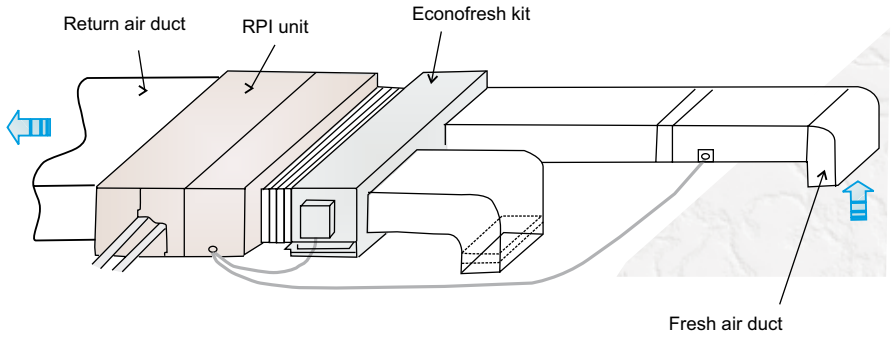
◆ Econofresh kit

The new Econofresh kit is an intelligent accessory device that is easily installed. It renews room air and saves energy.

No refrigerant cycle is required. A direct RPI-5HP unit return duct connection is used instead.

The Econofresh kit can provide up to 100% fresh air and has the ability to provide “free cooling” through the damper when the outdoor temperature is below the indoor setting temperature.

This system will not only maintain the correct room temperature and provide fresh air, but also natural cooling. It therefore increases energy savings.



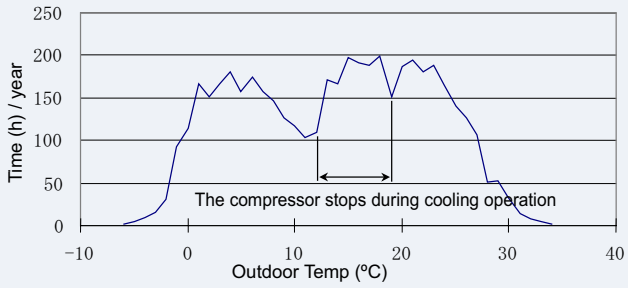
◈ Operation mode

Fresh air cooling during intermediate seasons saves energy.

This unit uses an economizer for cooling, which takes in fresh air if the outdoor temperature is cooler than the indoor air, as shown in the graph below.

In this situation, no compressor is used and thus a remarkable amount of energy is saved.

Graph example of cold region temperature:



Power input is reduced by more than 20% during cooling operation mode when using the Econofresh kit + RPI -5.0FSNE instead of the UTOPIA RPI system.

– Fresh clean air revives your room
A fresh air intake system keeps the air in a room always clean.
The optional CO_2 sensor can sense the degree of pollution of the air in the room and automatically control the fresh air flow.

NOTE:

In the case that the Outdoor Air Temperature is lower than 3ºC, Fresh Outdoor Air rate will decrease.

Damper air-flow control provides comfortable cooling

A micro-computer controls the angle of the damper according to both room air temperature and outdoor temperature, adjusting the fresh air flow and keeping the room temperature constant.

HITACHI
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2. General data

This chapter gives general data about indoor and outdoor units and complementary systems of the Hitachi's SET FREE FSN(1)(E)/FXN(E)/FSVNE series.

Contents

2.1. General data for indoor units

2.1.1. RCI – 4-way cassette type

RCI
1~6 HP

RCI MODEL			RCI-1.0 FSN1E	RCI-1.5 FSN1E	RCI-2.0 FSN1E	RCI-2.5 FSN1E	RCI-3.0 FSN1E	RCI-3.5 FSN1E	RCI-4.0 FSN1E	RCI-5.0 FSN1E	RCI-6.0 FSN1E
Electric power supply			230 V, 1~ 50Hz								
Nominal cooling capacity		kW	2.80	4.50	5.60	7.10	8.00	9.00	11.20	14.00	16.00
Nominal heating capacity		kW	3.20	5.00	6.30	8.50	9.00	10.00	12.50	16.00	18.00
Air flow rate (Hi/Me/Lo)		m^3/min	13/12/11	15/14/12	16/14/12	20/17/15	26/23/20	26/23/20	32/28/24	34/29/25	37/32/27
Fan Motor (output)		W	56	56	56	56	56	56	108	108	108
Sound pressure level (Hi/ Me/ Lo)		dB(A)	32/30/28	32/30/28	32/30/28	32/30/28	34/32/30	34/32/30	38/35/33	39/37/35	42/40/36
External dimensions	Height	mm	248	248	248	248	298	298	298	298	298
	Width	mm	840	840	840	840	840	840	840	840	840
	Depth	mm	840	840	840	840	840	840	840	840	840
Net weight		Kg	23	23	24	24	26	26	29	29	29
Refrigerant		-	R410A (nitrogen charged in factory for corrosion-resistance)								
Connections Refrigerant Piping		-	Connection with flare nuts								
Size	Liquid Piping	mm (inches)	ø6.35 (1/4)	ø6.35 (1/4)	ø6.35 (1/4)	ø9.53 (3/8)	ø9.53 (3/8)	ø9.53 (3/8)	ø9.53 (3/8)	ø9.53 (3/8)	ø9.53 (3/8)
	Gas piping	mm (inches)	ø12.7 (1/2)	ø12.7 (1/2)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)
Condensate Drain Connection		mm	ø32 OD	ø32 OD	ø32 OD	ø32 OD	ø32 OD	ø32 OD	ø32 OD	ø32 OD	Ø32 OD
Maximum current		A	5	5	5	5	5	5	5	5	5
Packing measurement		m^3	0.22	0.22	0.22	0.22	0.26	0.26	0.26	0.26	0.26
Adaptable air panel model		-	P-G23WA2								
Color (Munsell code)		-	Spring. White (4.1Y8.5 / 0.7)								
External panel dimensions	Height	mm	37	37	37	37	37	37	37	37	37
	Width	mm	950	950	950	950	950	950	950	950	950
	Depth	mm	950	950	950	950	950	950	950	950	950
Net weight		Kg	6	6	6	6	6	6	6	6	6
Packing measurement		m^3	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Remote Control SW		-	PC-P1HE/PC-P2HTE								

OD: Outer diameter

NOTE:

1. The nominal cooling and heating capacity is the combined capacity of the SET FREE system, and is based on JIS 158616.

Operation condition		Cooling	Heating
Indoor air inlet temperature	DB	27 °C	20 °C
	WB	19 °C	
Outdoor air inlet temperature	DB	35 °C	7 °C
	WB		6 °C

Piping Length: 7.5 meters; piping height: 0 meters
DB: dry bulb; WB: Wet Bulb

2. The Sound Pressure Level is based on following conditions:
   - 1.5 meters beneath the unit.
   - Voltage of the power source is 230V.

   The above data was measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.

3. Panel P-G23WA2 is equipped with an automatic swing louver system.

2.1.2. RCI (Mini) – 4-way cassette type

RCIM
1~2 HP

RCIM MODEL			RCIM-1.0 FSN	RCIM-1.5 FSN	RCIM-2.0 FSN
Electric power supply			1~230V, 50 Hz		
Nominal cooling capacity		kW	2.80	4.50	5.60
Nominal heating capacity		kW	3.20	5.00	6.30
Air flow rate (Hi/Me/Lo)		m^3/min	13/12/11	15/13.5/12	16/14/12
Fan Motor (output)		W	52	52	52
Sound pressure level (Hi/ Me/ Lo)		dB(A)	36/34/32	38/35/33	42/39/37
External dimensions	Height	mm	295	295	295
	Width	mm	570	570	570
	Depth	mm	570	570	570
Net weight		Kg	17	17	17
Refrigerant		-	R410A (nitrogen charged in factory for corrosion-resistance)		
Connections Refrigerant Piping		-	Connection with flare nuts		
Size	Liquid Piping	mm (inches)	ø6.35 (1/4)	ø6.35 (1/4)	ø6.35 (1/4)
	Gas piping	mm (inches)	ø12.7 (1/2)	ø12.7 (1/2)	ø15.88 (5/8)
Condensate Drain Connection		mm	ø32 OD	ø32 OD	ø32 OD
Maximum current		A	5	5	5
Packing measurement		m^3	0.13	0.13	0.13
Adaptable air panel model		-	P-N23WAM		
Color (Munsell code)		-	Plaster White		
External panel dimensions	Height	mm	35	35	35
	Width	mm	700	700	700
	Depth	mm	700	700	700
Net weight		Kg	3.5	3.5	3.5
Packing measurement		m^3	0.07	0.07	0.07
Remote Control SW		-	PC-P1HE/PC-P2HTE		

OD: Outer Diameter

NOTE:

1. The nominal cooling and heating capacity is the combined capacity of the SET FREE system, and is based on JIS 158616.

Operation condition		Cooling	Heating
Indoor air inlet temperature	DB	27 °C	20 °C
	WB	19 °C	
Outdoor air inlet temperature	DB	35 °C	7 °C
	WB		6 °C

Piping Length: 7.5 meters; piping height: 0 meters
DB: dry bulb; WB: Wet Bulb

2. The Sound Pressure Level is based on following conditions:
   - 1.5 meters beneath the unit.
   - Voltage of the power source is 230V.

   The above data was measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.

3. Panel P-N23WAM is equipped with an automatic swing louver system.

2.1.3. RCD – 2-way cassette type

RCD
1~5 HP

RCD MODEL			RCD-1.0 FSN	RCD-1.5 FSN	RCD-2.0 FSN	RCD-2.5 FSN	RCD-3.0 FSN	RCD-4.0 FSN	RCD-5.0 FSN
Electric power supply			230 V, 1~ 50Hz						
Nominal cooling capacity		kW	2.80	4.50	5.60	7.10	8.00	11.20	14.00
Nominal heating capacity		kW	3.20	5.00	6.30	8.50	9.00	12.50	16.00
Air flow rate (Hi/Me/Lo)		m^3/min	8/7/6	12/10/8.5	15/13/11	19/16/14	22/19/16	28/24/21	34/29/25
Fan Motor (output)		W	35	35	35	55	55	35x2	35x2
Sound pressure level (Hi/ Me/ Lo)		dB(A)	34/32/30	35/32/30	35/32/30	38/34/31	40/36/33	40/36/33	43/40/36
External dimensions	Height	mm	298	298	298	298	298	298	298
	Width	mm	860	860	860	860	860	1420	1420
	Depth	mm	620	620	620	620	620	620	620
Net weight		Kg	27	27	27	30	30	48	48
Refrigerant		-	R410A (nitrogen charged in factory for corrosion-resistance)						
Connections Refrigeration piping		-	Connection with flare nuts						
Size	Liquid Piping	mm (inches)	ø6.35 (1/4)	ø6.35 (1/4)	ø6.35 (1/4)	ø9.53 (3/8)	ø9.53 (3/8)	ø9.53 (3/8)	ø9.53 (3/8)
	Gas piping	mm (inches)	ø12.7 (1/2)	ø12.7 (1/2)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)
Condensate Drain Connection		mm	ø32 OD	ø32 OD	ø32 OD	ø32 OD	ø32 OD	ø32 OD	ø32 OD
Maximum current		A	5	5	5	5	5	5	5
Packing measurement		m^3	0,23	0,23	0,23	0,23	0,23	0,37	0,37
Standard Accessories		-	Suspension brackets						
Adaptable air panel model		-	P-G23DWA1					P-G46DWA1	
Color (Munsell code)		-	Silky white (2.5Y 8.9 / 1)						
External panel dimensions	Height	mm	30+10	30+10	30+10	30+10	30+10	30+10	30+10
	Width	mm	1100	1100	1100	1100	1100	1660	1660
	Depth	mm	710	710	710	710	710	710	710
Net weight		Kg	6	6	6	6	6	8	8
Packing measurement		m^3	0,10	0,10	0,10	0,10	0,10	0,15	0,15
Remote Control SW		-	PC-P1HE/PC-P2HTE						

OD: Outer diameter

NOTE:

1. The nominal cooling and heating capacity is the combined capacity of the SET FREE system, and is based on JIS 158616.

Operation condition		Cooling	Heating
Indoor air inlet temperature	DB	27 °C	20 °C
	WB	19 °C	
Outdoor air inlet temperature	DB	35 °C	7 °C
	WB		6 °C

Piping Length: 7.5 meters; piping height: 0 meters
DB: dry bulb; WB: Wet Bulb

2. The Sound Pressure Level is based on following conditions:
   - 1.5 meters beneath the unit.
   - Voltage of the power source is 230V.

   The above data was measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.
3. Panels P-G23WA1 and P-G46EA1 are equipped with an automatic swing louver system.

2.1.4. RPC – Ceiling type

RPC
2~6 HP

RPC MODEL			RPC-2.0 FSNE	RPC-2.5 FSNE	RPC-3.0 FSNE	RPC-3.5 FSNE	RPC-4.0 FSNE	RPC-5.0 FSNE	RPC-6.0 FSNE
Electric power supply			230 V, 1~ 50Hz						
Nominal cooling capacity		kW	5.60	7.10	8.00	9.00	11.20	14.00	16.00
Nominal heating capacity		kW	6.30	8.50	9.00	10.00	12.50	16.00	18.00
Air flow rate (Hi/Me/Lo)		m^3/min	15/13/10	18/16/12	21/17/15	21/17/15	30/24/19	35/28/21	37/32/27
Fan Motor (output)		W	75	75	75	75	145	145	145
Sound pressure level (Hi/ Me/ Lo)		dB(A)	44/42/38	46/43/41	48/45/42	48/45/42	49/45/39	49/46/41	50/48/44
External dimensions	Height	mm	163	163	163	163	225	225	225
	Width	mm	1094	1314	1 314	1314	1314	1574	1574
	Depth	mm	625	625	625	625	625	625	625
Net weight		Kg	28	31	31	31	35	41	41
Color (Munsell code)		-	Spring White (4.1Y 8.5 / 0.7)						
Refrigerant		-	R410A (nitrogen charged in factory for corrosion-resistance)						
Connections Refrigerant Piping		-	Connection with flare nuts						
Size	Liquid Piping	mm (inches)	ø6.35 (1/4)	ø9.53 (3/8)	ø9.53 (3/8)	ø9.53 (3/8)	ø9.5 (3/8)	ø9.53 (3/8)	Ø9.53 (3/8)
	Gas piping	mm (inches)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)
Condensate Drain Connection		mm	ø25 OD	ø25 OD	ø25 OD	ø25 OD	ø25 OD	ø25 OD	ø25 OD
Maximum current		A	5	5	5	5	5	5	5
Packing measurement		m^3	0.24	0.29	0.29	0.29	0.36	0.43	0.43
Remote Control SW		-	PC-P1HE/PC-P2HTE						

OD: Outer diameter

NOTE:

1. The nominal cooling and heating capacity is the combined capacity of the SET FREE system, and is based on JIS 158616.

Operation condition		Cooling	Heating
Indoor air inlet temperature	DB	27 °C	20 °C
	WB	19 °C	
Outdoor air inlet temperature	DB	35 °C	7 °C
	WB		6 °C

Piping Length: 7.5 meters; piping height: 0 meters
DB: dry bulb; WB: Wet Bulb

2. The Sound Pressure Level is based on following conditions:
   - 1 meter below the unit.
     1 meter from the impulse louver.
   - Voltage of the power source is 230V.

   The above data was measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.

2.1.5. RPI – In-the-Ceiling type (RPI-0.8~6.0FSN1E)


RPI
0.8~1.5 HP


RPI
2~6 HP

RPI MODEL			RPI-0.8 FSN1E	RPI-1.0 FSN1E	RPI-1.5 FSN1E	RPI-2.0 FSN1E	RPI-2.5 FSN1E	RPI-3.0 FSN1E	RPI-3.5 FSN1E	RPI-4.0 FSN1E	RPI-5.0 FSN1E	RPI-6.0 FSN1E
Electric power supply			230 V, 1~ 50Hz									
Nominal cooling capacity		kW	2.20	2.80	4.50	5.60	7.10	8.00	9.00	11.20	14.00	16.00
Nominal heating capacity		kW	2.50	3.20	5.00	6.30	8.50	9.00	10.00	12.50	16.00	18.00
Airflow Rate (Hi/Me/Lo) to (SP-00)		m³/min	8/8/7	8/8/7	10/10/9	16/15/13	19/17/15	22/20/17	22/20/17	30/28/25	35/32/28	36/33/29
Static pressure (Hi) to (SP-01/SP-00/SP-02)		Pa	40/25/25	40/25/25	40/25/25	80/50/25	80/50/25	120/80/40	120/80/40	120/80/25	120/80/25	120/80/25
Fan Motor (output)		W	40	40	55	65	65	150	150	225	225	385
Sound pressure level (Hi/Me/Lo) to (SP-00)		dB(A)	34/34/31	34/34/31	35/35/32	33/31/29	35/33/30	35/35/31	35/35/31	37/36/35	39/38/36	40/39/38
Sound Power Level		dB(A)	55	55	56	59	60	60	60	62	63	64
External dimensions	Height	mm	197	197	197	274	274	274	274	274	274	274
	Width	mm	984	984	984	1074	1074	1074	1074	1464	1464	1464
	Depth	mm	576	576	576	643	643	643	643	643	643	643
Net weight		Kg	33.5	33.5	33.5	43	45	45	45	51	52	52
Refrigerant		-	R410A (nitrogen charged in factory for corrosion-resistance)									
Refrigerant piping connection		-	Connection with flare nuts									
Size	Liquid Piping	mm (inches)	ø6.35 (1/4)	ø6.35 (1/4)	ø6.35 (1/4)	ø6.35 (1/4)	ø9.53 (3/8)	ø9.53 (3/8)	ø9.53 (3/8)	ø9.53 (3/8)	ø9.53 (3/8)	ø9.53 (3/8)
	Gas piping	mm (inches)	ø12.7 (1/2)	ø12.7 (1/2)	ø12.7 (1/2)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)
Condense drain		mm	ø32 OD	ø32 OD	ø32 OD	ø32 OD	ø32 OD	ø32 OD	ø32 OD	ø32 OD	ø32 OD	ø32 OD
Maximum current		A	5	5	5	5	5	5	5	5	5	5
Packing measurement		m³	0.16	0.16	0.16	0.36	0.36	0.36	0.36	0.48	0.48	0.48
Standard accessories		-	Air Filter, drain pump.									
Remote Control SW		-	PC-P1HE/PC-P2HTE									

OD: Outer diameter

SP: Static pressure

NOTE:

1. The nominal cooling and heating capacity is the combined capacity of the SET FREE system, and is based on JIS 158616.

Operation condition		Cooling	Heating
Indoor air inlet temperature	DB	27 °C	20 °C
	WB	19 °C	
Outdoor air inlet temperature	DB	35 °C	7 °C
	WB		6 °C

Piping Length: 7.5 meters; piping height: 0 meters

DB: dry bulb; WB: Wet Bulb

2. The Sound Pressure Level is based on following conditions:
   - 1.5 meters beneath the unit (no ceiling under the unit), 1 m from suction duct and 2 m from discharge duct.
   - Voltage of the power source is 230 V.

   The above data was measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.

2.1.6. RPI – In-the-Ceiling type (RPI-8.0/10.FSNE)

RPI
8/10 HP

RPI MODEL			RPI-8.0 FSNE	RPI-10.0 FSNE
Electric power supply			230 V, 1~ 50Hz	
Nominal cooling capacity		kW	22.40	28.00
Nominal heating capacity		kW	25.00	31.50
Airflow Rate (Hi/Me/Lo) to (SP-00)		m³/min	66/62/58	75/71/66
Static pressure (Hi) to (SP-01/SP-00/SP-02)		Pa	220/180/-	220/180/-
Fan Motor (output)		W	1250	1250
Sound pressure level (Hi/Me/Lo) to (SP-00)		dB(A)	54/54/51	55/55/51
Sound Power Level		dB(A)	73	74
External dimensions	Height	mm	475	475
	Width	mm	1580	1580
	Depth	mm	600	600
Net weight		Kg	85	87
Refrigerant		-	R410A (nitrogen charged in factory for corrosion-resistance)	
Refrigerant piping connection		-	Brazed connection	
Size	Liquid Piping	mm (inches)	Ø9.53 (3/8)	Ø9.53 (3/8)
	Gas piping	mm (inches)	Ø19.05 (3/4)	Ø22.2 (7/8)
Condensate Drain Connection		mm	ø25 OD	ø25 OD
Maximum current		A	10	10
Packing measurement		m³	0.5	0.5
Standard accessories		-	Air Filter	
Remote Control SW		-	PC-P1HE/PC-P2HTE	

OD: Outer diameter

SP: Static pressure

NOTE:

1. The nominal cooling and heating capacity is the combined capacity of the SET FREE system, and is based on JIS 158616.

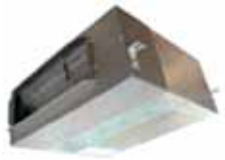
Operation condition		Cooling	Heating
Indoor air inlet temperature	DB	27 °C	20 °C
	WB	19 °C	
Outdoor air inlet temperature	DB	35 °C	7 °C
	WB		6 °C

Piping Length: 7.5 meters; piping height: 0 meters
DB: dry bulb; WB: Wet Bulb

2. The Sound Pressure Level is based on following conditions:
   - 1.5 meters beneath the unit (no ceiling under the unit), 1 m from suction duct and 2 m from discharge duct.
   - Voltage of the power source is 230V.

   The above data was measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.

2.1.7. RPIM – In-the-Ceiling type (RPIM-0.8/1.0FSN1E)



RPI
0.8/1.0 HP

RPI MODEL			RPIM-0.8 FSN1E	RPIM-1.0 FSN1E
Electric power supply			230 V, 1~ 50Hz	
Nominal cooling capacity		kW	2.20	2.80
Nominal heating capacity		kW	2.50	3.20
Air flow rate (Hi/Me/Lo) (SP-00)		m³/min	8/8/6	8/8/6
Static pressure Hi(HSP)/Hi(LSP)		Pa	50/15	50/15
Fan motor		W	25	25
Sound pressure level (Hi/Lo)		dB(A)	31/27	31/27
Sound Power Level (HI/LO)		dB(A)	50	50
External dimensions	Height	mm	274	274
	Width	mm	702	702
	Depth	mm	600	600
Net weight		Kg	30	30
Refrigerant		-	R410A (nitrogen charged in factory for corrosion-resistance)	
Refrigerant piping connection		-	Connection with flare nuts	
Size	Liquid Piping	mm (in)	Ø6.35 (1/4)	Ø6.35 (1/4)
	Gas piping	mm (in)	Ø12.70 (1/2)	Ø15.88 (5/8)
Condensate Drain Connection		mm	Ø25 DE	Ø25 DE
Maximum current		A	5.0	5.0
Packing measurement		m³	0.5	0.5
Standard accessories		-	Air Filter	
Remote Control SW		-	PC-P1HE/PC-P2HTE	

OD: Outer diameter

NOTE:

1. The nominal cooling and heating capacity is the combined capacity of the SET FREE system, and is based on JIS 158616.

Operation condition		Cooling	Heating
Indoor air inlet temperature	DB	27 °C	20 °C
	WB	19 °C	
Outdoor air inlet temperature	DB	35 °C	7 °C
	WB		6 °C

Piping Length: 7.5 meters; piping height: 0 meters
DB: dry bulb; WB: Wet Bulb

2. The Sound Pressure Level is based on following conditions:
   - 1.5 meters beneath the unit (no ceiling under the unit), 1 m from suction duct and 2 m from discharge duct.
   - Voltage of the power source is 230V.

   The above data was measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.

2.1.8. RPK – Wall type (RPK-1.0~4.0FSN2M)

RPK
1.0~4 HP

RPK MODEL			RPK-1.0 FSN2M	RPK-1.5 FSN2M	RPK-2.0 FSN2M	RPK-2.5 FSN2M	RPK-3.0 FSN2M	RPK-4.0 FSN2M
Electric power supply			230 V, 1~ 50Hz					
Nominal cooling capacity		kW	2.80	4.50	5.60	7.10	8.00	11.20
Nominal heating capacity		kW	3.20	5.00	6.30	8.50	9.00	12.50
Air flow rate (Hi/Me/Lo)		m³/min	10/8/7	11/10/9	14/12/10	17/16/14	17/16/14	22/20/17
Fan Motor (output)		W	20	20	30	30	30	30
Sound Pressure Level (Hi/Me/Lo)		dB(A)	38/36/34	40/38/36	41/39/37	43/40/37	43/40/37	49/46/43
External dimensions	Height	mm	280	280	295	333	333	333
	Width	mm	780	780	1030	1150	1150	1150
	Depth	mm	210	210	208	245	245	245
Net weight		Kg	10	10	12	18	18	18
Color		-	Pearl white (6,8GY 8.5 / 0.1)					
Refrigerant		-	R410A (nitrogen charged in factory for corrosion-resistance)					
Connections Refrigerant Piping		-	Connection with flare nuts					
Size	Liquid Piping	mm (inches)	Ø6.35 (1/4)	Ø6.35 (1/4)	Ø6.35 (1/4)	Ø9.53 (3/8)	Ø9.53 (3/8)	Ø9.53 (3/8)
	Gas piping	mm (inches)	Ø12.70 (1/2)	Ø12.70 (1/2)	Ø15.88 (5/8)	Ø15.88 (5/8)	Ø15.88 (5/8)	Ø15.88 (5/8)
Condensate Drain Connection		mm	Ø26 OD	Ø26 OD	Ø26 OD	Ø26 OD	Ø26 OD	Ø26 OD
Maximum current		A	5	5	5	5	5	5
Packing measurement		m³	0.07	0.07	0.11	0.13	0.13	0.13
Standard Accessories		-	Mounting brackets					
Remote Control SW		-	PC-LH3A or PC-P1HE/PC-P2HTE					

OD: Outer diameter

NOTE:

1. The nominal cooling and heating capacity is the combined capacity of the SET FREE system, and is based on JIS 158616.

Operation condition		Cooling	Heating
Indoor air inlet temperature	DB	27 °C	20 °C
	WB	19 °C	
Outdoor air inlet temperature	DB	35 °C	7 °C
	WB		6 °C

Piping Length: 7.5 meters; piping height: 0 meters
DB: dry bulb; WB: Wet Bulb

2. The Sound Pressure Level is based on following conditions:
   - 1 meter below the unit.
     1 meter from the impulse louver.
   - Voltage of the power source is 230V.

   The above data was measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.


RPF
1~2.5 HP


RPFI
1~2.5 HP

2.1.9. RPF and RPFI – Floor type and floor concealed type

RPF & RPFI MODELS			RPF-1.0 FSNE	RPF-1.5 FSNE	RPF-2.0 FSNE	RPF-2.5 FSNE	RPFI-1.0 FSNE	RPFI-1.5 FSNE	RPFI-2.0 FSNE	RPFI-2.5 FSNE
Electric power supply			230 V, 1~ 50Hz							
Nominal cooling capacity		kW	2.80	4.50	5.60	7.10	2.80	4.50	5.60	7.10
Nominal heating capacity		kW	3.20	5.00	6.30	8.50	3.20	5.00	6.30	8.50
Air flow rate (Hi/Me/Lo)		m^3/min	8.5/7/6	12/10/9	16/14/11	16/14/11	8.5/7/6	12/10/9	16/14/11	16/14/11
Fan Motor (output)		W	20	28	45	45	20	28	45	45
Sound pressure level (Hi/ Me/ Lo)		dB(A)	35/32/29	38/35/31	39/36/32	42/38/34	35/32/29	38/35/31	39/36/32	42/38/34
External dimensions	Height	mm	630	630	630	630	620	620	620	620
	Width	mm	1045	1170	1420	1420	848	973	1223	1223
	Depth	mm	220	220	220	220	220	220	220	220
Net weight		Kg	19	23	33	34	19	23	27	28
Color (Munsell code)		-	Spring. White (4.1Y8.5 / 0.7)							
Refrigerant		-	R410A (nitrogen charged in factory for corrosion-resistance)							
Connections Refrigerant Piping		-	Connection with flare nuts							
Size	Liquid Piping	mm (inches)	ø6.35 (1/4)	ø6.35 (1/4)	ø6.35 (1/4)	ø9.53 (3/8)	ø6.35 (1/4)	ø6.35 (1/4)	ø6.35 (1/4)	ø9.53 (3/8)
	Gas piping	mm (inches)	ø12.7 (1/2)	ø12.7 (1/2)	ø15.88 (5/8)	ø15.88 (5/8)	ø12.7 (1/2)	ø12.7 (1/2)	ø15.88 (5/8)	ø15.88 (5/8)
Condensate Drain Connection		mm	ø18.5 OD	ø18.5 OD	ø18.5 OD	ø18.5 OD	ø18.5 OD	ø18.5 OD	ø18.5 OD	ø18.5 OD
Maximum current		A	5	5	5	5	5	5	5	5
Packing measurement		m^3	0.22	0.24	0.29	0.29	0.22	0.23	0.25	0.25
Remote Control SW		-	PC-P1HE/PC-P2HTE							

OD: Outer Diameter

NOTE:

1. The nominal cooling and heating capacity is the combined capacity of the SET FREE system, and is based on JIS 158616.

Operation condition		Cooling	Heating
Indoor air inlet temperature	DB	27 °C	20 °C
	WB	19 °C	
Outdoor air inlet temperature	DB	35 °C	7 °C
	WB		6 °C

Piping Length: 7.5 meters; piping height: 0 meters
DB: dry bulb; WB: Wet Bulb

2. The Sound Pressure Level is based on following conditions:
   - 1 meter from the frontal surface of the unit. 1 meter from floor level.
   - Voltage of the power source is 230V.

   The above data was measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.

2.2. RAS – General data for outdoor units

2.2.1. FSN(1)(E) units


5 HP


8~12 HP


14~16 HP

◆ **Body size**

RAS MODEL			RAS-5 FSN	RAS-8 FSN1(E)	RAS-10 FSN1(E)	RAS-12 FSN1(E)	RAS-14 FSN1	RAS- 16 FSN1
Electric power supply			3~,380/415V, 50Hz					
Nominal cooling capacity		kW	14.00	22.40	28.00	33.50	40.00	45.00
Nominal heating capacity		kW	16.00	25.00	31.50	37.50	45.00	50.00
Energy efficiency rate (EER)		-	3.45	3.71	3.60	3.63	3.27	3.10
COP		-	3.87	4.58	4.16	4.31	4.32	4.27
Color (Munsell code)		-	Natural Grey (1.0Y8.5/0.5)					
Sound Pressure Level (night mode)		dB(A)	52/(47)	56/(51)	58/(53)	60/(55)	61/(56)	62/(57)
External dimensions	Height	mm	1645	1745	1745	1745	1745	1745
	Width	mm	630	950	950	950	1210	1210
	Depth	mm	750	750	750	750	750	750
Net weight		Kg	160	215	225	225	335	335
Refrigerant		-	R410A					
Flow control		-	Microprocessor-controlled expansion valve					
Compressor		-	Hermetic (Scroll)					
Q´ty		-	1	1	1	1	1+1	1+1
Power		kW	3	4.80	6.00	7.20	4.80+4.40	6.00+4.40
Heat exchanger		-	Multi-pass cross-finned tube					
Outdoor fan		-	Propeller fan					
Q´ty		-	1	1	1	1	1	1
Air flow rate		m³/min	138	172	185	210	210	210
Motor (output)		W	160	380	380	380	380	380
Connections Refrigerant Piping		-	Flare-Nut and/or Flange Connection (Factory supplied)					
Size	Liquid Piping	mm (inches)	Ø9.53 (3/8)	Ø9.53 (3/8)	Ø9.53 (3/8)	Ø12.70 (1/2)	Ø12.70 (1/2)	Ø12.70 (1/2)
	Gas piping	mm (inches)	Ø15.88 (5/8)	Ø19.05 (3/4)	Ø22.20 (7/8)	Ø25.40 (1)	Ø25.40 (1)	Ø28.60 (1-1/8)
Refrigerant charge		Kg	5.4	7.0	8.5	9.0	13.0	13.0
Maximum current		A	9.6	14	20	22	29	34
Packing measurement		m³	0.87	1.44	1.44	1.44	1.81	1.81

OD: Outer Diameter

NOTE:

1. The nominal cooling and heating capacity is the combined capacity of the SET FREE system, and is based on JIS 158616.

Operation condition		Cooling	Heating
Indoor air inlet temperature	DB	27 °C	20 °C
	WB	19 °C	
Outdoor air inlet temperature	DB	35 °C	7 °C
	WB		6 °C

Piping Length: 7.5 meters; piping height: 0 meters
DB: dry bulb; WB: Wet Bulb

2. The Sound Pressure Level is based on following conditions:
   - 1 meter from the frontal surface of the unit. 1.5 meters from floor level.
   - Voltage of the power source is 400V

   The above data was measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.
3. In case of Night Shift conditions, the noise level decrease 5 dB (A)
4. The COP and EER have been calculated with RCI--FSN1E units. (Indoor unit input power excluded)


18~22 HP


24~32 HP

◆ Two bodies size

RAS MODEL			RAS-18 FSN1	RAS-20 FSN1	RAS-24 FSN1	RAS-28 FSN1	RAS-32 FSN1
Electric power supply			3~,380/415V, 50Hz				
Nominal cooling capacity		kW	50.40	56.00	69.00	80.00	90.00
Nominal heating capacity		kW	56.00	63.00	77.50	90.00	100.00
Energy efficiency rate (EER)		-	3.50	3.50	3.25	2.88	2.66
COP		-	4.24	4.14	4.40	4.30	4.18
Color (Munsell code)		-		Natural Grey (1.0Y8.5/0.5)			
Sound Pressure Level (night mode)		dB(A)	62/(57)	62/(57)	63/(58)	64/(59)	64/(59)
External dimensions	Height	mm	1745	1745	1745	1745	1745
	Width	mm	1910	1910	2430	2430	2430
	Depth	mm	750	750	750	750	750
Net weight		Kg	460	460	675	720	720
Refrigerant		-	R410A				
Flow control		-	Microprocessor-controlled expansion valve				
Compressor		-	Hermetic (Scroll)				
Q´ty		-	1+1	1+1	1+4	1+5	1+5
Power		kW	6.00+5.60	7.20+5.60	1.40+4x4.40	1.40+5x4.40	1.40+5×4.40
Heat exchanger		-	Multi-pass cross-finned tube				
Outdoor fan		-	Propeller fan				
Q´ty		-	2	2	2	2	2
Air flow rate		m³/min	210	344	382	382	382
Motor (output)		W	380+275	380+275	380+275	380+275	380+275
Connections Refrigerant Piping		-	Flare-Nut and/or Flange Connection (Factory supplied)				
Size	Liquid Piping	mm (inches)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)	ø19.05 (3/4)	ø19.05 (3/4)
	Gas piping	mm (inches)	ø28.60 (1-1/8)	ø28.60 (1-1/8)	ø28.60 (1-1/8)	ø31.75 (1-1/4)	ø31.75 (1-1/4)
Refrigerant charge		Kg	19	19	23	25	26
Maximum current		A	34	38	50	63	77
Packing measurement		m³	1.81	2.82	3.57	3.57	3.57

OD: Outer Diameter

NOTE:

1. The nominal cooling and heating capacity is the combined capacity of the SET FREE system, and is based on JIS 158616.

Operation condition		Cooling	Heating
Indoor air inlet temperature	DB	27 °C	20 °C
	WB	19 °C	
Outdoor air inlet temperature	DB	35 °C	7 °C
	WB		6 °C

Piping Length: 7.5 meters; piping height: 0 meters
DB: dry bulb; WB: Wet Bulb

2. The Sound Pressure Level is based on following conditions:
   - 1 meter from the frontal surface of the unit. 1.5 meters from floor level.
   - Voltage of the power source is 400V

   The above data was measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.
3. In case of Night Shift conditions, the noise level decrease 5 dB (A)
4. The COP and EER have been calculated with RCI--FSN1E units. (Indoor unit input power excluded)


36~42 HP

◆ **3 bodies size**

RAS MODEL			RAS-36FSN	RAS-42FSN
Electric power supply			3~,380/415V, 50Hz	
Nominal cooling capacity		kW	101.00	118.00
Nominal heating capacity		kW	113.00	132.00
Energy efficiency rate (EER)		-	3.01	3.02
COP		-	3.47	3.43
Color (Munsell code)		-	Natural Grey (1.0Y8.5/0.5)	
Sound Pressure Level (night mode)		dB(A)	64/(59)	65/(60)
External dimensions	Height	mm	1745	1745
	Width	mm	3390	3390
	Depth	mm	750	750
Net weight		Kg	920	970
Refrigerant		-	R410A	
Flow control		-	Microprocessor-controlled expansion valve	
Compressor		-	Hermetic (Scroll)	
Q´ty		-	1+4	1+5
Power		kW	4.9+5.6x4	4.9+5.6x4
Heat exchanger		-	Multi-pass cross-finned tube	
Outdoor fan		-	Propeller fan	
Q´ty		-	3	3
Air flow rate		m³/min	554	554
Motor (output)		W	380+275x2	380+275x2
Connections Refrigerant Piping		-	Flare-Nut and/or Flange Connection (Factory supplied)	
Size	Liquid Piping	mm (inches)	ø19.05 (3/4)	ø19.05 (3/4)
	Gas piping	mm (inches)	ø38.1 (1-1/2)	ø38.1 (1-1/2)
Refrigerant charge		Kg	31	32
Maximum current		A	70.4	81.7
Packing measurement		m³	4,99	4,99

OD: Outer Diameter

NOTE:

1. The nominal cooling and heating capacity is the combined capacity of the SET FREE system, and is based on JIS 158616.

Operation condition		Cooling	Heating
Indoor air inlet temperature	DB	27 °C	20 °C
	WB	19 °C	
Outdoor air inlet temperature	DB	35 °C	7 °C
	WB		6 °C

Piping Length: 7.5 meters; piping height: 0 meters
DB: dry bulb; WB: Wet Bulb

2. The Sound Pressure Level is based on following conditions:
   - 1 meter from the frontal surface of the unit. 1.5 meters from floor level.
   - Voltage of the power source is 400V

   The above data was measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.
3. In case of Night Shift conditions, the noise level decrease 5 dB (A)
4. The COP and EER have been calculated with RCI--FSN1E units. (Indoor unit input power excluded)

2.2.2. RAS – FXN(E) indoor units


8~12 HP

◆ Body size

RAS MODEL			RAS-8FXN(E)	RAS-10FXN(E)	RAS-12FXN(E)
Electric power supply			3~,380/415V, 50Hz		
Nominal cooling capacity		kW	22.40	28.00	33.50
Nominal heating capacity		kW	25.00	31.50	37.50
Energy efficiency rate (EER)		-	3.21	3.18	3.01
COP		-	3.99	3.46	3.53
Color (Munsell code)		-	Natural Grey (1.0Y8.5/0.5)		
Sound Pressure Level (night mode)		dB(A)	56/(51)	58/(53)	60/(55)
External dimensions	Height	mm	1745	1745	1745
	Width	mm	950	950	950
	Depth	mm	750	750	750
Net weight		Kg	295	305	305
Refrigerant		-	R410A		
Flow control		-	Expansion Valve for Micro processor Control		
Compressor		-	Hermetic (Scroll)		
	Q´ty	-	1+1	1+1	1+1
	Power	kW	1.8+3.7	2.3+4.4	3.7+4.4
Heat exchanger		-	Multi-pass cross-finned tube		
Outdoor fan		-	Propeller fan		
	Q´ty	-	1	1	1
	Air flow rate	m³/min	138	172	172
	Motor (output)	W	380	380	380
Connections Refrigerant Piping		-	Flare-Nut and/or Flange Connection (Factory supplied)		
Size	Liquid Piping	mm (inches)	ø9.53 (3/8)	ø9.53 (3/8)	ø12.70 (1/2)
	Gas (Low) ine	mm (inches)	ø19.05 (3/4)	ø22.2 (7/8)	ø25.40 (1)
	Gas (High) Line	mm (inches)	ø15.88 (5/8)	ø19.05 (3/4)	ø19.05 (3/4)
Refrigerant charge		Kg	8.5	9.5	10
Maximum current		A	14	17	21
Packing measurement		m³	1.44	1.44	1.44

OD: Outer Diameter

NOTE:

1. The nominal cooling and heating capacity is the combined capacity of the SET FREE system, and is based on JIS 158616.

Operation condition		Cooling	Heating
Indoor air inlet temperature	DB	27 °C	20 °C
	WB	19 °C	
Outdoor air inlet temperature	DB	35 °C	7 °C
	WB		6 °C

Piping Length: 7.5 meters; piping height: 0 meters
DB: dry bulb; WB: Wet Bulb

2. The Sound Pressure Level is based on following conditions:
   - 1 meter from the frontal surface of the unit. 1.5 meters from floor level.
   - Voltage of the power source is 400V

   The above data was measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.
3. In case of Night Shift conditions, the noise level decrease 5 dB (A)
4. The COP and EER have been calculated with RCI--FSN1E units. (Indoor unit input power excluded)

◆ Two bodies size

RAS MODEL			RAS-16FXN	RAS-18FXN	RAS-20FXN	RAS-24FXN	RAS-30FXN	RAS-32FXN
Electric power supply			3~,380/415V, 50Hz					
Nominal cooling capacity		kW	45.00	50.00	56.00	69.00	85.00	90.00
Nominal heating capacity		kW	50.00	56.00	63.00	77.50	95.00	100.00
Energy efficiency rate (EER)		-	3.32	3.04	3.19	3.08	2.83	2.67
COP		-	3.69	3.43	3.61	3.57	3.40	3.41
Color (Munsell code)		-	Natural Grey (1.0Y8.5/0.5)					
Sound Pressure Level (night mode)		dB(A)	62/(57)	62/(57)	62/(57)	62/(57)	63/(58)	63/(58)
External dimensions	Height	mm	1745	1745	1745	1745	1745	1745
	Width	mm	1914	1914	1914	2430	2430	2430
	Depth	mm	750	750	750	750	750	750
Net weight		Kg	570	570	570	712	755	755
Refrigerant		-	R410A					
Flow control		-	Expansion Valve for Micro processor Control					
Compressor		-	Hermetic (Scroll)					
Q´ty		-	1+2	1+2	1+3	1+4	1+5	1+5
Power		kW	3+4.4x2	3.7+4.4x2	1.8+4.4×3	1.4+4.4×4	1.4+4.4×5	1.4+4.4×5
Heat exchanger		-	Multi-pass cross-finned tube					
Outdoor fan		-	Propeller fan					
Q´ty		-	2	2	2	2	2	2
Air flow rate		m³/min	172+172	172+172	172+172	210+172	210+172	210+172
Motor (output)		W	380+275	380+275	380+275	380+275	380+275	380+275
Connections Refrigerant Piping		-	Flare-Nut and/or Flange Connection (Factory supplied)					
Size	Liquid Piping	mm (inches)	ø12.7 (1/2)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)	ø19.05 (3/4)	ø19.05 (3/4)
	Gas (Low) ine	mm (inches)	ø28.6 (1-1/8)	ø28.6 (1-1/8)	ø28.6 (1-1/8)	ø28.6 (1-1/8)	ø31.75 (1-1/4)	ø31.75 (1-1/4)
	Gas (High) Line	mm (inches)	ø22.2 (7/8)	ø22.2 (7/8)	ø22.2 (7/8)	ø25.4 (1)	ø28.6 (1-1/8)	ø28.6 (1-1/8)
Refrigerant charge		Kg	19	19	19	26	26	26
Maximum current		A	34	34	34	45	61	70
Packing measurement		m³	2.82	2.82	2.82	3.57	3.57	3.57

OD: Outer Diameter

NOTE:

1. The nominal cooling and heating capacity is the combined capacity of the SET FREE system, and is based on JIS 158616.

Operation condition		Cooling	Heating
Indoor air inlet temperature	DB	27 °C	20 °C
	WB	19 °C	
Outdoor air inlet temperature	DB	35 °C	7 °C
	WB		6 °C

Piping Length: 7.5 meters; piping height: 0 meters
DB: dry bulb; WB: Wet Bulb

2. The Sound Pressure Level is based on following conditions:
   - 1 meter from the frontal surface of the unit. 1.5 meters from floor level.
   - Voltage of the power source is 400V

   The above data was measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.
3. In case of Night Shift conditions, the noise level decrease 5 dB (A)
4. The COP and EER have been calculated with RCI--FSN1E units. (Indoor unit input power excluded)

2.2.3. RAS – FSVN(E) units

RAS MODEL			RAS-3FSVNE	RAS-4FSVNE	RAS-5FSVNE
Electric power supply			230 V, 1~ 50Hz		
Nominal cooling capacity		kW	8.00	11.20	14.00
Nominal heating capacity		kW	9.00	12.50	16.00
Energy efficiency rate (EER)		-	3.54	3.53	3.45
COP		-	3.59	3.87	3.78
Color (Munsell code)		-	Grey (1.0Y8.5/0.5)		
Sound Pressure Level (night mode)		dB(A)	45/(41)	47(43)	49(45)
External dimensions	Height	mm	800	1240	1240
	Width	mm	850	950	950
	Depth	mm	315	315	315
Net weight		Kg	66	98	102
Refrigerant		-	R410A		
Flow control		-	Expansion Valve for Micro processor Control		
Compressor		-	Hermetic (Scroll)		
	Q´ty	-	1	1	1
	Power	kW	1.7	2.2	3
Heat exchanger		-	Multi-pass cross-finned tube		
Outdoor fan		-	Propeller fan		
	Q´ty	-	1	2	2
	Air flow rate	m³/min	52	88	99
	Motor (output)	W	50	50+70	50+70
Connections Refrigerant Piping		-	Flare-Nut and/or Flange Connection (Factory supplied)		
Size	Liquid Piping	mm (inches)	ø9.53 (3/8)	ø9.53 (3/8)	ø9.53 (3/8)
	Gas piping	mm (inches)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)
Refrigerant charge		Kg	1.75	2.8	3
Maximum current		A	25	32	32
Packing measurement		m³	0.34	0.55	0.55

OD: Outer Diameter

NOTE:

1. The nominal cooling and heating capacity is the combined capacity of the SET FREE system, and is based on JIS 158616.

Operation condition		Cooling	Heating
Indoor air inlet temperature	DB	27 °C	20 °C
	WB	19 °C	
Outdoor air inlet temperature	DB	35 °C	7 °C
	WB		6 °C

Piping Length: 7.5 meters; piping height: 0 meters
DB: dry bulb; WB: Wet Bulb

2. The Sound Pressure Level is based on following conditions:
   - 1 meter from the frontal surface of the unit. 1.5 meters from floor level.
   - Voltage of the power source is 230V

   The above data was measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.
3. In case of Night Shift conditions, the noise level decrease 5 dB (A)
4. The COP and EER have been calculated with RCI--FSN1E units. (Indoor unit input power included)

2.3. Complementary systems

2.3.1. KPI - Total heat exchanger


KPI-

KPI MODEL			KPI-2521	KPI-5021	KPI-8021	KPI-10021
Air flow rate	Hi	m³/min	4.1	8.3	13.3	16.6
	Med		4.1	8.3	13.3	16.6
	Low		2.75	5.8	11.1	14.5
External pressure	Hi	mmAq	6.5	15	14	16
	Med		4	6	10	10
	Low		2	3	7	8
Temperature exchange efficiency	Hi	%	78	77	78	79
	Med		78	77	78	79
	Low		83	82	80.5	81
Enthalpy exchange efficiency (heating)	Hi	%	69	67	71	70
	Med		69	67	71	70
	Low		74	73	73	73
Enthalpy exchange efficiency (cooling)	Hi	%	62.5	61.5	64.5	64.5
	Med		62.5	61.5	64.5	64.5
	Low		68	68	68	67
Sound Pressure Level	Hi	dB(A)	27	33	34	38
	Med		25.5	30.5	32.5	34.5
	Low		21.5	48	30.5	32
External dimensions	Height	mm	275	317	398	398
	Width		735	1016	1004	1231
	Depth		780	888	1164	1164
Net weight		Kg	21	33	61	72
Packing measurement		m³	0.26	0.46	0.70	0.84

NOTE:

1. Use it under the following conditions: KPI-8021: 2.9 mmAq or more, KPI-10021: 4.9 mmAq or more
2. The Sound Pressure Level is based on following conditions:
   - 1.5 meters beneath the unit.
   - The data above was measured in an anechoic chamber, so reflected sound should be taken into consideration when installing the unit.
3. Conditions: as established by Eurovent procedures for sound testing.

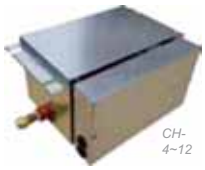
   In bypass ventilation mode, the noise level is increased by approx. 1dB(A)

2.3.2. EF - Econofresh kit


EF -5

EF MODEL			EF-5GE
Combined indoor unit model		-	RPI-5HP
External dimensions	Height	mm	254
	Width		1350 + 59
	Depth		270
Net weight		Kg	12.5
No. damper motors		-	1
Approximate packing measurement		m^3	0.13
Standard Accessories		-	Fresh outdoor air inlet thermistor

2.3.3. CH - CH box units


CH-
4~12

CH MODEL			CH-4.0NE	CH-8.0NE	CH-12.0N
Nominal Capacity		HP	HP<4	4≤HP≤8	8<HP≤12
Nº Max of I/D Unit		-	4	8	5
Electrical consumption		W	32		
Sound Pressure Level		dB(A)	43	43	44
External dimensions	Height	mm	197	197	197
	Width	mm	345	345	345
	Depth	mm	299	299	299
Net weight		Kg	10	10	11
Refrigerant		-	R410A (nitrogen charged in factory for corrosion-resistance)		
Connections Refrigerant Piping		-	Flare-Nut and/or Flange Connection (Factory supplied)		
Refrigerant piping (from outdoor unit)	Liquid Piping	mm (inches)	-		
	Gas (Low) ine	mm (inches)	ø15.88 (5/8)	ø19.05 (3/4)	ø22.2 (7/8)
	Gas (High) Line	mm (inches)	ø12.7 (1/2)	ø15.88 (5/8)	ø19.05 (3/4)
Refrigerant piping (from indoor unit)	Liquid Piping	mm (inches)	-		
	Gas (Low) ine	mm (inches)	ø15.88 (5/8)	ø19.05 (3/4)	ø22.2 (7/8)

2.4. Component data

The components data indicated are the following:

- Indoor Unit :
  - Heat exchanger
  - Fan unit
- Outdoor unit:
  - Heat exchanger
  - Fan unit
  - Compressor

2.4.1. RCI – 4-way cassette type

RCI
1~6 HP

RCI model				RCI-1.0 FSN1E	RCI-1.5 FSN1E	RCI-2.0 FSN1E	RCI-2.5 FSN1E	RCI-3.0 FSN1E	RCI-3.5 FSN1E	RCI-4.0 FSN1E	RCI-5.0 FSN1E	RCI-6.0 FSN1E
Heat exchanger	Heat exchanger type		-	Multi-pass cross-finned tube								
	Piping	Material	-	Copper tubing								
		Outer diameter	Ø mm	7	7	7	7	7	7	7	7	7
		Rows	-	1	1	2	2	2	2	3	3	3
		Number of tubes/coil	-	8	8	16	16	20	20	30	30	30
	Fin	Material	-	Aluminum								
		Pitch	mm	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	Maximum operation pressure		MPa	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15
	Total face area		m^2	0.38	0.38	0.38	0.38	0.47	0.47	0.47	0.47	0.47
	Number of coils/unit		-	1	1	1	1	1	1	1	1	1
Fan unit	Fan	Type	-	Multi-blade turbo fan								
		Number/unit	-	1	1	1	1	1	1	1	1	1
		Outer diameter	mm	490	490	490	490	490	490	490	490	490
		Nominal Air Flow (Hi/Me/Lo)	m^3/min	13/12/11	15/14/12	16/14/12	20/17/15	26/23/20	26/23/20	32/28/24	34/29/25	37/32/27
	Motor	Type	-	Drip-proof enclosure								
		Starting method	-	DC control								
		Fan Motor (output)	W	56	56	56	56	56	56	108	108	108
		Q´ty	-	1	1	1	1	1	1	1	1	1
		Insulation class	-	E	E	E	E	E	E	E	E	E

2.4.2. RCIM – 4-way cassette type

RCIM
1~2 HP

RCI model				RCIM1.0 FSN	RCIM-1.5 FSN	RCIM-2.0 FSN
Heat exchanger	Heat exchanger type		-	Multi-pass cross-finned tube		
	Piping	Material	-	Copper tubing		
		Outer diameter	Ø mm	7	7	7
		Rows	-	2	2	2
		Number of tubes/coil	-	14	14	14
	Fin	Material	-	Aluminum		
		Pitch	mm	1.5	1.5	1.5
	Maximum operation pressure		MPa	4.15	4.15	4.15
	Total face area		m²	0.19	0.19	0.19
	Number of coils/unit		-	1	1	1
Fan unit	Fan	Type	-	Multi-blade turbo fan		
		Number/unit	-	1	1	1
		Outer diameter	mm	298	298	298
		Nominal air flow (Hi/ Me/Lo)	m³/min	13/12/11	15/13.5/12	16/14/12
	Motor	Type	-	Drip-proof enclosure		
		Starting method	-	DC control		
		Fan Motor (output)	W	52	52	52
		Q´ty	-	1	1	1
		Insulation class	-	E	E	E

2.4.3. RCD – 2-way cassette type

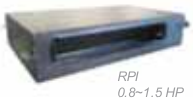
RCD
1~5 HP

RCD model				RCD-1.0 FSN	RCD-1.5 FSN	RCD-2.0 FSN	RCD-2.5 FSN	RCD-3.0 FSN	RCD-4.0 FSN	RCD-5.0 FSN
Heat exchanger	Heat exchanger type		-	Multi-pass cross-finned tube						
	Piping	Material	-	Copper tubing						
		Outer diameter	Ø mm	7	7	7	7	7	7	7
		Rows	-	1	1	2	2	2	2	2
	Fin	Material	-	Aluminum						
		Pitch	mm	1.6	1.6	1.6	1.6	1.6	1.6	1.6
	Maximum operation pressure		MPa	4.15	4.15	4.15	4.15	4.15	4.15	4.15
	Total face area		m²	0.36	0.36	0.36	0.36	0.36	0.63	0.63
	Number of coils/unit		-	1	1	1	1	1	1	1
Fan unit	Fan	Type	-	Multi-blade turbo fan						
		Number/unit	-	1	1	1	1	1	2	2
		Outer diameter	mm	360	360	360	360	360	360	360
		Air flow rate (ratio/lo)	m³/min	8/7/6	12/10/8.5	15/13/11	19/16/14	22/19/16	28/24/21	34/29/25
	Motor	Type	-	Drip-proof enclosure						
		Starting method	-	DC control						
		Fan Motor (output)	W	35	35	35	55	55	35x2	35x2
		Q´ty	-	1	1	1	1	1	2	2
		Insulation class	-	E	E	E	E	E	E	E

RPC
2~6 HP

2.4.4. RPC – Ceiling type

RPC model				RPC-2.0 FSNE	RPC-2.5 FSNE	RPC-3.0 FSNE	RPC–3.5 FSNE	RPC-4.0 FSNE	RPC-5.0 FSNE	RPC–6.0 FSNE
Heat exchanger	Heat exchanger type		-	Multi-pass cross-finned tube						
	Piping	Material	-	Copper tubing						
		Outer diameter	Ø mm	9.53	9.53	9.53	9.53	9.53	9.53	9.53
		Rows	-	3	3	3	3	3	3	3
		Number of tubes/coil	-	20	20	20	20	32	32	32
	Fin	Material	-	Aluminum						
		Pitch	mm	2	2	2	2	2	2	2
	Maximum operation pressure		MPa	4.15	4.15	4.15	4.15	4.15	4.15	4.15
	Total face area		m²	0.137	0.176	0.176	0.176	0.277	0.347	0.347
	Number of coils/unit		-	1	1	1	1	1	1	1
Fan unit	Fan	Type	-	Multi-blade centrifugal fan						
		Number/unit	-	3	3	4	3	3	4	4
		Outer diameter	Ø mm	101	101	101	101	136	136	136
		Flow Rate (Hi/Me/Lo)	m³/min	15/13/10	18/16/12	21/17/15	23/20/16	30/24/19	35/28/21	37/32/37
	Motor	Type	-	Drip-proof enclosure						
		Starting method	-	Permanent condenser						
		Fan Motor (output)	W	75	75	75	75	145	145	145
		Q´ty	-	1	1	1	1	1	1	1
		Insulation class	-	B	B	B	B	B	B	B



RPI
0.8~1.5 HP

RPI
2~6 HP

2.4.5. RPI – In-the-Ceiling Type (RPI-0.8~6.0FSN1E)

RPI model				RPI-0.8 FSN1E	RPI-1.0 FSN1E	RPI-1.5 FSN1E	RPI-2.0 FSN1E	RPI-2.5 FSN1E	RPI-3.0 FSN1E	RPI-3.5 FSN1E	RPI-4.0 FSN1E	RPI-5.0 FSN1E	RPI-6.0 FSN1E
Heat exchanger	Heat exchanger type		-	Multi-pass cross-finned tube									
	Piping	Material	-	Copper tubing									
		Outer diameter	Ø mm	9.53	9.53	9.53	9.53	9.53	9.53	9.53	9.53	9.53	9.53
		Rows	-	2	2	3	2	3	3	3	3	3	3
		Number of tubes/coil	-	14	14	20	20	30	30	30	30	30	30
	Fin	Material	-	Aluminum									
		Pitch	mm	2	2	2	2	2	2	2	2	2	2
	Maximum operation pressure		MPa	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15
	Total face area		m²	0.12	0.12	0.12	0.21	0.21	0.21	0.21	0.31	0.31	0.31
	Number of coils/unit		-	1	1	1	1	1	1	1	1	1	1
Fan unit	Fan	Type	-	Multi-blade centrifugal fan									
		Number/unit	-	2	2	2	2	2	2	2	2	2	
		Outer diameter	Ø mm	136	136	136	180	180	180	180	180	180	180
		Airflow Rate (Hi/Me/Lo) to (SP-00)	m³/min	8/8/7	8/8/7	10/10/9	16/15/13	19/17/15	22/20/17	22/20/17	30/28/25	35/32/28	36/33/29
	Motor	Type	-	Drip-proof enclosure									
		Starting method	-	Permanent condenser									
		Fan Motor (output)	W	40	40	55	65	150	150	150	225	225	385
		Q´ty	-	1	1	1	1	1	1	1	1	1	1
		Insulation class	-	F	F	B	B	B	F	F	B	B	F

2.4.6. RPI – In-the-Ceiling type (RPI-8.0/10.FSNE)

RPI
8/10 HP

RPI model				RPI-8.0 FSNE	RPI-10.0 FSNE
Heat exchanger	Heat exchanger type		-	Multi-pass cross-finned tube	
	Piping	Material	-	Copper tubing	
		Outer diameter	Ø mm	9.53	9.53
		Rows	-	3	4
		Number of tubes/coil	-	20	20
	Fin	Material	-	Aluminum	
		Pitch	mm	12	12
	Maximum operation pressure		MPa	4.15	4.15
	Total face area		m²	0.6	0.6
	Number of coils/unit		-	1	1
Fan unit	Fan	Type	-	Multi-blade centrifugal fan	
		Number/unit	-	1	1
		Outer diameter	Ø mm	240	240
		Airflow Rate (Hi/Me/Lo) to (SP-00)	m³/min	66/62/58	75/71/66
	Motor	Type	-	Drip-proof enclosure	
		Starting method	-	Permanent condenser	
		Fan Motor (output)	W	1250	1250
		Q´ty	-	1	1
		Insulation class	-	F	F

2.4.7. RPIM – In-the-Ceiling type (RPIM-0.8/1.0FSN1E)

RPIM
0.8/1.0 HP

RPIM Model				RPIM-0.8 FSN1E	RPIM-1.0 FSN1E
Heat exchanger	Heat exchanger type		-	Multi-pass cross-finned tube	
	Piping	Material	-	Copper tubing	
		Outer diameter	Ø mm	7	7
		Rows	-	2	2
		Number of tubes/coil	-	24	24
	Fin	Material	-	Aluminum	
		Pitch	mm	1.9	1.9
	Maximum operation pressure		MPa	4.15	4.15
	Total face area		m²	0.12	0.12
	Number of coils/unit		-	1	1
Fan unit	Fan	Type	-	Multi-blade centrifugal fan	
		Number/unit	-	1	1
		Outer diameter	Ø mm	185	185
		Air flow rate (Hi/Me/Lo) (SP-00)	m³/min	8/8/6	8/8/6
	Motor	Type	-	Drip-proof enclosure	
		Starting method	-	Permanent condenser	
		Fan Motor (output)	W	25	25
		Q´ty	-	1	1
		Insulation class	-	B	B

2.4.8. RPK – Wall type (RPK-1~4.0FSN2M)

RPK
1~4.0 HP

RPK model				RPK-1.0 FSN2M	RPK-1.5 FSN2M	RPK-2.0 FSN2M	RPK-2.5 FSN2M	RPK-3.0 FSN2M	RPK-4.0 FSN2M
Heat exchanger	Heat exchanger type		-	Multi-pass cross-finned tube					
	Piping	Material	-	Copper tubing					
		Outer diameter	Ø mm	7.0	7.0	7.0	7.0	7.0	7.0
		Rows	-	2	2	2	2.5	2.5	2.5
		Number of tubes/coil	-	30	30	30	38	38	38
	Fin	Material	-	Aluminum					
		Pitch	mm	1.3	1.3	1.2	1.3	1.3	1.3
	Maximum operation pressure		MPa	4.15	4.15	4.15	4.15	4.15	4.15
	Total face area		m²	0.20	0.20	0.25	0.40	0.40	0.40
	Number of coils/unit		-	1	1	1	1	1	1
Fan unit	Fan	Type	-	Multi-blade centrifugal fan					
		Number/unit	-	1	1	1	1	1	1
		Outer diameter	Ø mm	100	100	100	105	105	105
		Air flow rate (Hi/Me/Lo)	m³/min	10/8/7	11/10/9	14/12/10	17/16/14	17/16/14	22/20/17
	Motor	Type	-	Drip-proof enclosure					
		Starting method	-	DC Motor					
		Fan Motor (output)	W	20	20	20	30	30	30
		Q´ty	-	1	1	1	1	1	1
		Insulation class	-	E	E	E	E	E	E

2.4.9. RPF/RPFI – Floor type and Floor-concealed type

RPF
1~2.5 HP

RPFI
1~2.5 HP

RPF and RPFI model				RPF-1.0	RPF-1.5	RPF-2.0	RPF-2.5	RPFI-1.0	RPFI-1.5	RPFI-2.0	RPFI-2.5
Heat exchanger	Heat exchanger type		-	Multi-pass cross-finned tube							
	Piping	Material	-	Copper tubing							
		Outer diameter	Ø mm	9.53	9.53	9.53	9.53	9.53	9.53	9.53	9.53
		Rows	-	2	2	2	3	2	2	2	3
		Number of tubes/coil	-	18	18	18	24	18	18	18	24
	Fin	Material	-	Aluminum							
		Pitch	mm	2	2	2	2	2	2	2	2
	Maximum operation pressure		MPa	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15
	Total face area		m²	0.15	0.15	0.21	0.21	0.15	0.15	0.21	0.21
	Number of coils/unit		-	1	1	1	1	1	1	1	1
Fan unit	Fan	Type	-	Multi-blade centrifugal fan							
		Number/unit	-	2	2	2	2	2	2	2	2
		Outer diameter	Ø mm	136	136	136	136	136	136	136	136
		Air flow rate (ratio/lo)	m³/min	8.5/7/6	12/10/9	16/14/11	16/14/11	8.5/7/6	12/10/9	16/14/11	16/14/11
	Motor	Type	-	Drip-proof enclosure							
		Starting method	-	Permanent condenser							
		Fan Motor (output)	W	20	28	45	45	20	28	45	45
		Q´ty	-	1	1	1	1	1	1	1	1
		Insulation class	-	E	E	B	B	E	E	B	B


5 HP


8~12 HP


14~16 HP

2.4.10. Fan and exchanger of outdoor units (RAS-5~16FSN(1)(E))

RAS Model				RAS-5 FSN	RAS-8 FSN1(E)	RAS-10 FSN1(E)	RAS-12 FSN1(E)	RAS-14 FSN1	RAS-16 FSN1
Heat exchanger	Type		-	Multi-pass cross-finned tube					
	Piping	Material	-	Copper tubing					
		Outer diameter	Ø mm	9.53	9.53	9.53	9.53	9.53	9.53
		Rows	-	2	2	2	2	2	2
		No. of Tubes/Coil	-	112	112	112	112	112	112
	Fin	Material	-	Aluminum					
		Pitch	mm	2	2	2	2	2	2
	Maximum operation pressure		MPa	4.15	4.15	4.15	4.15	4.15	4.15
	Total face area		m²	1.20	1.74	2.12	2.12	2.49	2.49
	Number of coils/unit		-	1	1	1	1	1	1
Fan unit	Fan	Type	-	Propeller fan					
		Number/unit	-	1	1	1	1	1	1
		Outer diameter	mm	544	644	644	644	644	644
		Revolutions	rpm	765	795	885	885	885	990
		Nominal air flow/fan	m³/min	87	138	172	185	210	210
	Motor	Type	-	Drip-proof enclosure					
		Starting method	-	DC motor + Permanent condenser					
		Fan Motor (output)	W	160	380	380	380	380	380
		Q´ty	-	1	1	1	1	1	1
		Insulation class	-	E	E	E	E	E	E
Compressor	Inverter type		-	E405AHD-36D2	E655DHD-65D2Y	E655DHD-65D2Y	E655DHD-65D2Y	E655DHD-65D2Y	E655DHD-65D2Y
	Fixed type		-	-				E655DH-65D2Y	E655DH-65D2Y


18~22 HP


24~32 HP

2.4.11. Fan and exchanger of outdoor units (RAS-18~32FSN1)

RAS Model				RAS-18 FSN1	RAS-20 FSN1	RAS-24 FSN1	RAS-28 FSN1	RAS-32 FSN1
Heat exchanger	Type		-	Multi-pass cross-finned tube				
	Piping	Material	-	Copper tubing				
		Outer diameter	Ø mm	9.53	9.53	9.53	9.53	9.53
		Rows	-	2	2	2	2	2
		No. of Tubes/Coil	-	112	112	112	112	112
	Fin	Material	-	Aluminum				
		Pitch	mm	2	2	2	2	2
	Maximum operation pressure		MPa	4,15	4,15	4,15	4,15	4,15
	Total face area		m²	2,12	2,12	2,49	2,49	2,49
	Number of coils/unit		-	2	2	2	2	2
Fan unit	Fan	Type	-	Propeller fan				
		Number/unit	-	2	2	2	2	2
		Outer diameter	mm	644	644	644	644	644
		Revolutions	rpm	780+900	780+900	990/900	990/830	990/830
		Air flow rate (Hi/Me/Lo)	m³/min	172+172	172+172	210+172	210+172	210+172
	Motor	Type	-	Drip-proof enclosure				
		Starting method	-	DC motor + Permanent condenser				
		Fan Motor (output)	W	380+275	380+275	380+275	380+275	380+275
		Q´ty	-	2	2	2	2	2
		Insulation class	-	E	E	E	E	E
Compressor	Inverter type		-	E655DHD-65D2Y	E655DHD-65D2Y	E405AHD-36D2	E405AHD-36D2	E405AHD-36D2
	Fixed type		-	E855DH-80D2Y	E855DH-80D2Y	E605DH-59D2Yx4	E605DH-59D2Yx5	E655DH-65D2Yx5


36/42 HP

2.4.12. Fan and exchanger of outdoor units (RAS-36/42FSN)

RAS Model				RAS-36FSN	RAS-42FSN
Heat exchanger	Type		-	Multi-pass cross-finned tube	
	Piping	Material	-	Copper tubing	
		Outer diameter	Ø mm	9.53	9.53
		Rows	-	2	2
		No. of Tubes/Coil	-	112	112
	Fin	Material	-	Aluminum	
		Pitch	mm	2	2
	Maximum operation pressure		MPa	4.15	4.15
	Total face area		m²	5.61	5.61
	Number of coils/unit		-	3	3
Fan unit	Fan	Type	-	Propeller fan	
		Number/unit	-	2	2
		Outer diameter	mm	644	644
		Revolutions	rpm	990/900/900	990/900/900
		Nominal air flow/fan	m³/min	382	382
	Motor	Type	-	Drip-proof enclosure	
		Starting method	-	DC control	
		Fan Motor (output)	W	380/275/275	380/275/275
		Q´ty	-	2	2
		Insulation class	-	E	E
Compressor	Inverter type		-	E655DHD-65D2Y	E655DHD-65D2Y
	Fixed type		-	E855DH-85D2Yx4	E855DH-85D2Yx5


8~12 HP

2.4.13. Fan and exchanger of outdoor units (RAS-8~12FXNE)

RAS Model				RAS-8FXN(E)	RAS-10FXN(E)	RAS-12FXN(E)
Heat exchanger	Type		-	Multi-pass cross-finned tube		
	Piping	Material	-	Copper tubing		
		Outer diameter	Ø mm	9.53	9.53	9.53
		Rows	-	2	2	2
		No. of Tubes/Coil	-	112	112	112
	Fin	Material	-	Aluminum		
		Pitch	mm	2	2	2
	Maximum operation pressure		MPa	4.15	4.15	4.15
	Total face area		m²	1.65	2.03	2.03
	Number of coils/unit		-	1	1	1
Fan unit	Fan	Type	-	Propeller fan		
		Number/unit	-	1	1	1
		Outer diameter	mm	644	644	644
		Revolutions	rpm	795	885	885
		Nominal air flow/fan	m³/min	138	172	172
	Motor	Type	-	Drip-proof enclosure		
		Starting method	-	DC control		
		Fan Motor (output)	W	380	380	380
		Q´ty	-	1	1	1
		Insulation class	-	E	E	E
Compressor	Inverter type		-	E405AHD-36D2Y	E405AHD-36D2Y	E405AHD-36D2Y
	Fixed type		-	E505DH-49D2Y	E605DH-59D2Y	E655DH-59D2Y

2.4.14. Fan and exchanger of outdoor units (RAS-20~32FXN)

	RAS Model			RAS-16 FXN	RAS-18 FXN	RAS-20 FXN	RAS-24 FXN	RAS-30 FXN	RAS-32 FXN
Heat exchanger	Type		-	Multi-pass cross-finned tube					
	Piping	Material	-	Copper tubing					
		Outer diameter	Ø mm	9.53	9.53	9.53	9.53	9.53	9.53
		Rows	-	2	2	2	2	2	2
		No. of Tubes/Coil	-	112	112	112	112	112	112
	Fin	Material	-	Aluminum					
		Pitch	mm	2	2	2	2	2	2
	Maximum operation pressure		MPa	4.15	4.15	4.15	4.15	4.15	4.15
	Total face area		m²	4.06	4.06	4.06	4.79	4.79	4.79
	Number of coils/unit		-	2	2	2	2	2	2
Fan unit	Fan	Type	-	Propeller fan					
		Number/unit	-	2	2	2	2	2	2
		Outer diameter	mm	644	644	644	644	644	644
		Revolutions	rpm	915/838	915/838	915/838	990/830	990/830	990/830
		Nominal air flow/fan	m³/min	344	344	344	382	382	382
	Motor	Type	-	Drip-proof enclosure					
		Starting method	-	DC control					
		Fan Motor (output)	W	380/275	380/275	380/275	380/275	380/275	380/275
		Q´ty	-	2	2	2	2	2	2
		Insulation class	-	E	E	E	E	E	E
Compressor	Inverter type		-	E405AHD-36D2Y	E405AHD-36D2Y	E405AHD-36D2Y	E405AHD-36D2Y	E405AHD-36D2Y	E405AHD-36D2Y
	Fixed type		-	E605DH-59D2Yx2	E505DH-59D2Yx3	E605DH-59D2Yx3	E655DH-59D2Yx4	E605DH-65D2Yx5	E655DH-65D2Yx5

2.4.15. Fan and exchanger of outdoor units (RAS-3~5FSVNE)

	RAS Model			RAS-3FSVNE	RAS-4FSVNE	RAS-5FSVNE
Heat exchanger	Type		-	Multi-pass cross-finned tube		
	Piping	Material	-	Copper tubing		
		Outer diameter	Ø mm	7	7	7
		Rows	-	2	2	2
		Number of tubes/coil	-	76	116	116
	Fin	Material	-	Aluminum		
		Pitch	mm	1.9	1.9	1.9
	Maximum operation pressure		MPa	4.15	4.15	4.15
	Total face area		m²	0.64	1	1
	Number of coils/unit		-	1	1	1
Fan unit	Fan	Type	-	Multi-blade centrifugal fan		
		Number/unit	-	1	2	2
		Outer diameter	mm	465	465	465
		Revolutions	rpm	678	601/665	689/725
		Nominal air flow/fan	m³/min	45	80	90
	Motor	Type	-	Drip-proof enclosure		
		Starting method	-	Permanent condenser		
		Fan Motor (output)	W	50	30+50	50+70
		Q´ty	-	1	2	2
		Insulation class	-	E	E	E
Compressor	Inverter type		-	2YC63BXD	EK405AHD-36A1	EK405AHD-36A1

2.4.15. Compressor

Compressor Model			2YC63BXD	EK405AHD-36A1	E405AHD-36D2	E405AHD-36D2Y	E655DHD-65D2Y	E505DH49-D2Y	E605DH-59D2Y	E655DH-65D2Y	E855DH-80D2Y	E855DH-85D2Y
Compressor type		-	RT	Hermetic scroll								
Pressure resistance	Discharge	MPa	4.15									
	Suction	MPa	2.21									
Motor	Starting method	-	Inverter-Driven					Direct				
	Poles	-	4	4	4	4	4	2	2	2	2	2
	Insulation class	-	E									
Oil type		-	FVC50K	FVC68D								
Load amount		liters	0.75	2.0	1.2	1.2	0.5	0.5	0.5	0.5	1.1	1.1

RT: Rotary type

3. Dimensions Data

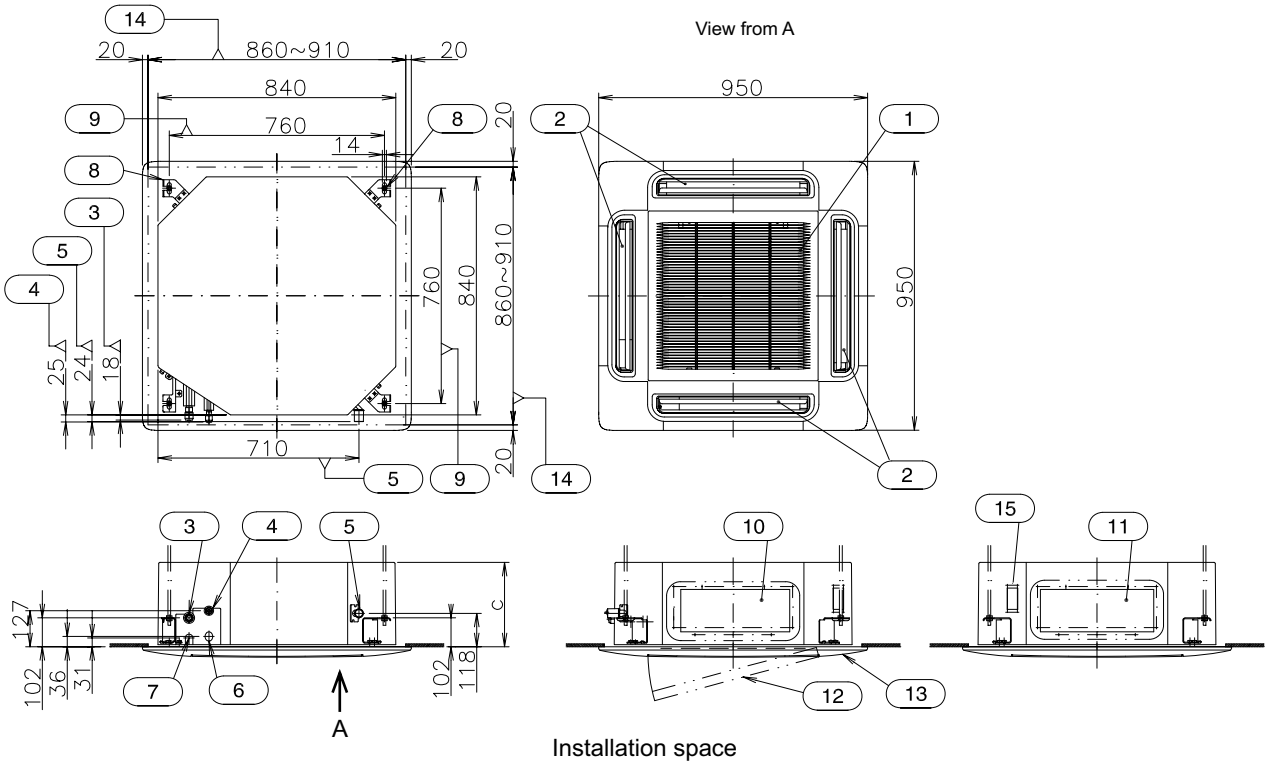
This chapter shows the dimension characteristics and the minimum installation space required for each unit of the Hitachi SET FREE FSN(1)(E)/FXN(E)/FSVNE de Hitachi.

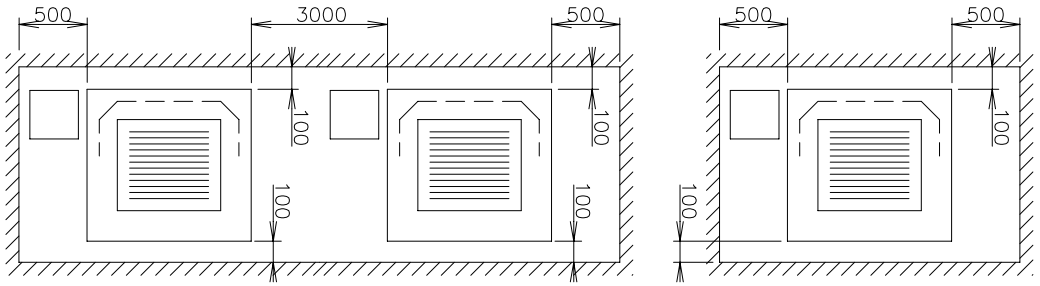
Contents

3.1. Indoor units

3.1.1. 4-Way Type Model

◆ **RCI-1.0~6.0FSN1E / P-G23WA2**



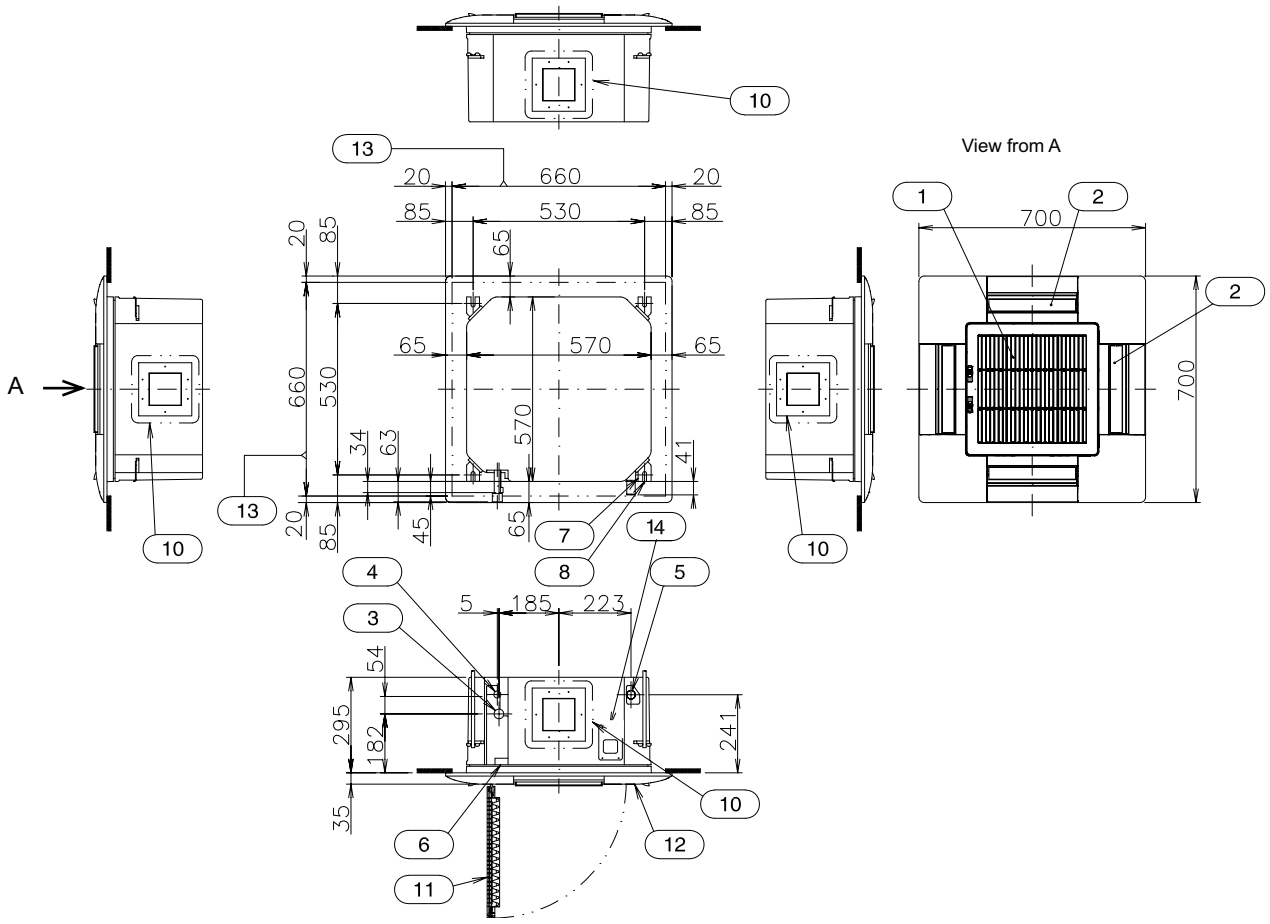


Units: mm

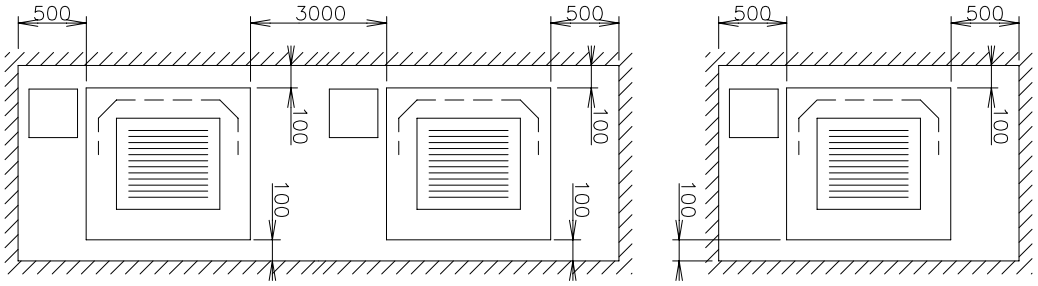
No.	Item	Remarks
1	Air intake	
2	Air outlet	4-way
3	Refrigerant Gas Line	Flare: Øa
4	Refrigerant Liquid Line	Flare: Øb
5	Drain pipe	Ø32 (outer)
6	Wiring hole	Ø32.5 (Knockout Hole)
7	Wiring hole	30x39
8	Bracket to suspend the machine	
9	Suspension bolt	4-M10 or W3/8
10	Supply air duct connection	150x385 (knockout hole)
11	Supply air duct connection	150x400 (knockout hole)
12	Grille / Filter	
13	Panel	P-G23WA2
14	Opening required in the ceiling	
15	Fresh air intake	

Models	a	b	c
RCI-1.0	Ø12.7	Ø6.35	248
RCI-1.5	Ø12.7	Ø6.35	248
RCI-2.0	Ø15.88	Ø6.35	248
RCI-2.5	Ø15.88	Ø9.53	248
RCI-3.0	Ø15.88	Ø9.53	298
RCI-3.5	Ø15.88	Ø9.53	298
RCI-4.0	Ø15.88	Ø9.53	298
RCI-5.0	Ø15.88	Ø9.53	298
RCI-6.0	Ø15.88	Ø9.53	298

◆ **RCIM-1.0~2.0FSN / P-N23WAM**



Installation space



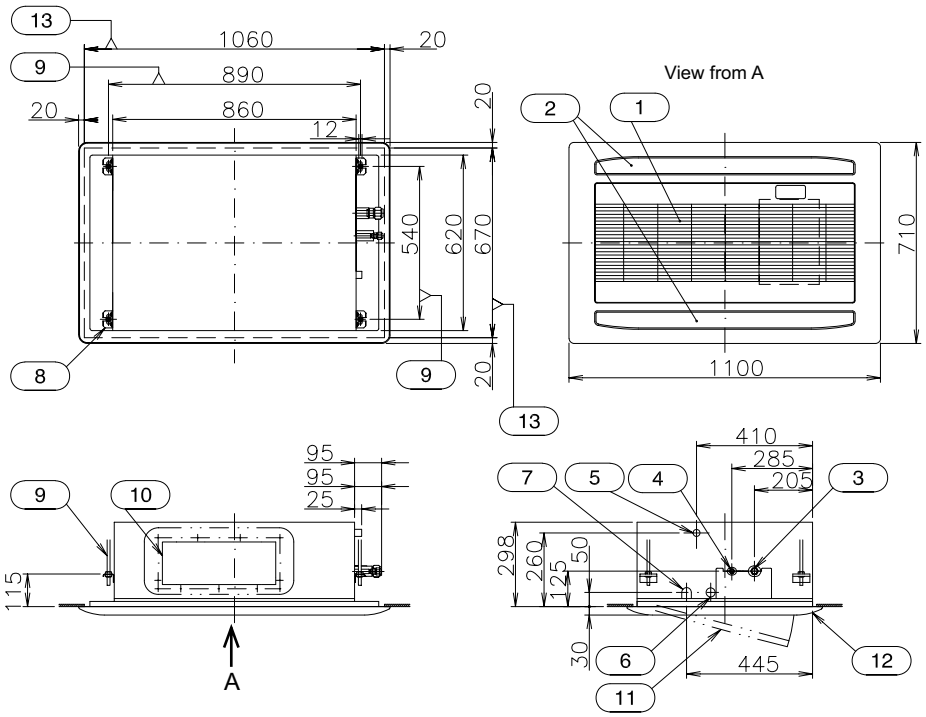
Units: mm

No.	Item	Remarks
1	Air intake	
2	Air outlet	4-way
3	Refrigerant Gas Line	Flare: Øa
4	Refrigerant Liquid Line	Flare: Øb
5	Drain pipe	Ø32 (outer)
6	Wiring hole	
7	Bracket to suspend the machine	
8	Suspension bolt	4-M10 or W3/8
9	Grille / Filter	
10	Supply air duct connection	
11	Grille / Filter	
12	Panel	P-N23WAM
13	Opening required in the ceiling	
14	Fresh air intake	

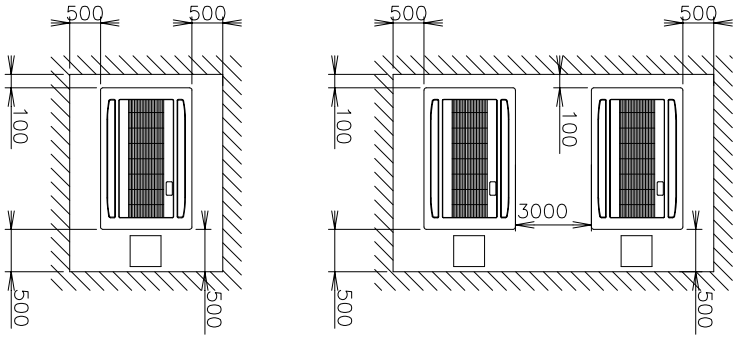
Models	a	b
RCIM-1.0	Ø12.7	Ø6.35
RCIM-1.5	Ø12.7	Ø6.35
RCIM-2.0	Ø15.88	Ø6.35

3.1.2. 2-Way Type Model

◆ **RCD-1.0~3.0FSN / P-G23WA1**



Installation Space

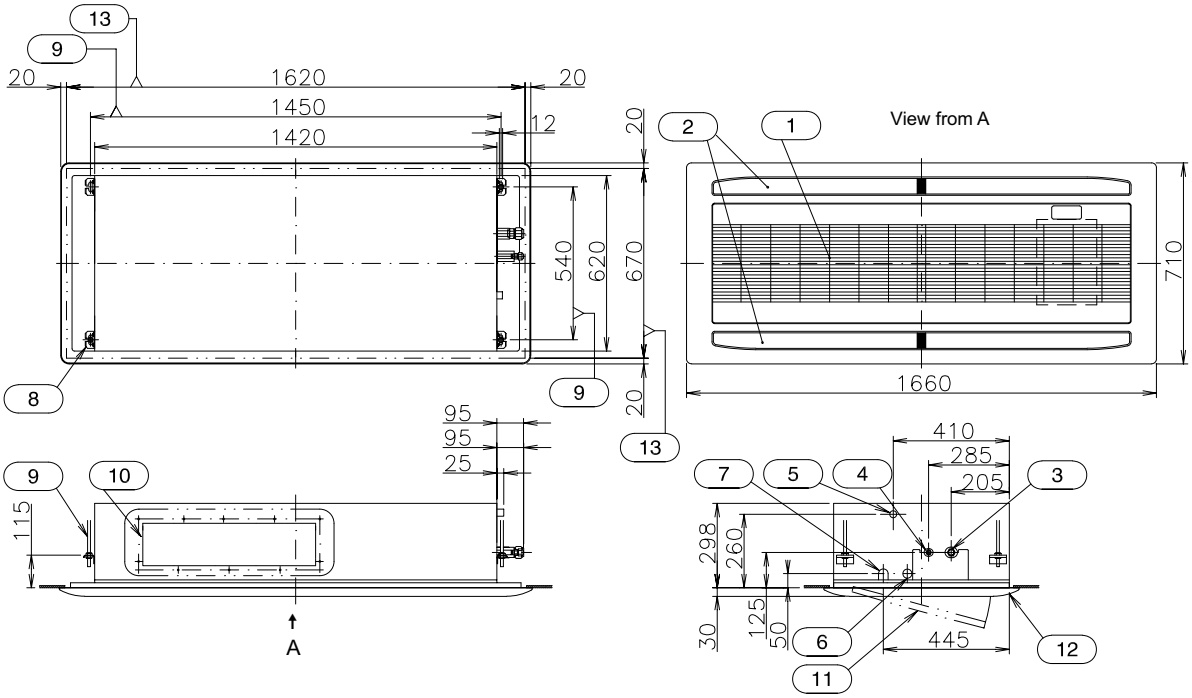


Units: mm

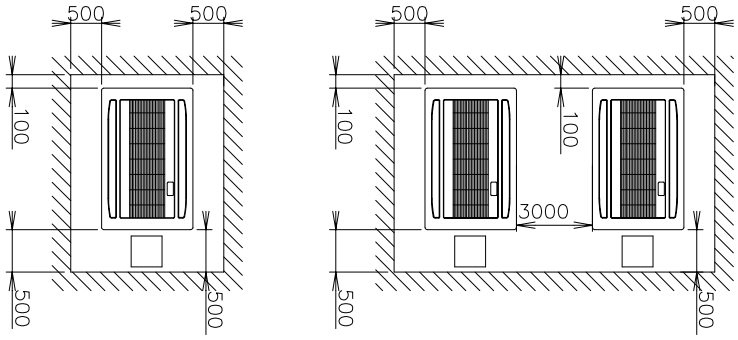
No.	Item	Remarks
1	Air intake	
2	Air outlet	2-way
3	Refrigerant Gas Line	Flare: Øa
4	Refrigerant Liquid Line	Flare: Øb
5	Drain pipe	Ø32 (outer)
6	Wiring hole	Ø32.5 (Knockout Hole)
7	Wiring hole	36x39
8	Bracket to suspend the machine	
9	Suspension bolt	
10	Supply air duct connection	150x430 (knockout hole)
11	Grille / Filter	
12	Panel	P-G23WA1
13	Opening required in the ceiling	

Models	a	b
RCD-1.0	Ø12.7	Ø6.35
RCD-1.5	Ø12.7	Ø6.35
RCD-2.0	Ø15.88	Ø6.35
RCD-2.5	Ø15.88	Ø9.53
RCD-3.0	Ø15.88	Ø9.53

◆ RCD-4.0/5.0FSN / P-G46WA1



Installation Space

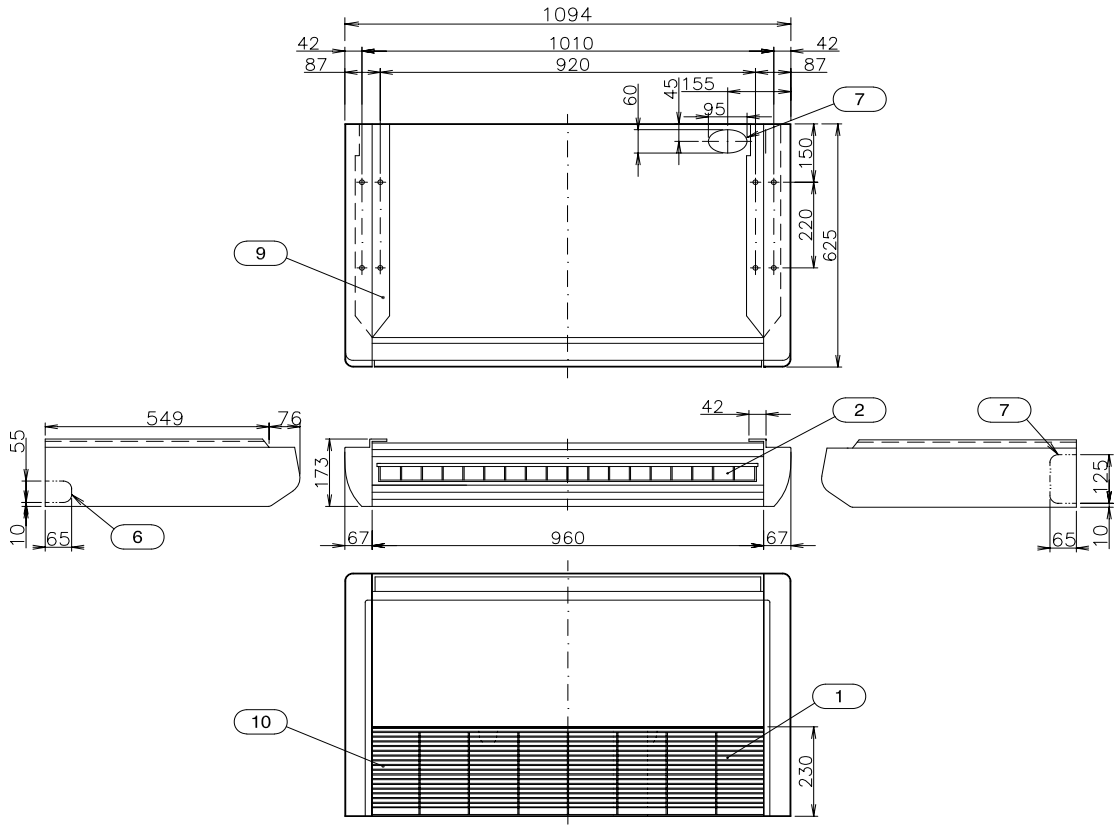


Units: mm

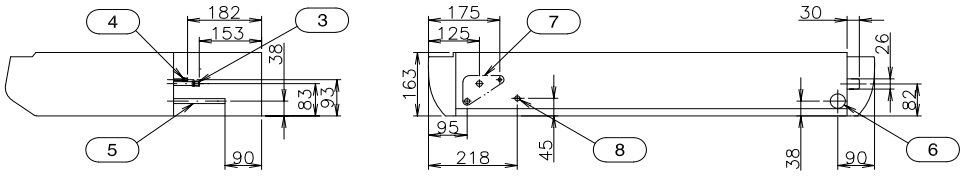
No.	Item	Remarks
1	Air intake	
2	Air outlet	2-way
3	Refrigerant Gas Line	Flare: Ø15.88
4	Refrigerant Liquid Line	Flare: Ø9.53
5	Drain pipe	Ø32 (outer)
6	Wiring hole	Ø32.5 (Knockout Hole)
7	Wiring hole	36x39
8	Bracket to suspend the machine	
9	Suspension bolt	
10	Supply air duct connection	150x640(knockout hole)
11	Grille / Filter	
12	Panel	P-G46WA1
13	Opening required in the ceiling	

3.1.3. Ceiling Type Models

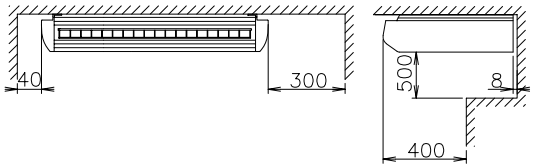
◆ **RPC-2.0FSNE**



Piping Connection Arrangement



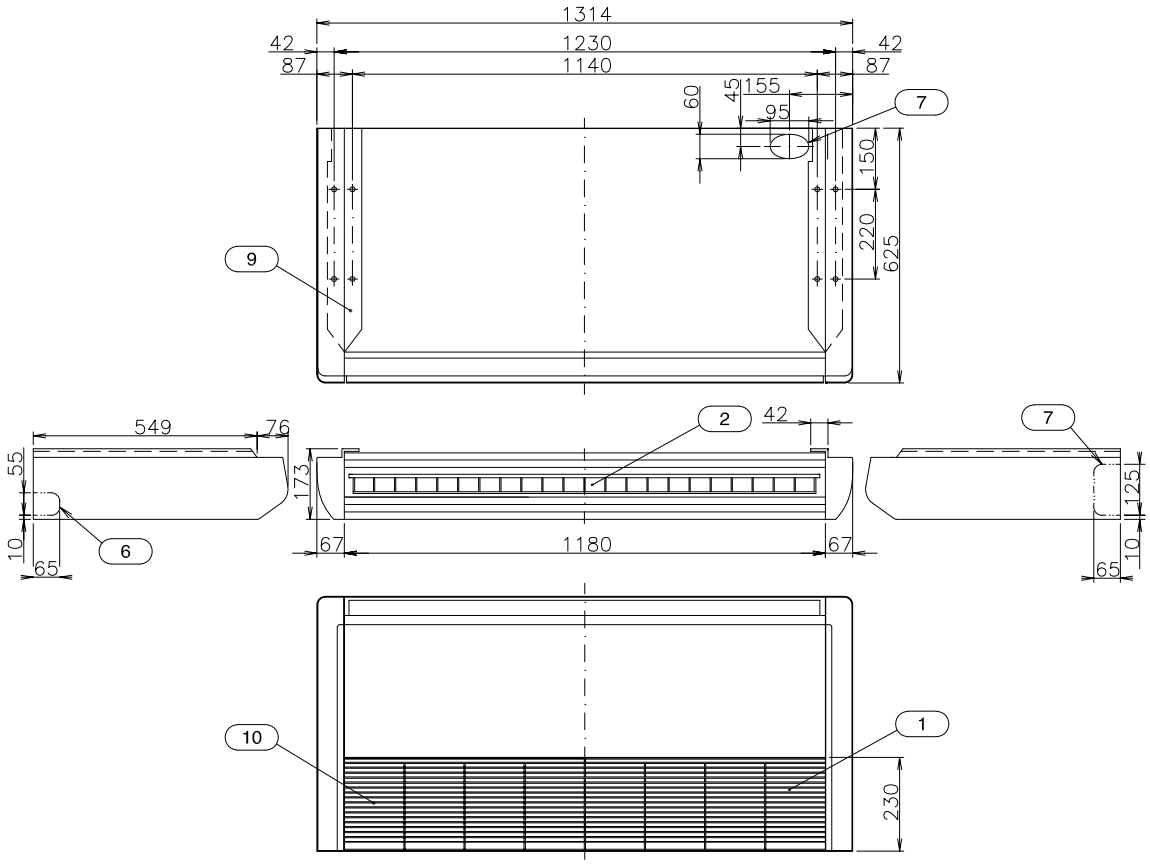
Installation Space



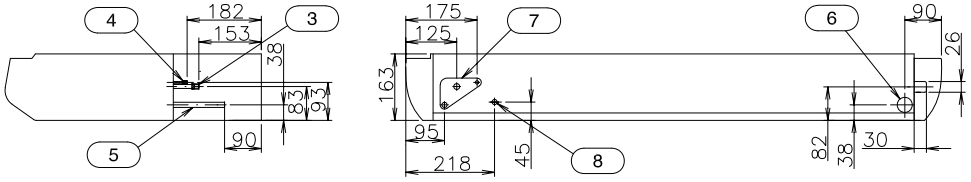
Units: mm

No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Refrigerant Gas Line	Flare: Ø15.88
4	Refrigerant Liquid Line	Flare: Ø6.35
5	Drain pipe	Ø25 (outer)
6	Drain hole	Ø32.5 (Knockout Hole)
7	Hole for Refrigerant Piping	
8	Wiring hole	
9	Bracket to suspend the machine	
10	Grille / Filter	

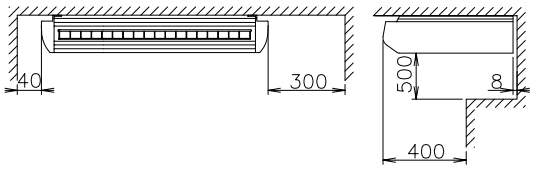
◆ RPC-2.5~3.5FSNE



Piping Connection Arrangement



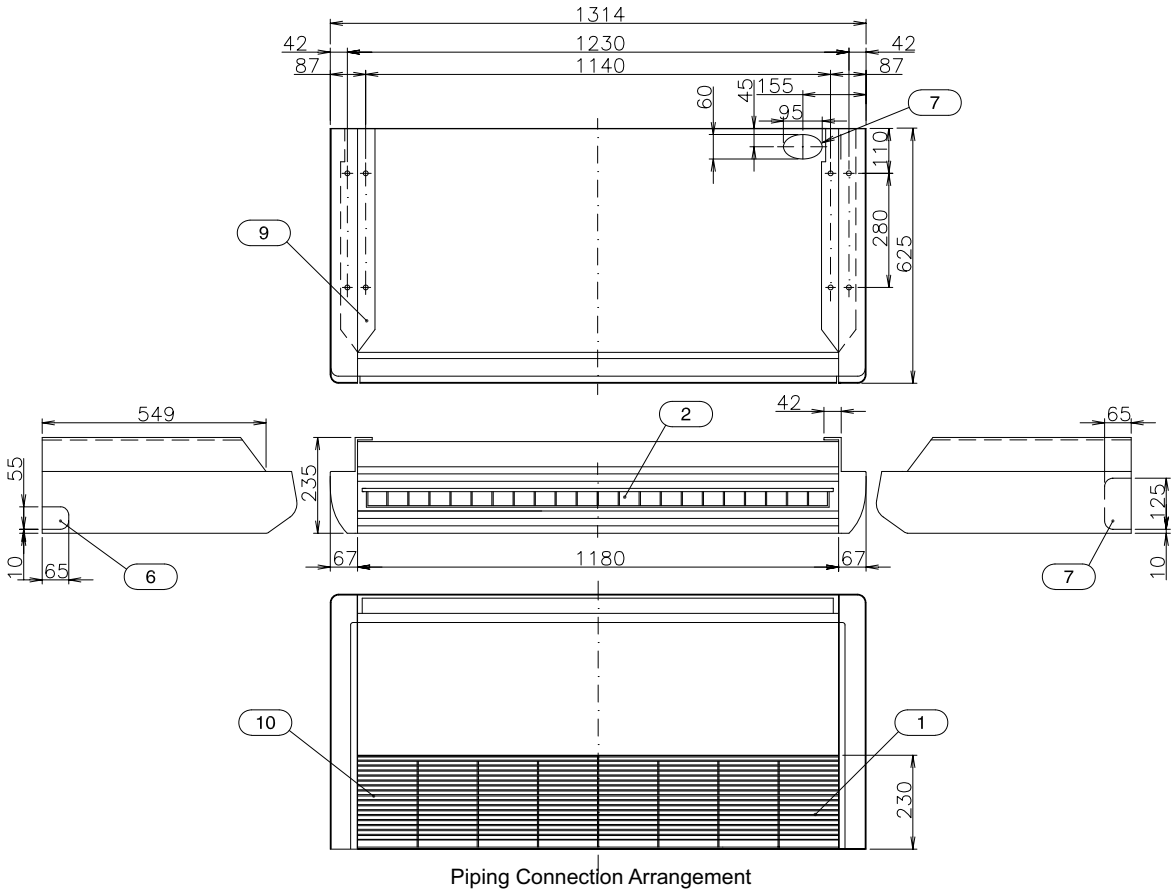
Installation Space



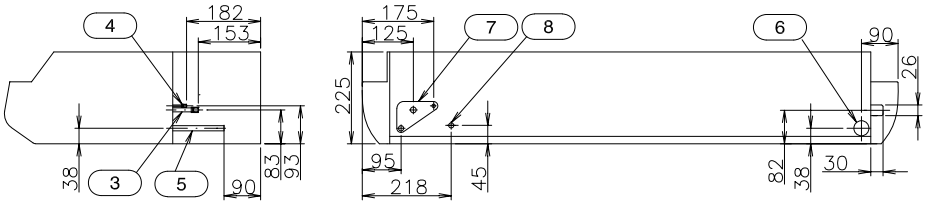
Units: mm

No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Refrigerant Gas Line	Flare: Ø15.88
4	Refrigerant Liquid Line	Flare: Ø9.53
5	Drain pipe	Ø25 (outer)
6	Drain hole	Ø32.5 (Knockout Hole)
7	Hole for Refrigerant Piping	
8	Wiring hole	
9	Bracket to suspend the machine	
10	Grille / Filter	

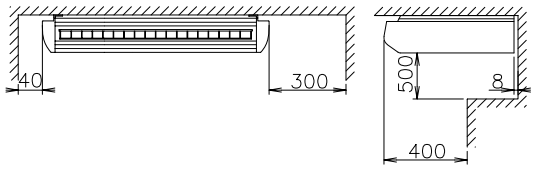
◆ RPC-4.0FSNE



Piping Connection Arrangement



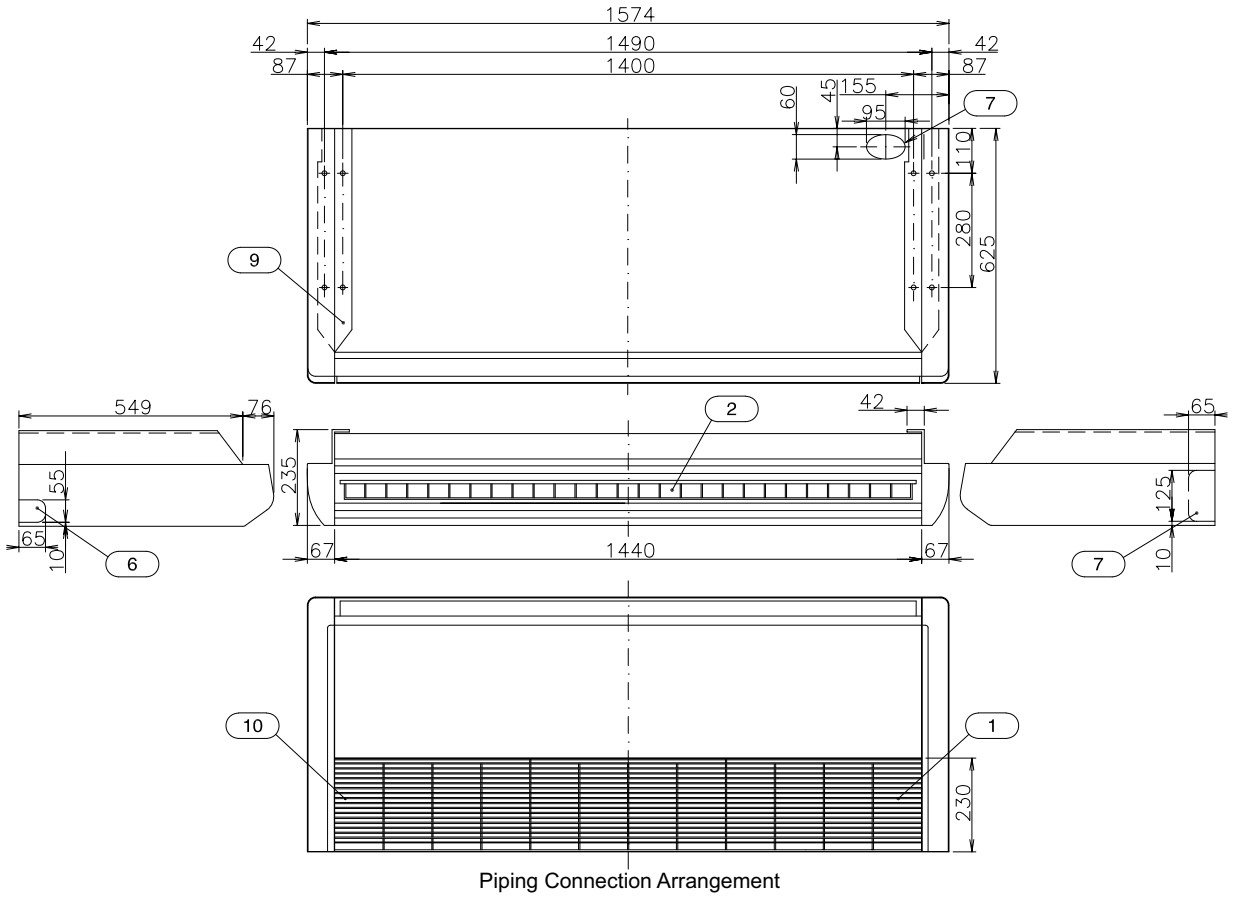
Installation Space



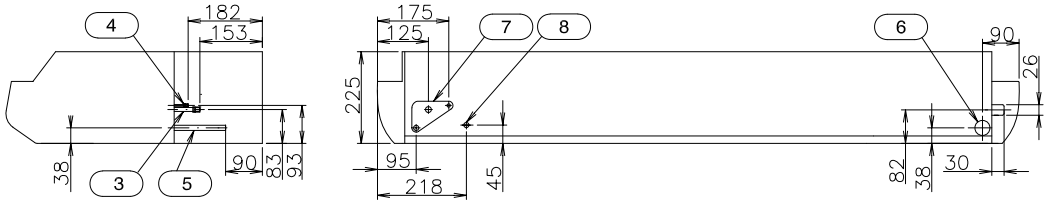
Units: mm

No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Refrigerant Gas Line	Flare: Ø15.88
4	Refrigerant Liquid Line	Flare: Ø9.53
5	Drain pipe	Ø25 (outer)
6	Drain hole	Ø32.5 (Knockout Hole)
7	Hole for Refrigerant Piping	
8	Wiring hole	
9	Bracket to suspend the machine	
10	Grille / Filter	

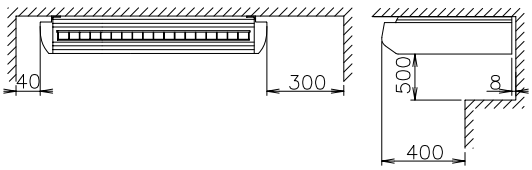
◆ RPC-5.0/6.0FSNE



Piping Connection Arrangement



Installation Space

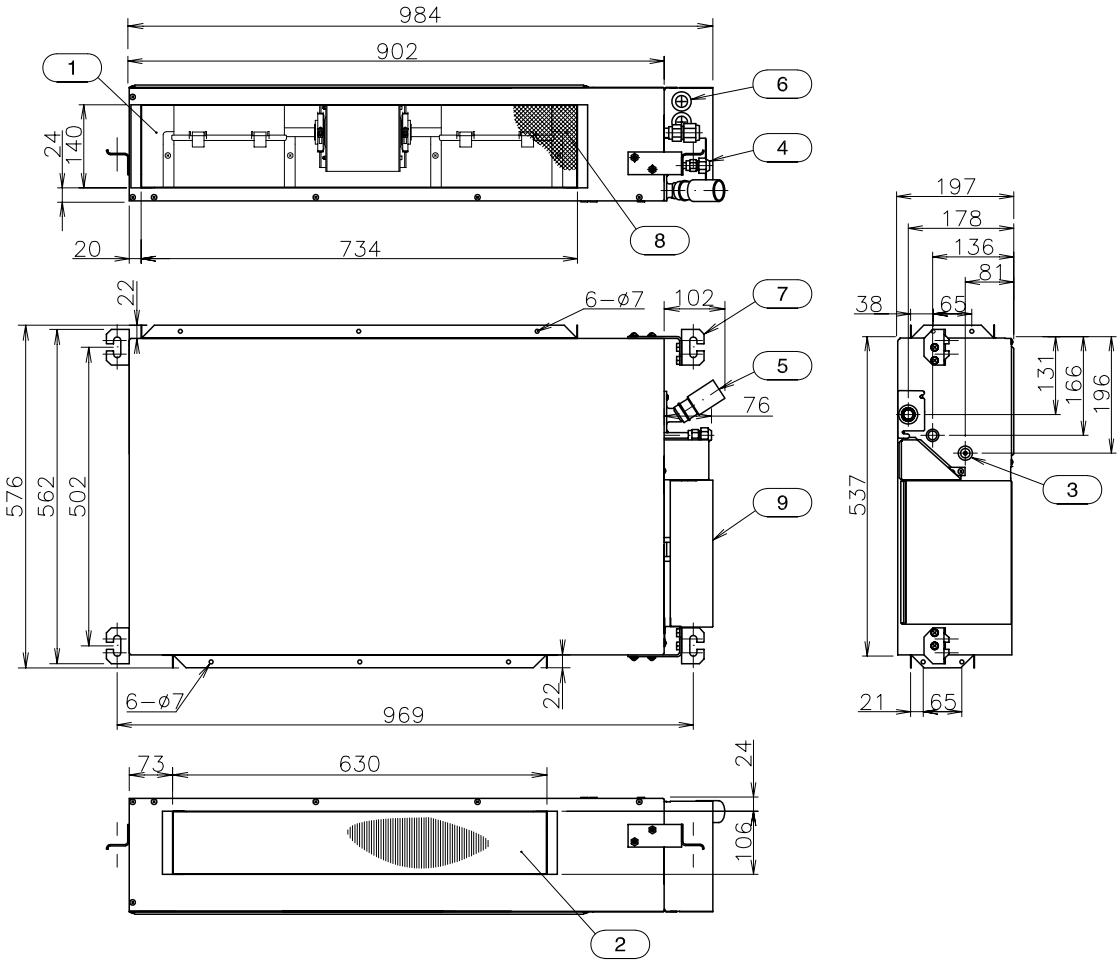


Units: mm

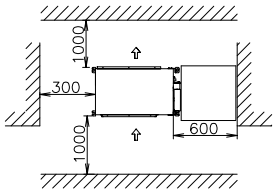
No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Refrigerant Gas Line	Flare: Ø15.88
4	Refrigerant Liquid Line	Flare: Ø9.53
5	Drain pipe	Ø25 (outer)
6	Drain hole	Ø32.5 (Knockout Hole)
7	Hole for Refrigerant Piping	
8	Wiring hole	
9	Bracket to suspend the machine	
10	Grille / Filter	

3.1.4. In the Ceiling Type Models

◆ **RPI-0.8~1.5FSN1E**



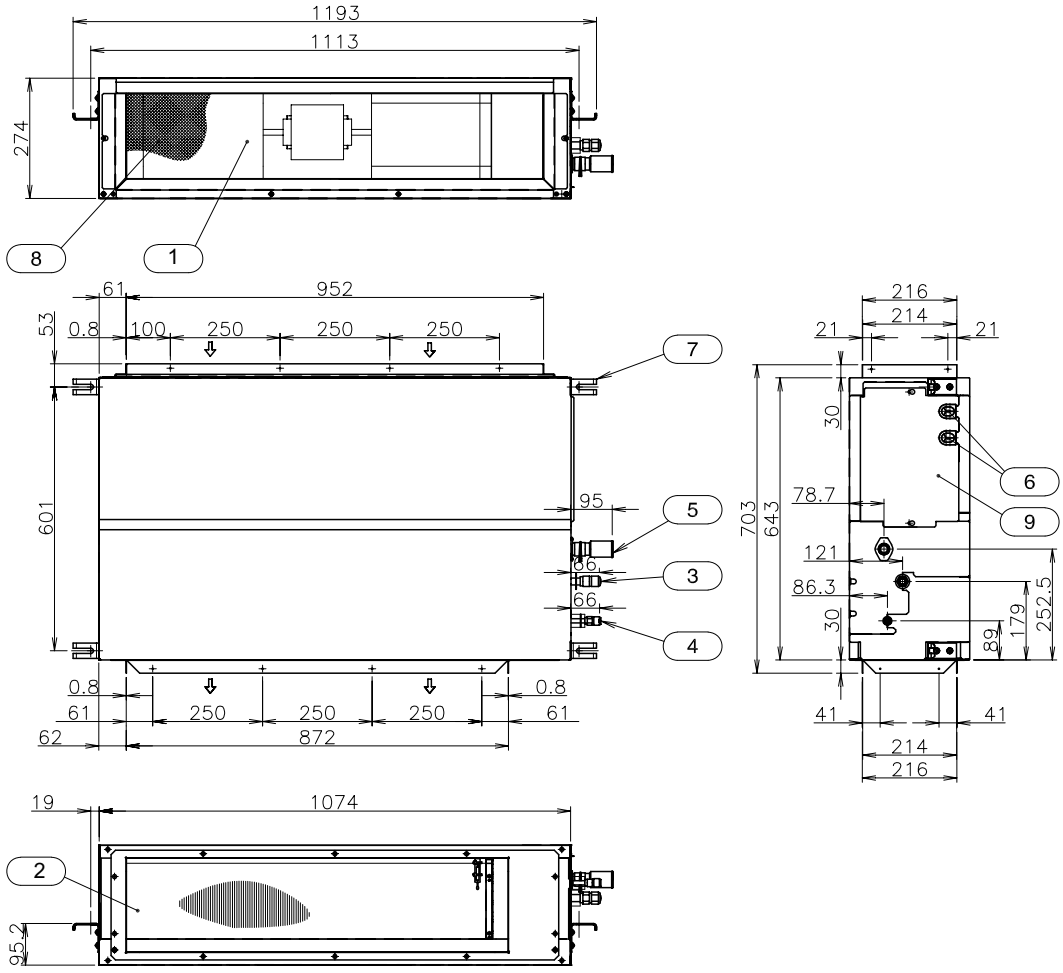
Installation Space



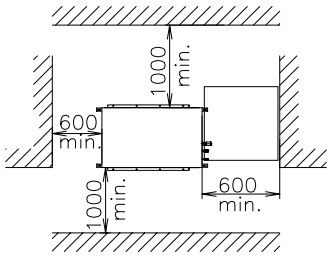
Units: mm

No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Refrigerant Gas Line	Flare: Ø12.7
4	Refrigerant Liquid Line	Flare: Ø6.35
5	Drain pipe	Ø32 (outer)
6	Wiring hole	2-Ø20 (outer)
7	Bracket to suspend the machine	
8	Filter	
9	Electrical switch box	

◆ **RPI-2.0~3.5FSN1E**



Installation Space

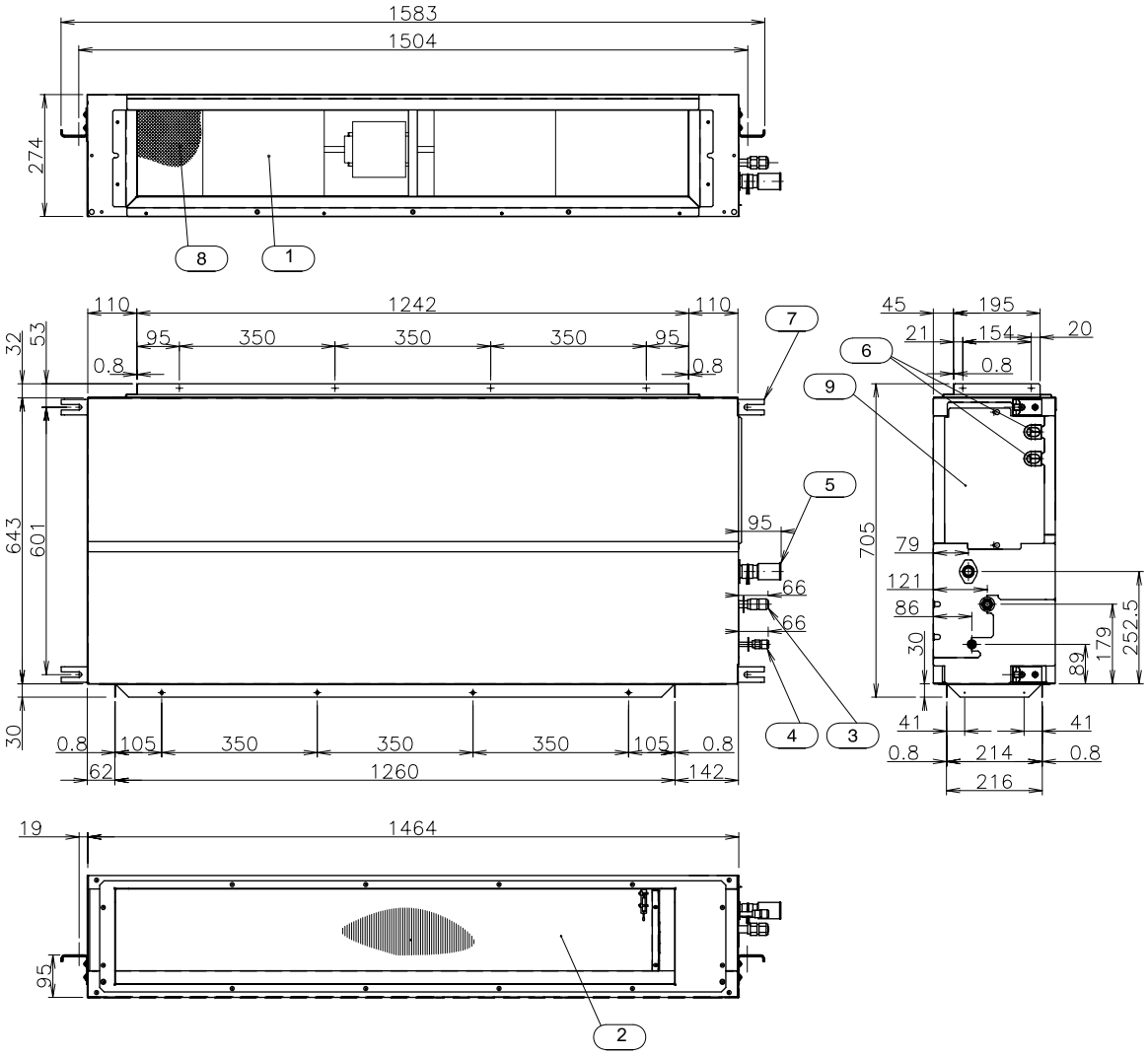


Units: mm

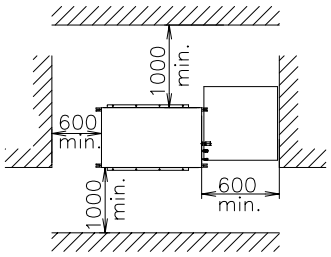
No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Refrigerant Gas Line	Flare: Øa
4	Refrigerant Liquid Line	Flare: Øb
5	Drain pipe	Ø32 (outer)
6	Wiring hole	2-Ø20 (outer)
7	Bracket to suspend the machine	
8	Filter	
9	Electrical switch box	

Models	a	b
RPI-2.0	Ø15.88	Ø6.35
RPI-2.5	Ø15.88	Ø9.53
RPI-3.0	Ø15.88	Ø9.53
RPI-3.5	Ø15.88	Ø9.53

◆ **RPI-4.0~6.0FSN1E**



Installation Space

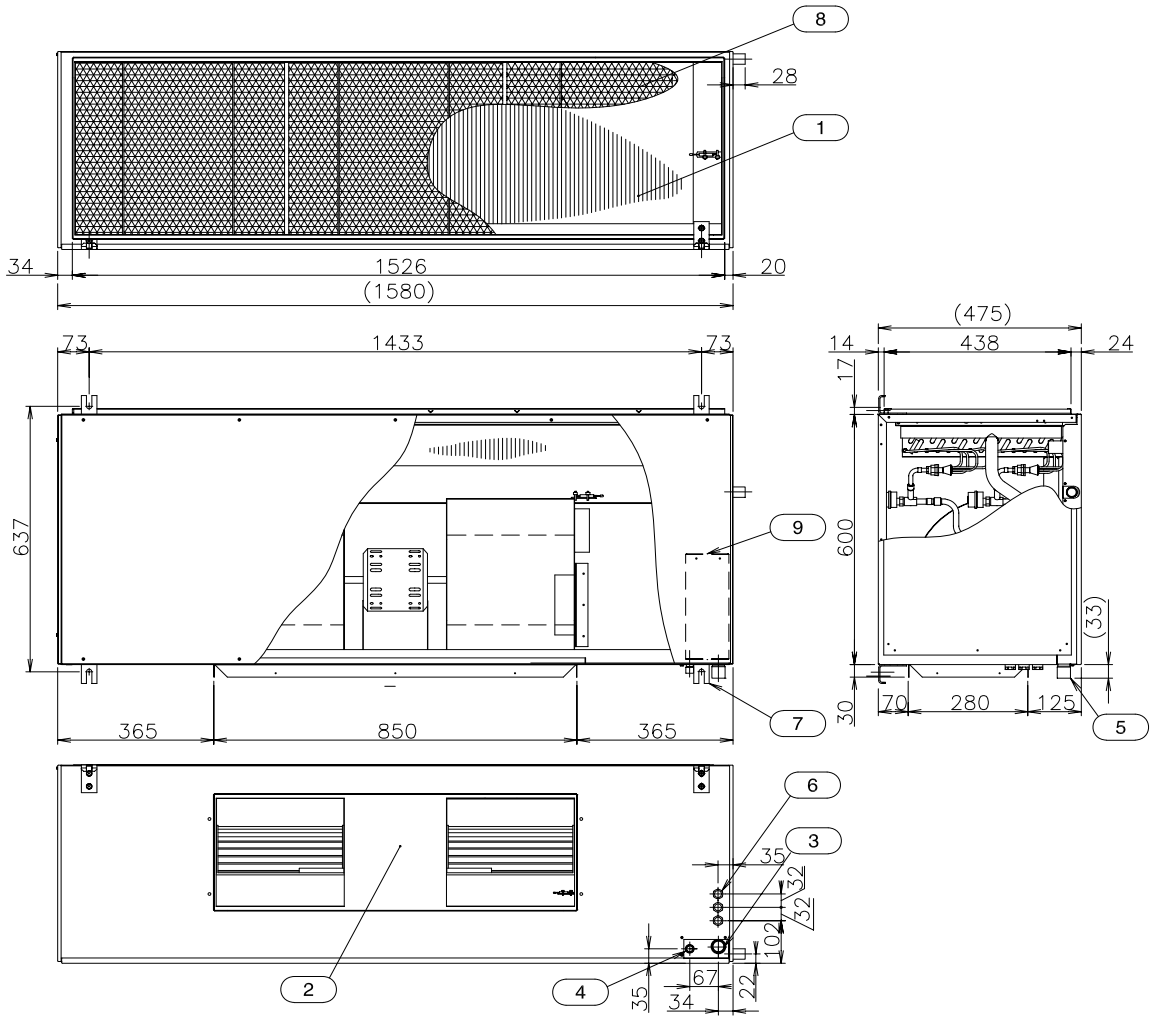


Units: mm

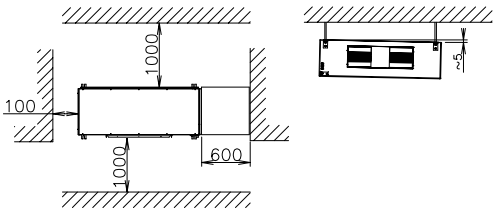
No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Refrigerant Gas Line	Flare: Ø15.88
4	Refrigerant Liquid Line	Flare: Ø9.53
5	Drain pipe	Ø32 (outer)
6	Wiring hole	2-Ø20 (outer)
7	Bracket to suspend the machine	
8	Filter	
9	Electrical switch box	

3

◆ RPI-8.0/10.0FSNE



Installation Space

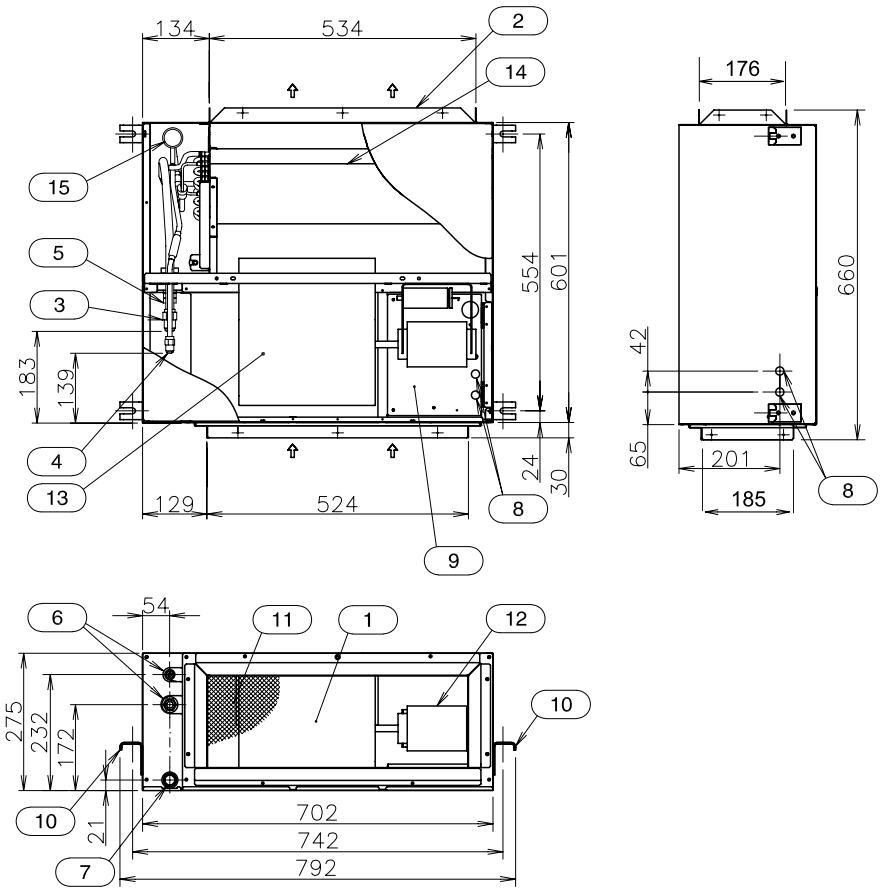


Units: mm

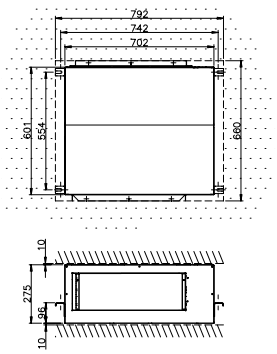
No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Refrigerant Gas Line	Flare: Øa
4	Refrigerant Liquid Line	Flare: Øb
5	Drain pipe	Ø25 (outer)
6	Wiring hole	
7	Bracket to suspend the machine	
8	Filter	
9	Electrical switch box	

Models	a	b
RPI-8.0	Ø19.05	Ø9.53
RPI-10.0	Ø22.2	Ø9.53

◆ RPIM-0.8/1.0FSN1E



Installation Space

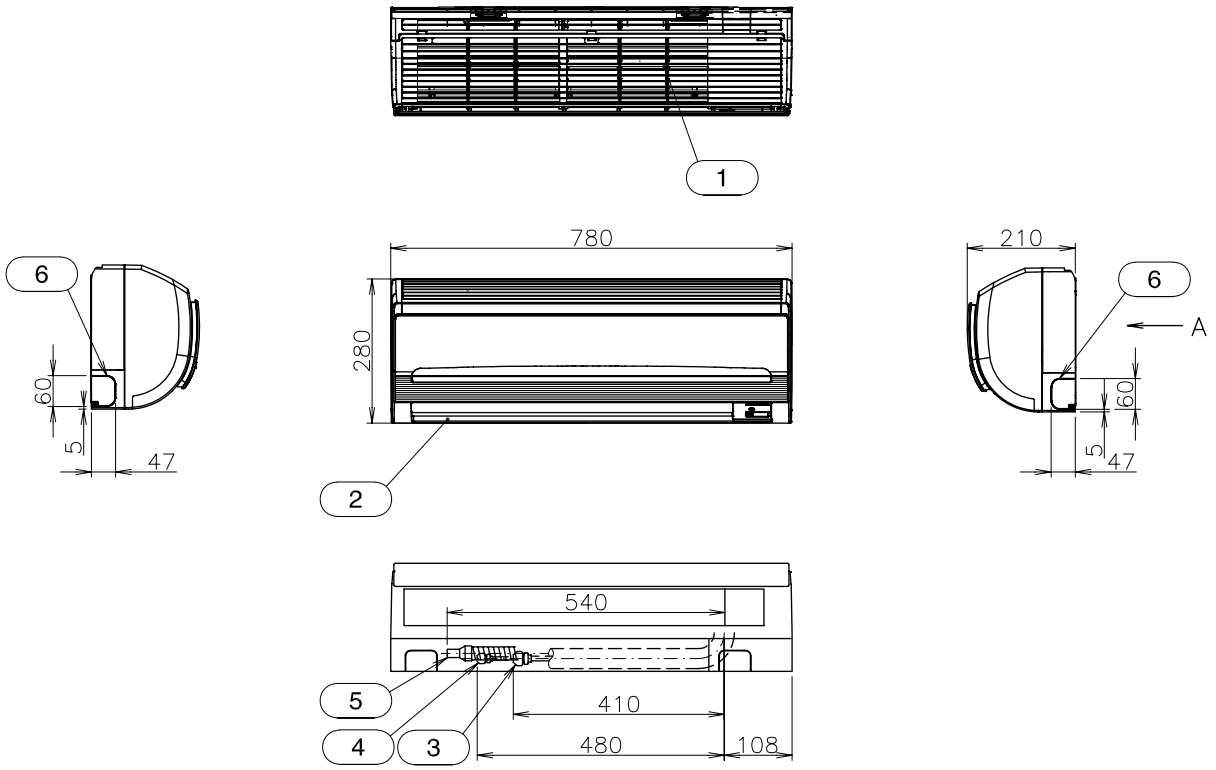


Units: mm

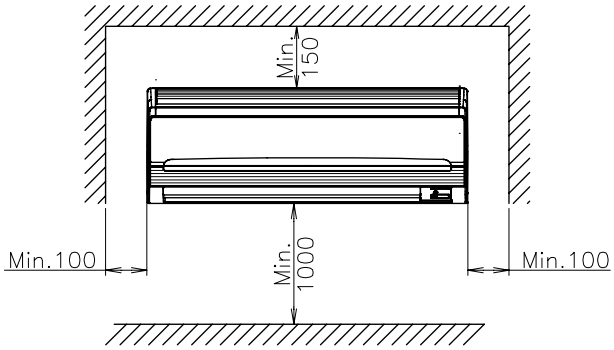
No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Refrigerant Gas Line	Flare: Ø12.7
4	Refrigerant Liquid Line	Flare: Ø6.35
5	Drain pipe	Ø25 (outer)
6	Hole for Refrigerant Piping	
7	Drain piping hole	
8	Connection Holes for wiring	
9	Electrical switch box	
10	Bracket to suspend the machine	
11	Filter	
12	Fan motor	
13	Fan casing	
14	Heat exchanger	
15	Expansion valve	

3.1.5. Wall Type Models

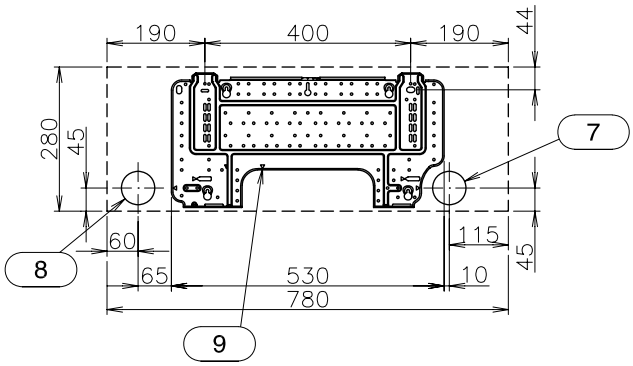
◆ **RPK-1,0/1,5FSN2M**



Installation Space



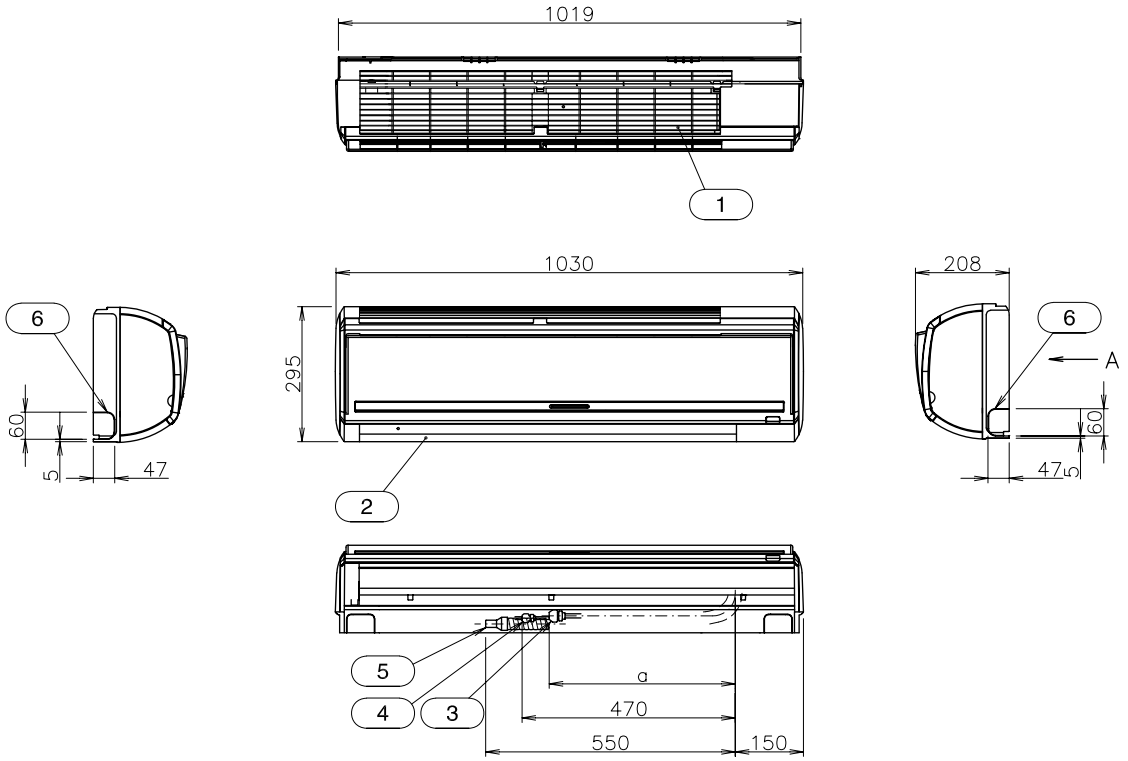
Vew from A



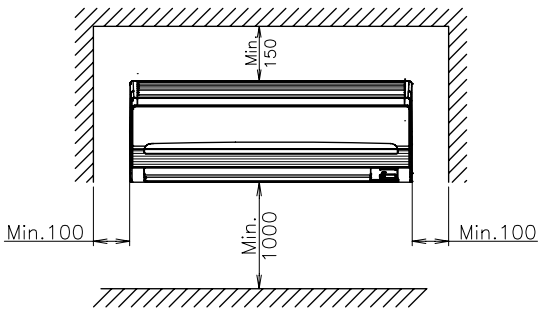
Units: mm

No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Refrigerant Gas Line	Ø 12.7 Flare Nut
4	Refrigerant Liquid Line	Ø 6.35 Flare Nut
5	Condensate Drain piping	Ø16 (outer)
6	Wiring and/or refrigerant piping hole	Knockout hole (both sides)
7	Wiring and/or refrigerant piping hole	Ø65 (outer)
8	Wiring and/or refrigerant piping hole	Ø65 (outer)
9	Bracket to suspend the machine	

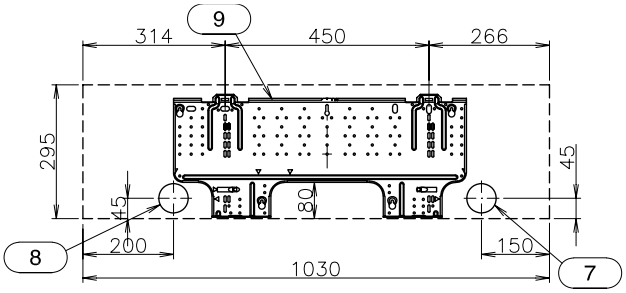
◆ **RPK–2.0FSN2M**



Installation Space



Vew from A

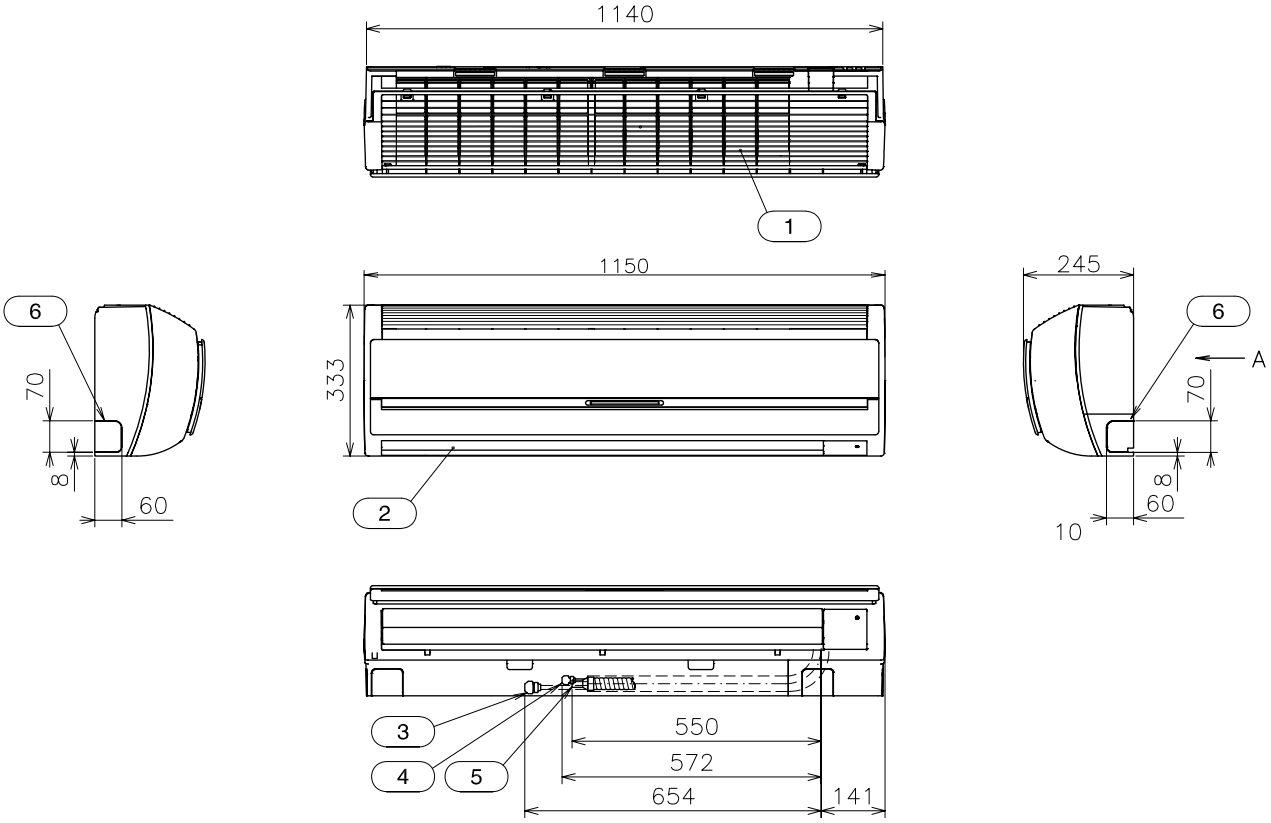


Units: mm

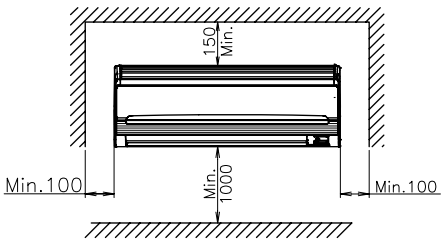
No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Refrigerant Gas Line	Øb Flare Nut
4	Refrigerant Liquid Line	Ø 6.35 Flare Nut
5	Condensate Drain piping	Ø16 (outer)
6	Wiring and/or refrigerant piping hole	Knockout hole (both sides)
7	Wiring and/or refrigerant piping hole	Ø65 (outer)
8	Wiring and/or refrigerant piping hole	Ø65 (outer)
9	Bracket to suspend the machine	

	bØ	a
③	Ø15.88	440
	Ø12,70	410

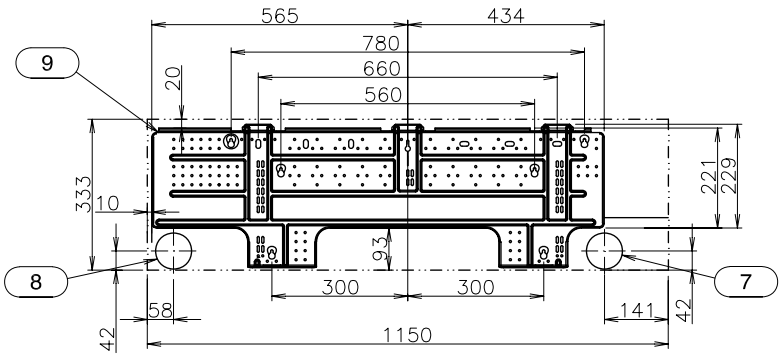
◆ **RPK-2.5~4.0FSN2M**



Installation Space



Vew from A

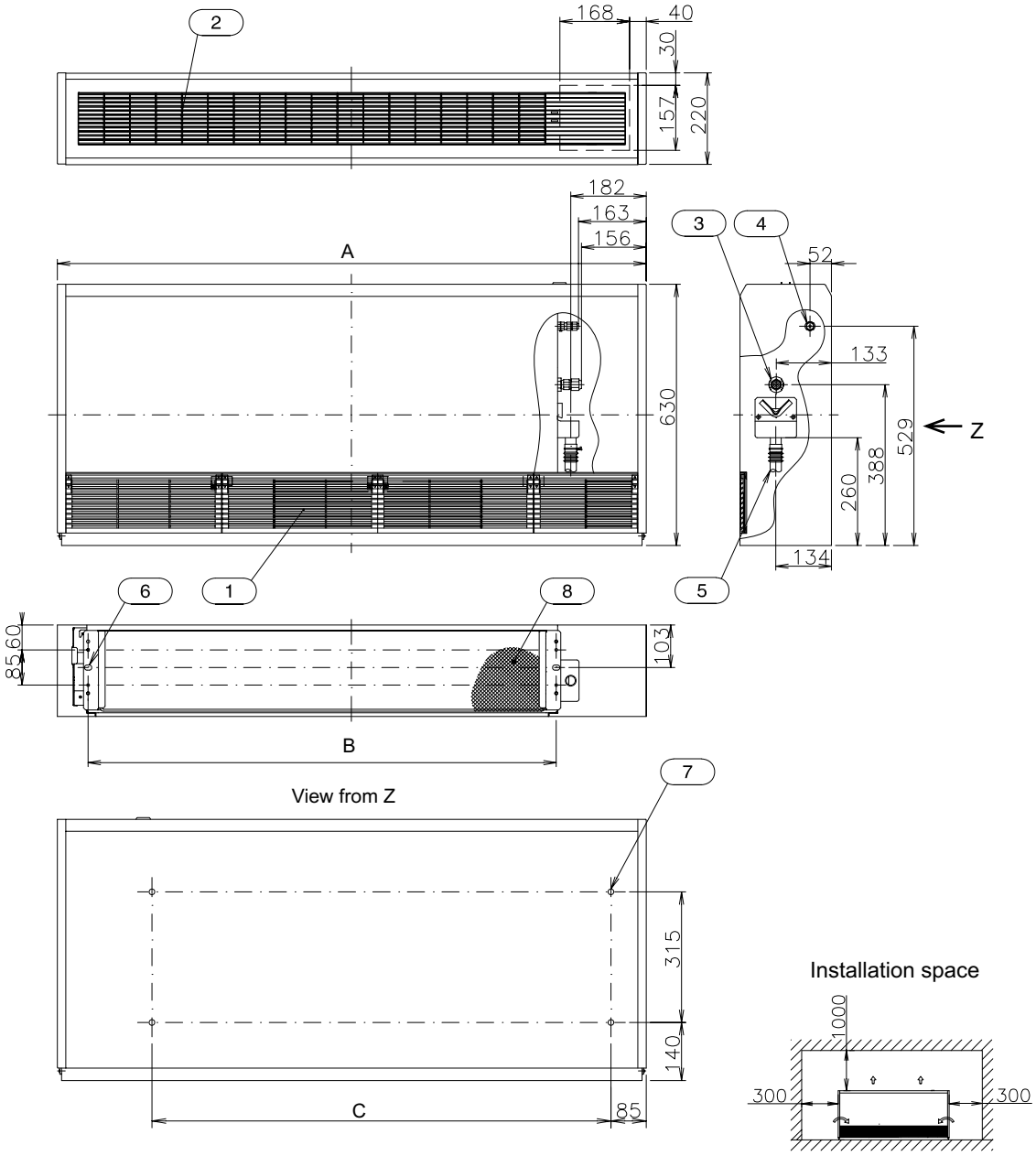


Units: mm

No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Refrigerant Gas Line	Ø15.88 Flare Nut
4	Refrigerant Liquid Line	Ø9.53 Flare Nut
5	Condensate Drain piping	Ø16 (outer)
6	Wiring and/or refrigerant piping hole	Knockout hole (both sides)
7	Wiring and/or refrigerant piping hole	Ø80 (outer)
8	Wiring and/or refrigerant piping hole	Ø80 (outer)
9	Bracket to suspend the machine	

3.1.6. Floor Type Model

◆ **RPF-1.0~2.5FSNE**



Units: mm

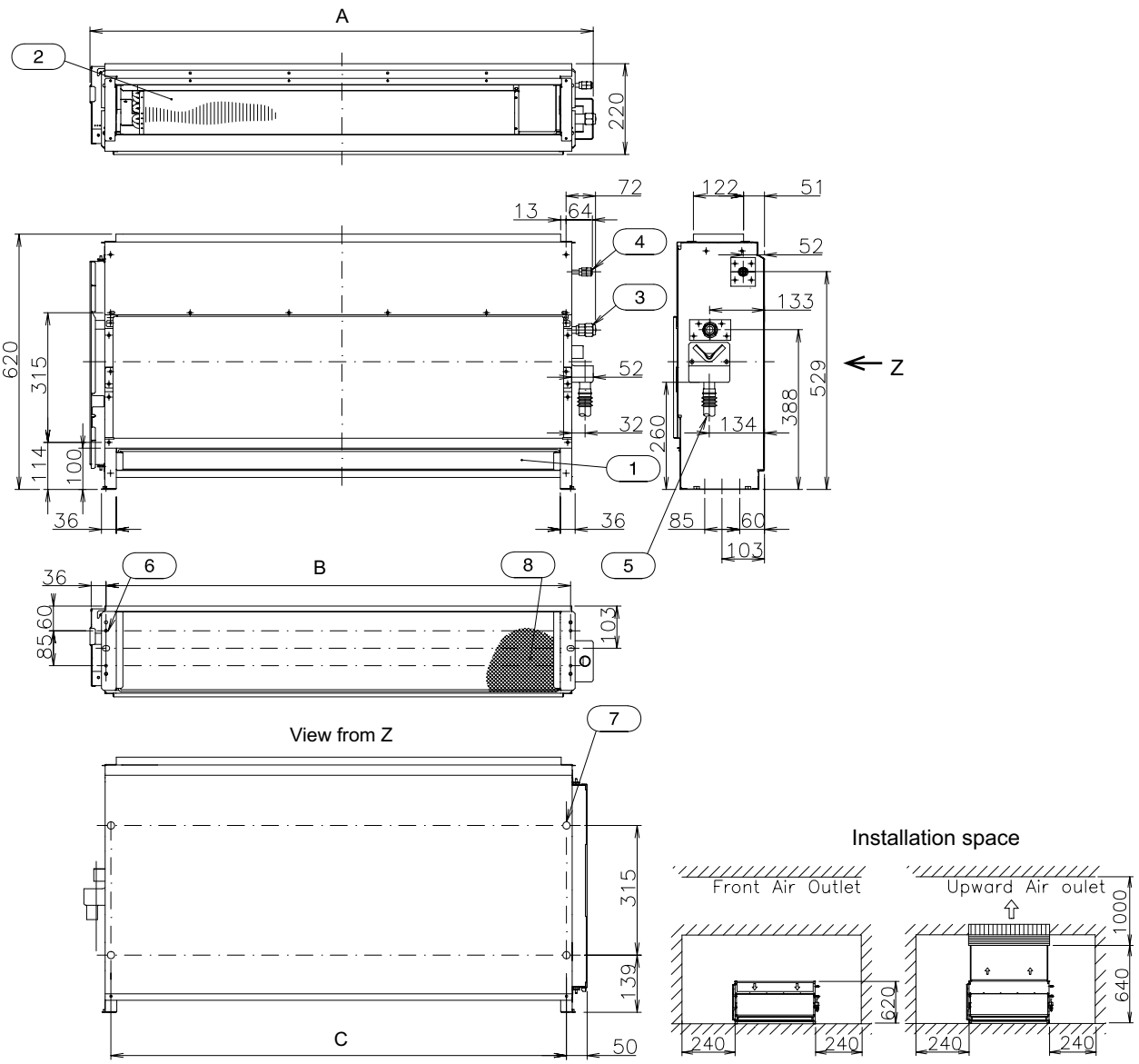
No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Refrigerant Gas Line	Flare: Øa
4	Refrigerant Liquid Line	Flare: Øb
5	Drain pipe	Ø18.5 (outer)
6	Holes for fixing machine to floor	• 4-Ø7 (outer) For wood screw (4-M5) • 2-Ø12.5 (outer) For bolts (2-M8)-
7	Holes for fixing machine to wall	4-Ø14 (outer)
8	Filter	

Models	A	B	C
RPF-1.0	1045	879	857
RPF-1.5	1170	879	857
RPF-2.0	1420	1129	1107
RPF-2.5	1420	1129	1107

Models	a	b
RPF-1.0	Ø12.7	Ø6.35
RPF-1.5	Ø12.7	Ø6.35
RPF-2.0	Ø15.88	Ø6.35
RPF-2.5	Ø15.88	Ø9.53

3.1.7. Floor Concealed Type Model

◆ **RPFI-1.0~2.5FSNE**



Units: mm

No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Refrigerant Gas Line	Flare: Øa
4	Refrigerant Liquid Line	Flare: Øb
5	Drain pipe	Ø18.5 (outer)
6	Holes for fixing machine to floor	• 4-Ø7 (outer) For wood screw (4-M5) • 2-Ø12.5 (outer) For bolts (2-M8)-
7	Holes for fixing machine to wall	4-Ø14 (outer)
8	Filter	

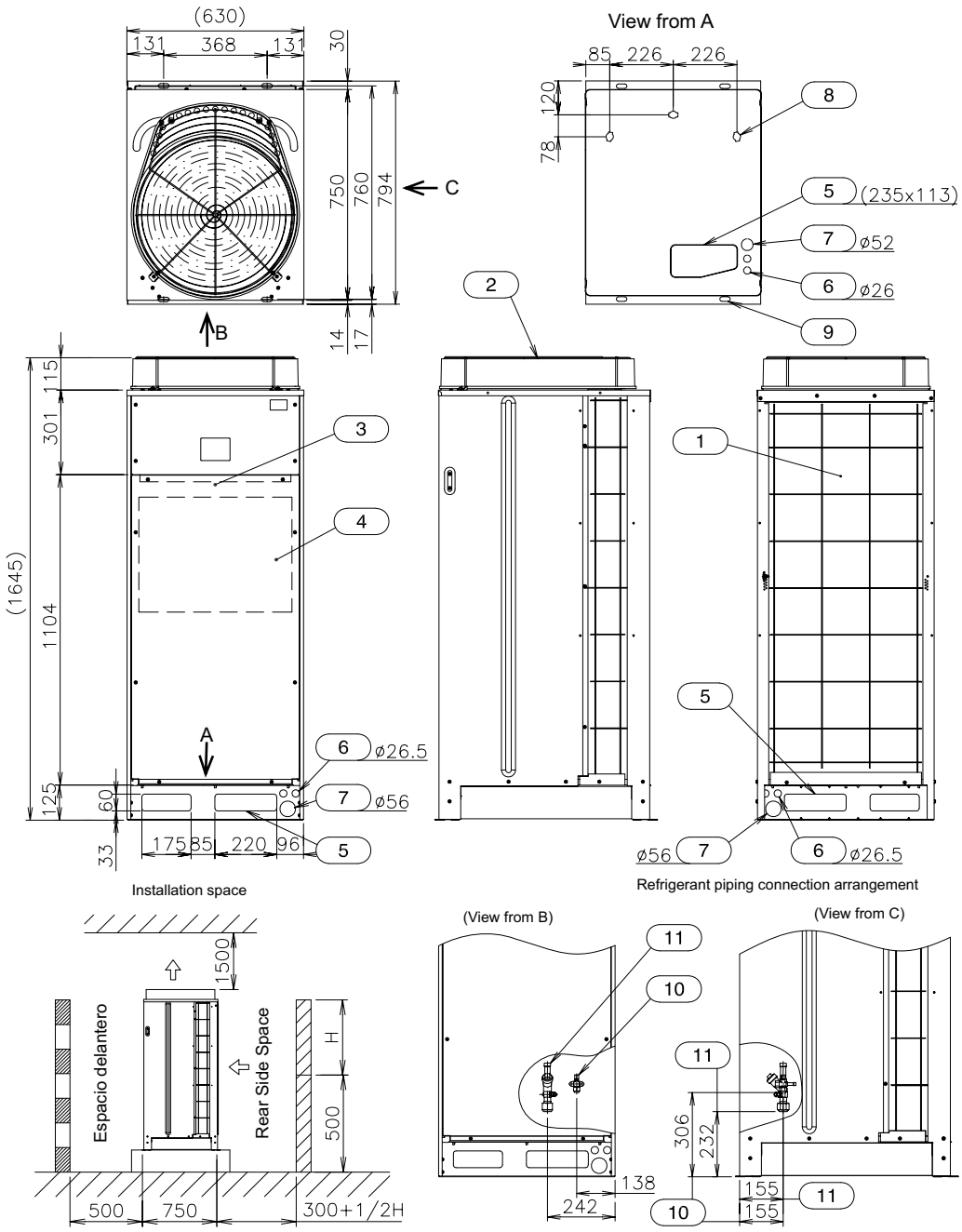
Models	A	B	C
RPFI-1.0	848	879	857
RPFI-1.5	973	879	857
RPFI-2.0	1223	1129	1107
RPFI-2.5	1223	1129	1107

Models	a	b
RPFI-1.0	Ø12.7	Ø6.35
RPFI-1.5	Ø12.7	Ø6.35
RPFI-2.0	Ø15.88	Ø6.35
RPFI-2.5	Ø15.88	Ø9.53

3.2. Outdoor Units

3.2.1. Series FSN(E)/FXN(E) – Set Free

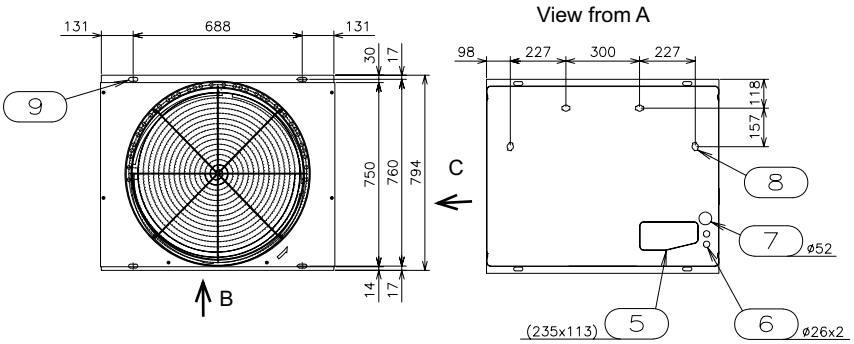
◆ **RAS-5FSN**

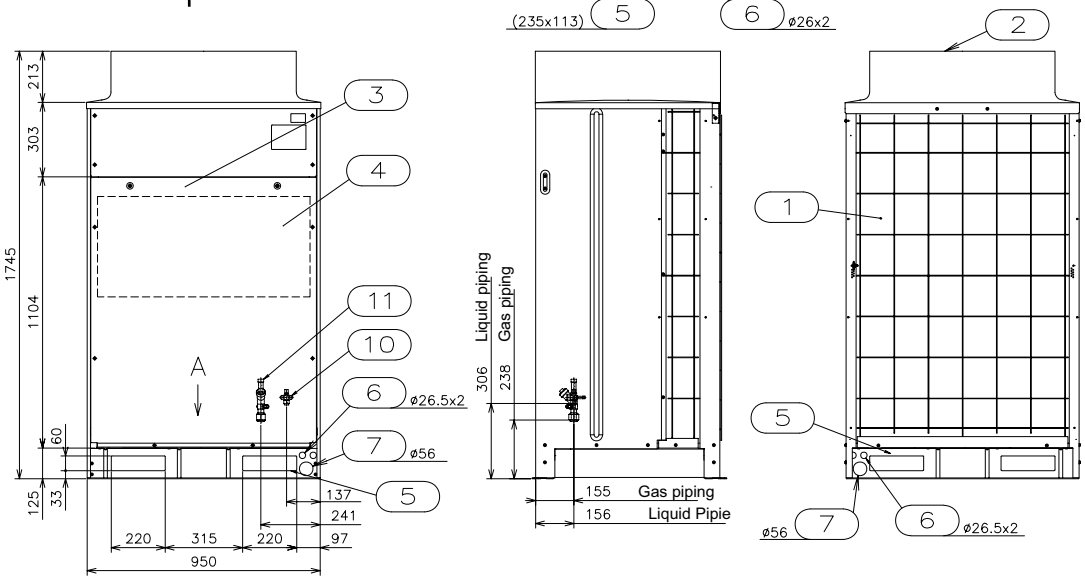


Units: mm

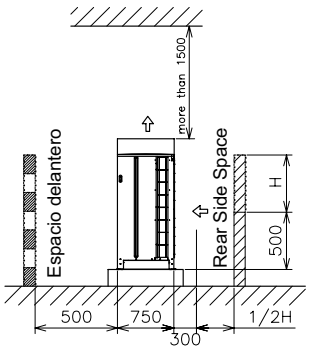
No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Service cover	
4	Electrical switch box	
5	Holes for Refrigerant Piping	
6	Holes for Control Line Wiring	
7	Holes for Power Supply Wiring	
8	Drain holes	4-Ø26
9	Holes for fixing machine to floor	4-(38x16)
10	Refrigerant Liquid Line	Flare: Ø9.53
11	Refrigerant Gas Line	Flare: Ø15.88

◆ RAS-8FSN1E/RAS-8FXNE



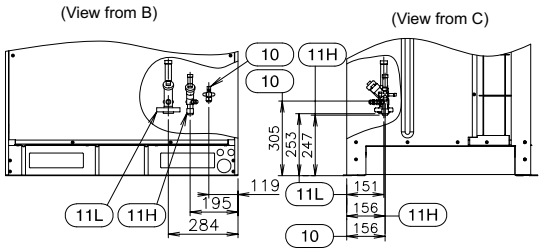


Installation space



Refrigerant piping connection arrangement

(FXNE units only)



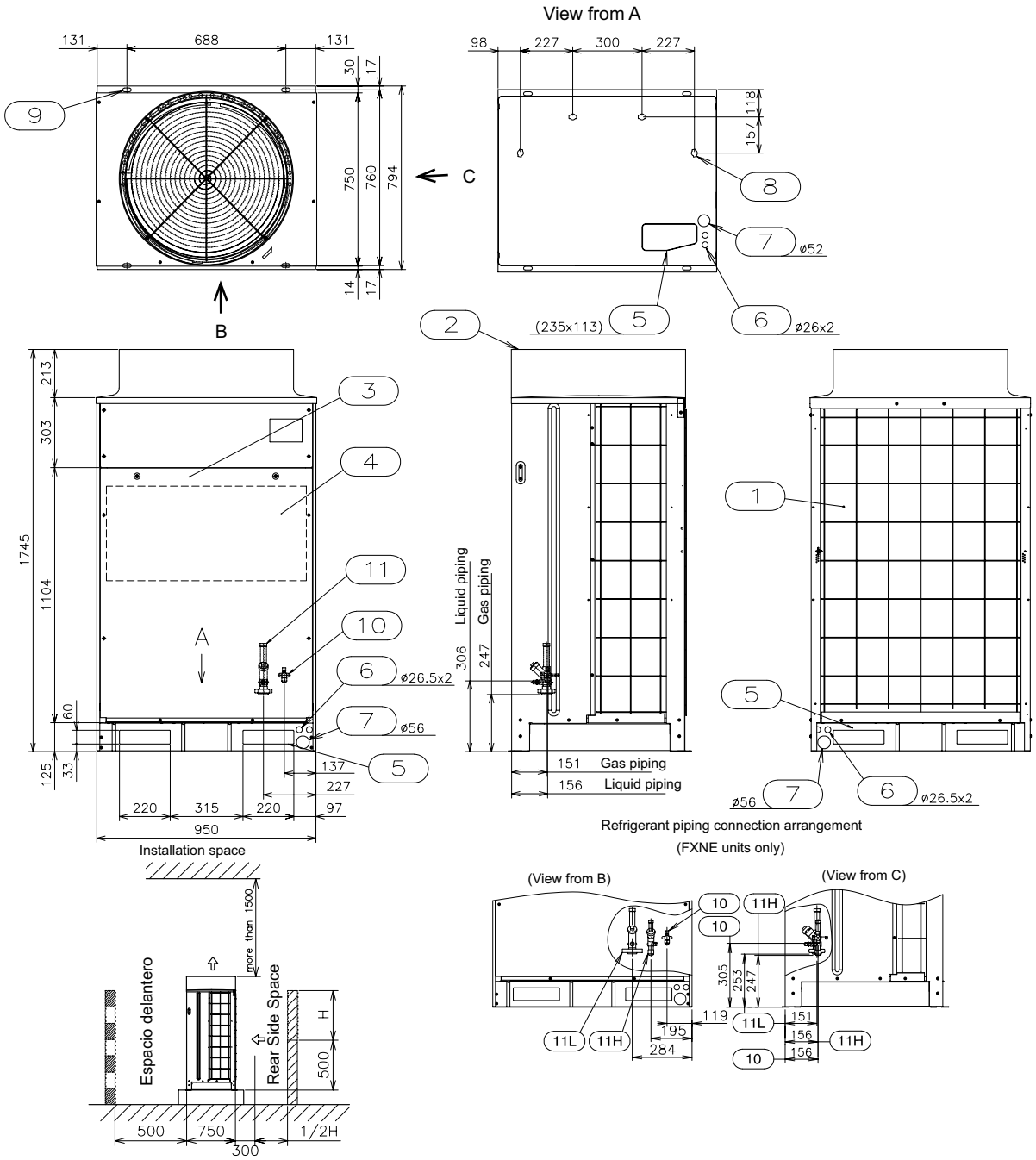
Units: mm

No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Service cover	
4	Electrical switch box	
5	Holes for Refrigerant Piping	
6	Holes for Control Line Wiring	
7	Holes for Power Supply Wiring	
8	Drain holes	4-Ø26
9	Holes for fixing machine to floor	4-(38x16)
10	Refrigerant Liquid Line	Flare nut: Øa
11	Refrigerant Gas Line	Flange: Øb
11H	High refrigerant gas line	Flare nut: Øc
11L	Low refrigerant gas line	Flange: Ød

Models	a	b
RAS-8FSN1E	9.53	19.05

Models	a	c	d
RAS-8FXNE	9.53	15.88	19.05

◆ RAS-10~12FSN1E/RAS-10~12FXNE



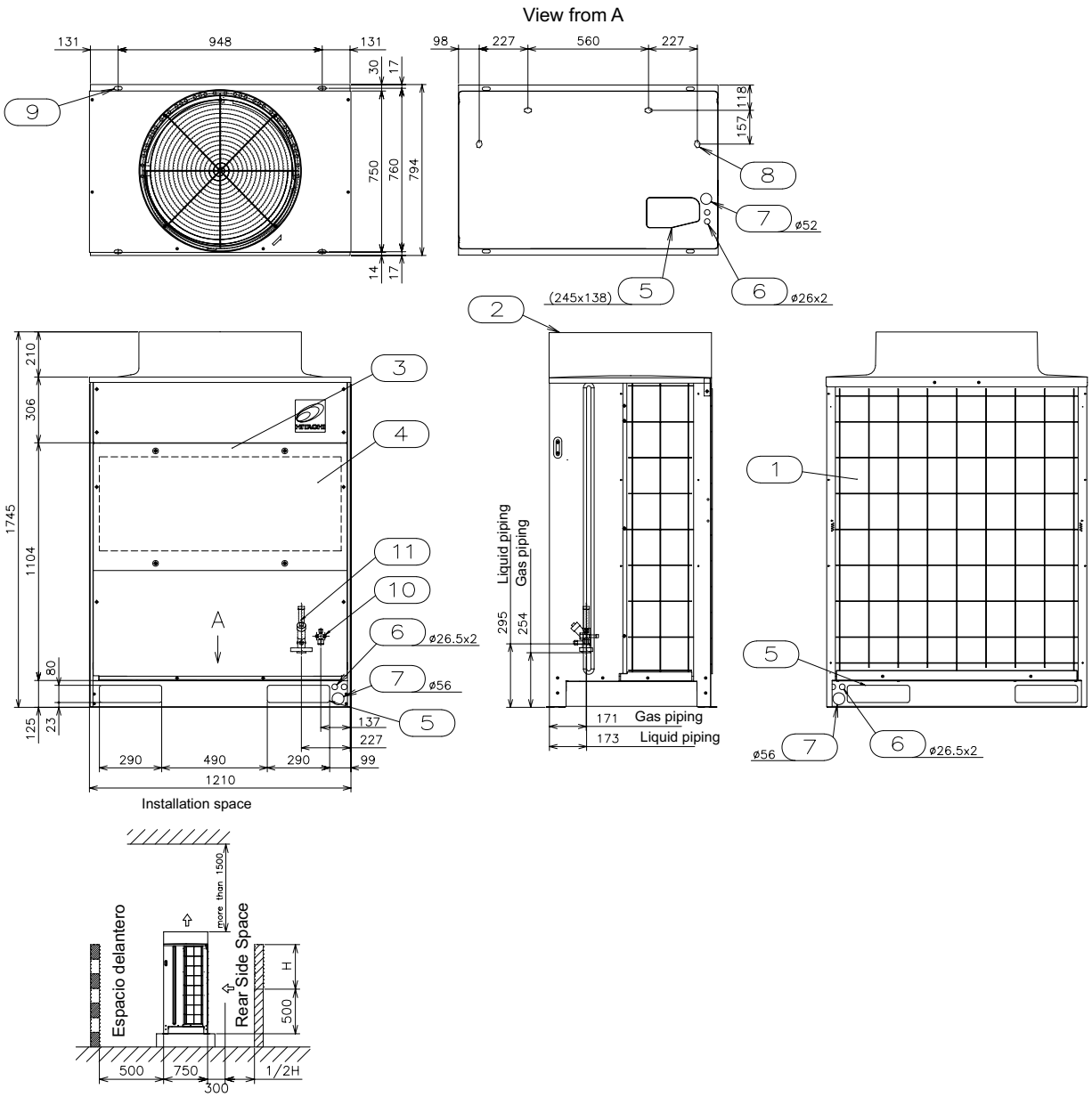
Units: mm

No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Service cover	
4	Electrical switch box	
5	Holes for Refrigerant Piping	
6	Holes for Control Line Wiring	
7	Holes for Power Supply Wiring	
8	Drain holes	4-Ø26
9	Holes for fixing machine to floor	4-(38x16)
10	Refrigerant Liquid Line	Flare nut: Øa
11	Refrigerant Gas Line	Flange: Øb
11H	High refrigerant gas line	Flare nut: Øc
11L	Low refrigerant gas line	Flange: Ød

Models	a	b
RAS-10FSN1E	9.53	22.2
RAS-12FSN1E	9.53	25.4

Models	a	c	d
RAS-10FXNE	9.53	19.05	22.2
RAS-12FXNE	12.7	19.05	25.4

◆ RAS-14/16FSN1



Units: mm

No.	Item	Remarks
1	Air intake	
2	Air outlet	
3	Service cover	
4	Electrical switch box	
5	Holes for Refrigerant Piping	
6	Holes for Control Line Wiring	
7	Holes for Power Supply Wiring	
8	Drain holes	4-Ø26
9	Holes for fixing machine to floor	4-(38x16)
10	Refrigerant Liquid Line	Flare: Øa
11	Refrigerant Gas Line	Flange: Ø25.4

Models	a
RAS-14FSN1	12.70
RAS-16FSN1	15.88