



## Outdoor unit

- Heat Pump Series (S)
- Heat Pump Series (Y)
- Heat Pump Series - High COP (Y)
- Heat Pump Series - ZUBADAN (Y)
- Water cooled Heat Pump Series (WY)
- Heat Recovery Series (R2)
- Heat Recovery Series - High COP (R2)
- Water Cooled Heat Recovery Series (WR2)
- REPLACE MULTI Series (Y)
- REPLACE MULTI Series (R2)

# Wide Selection of Outdoor Units

System	Type	Model name	HP	4.5	5	6	8	10		12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50			
				Model	P112	P125	P140	P200	P250		P300	P350	P400	P450	P500	P550	P600	P650	P700	P750	P800	P850	P900	P950	P1000	P1050	P1100	P1150	P1200	P1250		
Heat Pump	Heat Pump	S series NEW PUMY-P VKM(-BS) PUMY-P YKM(-BS)		45	5	6																										
		Y series PUHY-P YJM-A(-BS) PUHY-P YSJM-A(-BS)		S			8	10		12			10 10	10 12	10	12							10 12	12 12	12							
		Y series PUHY-P YSJM-A1(-BS)		L						14	16											14	14 14	14 16	14	16	14 16	14 16	14 16	14		
	Air Cooled	Y series - High COP PUHY-EP YJM-A(-BS) PUHY-EP YSJM-A(-BS)		XL						18											18	18	18 18									
		Y series - High COP PUHY-EP YSJM-A1(-BS)		S						8 12		12 12		12																		
		ZUBADAN series PUHY-HP YHM-A PUHY-HP YSHM-A		L									16		16 16																	
	Heat Recovery	R2 series PURY-P YJM-A(-BS) PURY-P YSJM-A(-BS)		XL																												
		R2 series PURY-P YSJM-A1(-BS)		S		8	10			12			10 10	10 12	12 12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
		R2 series - High COP PURY-EP YJM-A(-BS) PURY-EP YSJM-A(-BS)		L						14	16										14	16	14 16	16 16	16							
		R2 series - High COP PURY-EP YSJM-A1(-BS)		XL						18														18 18								
Water Cooled	Heat Pump	WY series PQHY-P YHM-A PQHY-P YSHM-A		S						8 8		8 8		8 8		8 8		8 8		8 8		8 8		8 8		8 8		8 8		8 8		8 8
	Heat Recovery	WR2 series PQRY-P YHM-A PQRY-P YSHM-A		L						8 10		12		10 12	10 12	12 12	12	12	14	14 14	14 14	14										
	Heat Pump	REPLACE MULTI Y series PUHY-RP YJM-B PUHY-RP YSJM-B		XL						12	14	8 8	8 10	10 10	10 12	12 12	12 14	8 10 10	10 10 10	10 10 12	10 12 12	12 12 12										
	Heat Recovery	REPLACE MULTI R2 series PURY-RP YJM-B PURY-RP YSJM-B		S						8 10		12																				
Air Cooled	Heat Pump	REPLACE MULTI Y series PUHY-RP YJM-B PUHY-RP YSJM-B		L						8 10		12																				
	Heat Recovery	REPLACE MULTI R2 series PURY-RP YJM-B PURY-RP YSJM-B		S						8 10		12																				

\*1. Indicates S, L, XL modules

\*2. The circled numbers in the table indicate the horse power, and the combination of S, L, and XL modules.

# S (Heat Pump) series

# Y (Heat Pump) series

## Cooling or Heating



**S series** — [PUMY-P VKM(-BS)  
PUMY-P YKM(-BS)]

**Y series** — [PUHY-P YJM-A(-BS)  
PUHY-P YSJM-A(-BS)  
PUHY-EP YJM-A(-BS)  
PUHY-EP YSJM-A(1)(-BS)]

## The two-pipe zoned system designed for Heat Pump Operation

The CITY MULTI S series (for small applications) and Y series (for large applications) make use of a two-pipe refrigerant system, which allows for system changeover from cooling to heating, ensuring that a constant indoor climate is maintained in all zones. The compact outdoor unit utilizes R410A refrigerant and an INVERTER-driven compressor to use energy effectively.

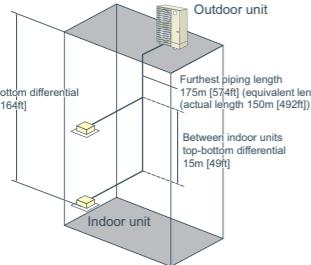
With a wide line-up of indoor units in connection with a flexible piping system, the CITY MULTI series can be configured for all applications. Up to 12 (S series) or 50 (Y series) indoor units can be connected with up to 130% connected capacity to maximize engineer's design options. This feature allows easy air conditioning in each area with convenient individual controllers.

**Small Offices (S series)**

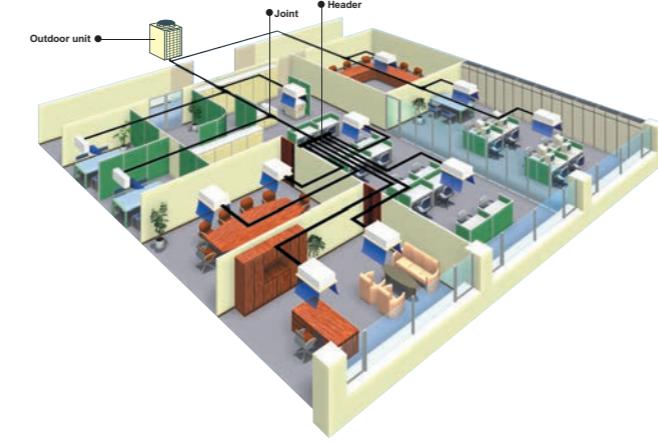


**System Pipe Lengths**

[4.5-6HP (S series)]	
Refrigerant Piping Lengths	Maximum meters [Feet]
Total length.....	300 [984]
Maximum allowable length.....	150 (175 equivalent) [492(574)]
Farthest indoor from first branch.....	30 [98]
Vertical differentials between units	Maximum meters [Feet]
Indoor/outdoor (outdoor higher).....	50 [164]
Indoor/outdoor (outdoor lower).....	40 [131]
Indoor/indoor.....	15 [49]



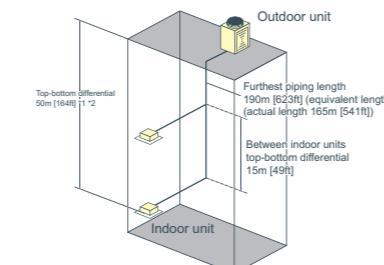
**Large Offices (Y series)**



[8-50HP (Y series)]

[8-36HP (High COP Y series)]

Refrigerant Piping Lengths		Maximum meters [Feet]
Total length.....	1,000 [3,280]	
Maximum allowable length.....	165 (190 equivalent) [541(623)]	
Farthest indoor from first branch.....	40 [131]	
Vertical differentials between units		Maximum meters [Feet]
Indoor/outdoor (outdoor higher).....	50 [164]*1	
Indoor/outdoor (outdoor lower).....	40 [131]*1	
Indoor/indoor.....	15 [49]	



\*1 When the outdoor unit is installed below the indoor unit, top-bottom differential is 40m [131ft].  
\*2 Depending on the model and installation conditions, top-bottom differential 90m [295ft] (o/u above) and 60m [196ft] (o/u below) is available. For more detailed information, please contact your nearest sales office or distributor.

# R2 (Heat Recovery) series

## Simultaneous Cooling and Heating

**R2 series** — [PURY-P YJM-A(-BS)  
PURY-P YSJM-A(1)(-BS)  
PURY-EP YJM-A(-BS)  
PURY-EP YSJM-A(1)(-BS)]

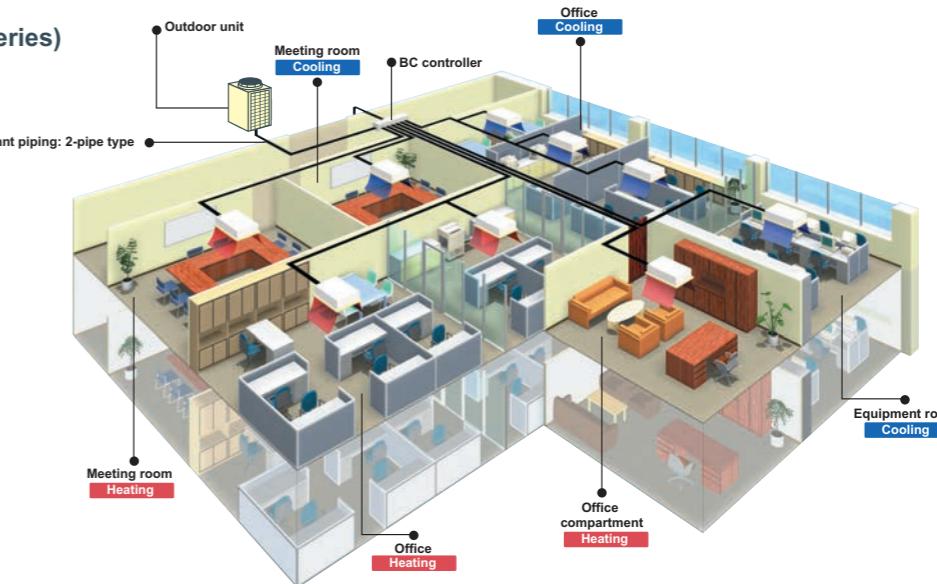


## The world's first two-pipe system that Simultaneously Cools and Heats

CITY MULTI R2 series offers the ultimate in freedom and flexibility. Cool one zone while heating another. Our exclusive BC controller makes two-pipe simultaneous cooling and heating possible. The BC controller is the technological heart of the CITY MULTI R2 series. It houses a liquid and gas separator, allowing the outdoor unit to deliver a mixture of hot gas for heating and liquid for cooling, all through the same pipe.

This innovation results in virtually no energy wasted by being expelled outdoors. Depending on capacity, up to 50 indoor units can be connected with up to 150% connected capacity

**Installation image (R2 series)**



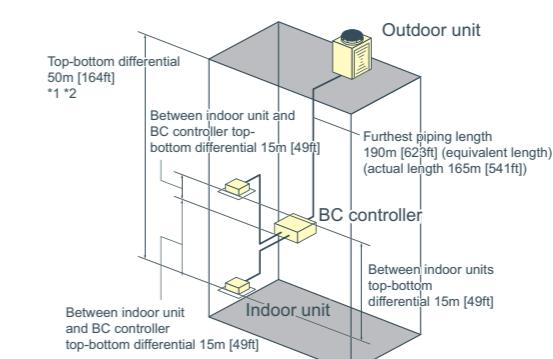
**System Pipe Lengths**

[8-36HP (R2 series)]

[8-28HP (High COP R2 series)]

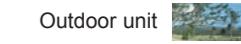
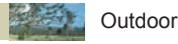
Refrigerant Piping Lengths		Maximum meters [Feet]
Total length.....	550-800 [1,804-2,624]	
(P600,P650 models only: Refer to the Data book for other models.)		
Maximum allowable length.....	165 (190 equivalent) [541(623)]	
Maximum length between outdoor and single/main BC controller.....	110 [360]	
*Maximum total length is dependent upon the distance between the outdoor unit and the single/main BC Controller.		
Maximum length between single/main BC controller and indoor.....	40-60 [131-196]	

Vertical differentials between units		Maximum meters [Feet]
Indoor/outdoor (outdoor higher).....	50 [164]*2	
Indoor/outdoor (outdoor lower).....	40 [131]*2	
Indoor/BC controller (single/main).....	15 [49]	
*Maximum length between single/main BC controller and indoor is dependent upon the vertical differential between the single/main BC controller and the indoor unit.		
Indoor/indoor.....	15 [49]	
Main BC Controller/Sub BC Controller.....	15 [49]	



\*1 When the outdoor unit is installed below the indoor unit, top-bottom differential is 40m [131ft].

\*2 Depending on the model and installation conditions, top-bottom differential 90m [295ft] (o/u above) and 60m [196ft] (o/u below) is available. For more detailed information, please contact your nearest sales office or distributor.







## Cooling or Heating

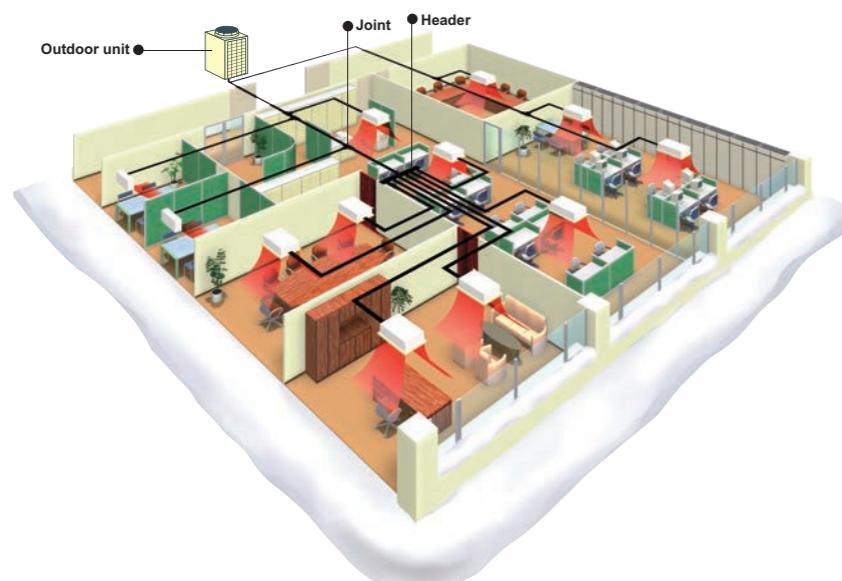
ZUBADAN series PUHY-HP YHM-A(-BS)  
PUHY-HP YSHM-A(-BS)

### Bringing a year round comfort solutions to extreme climates

CITY MULTI ZUBADAN series combines the ultimate in application flexibility and powerful cooling and heating capabilities to deliver precise comfort even in the coldest days of the year down to -25°C.

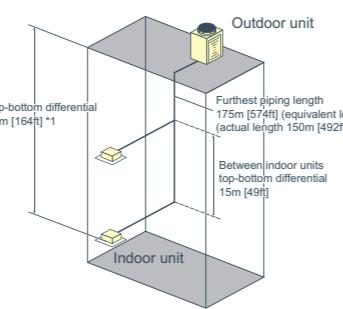
The technology behind this is a Flash Injection circuit which provides optimum amount of refrigerant to the system via a compressor through a specially designed injection port to ensure a particularly stable operation. With this, ZUBADAN can provide a full heating performance even at -15°C and continuous heating for up to 250 minutes in one continuous cycle, ensuring a phenomenal heating performance at low temperatures.

#### Installation image



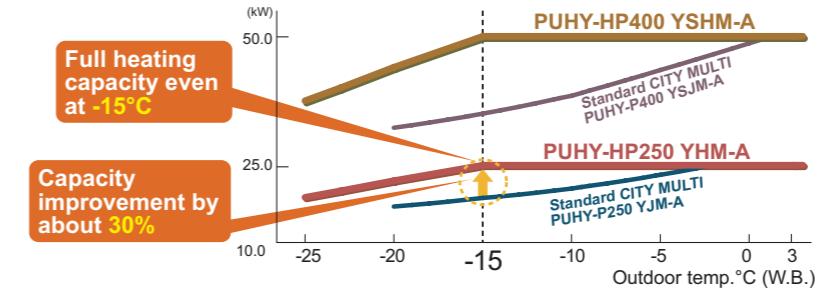
#### System Pipe Lengths

[8-10HP]	
Refrigerant Piping Lengths	Maximum meters [Feet]
Total length.....	300 [984]
Maximum allowable length.....	150 (175 equivalent) [492 (574)]
Farthest indoor from first branch....	40 [131]
Vertical differentials between units	Maximum meters [Feet]
Indoor/outdoor (outdoor higher).....	50 [164]
Indoor/outdoor (outdoor lower) .....	40 [131]
Indoor/indoor.....	15 [49]



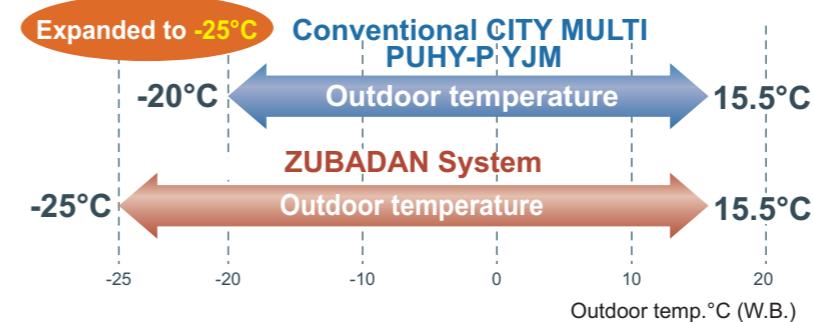
\*1 When the outdoor unit is installed below the indoor unit, top-bottom differential is 40m [131 ft].

### Stable Heating Performance even at -15°C

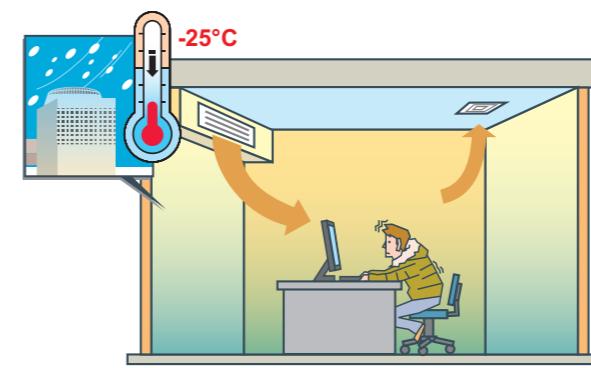


Using an industry first 'Flash-injection Circuit', the ZUBADAN System is able to provide FULL heating performance in ambient temperatures as low as -15°C.

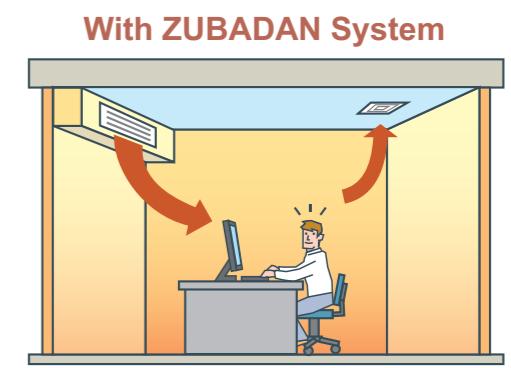
### Expanded Heating Operation down to -25°C



...furthermore, from a previous LOWEST operating ambient temperature of -20°C, the ZUBADAN System pushes the boundaries of technology to give heating in ambient temperatures as low as -25°C.



Previously, heating performance drops off when the temperature falls below -20°C!



...however, even at such temperatures, the new ZUBADAN System has no trouble keeping the occupants nice and toasty!

## High Static Pressure Setting

High Static Pressure Setting up to 60Pa is available. With our new ZUBADAN model, high static pressure setting up to 60Pa is available by setting the dip switch (0Pa at factory setting) making it ideal and flexible for any type of application.

## Maximum Stable Operation

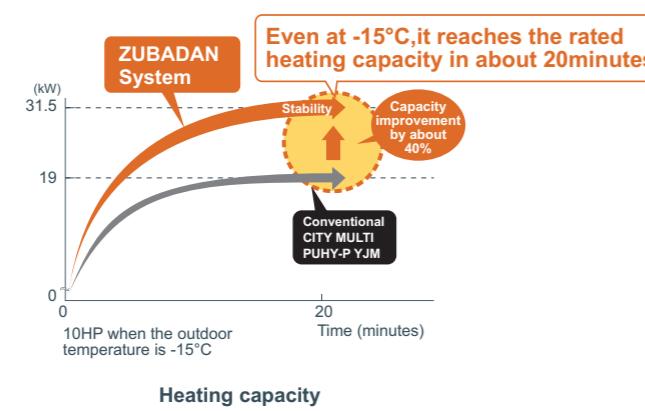
By utilizing our advanced Flash Injection Circuit, the system can not only provide continuous heating for up to 250 minutes in one continuous cycle, but also significantly lessens defrost time to give an exceptionally stable heating operation.

Heating up to  
250 min. straight

Reduced  
Defrosting time

## Shorter Warm-up in about 20 Min.

With its new improved startup performance, the ZUBADAN system achieves full heating capacity even when outdoor temperature is as low as -15°C. Heating capacity, about 20 minutes after startup is improved by 40% compared to the conventional model; ensuring occupants an immediate comfortable air solution.



## Reliable and Long Product Life Cycle

### Backup Function (HP400 and HP500 models)

ZUBADAN system ensures an exceptionally high level of reliability by utilizing a new backup function, which can be easily operated in the case of a malfunction from an indoor unit remote controller.



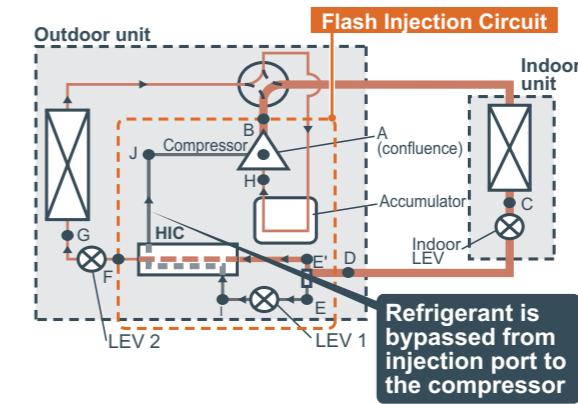
### Rotation Function (HP400 and HP500 models)

Running outdoor units alternatively using its newly developed 'Rotation Function', the system is able to ensure an optimum product life cycle for both of its component units.



## Startup Comfort

One of the key factors of the units newly designed Flash Injection Circuit is that the optimal amount of refrigerant can be provided to the system via the compressor through a specially designed injection port to ensure a particularly stable operation. In simple terms, the system allows a quick startup time and continuous heating; even in low ambient conditions.

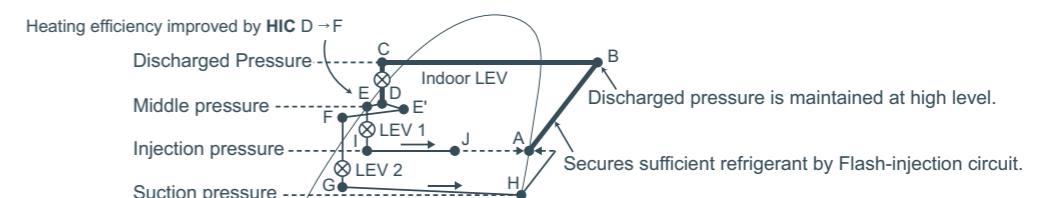


Note: Heat Interchange Circuit (HIC)  
Heating efficiency is improved by enhancing the recollection of heat at the outdoor unit with the low temperature refrigerant from the HIC.

## Constant Comfort

With its new highly effective defrost feature (which prevents automatic defrosting when it is not required), the ZUBADAN System can deliver conditioned heating operation up to 250 minutes in one continuous cycle!

Heating capacity is maintained by the Flash-injection circuit.



[Pressure Enthalpy diagram showing HIC]

# Water Cooled Series



## Cooling or Heating

**WY series** — PQHY-P YHM-A  
PQHY-P YSHM-A

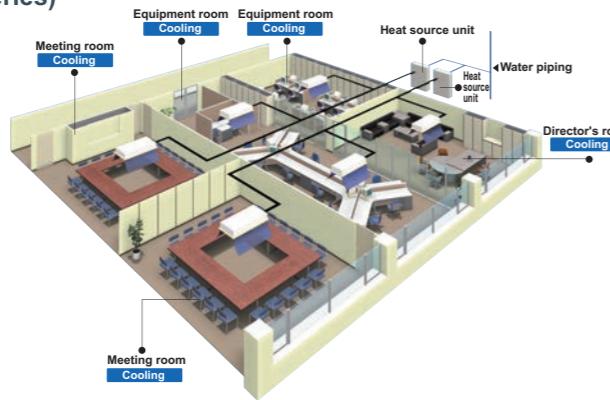
**WR2 series** — PQRY-P YHM-A  
PQRY-P YSHM-A

### [WY(Heat Pump) series]

## Water energy source system allows switching between cooling and heating.

The WY-Series has all the benefits of the Y-Series using water source condensing units. Condensing units can be situated indoors allowing greater design flexibility and no limitation on building size. Depending on capacity, up to 17 to 50 indoor units can be connected to a single condensing unit with individualized and/or centralized control. The two-pipe system allows all CITY MULTI solutions to switch between cooling and heating while maintaining a constant indoor temperature.

### Installation image (WY series)



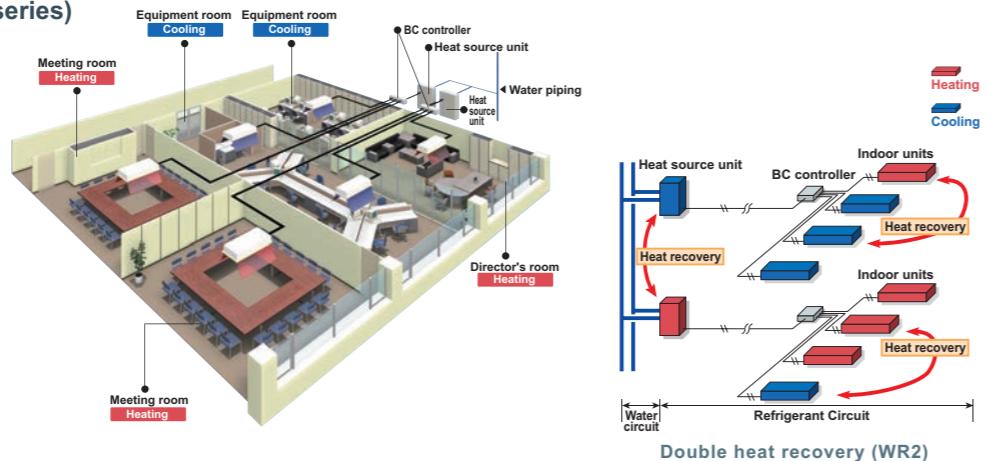
### [WR2(Heat Recovery) series]

## Advanced water heat source unit enjoying the benefits of R2 series

The CITY MULTI WR2 series provides all of the advantages of the R2 series with the added advantages of a water heat source system, making it suitable for wider range of applications in high rises, frigid climates, coastal areas, etc.

Not only does it produce heat recovery from the indoor units on the same 2-pipe refrigerant circuit, it also produces heat recovery via the water circuit between heat source units, making it a very economical system.

### Installation image (WR2 series)



Outdoor unit

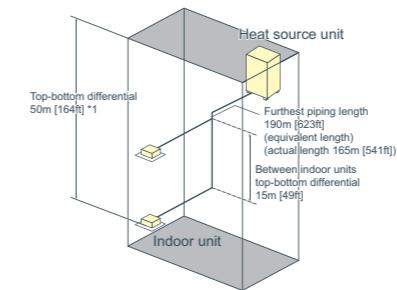
### System Pipe Lengths

#### [8-36HP (WY series)]

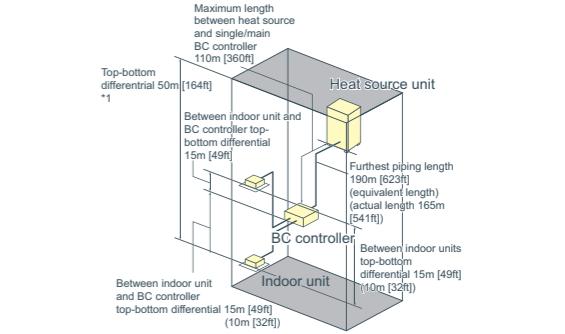
	Refrigerant Piping Lengths	Maximum meters [Feet]
Total length (8-12HP)	300 [984]	
Total length (16-36HP)	500 [1,640]	
Maximum allowable length	165 (190equivalent) [541 (623)]	
Farthest indoor from first branch	40 [131]	
Vertical differentials between units		Maximum meters [Feet]
Indoor/heat source (heat source higher)	50 [164]	
Indoor/heat source (heat source lower)	40 [131]	
Indoor/indoor	15 [49]	

#### [8-24HP (WR2 series)]

	Refrigerant Piping Lengths	Maximum meters [Feet]
Total length (8-12HP)	300-550 [984-1,804]	
Total length (16-24HP)	500-750 [1,640-2,460]	
Maximum allowable length	165 (190equivalent) [541 (623)]	
Maximum length between heat source and single/main BC controller	110 [360]	
Maximum length between single/main BC controller and indoor	40-60 [131-196]	
Vertical differentials between units		Maximum meters [Feet]
Indoor/ heat source (heat source higher)	50 [164]	
Indoor/ heat source (heat source lower)	40 [131]	
Indoor/BC controller (single/main)	15 [49]	
Main BC Controller/Sub BC Controller	15 (10) [49 (32)]	



\*1 When the outdoor unit is installed below the indoor unit, top-bottom differential is 40m [131ft].



\*1 When the outdoor unit is installed below the indoor unit, top-bottom differential is 40m [131ft].

## COP comparison (energy efficiency)

The new water cooled outdoor unit offers a greater efficiency with a higher COP compared to our YGM conventional model.

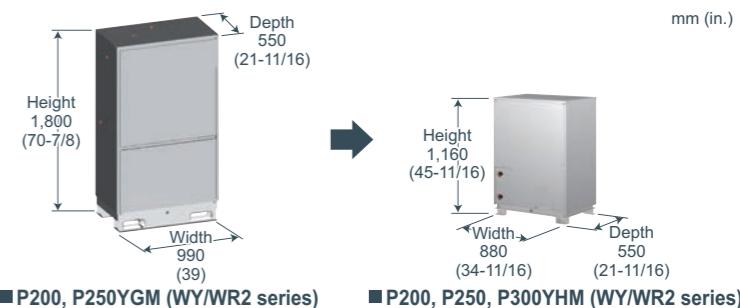
### COP comparison

	HP	8	10	12	16	18	20	22	24	26	28	30	32	34	36	
PQHY	YGM	Cooling	4.68	4.71	-	3.96	-	3.72	-	-	-	-	-	-	-	
		Heating	4.68	4.71	-	3.96	-	3.72	-	-	-	-	-	-	-	
PQRY	YGM	Cooling	5.71	5.13	4.55	5.45	5.08	4.89	4.68	4.45	5.22	5.13	4.94	4.69	4.52	4.34
		Heating	6.06	5.43	4.60	5.78	5.37	5.22	4.70	4.46	5.52	5.33	5.19	4.82	4.65	4.40
PQRY	YHM	Cooling	4.68	4.71	-	3.96	-	3.72	-	-	-	-	-	-	-	-
		Heating	5.33	5.43	-	4.54	-	4.63	-	-	-	-	-	-	-	-
PQRY	YHM	Cooling	5.65	5.08	4.50	5.40	5.03	4.84	4.63	4.41	-	-	-	-	-	-
		Heating	6.06	5.43	4.60	5.78	5.37	5.22	4.70	4.46	-	-	-	-	-	-

## Compact design

Downsized by approximately 57%\*, the new models enable an effective use of space.

\*8/10/12HP



## Weight saving

The reduction in weight leads to easy transportation and installation.

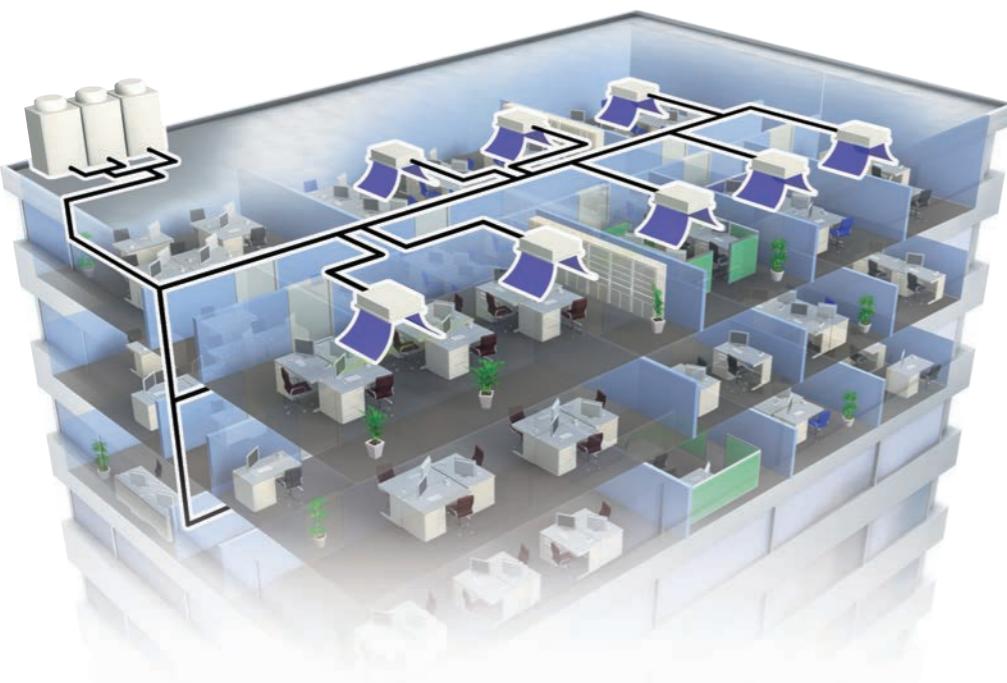
### Weight comparison

	HP	8	10	12	16	18	20	22	24	26	28	30	32	34	36
PQHY	YGM	272	275	-	452	-	456	-	-	-	-	-	-	-	-
	YHM	195	195	195	390	390	390	390	390	390	585	585	585	585	585
PQRY	YGM	263	266	-	440	-	444	-	-	-	-	-	-	-	-
	YHM	181	181	181	362	362	362	362	362	362	-	-	-	-	-

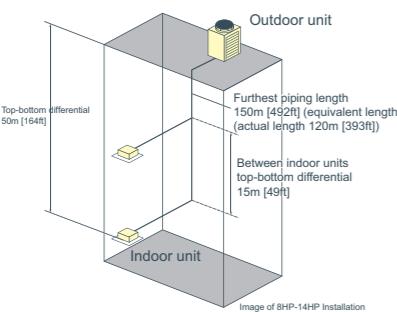
mm (in.)

Outdoor unit

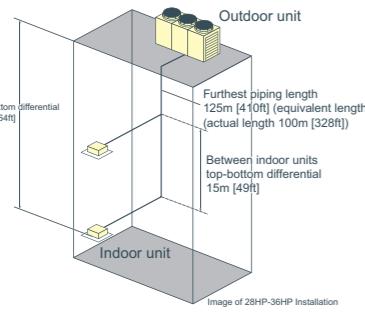
# REPLACE MULTI series



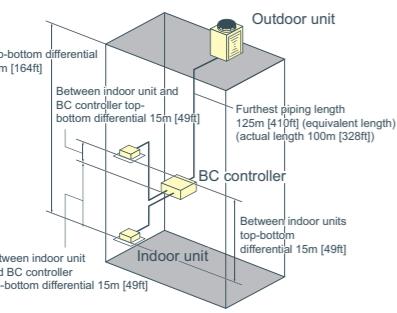
## Piping length



[8-22HP (Y series)]	
Refrigerant Piping Lengths	Maximum meters [Feet]
Total length.....	300 [984]
Maximum allowable length.....	120 [393] equivalent 150 [492]
Farthest indoor from first branch.....	40 [131]*
"REPLACE MULTI can combine an existing multiple system if the length difference of farthest indoor from first branch is no larger than 40m.	
Vertical differentials between units	Maximum meters [Feet]
Indoor/outdoor (outdoor higher).....	50 [164]
Indoor/outdoor (outdoor lower).....	40 [131]
Indoor/indoor.....	15 [49]
Outdoor/outdoor*.....	0.1 [0.3]
*For models PUHY-RP400-RP550YSJM-A	



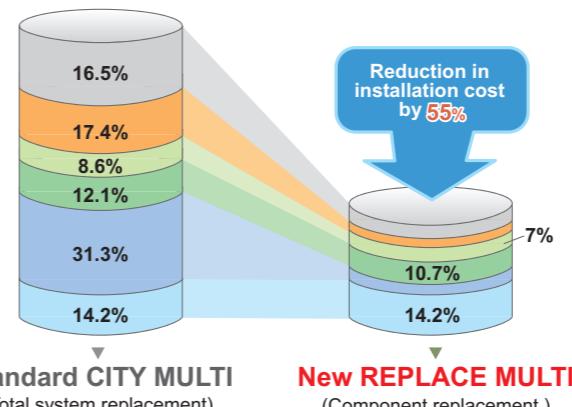
[24-36HP (Y series)]	
Refrigerant Piping Lengths	Maximum meters [Feet]
Total length.....	250 [820]
Maximum allowable length.....	100 [328] equivalent 125 [410]
Farthest indoor from first branch.....	40 [131]*
"REPLACE MULTI can combine an existing multiple system if the length difference of farthest indoor from first branch is no larger than 40m.	
Vertical differentials between units	Maximum meters [Feet]
Indoor/outdoor (outdoor higher).....	50 [164]
Indoor/outdoor (outdoor lower).....	40 [131]
Indoor/indoor.....	15 [49]
Outdoor/outdoor*.....	0.1 [0.3]
*For models PUHY-RP600-RP900YSJM-A	



[8-12HP (R2 series)]	
Refrigerant Piping Lengths	Maximum meters [Feet]
Total length.....	220 [721]
Maximum allowable length.....	100 [90] [328 (295)*] equivalent 125 (115) [410 (377)] *
Farthest indoor from BC controller.....	30 [98]
*Values in () is applied when indoor total capacity exceeds 130% of outdoor unit capacity	
Vertical differentials between units	Maximum meters [Feet]
Indoor/outdoor (outdoor higher).....	50 [164]
Indoor/outdoor (outdoor lower).....	40 [131]
Indoor/BC controller (single/main).....	15 (10) [49 (32)]*
*Maximum length between single/main BC controller and indoor is dependent upon the vertical differential between the single/main BC controller and the indoor unit.	
Indoor/indoor.....	15 (10) [49 (32)]*
Main BC Controller/Sub BC Controller.....	15 (10) [49 (32)]*
*Values in () is applied when indoor total capacity exceeds 130% of outdoor unit capacity	

Outdoor unit

## Cost



\*Estimation based on installation in Japan.

## Low renewal cost (estimation)

Reduction in waste and time also results in minimized construction work cost by approximately **55%** compared to the conventional total system replacement. (Estimated based on installation in Japan)

The major cutback achieved here is the pipe work costs by reusing existing piping which generally involves demolitions of exterior and interior walls, and rooftops.

Moreover, these features add up to not only less labor, materials, lower operating costs, but also reduce costs for waste disposal.

- Overhead costs for construction
- Costs for construction work
- Costs for removal work
- Costs for electrical work
- Costs for piping work
- Costs for installation work

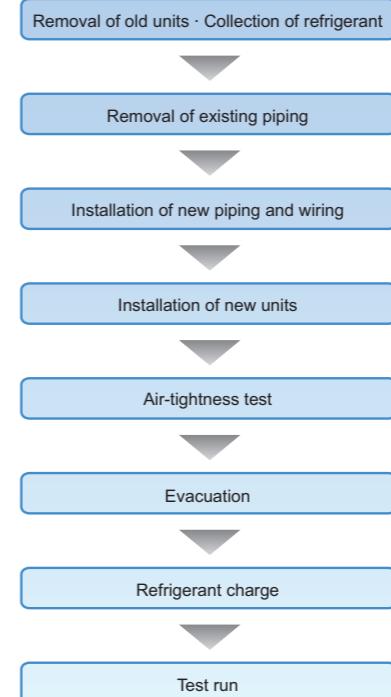
## Time

### Short and quick construction process and time

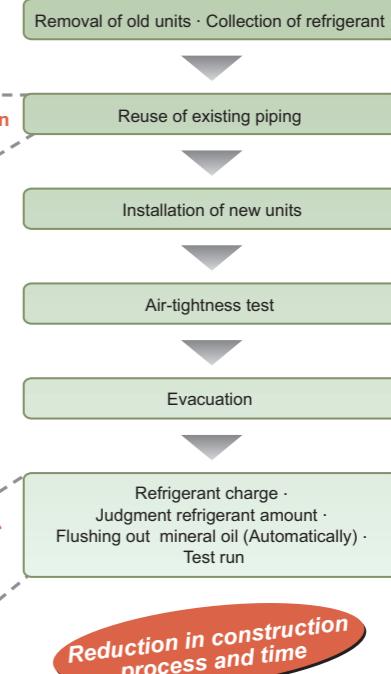
Compared to the installation process and time to install a complete new system, REPLACE MULTI offers shorter and quicker installation.

The key cause of this is because with REPLACE MULTI, without any use of special kit, existing piping can be reused and works at rooftop or walls for new piping are not required. This results in reduced installation time and system downtime which is an attractive factor to minimize the effect on business working hours.

### Standard CITY MULTI (Total system replacement)



### New REPLACE MULTI (Component replacement)



Reduction in construction process and time

# Technology

## Patent Technology

\*Patented or unpatented varies depending on the countries.

### Mineral oil collection

At the core of the new innovative REPLACE MULTI technology to reuse existing piping is the mineral oil collection to clean out the minerals in previously installed pipe work.

Mineral oil collection with Mitsubishi Electric's unique flushing operation is carried out while the new refrigerant is being charged (if the length or diameter of the refrigerant pipe is unknown).

With this advance technology, the cleaning process is completed quickly, thoroughly and automatically to keep the air environment comfortable.

**QUICK & AUTOMATIC** → Quick and automatic mineral oil collection with simple step

**COMFORT** ..... → Comfort not interrupted during the process

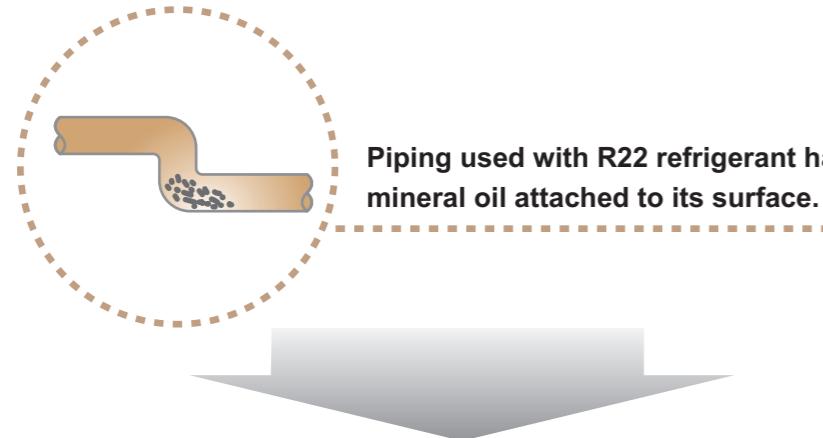
**R22**

R22 is a single hydrochlorofluorocarbon or HCFC compound known to have ozone depleting potential. R22 has been widely used in Air-Conditioning and Refrigeration equipment; however, virgin R22 refrigerant within the European countries are banned under European legislation driven by the Montreal Protocol.

**R410A**

R410A is a binary blend of hydrofluorocarbon or HFC compounds with ZERO ozone depleting potential. R410A is a more energy efficient refrigerant than R22 offering a greater heat transfer, which is one of the key elements to stop global warming.

### Why mineral oil collection is required.



Piping used with R22 refrigerant has mineral oil attached to its surface.

Refrigerant piping used for R22 requires treatment before it is reused.

Mineral oil in the piping must be removed or a new piping needs to be installed.

If the mineral oil in new refrigerant R410A refrigerant and R22 refrigerant are mixed, there is a possibility of sludge due to deterioration. When this occurs, mineral oil may not dissolve in the R410A refrigerant and lead to problems in compressor and LEV clogging.



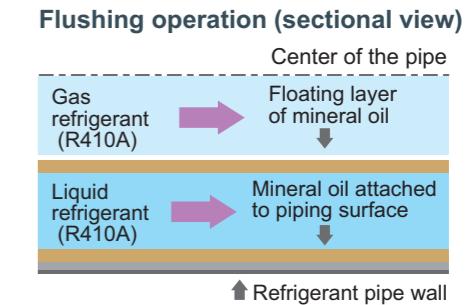
### Quick & Automatic

#### Facts

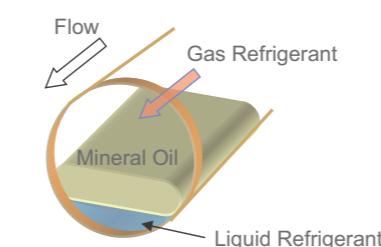
<b>Quick and automatic mineral oil collection</b>	Mineral oil can be collected in approximately 85~105 minutes. * The time varies depending on the pipe length and temperature conditions. Y series Max.120 minutes(cooling) / Max.140 minutes(heating) R2 series Max.180 minutes(cooling)
<b>Condition of mineral oil collection (Outdoor temperature)</b>	REPLACE MULTI can clean pipe in winter season. Y series -10°C ~ 45°C R2 series -5 °C ~ 45°C
<b>Density of R410A refrigerant</b>	R410A refrigerant < R22 refrigerant R410A gas refrigerant < mineral oil < R410A liquid refrigerant
<b>Speed</b>	R410A liquid refrigerant < R410A gas refrigerant

### Principle of mineral oil collection

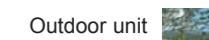
Mineral oil in R22 system is not soluble to the R410 refrigerant. When R410 two phase refrigerant flows through a pipework, shear force among the mineral oil and R410A refrigerant pushes out and strip off from the mineral oil attached to the piping surface. The mineral oil floats on the surface between gas and liquid refrigerant.



#### Flushing operation

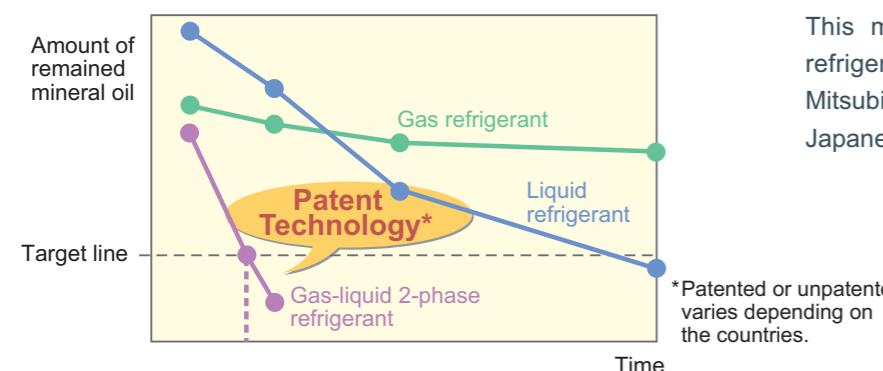


If the refrigerant is 2 phase, liquid refrigerant speed is accelerated by the gas refrigerant flowing at high-speed in the center part of the pipeworks. With this acceleration, the mineral oil floating at the surface of liquid refrigerant also increases its speed and mineral oil collection can be finished smoothly and quickly in the existing refrigerant piping.



The amount of time required for mineral oil collection differs by the condition of refrigerant. The most effective and quickest result can be expected when 2 phase refrigerant is used.

#### Mineral oil collection speed comparison by refrigerant type



This mineral oil collection with 2 phase refrigerant is a **patented technology\*** of Mitsubishi Electric and was awarded by the Japanese Institute and Innovation in 2007.

#### Automatic refrigerant charge

Amount of refrigerant required for the system is automatically determined and charged after the mineral oil collection is completed.

#### Comfort

Automatically performed by just setting the dip switch, mineral oil collection can even be performed without turning off the air conditioners. Therefore, it can maintain a comfortable indoor air environment, cooling or heating operation with Y series outdoor unit, and cooling operation with R2 series.

\*Only cooling operation with R2 series

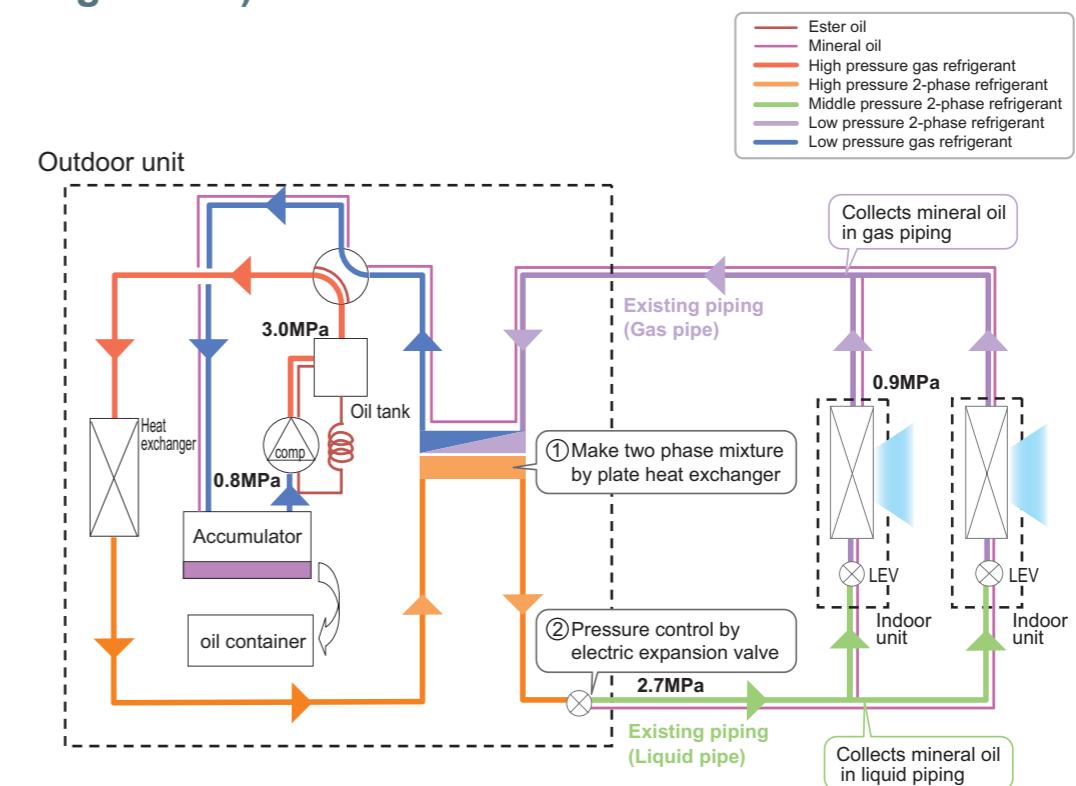
## Mineral oil collection flow

The following shows an overview of the mineral oil collection flow along with the refrigerant flow. During mineral oil collection, with Heat Pump outdoor unit, cooling or heating operation is available, and with Heat Recovery outdoor unit, only cooling operation is available.

Mineral oil in the existing piping is collected along with the new refrigerant flow. At the end of each flow, the refrigerant returns to outdoor unit with mineral oil which is collected in an accumulator and automatically removed to an oil container in the outdoor unit.

#### Example

#### Heat pump Y series outdoor unit (Cooling mode)



First, high pressure gas from the compressor is condensed to 2-phase refrigerant by plate heat exchanger① and reduces its pressure to middle pressure 2-phase refrigerant by a LEV②. It allows 2-phase refrigerant to flow in the existing R22/R407C piping. This 2-phase refrigerant (liquid refrigerant speed is accelerated by gas refrigerant) accelerates to peel off mineral oil in the existing liquid pipe.

Then, middle pressure 2-phase refrigerant reduces its pressure to low pressure 2-phase refrigerant by an indoor unit LEV to collect mineral oil in the existing gas pipe.

Lastly, the refrigerant returns to outdoor unit with mineral oil and heat exchanges to become low pressure gas refrigerant through heat exchanger. Mineral oil in gas refrigerant is separated at accumulator and only gas refrigerant returns to compressor. Mineral oil collected in accumulator is automatically removed to oil container in the outdoor unit.

# OUTDOOR UNIT S Series **PUMY-P VKM(-BS)**



## ► Specifications

Model	PUMY-P112VKM(-BS)	PUMY-P125VKM(-BS)	PUMY-P140VKM(-BS)
Power source	1-phase 220-240V 50Hz	1-phase 220-240V 50Hz	1-phase 220-240V 50Hz
Cooling capacity (Nominal) *1 kW	12.5	14.0	15.5
*1 BTU / h	42,700	47,800	52,900
Power input kW	2.79	3.46	4.52
Current input A	12.87-12.32-11.80	15.97-15.27-14.64	20.86-19.95-19.12
EER kW / kW	4.48	4.05	3.43
Temp. range of cooling	Indoor temp. W.B. Outdoor temp. D.B.	15.0~24.0°C(59~75°F) -5.0~46.0°C(23~115°F)	15.0~24.0°C(59~75°F) -5.0~46.0°C(23~115°F)
Heating capacity (Nominal) *2 kW	14.0	16.0	18.0
*2 BTU / h	47,800	54,600	61,400
Power input kW	3.04	3.74	4.47
Current input A	14.03-13.42-12.86	17.26-16.51-15.82	20.63-19.73-18.91
COP kW / kW	4.61	4.28	4.03
Temp. range of heating	Indoor temp. D.B. Outdoor temp. W.B.	15.0~27.0°C(59~81°F) -20.0~15.5°C(4~60°F)	15.0~27.0°C(59~81°F) -20.0~15.5°C(4~60°F)
Indoor unit connectable	Total capacity Model / Quantity	50~130 % of outdoor unit capacity P15~P140 / 9	50~130 % of outdoor unit capacity P15~P140 / 10
Sound pressure level (measured in anechoic room)	dB <A>	49 / 51	50 / 52
Refrigerant piping diameter	Liquid pipe mm (in.)	9.52(3/8) Flare	9.52(3/8) Flare
	Gas pipe mm (in.)	15.88(5/8) Flare	15.88(5/8) Flare
FAN	Type x Quantity	Propeller Fan x 2	Propeller Fan x 2
	Air flow rate m³/min	110	110
	L/s	1,833	1,833
	cfm	3,884	3,884
	Motor output kW	0.06 + 0.06	0.06 + 0.06
Compressor	Type x Quantity	Scroll hermetic compressor x 1	Scroll hermetic compressor x 1
	Starting method	Inverter	Inverter
	Motor output kW	2.9	3.5
External finish		Galvanized Steel Sheet Munsell No. 3Y 7.8/1.1	Galvanized Steel Sheet Munsell No. 3Y 7.8/1.1
External dimension HxWxD	mm	1,338 x 1,050 x 330 (+25)	1,338 x 1,050 x 330 (+25)
	in.	52-11/16 x 41-11/32 x 13 (+1)	52-11/16 x 41-11/32 x 13 (+1)
Protection devices	High pressure protection	High pressure Switch	High pressure Switch
	Inverter circuit (COMP/FAN)	Overcurrent detection, Overheat detection (Heatsink thermistor )	Overcurrent detection, Overheat detection (Heatsink thermistor )
	Compressor	Compressor thermistor, Over current detection	Compressor thermistor, Over current detection
	Fan motor	Overheating, Voltage protection	Overheating, Voltage protection
Refrigerant	Type x original charge	R410A 4.8kg	R410A 4.8kg
Net weight	kg (lbs)	123(272)	123(272)
Heat exchanger		Cross Fin and Copper tube	Cross Fin and Copper tube
Defrosting method		Reversed refrigerant circuit	Reversed refrigerant circuit
Optional parts		Joint: CMY-Y62-G-E Header: CMY-Y64/68-G-E	Joint: CMY-Y62-G-E Header: CMY-Y64/68-G-E

Notes:

\*1,\*2 Nominal conditions

	Indoor	Outdoor	Pipe length	Level difference
Cooling	27°C DB/19°C WB (81°F DB/66°F WB)	35°C DB(95°F DB)	7.5m (24-9/16ft.)	0m (0ft.)
Heating	20°C DB(68°F DB)	7°C DB/6°C WB(45°F DB/43°F WB)	7.5m (24-9/16ft.)	0m (0ft.)

\*Nominal condition \*1,\*2 are subject to ISO 15042.

\*Due to continuing improvement, above specification may be subject to change without notice.

# OUTDOOR UNIT S Series **PUMY-P YKM(-BS)**



## ► Specifications

Model	PUMY-P112YKM(-BS)	PUMY-P125YKM(-BS)	PUMY-P140YKM(-BS)
Power source	3-phase 380-415V 50Hz	3-phase 380-415V 50Hz	3-phase 380-415V 50Hz
Cooling capacity (Nominal) *1 kW	12.5	14.0	15.5
*1 BTU / h	42,700	47,800	52,900
Power input kW	2.79	3.46	4.52
Current input A	4.46-4.24-4.09	5.53-5.26-5.07	7.23-6.87-6.62
EER kW / kW	4.48	4.05	3.43
Temp. range of cooling	Indoor temp. W.B. Outdoor temp. D.B.	15.0~24.0°C(59~75°F) -5.0~46.0°C(23~115°F)	15.0~24.0°C(59~75°F) -5.0~46.0°C(23~115°F)
Heating capacity (Nominal) *2 kW	14.0	16.0	18.0
*2 BTU / h	47,800	54,600	61,400
Power input kW	3.04	3.74	4.47
Current input A	4.86-4.62-4.45	5.98-5.68-5.48	7.15-6.79-6.55
COP kW / kW	4.61	4.28	4.03
Temp. range of heating	Indoor temp. D.B. Outdoor temp. W.B.	15.0~27.0°C(59~81°F) -20.0~15.5°C(4~60°F)	15.0~27.0°C(59~81°F) -20.0~15.5°C(4~60°F)
Indoor unit connectable	Total capacity Model / Quantity	50~130 % of outdoor unit capacity P15~P140 / 9	50~130 % of outdoor unit capacity P15~P140 / 10
Sound pressure level (measured in anechoic room)	dB <A>	49 / 51	50 / 52
Refrigerant piping diameter	Liquid pipe mm (in.)	9.52(3/8) Flare	9.52(3/8) Flare
	Gas pipe mm (in.)	15.88(5/8) Flare	15.88(5/8) Flare
FAN	Type x Quantity	Propeller Fan x 2	Propeller Fan x 2
	Air flow rate m³/min	110	110
	L/s	1,833	1,833
	cfm	3,884	3,884
	Motor output kW	0.06 + 0.06	0.06 + 0.06
Compressor	Type x Quantity	Scroll hermetic compressor x 1	Scroll hermetic compressor x 1
	Starting method	Inverter	Inverter
	Motor output kW	2.9	3.5
External finish		Galvanized Steel Sheet Munsell No. 3Y 7.8/1.1	Galvanized Steel Sheet Munsell No. 3Y 7.8/1.1
External dimension HxWxD	mm	1,338 x 1,050 x 330 (+25)	1,338 x 1,050 x 330 (+25)
	in.	52-11/16 x 41-11/32 x 13 (+1)	52-11/16 x 41-11/32 x 13 (+1)
Protection devices	High pressure protection	High pressure Switch	High pressure Switch
	Inverter circuit (COMP/FAN)	Overcurrent detection, Overheat detection (Heatsink thermistor )	Overcurrent detection, Overheat detection (Heatsink thermistor )
	Compressor	Compressor thermistor, Over current detection	Compressor thermistor, Over current detection
	Fan motor	Overheating, Voltage protection	Overheating, Voltage protection
Refrigerant	Type x original charge	R410A 4.8kg	R410A 4.8kg
Net weight	kg (lbs)	125(276)	125(276)
Heat exchanger		Cross Fin and Copper tube	Cross Fin and Copper tube
Defrosting method		Reversed refrigerant circuit	Reversed refrigerant circuit
Optional parts		Joint: CMY-Y62-G-E Header: CMY-Y64/68-G-E	Joint: CMY-Y62-G-E Header: CMY-Y64/68-G-E

Notes:

\*1,\*2 Nominal conditions

	Indoor	Outdoor	Pipe length	Level difference
Cooling	27°C DB/19°C WB (81°F DB/66°F WB)	35°C DB(95°F DB)	7.5m (24-9/16ft.)	0m (0ft.)
Heating	20°C DB(68°F DB)	7°C DB/6°C WB(45°F DB/43°F WB)	7.5m (24-9/16ft.)	0m (0ft.)

\*Nominal condition \*1,\*2 are subject to ISO 15042.

\*Due to continuing improvement, above specification may be subject to change without notice.













































# OUTDOOR UNIT

## R2 Series

### PURY-RP YJM-B(-BS)

#### ► Specifications



Model	PURY-RP200YJM-B (-BS)		PURY-RP250YJM-B (-BS)		PURY-RP300YJM-B (-BS)	
Power source	3-phase 4-wire 380-400-415V 50/60Hz		3-phase 4-wire 380-400-415V 50/60Hz		3-phase 4-wire 380-400-415V 50/60Hz	
Cooling capacity (Nominal)	*1 kW *1 kcal / h *1 BTU / h	22.4 19,300 76,400	28.0 24,100 95,500	33.5 28,800 114,300		
	Power input Current input EER	kW A kW / kW	4.95 8.3-7.9-7.6 4.52	6.82 11.5-10.9-10.5 4.10	8.35 14.0-13.3-12.9 4.01	
Temp. range of cooling	Indoor Outdoor	W.B. D.B.	15.0~24.0°C (59~75°F) -5.0~43.0°C (23~109°F)	15.0~24.0°C (59~75°F) -5.0~43.0°C (23~109°F)	15.0~24.0°C (59~75°F) -5.0~43.0°C (23~109°F)	
Heating capacity (Nominal)	*2 kW *2 kcal / h *2 BTU / h	25.0 21,500 85,300	31.5 27,100 107,500	37.5 32,300 128,000		
	Power input Current input COP	kW A kW / kW	5.50 9.2-8.8-8.5 4.54	7.22 12.1-11.5-11.1 4.36	8.70 14.6-13.9-13.4 4.31	
Temp. range of heating	Indoor Outdoor	D.B. W.B.	15.0~27.0°C (59~81°F) -20.0~15.5°C (-4~60°F)	15.0~27.0°C (59~81°F) -20.0~15.5°C (-4~60°F)	15.0~27.0°C (59~81°F) -20.0~15.5°C (-4~60°F)	
Indoor unit connectable	Total capacity Model / Quantity	50~150 % of outdoor unit capacity P15~P250 / 1~20		50~150 % of outdoor unit capacity P15~P250 / 1~25	50~150 % of outdoor unit capacity P15~P250 / 1~30	
Sound pressure level (measured in anechoic room)	dB <A>	56		57	59	
Refrigerant piping diameter	High pressure Low pressure	mm (in.) mm (in.)	19.05 (3/4) Brazed 28.58 (1-1/8) Brazed	19.05 (3/4) Brazed 28.58 (1-1/8) Brazed	19.05 (3/4) Brazed 28.58 (1-1/8) Brazed	
FAN	Type x Quantity	Propeller fan x 1		Propeller fan x 1	Propeller fan x 1	
	Air flow rate	m³/min L/s cfm	225 3,750 7,945	225 3,750 7,945	225 3,750 7,945	
	Control, Driving mechanism	Inverter-control, Direct-driven by motor		Inverter-control, Direct-driven by motor	Inverter-control, Direct-driven by motor	
	Motor output	kW	0.92 x 1	0.92 x 1	0.92 x 1	
	*3 External static press.	0 Pa (0 mmH <sub>2</sub> O)		0 Pa (0 mmH <sub>2</sub> O)	0 Pa (0 mmH <sub>2</sub> O)	
Compressor	Type x Quantity	Inverter scroll hermetic compressor		Inverter scroll hermetic compressor	Inverter scroll hermetic compressor	
	Starting method	Inverter		Inverter	Inverter	
	Motor output	kW	5.4	6.8	7.8	
	Case heater	kW	0.035 (240V)	0.045 (240V)	0.045 (240V)	
External finish	Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1>		Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1>	Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1>	Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1>	
External dimension HxWxD	mm in.	1,710(1,650 without legs) x 1,220 x 760 67-3/8 (65 without legs) x 48-1/16 x 29-15/16		1,710(1,650 without legs) x 1,220 x 760 67-3/8 (65 without legs) x 48-1/16 x 29-15/16	1,710(1,650 without legs) x 1,220 x 760 67-3/8 (65 without legs) x 48-1/16 x 29-15/16	
Protection devices	High pressure protection Inverter circuit (COMP/ FAN) Compressor Fan motor	High pressure sensor, High pressure switch at 4.15, 3.6MPa (601,522 psi) Over-heat protection, Over-current protection Discharge thermo protection, Over-current protection Thermal switch		High pressure sensor, High pressure switch at 4.15, 3.6MPa (601,522 psi) Over-heat protection, Over-current protection Discharge thermo protection, Over-current protection Thermal switch	High pressure sensor, High pressure switch at 4.15, 3.6MPa (601,522 psi) Over-heat protection, Over-current protection Discharge thermo protection, Over-current protection Thermal switch	
Refrigerant	Type x original charge	R410A x 11.8kg (27lbs)		R410A x 11.8kg (27lbs)	R410A x 11.8kg (27lbs)	
Net weight	kg (lbs)	275 (607)		290 (640)	290 (640)	
Heat exchanger	Salt-resistant cross fin & copper tube		Salt-resistant cross fin & copper tube		Salt-resistant cross fin & copper tube	
Optional parts	BC controller: CMB-P104,105,106,108,1010,1013,1016V-G Main BC controller: CMB-P108,1010,1013,1016V-GA Sub BC controller: CMB-P104,108V-GB		BC controller: CMB-P104,105,106,108,1010,1013,1016V-G Main BC controller: CMB-P108,1010,1013,1016V-GA Sub BC controller: CMB-P104,108V-GB	BC controller: CMB-P104,105,106,108,1010,1013,1016V-G Main BC controller: CMB-P108,1010,1013,1016V-GA Sub BC controller: CMB-P104,108V-GB	BC controller: CMB-P104,105,106,108,1010,1013,1016V-G Main BC controller: CMB-P108,1010,1013,1016V-GA Sub BC controller: CMB-P104,108V-GB	

#### Notes:

\*1,\*2 Nominal conditions

	Indoor	Outdoor	Pipe length	Level difference
Cooling	27°CDB/19°CWB (81°FDB/66°FWB)	35°CDB (95°FDB)	7.5m (24-9/16ft.)	0m (0ft.)
Heating	20°CDB/6°CWB (7°FDB/6°FWB)	7°CDB/6°CWB (45°FDB/43°FWB)	7.5m (24-9/16ft.)	0m (0ft.)

\*3. External static pressure option is available (30Pa, 60Pa / 3.1mmH<sub>2</sub>O, 6.1mmH<sub>2</sub>O).

\*Nominal condition \*1,\*2 are subject to JIS B8615-1.

\*Due to continuing improvement, above specifications may be subject to change without notice.

\*Our company is unable to guarantee reliability of pre-existing pipes and pre-existing cables.



Outdoor unit