MITSUBISHI ELECTRIC

LIVING ENVIRONMENTAL SYSTEMS

Changes for the Better

VRF-HVRF Systems

CITY MULTI 2020

A complete offer for heating, cooling and production of domestic hot water, ideal for hotels, apartment buildings and tertiary activities. Unique plants, with low environmental impact and high energy saving, with management, monitoring and remote maintenance thanks to the cloud system.

for a greener tomorrow eco Changes

NEW

VRF-HVRF CITY MULTI Systems: news

New Outdoor Units Next Stage Generation

Mitsubishi Electric has introduced a new line of air conditioning systems, completely redesigned in terms of compressor, exchange coil, fan and functions. All for a class-beating energy efficiency.

- New four-sided battery
- Static pressure of fan increased up to 80 pa.
- New Chassis with new design
- CITY MULTI **logo**
- New fan with low friction profile
- Compressor optimised with "Multi-port" technology
- New **Auto-shift** mode
- **Preheat defrost** function
- Evaporation Temperature Control (ETC)
- **Advanced "Low Noise" function**
- New BC Controller distributor for R2 heat recovery systems
- "High Sensible Heat" operating mode

New PUMY SMALL Y COMPACT Outdoor Unit

- **New compact** single-fan **case**
- Three sizes and six models available
- Single-phase/three-phase power supply
- EER/COP efficiency at the top of the category
- Connectivity with **LEV Kit**
- Connectivity with **Branch Box**
- Super **Silent Mode**
- New CITY MULTI Logo

RMI 2.0 Remote Monitoring Interface - Cloud remote management system

- Graphical interface redesigned in content and user experience
- **New dashboard** with operating and comfort indexes for rapid feedback on system operation
- **Metering** and **apportioning** of CLOUD **consumption** without the help of external (PC) devices
- Graphical planimetry display of the CLOUD system without the help of external (PC) devices

CITY MULTI

VRF-HVRF NEXT STAGE GENERATION SYSTEM

CITY MULTI

PUMY SMALL Y COMPACT

RMI-REMOTE MONITORING INTERFACE

RMI SMART
REMOTE MONITORING INTERFACE

RMI ADVANCED
REMOTE MONITORING INTERFACE

RMI MULTI-TENANT
REMOTE MONITORING INTERFACE

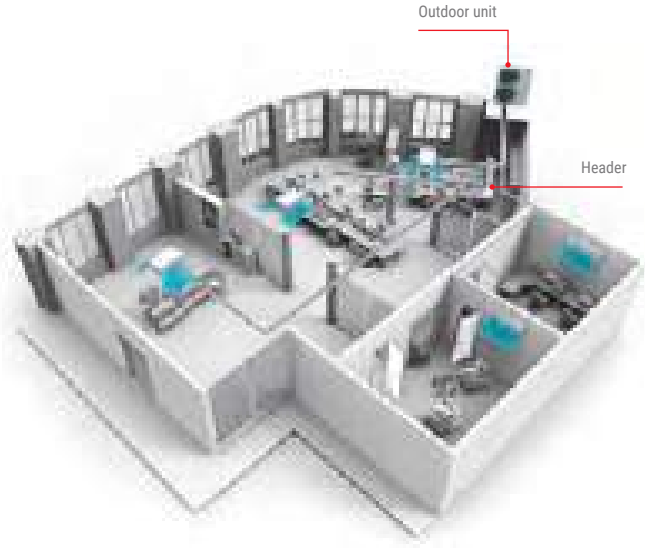
RMI PLAN
REMOTE MONITORING INTERFACE

RMI CHARGE
REMOTE MONITORING INTERFACE

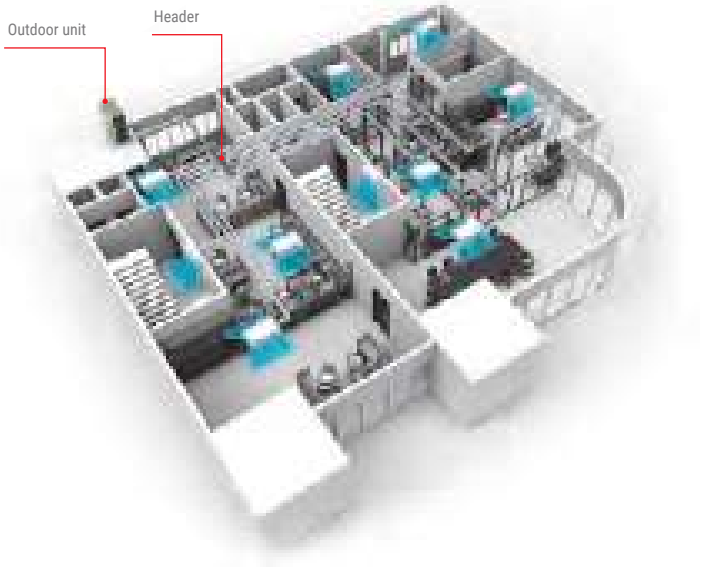
VRF System

System types

SMALL Y AND SMALL Y COMPACT LINES
(SMALL SYSTEM)



Y LINE
(HEAT PUMP)



Y Line

The two-pipe zoned system designed for Heat Pump Operation

The CITY MULTI Small lines (for small applications) and Y lines (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 11 (Small line) or 50 (Y line) 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.

Y ZUBADAN Line

Bringing a year round comfort solutions to extreme climates

ZUBADAN

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.

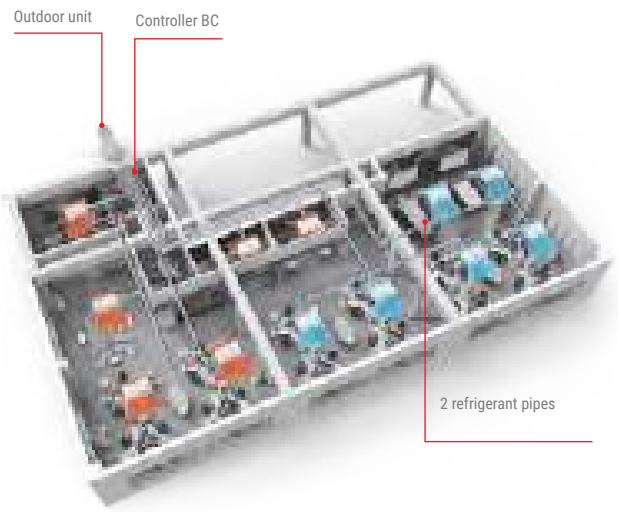
R2 Line

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

CITY MULTI R2 line 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.

Y ZUBADAN LINE LOW TEMPERATURE HEATING

R2 LINE SIMULTANEOUSLY HEATING AND COOLING



WY Line

Water energy source system allows switching between cooling and heating

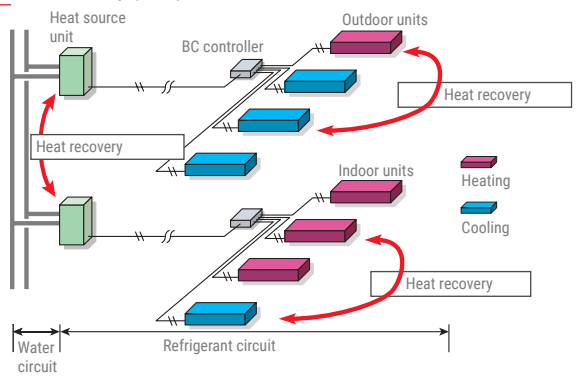
The WY-Line has all the benefits of the Y-Series using water source condensing units. Condensing units can be situated indoors allowing greater design flexibility and no limitation on building size. Depending on capacity, up to 17 to 50 indoor units can be connected to a single condensing unit with individualized 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.

WR2 Line

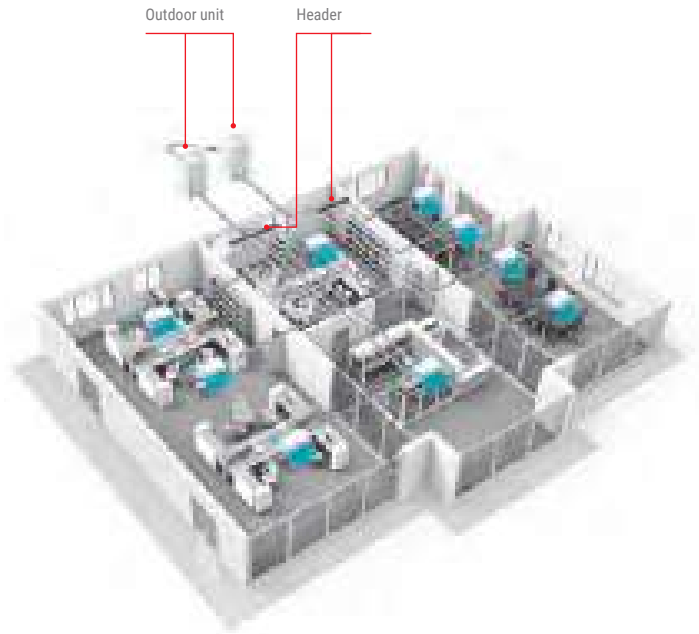
Advanced water heat source unit enjoying the benefits of R2 series

The CITY MULTI WR2 line 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.

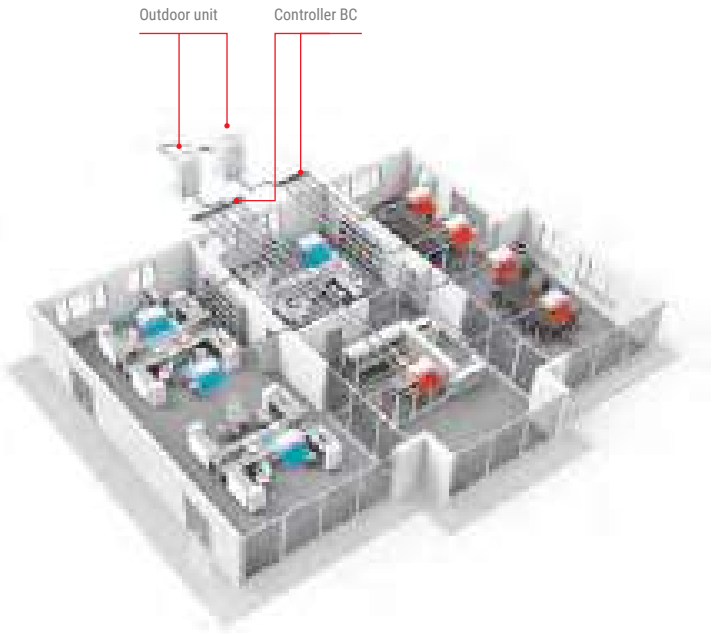
Double heat recovery (WR2)



WY LINE
WATER CONDENSED HEAT PUMP



WR2 LINE SIMULTANEOUSLY HEATING AND COOLING WATER CONDENSED



Replace MULTI Line

3-R of the new system dedicated to the replacement of VRF R22 systems

The Mitsubishi Electric solution for the replacement market of VRF R22 systems is characterized by the 3-R: Re-use, Re-placement and Re-newal. The innovative Replace Multi solution of Mitsubishi Electric makes it possible to reuse components and structural elements of existing plant rather than completely replace all units and refrigerant lines. This raises the owner from discomforts of the complete replacement of the air conditioning system (for example, new pipes, the destruction walls and stopping of the activities and business during the renovations).

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.

	REUSE
Refrigerant pipes	•
Power circuits	•
Switches	•
Trasmission lines	•
Remote controls trasmission circuit	•
Outdoor unit	no
Indoor unit	•*

NOTE: The actual reusability of components depends upon the condition of the plant and the existing infrastructure.
* The actual reusability of indoor units depends on the model. For further clarification please contact the sales office nearest you.

Short and quick construction process and time

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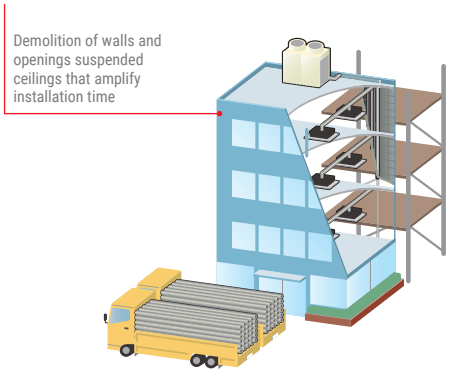
Renewal for top performance

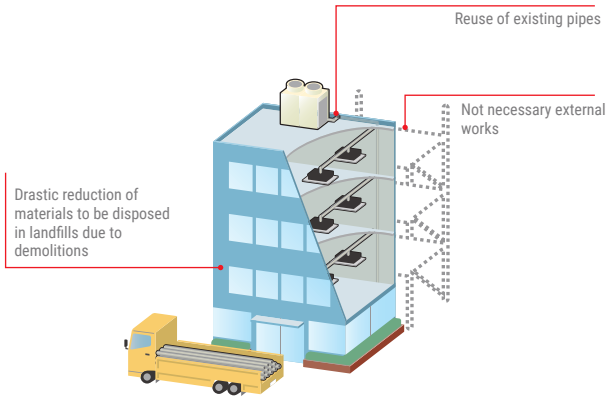
The installation of a Replace Multi system allows to achieve the state of the art of VRF technology from Mitsubishi Electric which it reached levels of energy efficiency (COP) more than 40% compared to a R22 VRF system of 10 years ago. The greater energy efficiency also means lower noise levels and reduced installation space compared to a VRF R22.

REPLACE MULTI LINE
REPLACEMENT OF VRF R22/R407C SYSTEMS

Complete replacement of the plant

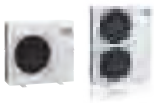


Replacement of components by Multi Replace



Small Y LINE / Small Y Compact LINE	CITY MULTI SMALL Y AND SMALL COMPACT SYSTEM	Compact heat pump systems
Y Ecostandard LINE	CITY MULTI Y ECOSTANDARD SYSTEM	Heat pump systems optimized for cooling operation
	CITY MULTI Y ECOSTANDARD+ SYSTEM	Heat pump systems with continuous heating
Y LINE	CITY MULTI Y SYSTEM	Heat pump systems with continuous heating
Y High Efficiency LINE	CITY MULTY Y HIGH EFFICIENCY SYSTEM	High efficiency heat pump systems with continuous heating
Y Zubadan LINE	CITY MULTI Y ZUBADAN SYSTEM	Heat pump systems optimized for cold climates
Y Replace Multi LINE	REPLACE MULTI Y SYSTEM	Heat pump systems for the replacement of VRF R22 / R407C Heat pumps
WY LINE	CITY MULTI WY SYSTEM	Water condensed Heat Pump systems
R2 LINE	CITY MULTI R2 SYSTEM	Two-pipes Cooling / Heating simultaneous systems with heat recovery and continuous heating
R2 High Efficiency LINE	CITY MULTI R2 HIGH EFFICIENCY SYSTEM	High Efficiency two-pipes Cooling / Heating simultaneous systems with heat recovery and continuous heating
WR2 LINE	CITY MULTI WR2 SYSTEM	Water condensed Heat Recovery systems

	**SINGLE PHASE** PUMY-SP VKM(-BS) - HP 4,5-6 PUMY-P VKM4(-BS) - HP 4,5-6 **THREE PHASE** PUMY-P YKM(4)(2)(-BS) - HP 4,5-8
	**SINGLE Y** PUHY-P YKA - HP 8~20 **DOUBLE Y** PUHY-P YSKA - HP 22~40 **LARGE Y** PUHY-P YSKA - HP 42~60
	**SINGLE Y** PUHY-P YKB-A1 (-BS) - HP 8~14 **DOUBLE Y** PUHY-P YSKB-A1 (-BS) - HP 16~36 **TRIPLE Y** PUHY-P YSKB-A1 (-BS) - HP 38~54
	**SINGLE Y** PUHY-P YNW-A (-BS) - HP 8~20 **DOUBLE Y** PUHY-P YSNW-A (-BS) - HP 16~36 **TRIPLE Y** PUHY-P YSNW-A (-BS) - HP 38~54
	**SINGLE Y** PUHY-EP YNW-A (-BS) - HP 8~20 **DOUBLE Y** PUHY-EP YSNW-A (-BS) - HP 16~36 **TRIPLE Y** PUHY-EP YSNW-A (-BS) - HP 38~54
	**SINGLE Y** PUHY-HP YHM-A (-BS) - HP 8~10 **DOUBLE Y** PUHY-HP YSHM-A (-BS) - HP 16~20
	**SINGLE Y** PUHY-RP YJM-B (-BS) - HP 8~14 **DOUBLE Y** PUHY-RP YSJM-B (-BS) - HP 16~26 **TRIPLE Y** PUHY-RP YSJM-B (-BS) - HP 28~36
	**SINGLE WY** PQHY-P YLM-A1 - HP 8~24 **DOUBLE WY** PQHY-P YSLM-A1 - HP 16~36
	**SINGLE R2** PURY-P YNW-A (-BS) - HP 8~22 **DOUBLE R2** PURY-P YNW-A (-BS) - HP 16~44
	**SINGLE R2** PURY-EP YNW-A (-BS) - HP 8~22 **DOUBLE R2** PURY-EP YNW-A (-BS) - HP 16~44
	**SINGLE WR2** PQRY-P YLM-A1 - HP 8~24 **DOUBLE WR2** PQRY-P YSLM-A1 - HP 16~36

System				HP	4,5	5	6	8	10	12	14	16	
				Model	P112	P125	P140	P200	P250	P300	P350	P400	
Air condensed	Heat pump Small Y and Small Y Compact Lines	PUMY-(S)P Y(V)KM-(BS)		Single phase	4,5	5	6						
				Three phase	4,5	5	6	8					
	Ecostandard Y Line	PUHY-P YKA-(BS) PUHY-P YSKA-(BS)		SINGLE				8	10	12	14	16	
				DOUBLE									
				TRIPLE									
	Ecostandard+ Y Line	PUHY-P YKB-A1(-BS) PUHY-P YSKB-A1(-BS)		SINGLE				8	10	12	14	16	
				DOUBLE								8+8	
				TRIPLE									
	Heat pump Y Line	PUHY-P YNW-A(-BS) PUHY-P YSNW-A(-BS)		SINGLE				8	10	12	14	16	
				DOUBLE								8+8	
				TRIPLE									
	Heat pump High Efficiency Y Line	PUHY-EP YNW-A(-BS) PUHY-EP YSNW-A(-BS)		SINGLE				8	10	12	14	16	
				DOUBLE								8+8	
				TRIPLE									
	Heat pump Y Zubadan Line	PUHY-HP YHM-A(-BS) PUHY-HP YSHM-A(-BS)		SINGLE				8	10				
				DOUBLE								8+8	
	Heat recovery R2 Line	PURY-P YNW-A(-BS) PURY-P YSNW-A(-BS)		SINGLE				8	10	12	14	16	
				DOUBLE								8+8	
	High Efficiency Heat recovery R2 Line	PURY-EP YNW-A(-BS) PURY-EP YSNW-A(-BS)		SINGLE				8	10	12	14	16	
				DOUBLE								8+8	
Water condensed	Heat pump WY Line	PQHY-P YLM-A1 PQHY-P YSLM-A1		SINGLE				8	10	12	14	16	
				DOUBLE								8+8	
	Heat recovery WR2 Line	PQRY-P YLM-A1 PQRY-P YSLM-A1		SINGLE				8	10	12	14	16	
				DOUBLE								8+8	
Air condensed for R22/407 systems replacement	Heat pump Y Replace Multi Line	PUHY-RP YJM-B(-BS) PUHY-RP YSJM-B(-BS)		SINGLE				8	10	12	14		
				DOUBLE								8+8	
				TRIPLE									
	Heat recovery R2 Replace Multi Line	PURY-RP YJM-B(-BS) PURY-RP YSJM-B(-BS)		SINGLE				8	10	12			

	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60
	P450	P500	P550	P600	P650	P700	P750	P800	P850	P900	P950	P1000	P1050	P1100	P1150	P1200	P1250	P1300	P1350	P1400	P1450	P1500
	18	20																				
			10+12	10+14	10+16	10+18	12+18	16+16	16+18	18+18	18+20	20+20										
													12+12 +18	12+14 +18	14+16 +16	16+16 +16	16+16 +18	16+18 +18	18+18 +18	18+18 +20	18+20 +20	20+20 +20
	18	20																				
	8+10	10+10	10+12	10+14	12+14	14+14	14+16	14+18	16+18	18+18												
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		10+10																				
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	18	20	22																			
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	18	20	22	24																		
	8+10	10+10	10+12	12+12		14+14	14+16	16+16	16+18	18+18												
	18	20	22	24																		
	8+10	10+10	10+12	12+12		14+14	14+16	16+16	16+18	18+18												
	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												

Key Technologies

Mitsubishi Electric: state of the art technology and continuous pursuit of improvement. Quality, innovation and performance of VRF CITY MULTI systems.

Tecnology

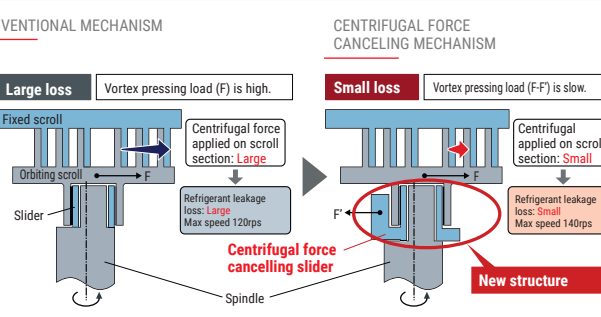
NEW NEXT STAGE generation

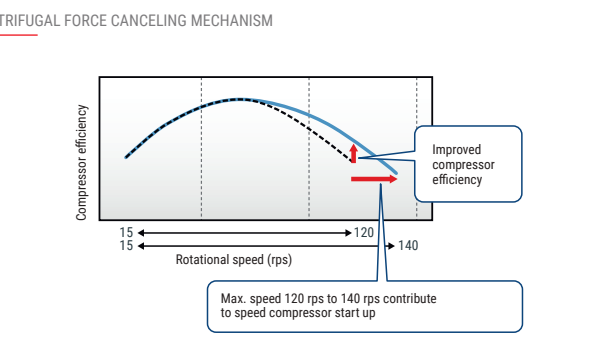
New compressor NEXT STAGE GENERATION

The compressor, known as the heart of the air conditioner, has been newly developed. A new centrifugal force canceling mechanism and a new multi-port mechanism have been developed. In addition, we have mounted a high-efficiency motor. The synergetic effect of these new technologies increases the compressor performance and efficiency, and also helps to improve the performance of the outdoor unit.

Centrifugal force canceling mechanism (8 to 14HP)

The structure of the scroll compressor causes a centrifugal force during operation. Conventionally, that centrifugal force is applied onto the scroll section.
This causes refrigerant to leak, and restricts the increase in rotational speed to a maximum of 120rps.
With the new compressor, a new structure (centrifugal force canceling mechanism) has been mounted to suppress the centrifugal force. This mechanism successfully suppresses the centrifugal force generated at the scroll section, reduces refrigerant leakage losses, and increases the compressor efficiency. The maximum rotational speed has been increased from the conventional 120rps to 140rps.
This new mechanism also speeds up the start of operation, and enables operations such as preheat defrost operation and the smooth auto-shift startup mode.

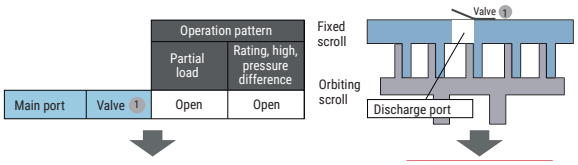




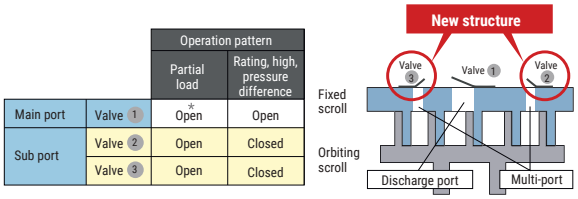
Multi-port mechanism

Efficient partial load operation is realised by avoiding overcompession. With the scroll compressor, the distance of the compression process in the scroll is usually fixed, so over-compression occurs during low loads and low rotation. The new compressor is equipped two sub-ports in addition to the conventional discharge port to reduce this over-compression loss during low loads. In operation conditions having a low compression rate, the distance in the compression process is kept short by that successfully avoiding unnecessary compression, and contributing to efficient partial load operation.

CONVENTIONAL STRUCTURE

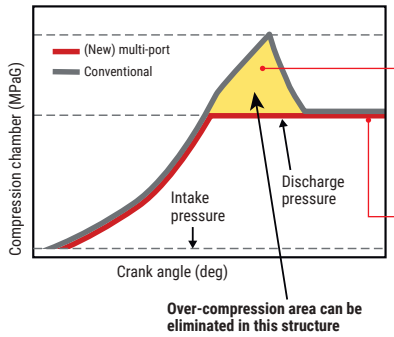


NEW STRUCTURE WITH MULTI-PORT DESIGN



*The sub-port is opened during partial load operation to discharge the over-compressed gas.

REDUCED OVER-COMPRESSION LOSS (MULTI-PORT)



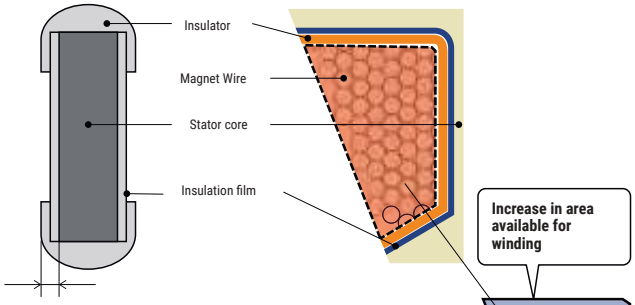
Conventional model
Conventionally, gas refrigerant is compressed to a set pressure, and then lowered to the target discharge pressure at which it is discharged. This causes drive losses from over-compression.

Multi-port
When the target discharge pressure is reached, the multiport opens, and the gas refrigerant is discharged. This reduces drive losses caused by over-compression.

Improved high-efficiency motor

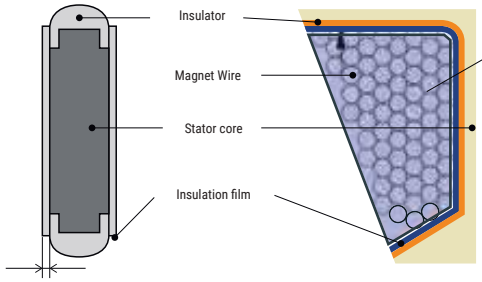
The insulator section that traditionally created a dead space is eliminated by insulating the motor's stator film. Since winding can be set in that section, the winding area can be increased by approx. 9%. The wire diameter has also been increased by two ranks, so the resistance between terminals is reduced, and the insulation distance is shorter. This improves the motor's operation performance and contributes to high-efficiency operation of the compressor.

CONVENTIONAL MODEL (YLM)



The insulator section is large, and the area where the copper wire can be wound is small.

NEW MODEL (YNW)



The motor can be wound in the section where the insulator was, and a larger wire diameter can be used.

Flat tube

FLAT TUBE thermal exchange coil

With the new **Y High Efficiency and R2 High Efficiency lines** of outdoor units, Mitsubishi Electric has also introduced the new FLAT TUBE all-aluminium thermal exchange coil. The new solution, which is covered by global patents, sets new standards for heating and cooling performance while also reducing the overall size of the machine.

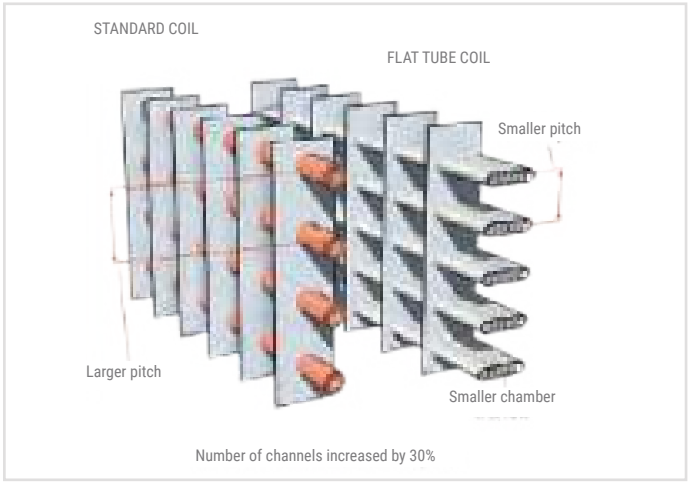
The FLAT TUBE technology coil – also known as a "micro-channel heat exchanger" – consists of three components: the flat tubing, the internal fins forming the micro-channels, and two refrigerant fluid collector boxes.

This type of heat exchanger was used for the first time in around 2008 in the automotive industry. With its globally patented FLAT TUBE system, Mitsubishi Electric has further developed this technology to offer even more advantages.

Unparalleled quality, efficiency and product integrity are the tangible results of a production process based on a single brazing stage instead of the 200-300 manually brazed individual connections necessary with a conventional copper/aluminium coil. Moreover, the FLAT TUBE heat exchanger requires a smaller charge volume than a conventional bi-metal coil, as the microchannels limit the available volume for the refrigerant fluid while also creating a larger thermal exchange surface area.

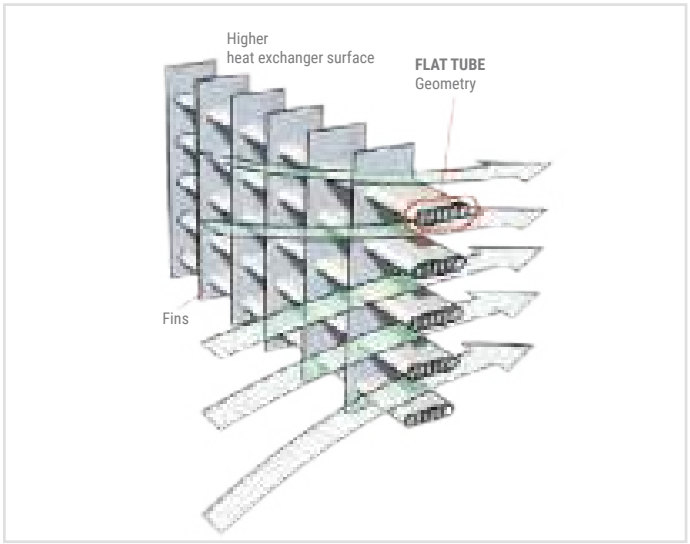
Weather resistance is a key factor for the heat exchanger coil, as it is perhaps the component that is most exposed to the harmful effects of the atmosphere.

Here too, the **FLAT TUBE** coil outperforms other solutions: the single component in aluminium only is far less susceptible to corrosion than a conventional bi-metal coil in copper and aluminium. As if that were not already enough, the direct expansion coil of the new **Y High Efficiency and R2 High Efficiency lines** outdoor units receive a special galvanic treatment with **sacrificial zinc anodes** to further prevent any possibility of corrosion, while a **waterproofing treatment** protects the copper pipes connecting the heat exchanger coil to the refrigeration circuit against electrolytic corrosion. A special version (denominated -BS) may be ordered for installations in highly saline conditions or coastal zones, which is specifically designed for these applications.



- **+30% more piping**
- **+17% more Contact with Piping**
- **+26% more Contact with Refrigerant**
- **Smaller Pitch and Pipe Chamber**
- **Reduced Refrigerant Volume**

A world first for VRF systems

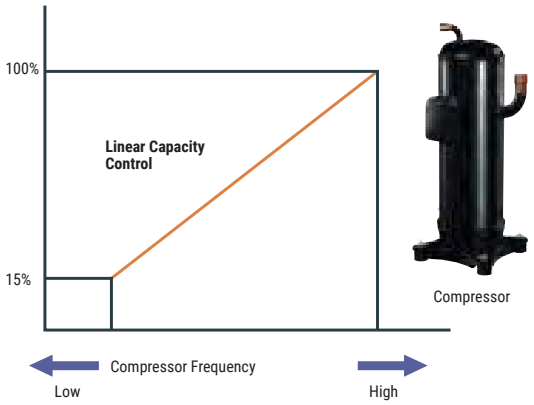


Inverter-driven compressor technology

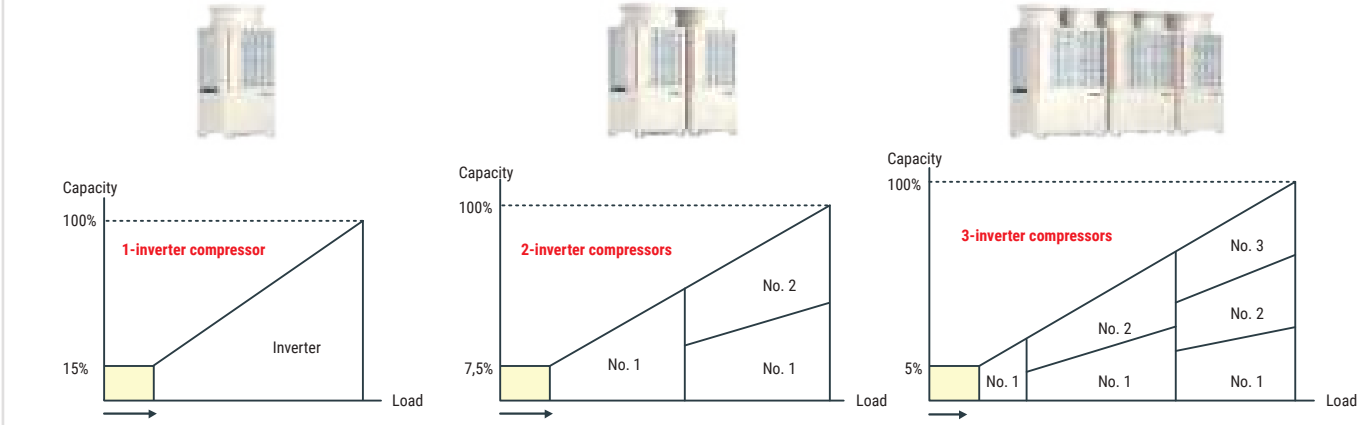
All CITY MULTI compressors are of the inverter-driven type, capable of precisely matching a building's cooling and heating demands.

The compressor varies its speed to match the indoor cooling or heating demand and therefore only consumes the energy that is required. When an inverter driven system is operating at partial load, the energy efficiency of the system is significantly higher than that of a standard fixed speed, non-inverter system.
The fixed speed system can only operate at 100%, however, partial load conditions prevail for the majority of the time. Therefore, fixed speed systems cannot match the annual efficiencies of inverter driven systems. Using proven single inverter driven compressor technology, the CITY MULTI range is favored by the industry for low starting currents (just 8 amps for a 20HP outdoor unit) and smooth transition across the range of compressor frequencies.

HEATING / COOLING CAPACITY

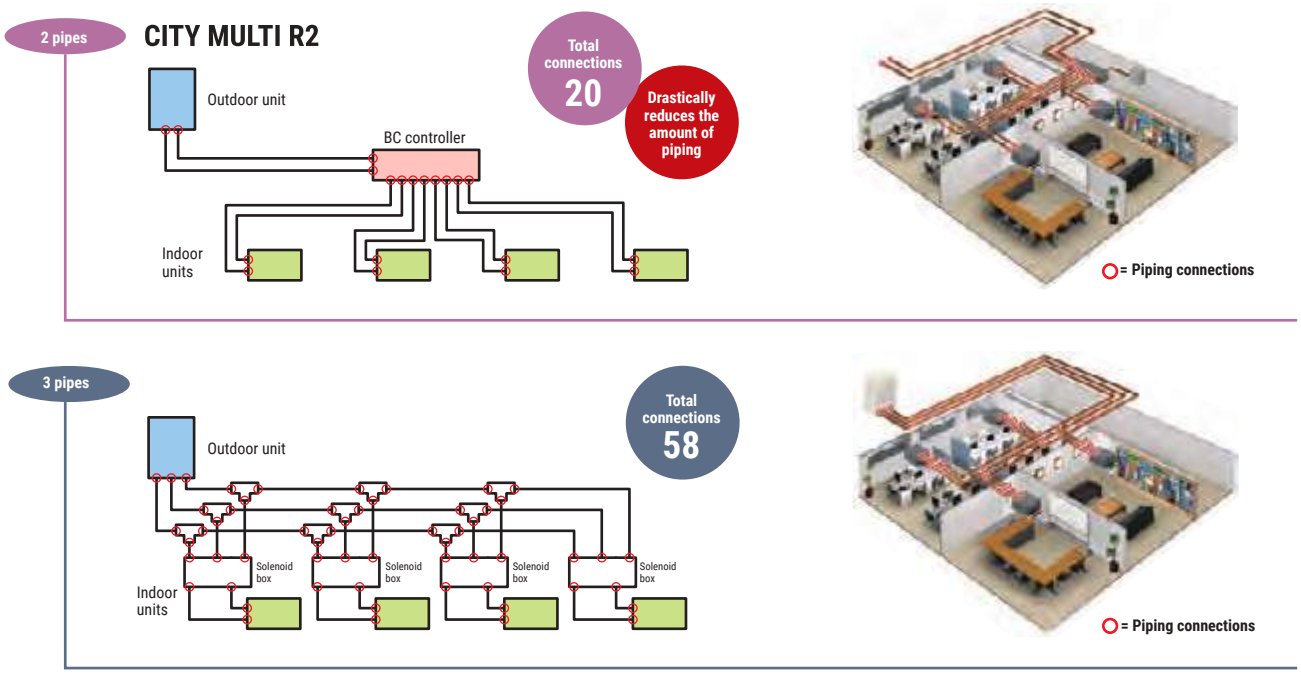


STABLE AND SMOOTH OPERATION



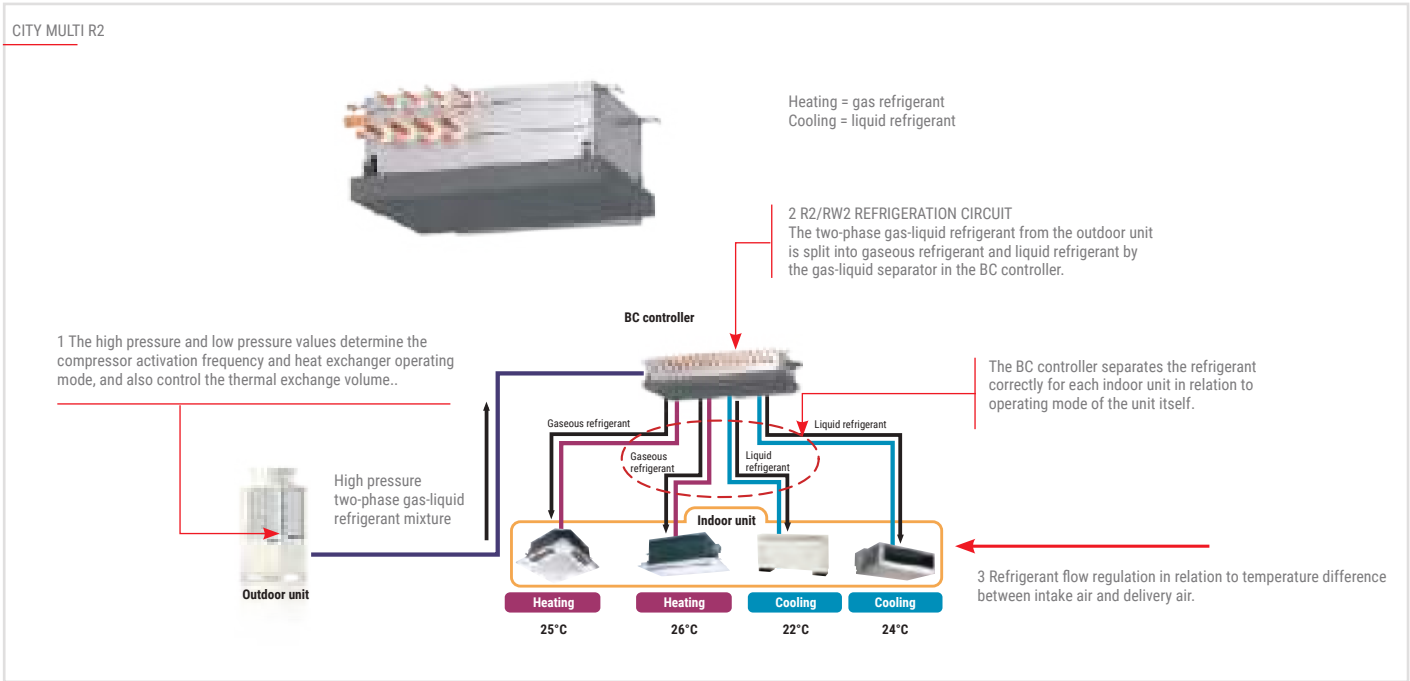
Heat recovery system

Comparison between different systems with different pipe connection points



How does the R2 / WR2 heat recovery system work with two pipes?

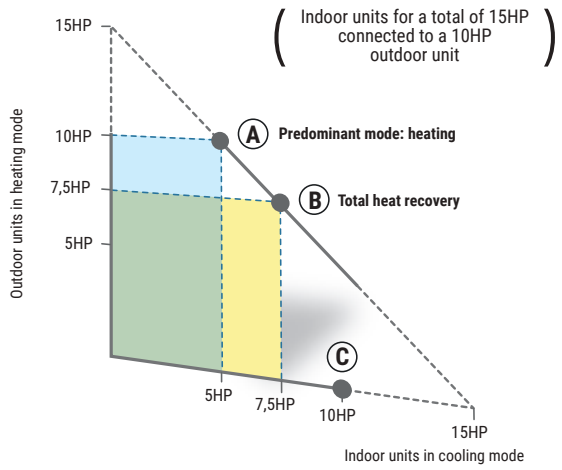
The secret of the VRF CITY MULTI heat recovery system lies in the BC controller. The BC controller contains a liquid/gas separator which allows the outdoor unit to produce a two-phase mixture of hot gas for heating and liquid for cooling delivered through the same pipe. Three pipe systems use one pipe for each of these two phases. The mixture is separated when it reaches the BC controller, and the correct phase (gas or liquid) is sent to each indoor unit in relation to individual demand for heating or cooling.



Heat recovery system

With the heat recovery system, the more often the simultaneous cooling and heating function is used, the greater the energy savings.

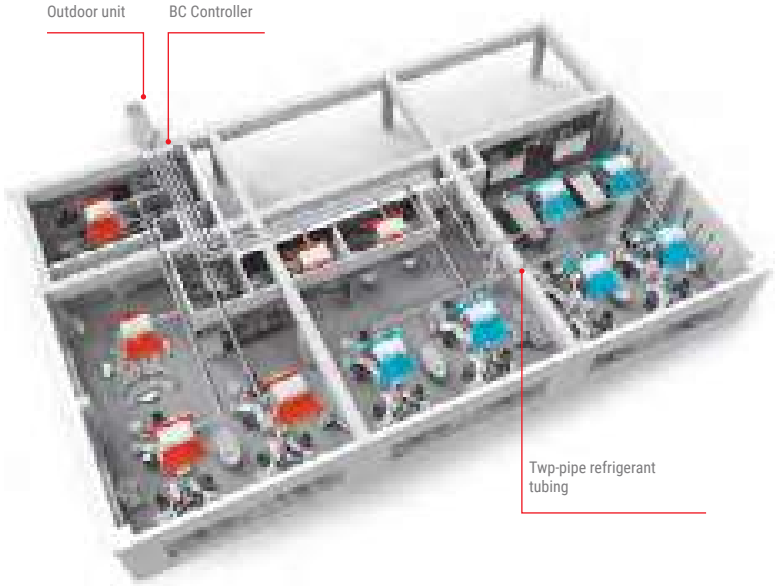
SYSTEM FUNCTIONAL DIAGRAM CITY MULTI R2/WR2



Why use heat recovery?

Flexibility and efficacy are decisive factors when choosing a system with heat recovery capability. For instance, while a heat pump system is suitable for an office with a large open space plan, in an office space subdivided into more units, a system is needed that can simultaneously heat and cool different zones in accordance with the preferences of each individual user.
The efficacy of these systems stems from their ability to use by-products of cooling and heating to transfer energy where it is needed, therefore functioning as a balanced heat exchanger offering savings of up to 20% in operating costs compared with a conventional heat pump system. Moreover, the number of connection points needed for an R2 / WR2 system is significantly lower than the number required by a three pipe system. This reduces installation costs, further adding to the savings offered by using the VRF CITY MULTI system.

WHY USE HEAT RECOVERY?



Mitsubishi Electric Replace Technology

The EU regulation 2037/2000/EC has banned the use of virgin HCFC refrigerants (R22) since 1/1/2010. As a result, in the event of a fault or even just a refrigerant leak in an air conditioning system using R22, it is no longer possible to recharge the system. With small to medium-sized installations in particular, the most cost effective solution is to replace the entire air conditioning system.
Mitsubishi Electric is the first company to deploy a technology that allows the existing piping to be used without modification, even with piping with different diameters and wall thicknesses.

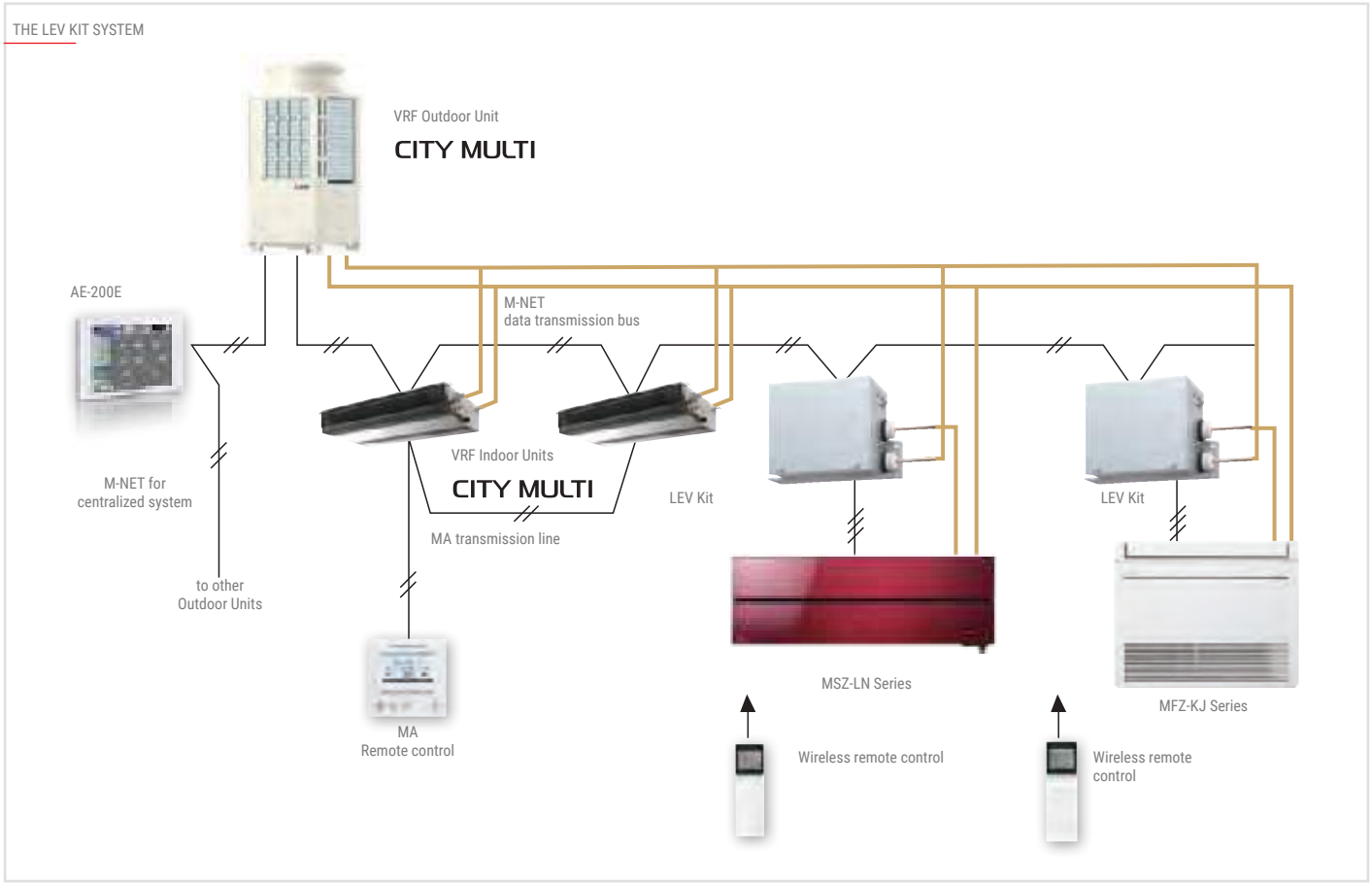
By using exclusive HAB oil (alkylbenzene) and special low friction technology for the compressor, the majority of our air conditioners may operate with the original piping, with the many advantages that brings:

- Lower installation times (no masonry work)
- Cost containment (no new piping, reduced work, etc.)
- Minimising environmental impact (reduction of materials to be disposed of)

The LEV Kit system

The LEV Kit makes it possible to use the indoor units of Residential Line – which represent the state of the art in Mitsubishi Electric air conditioning system design – together with VRF CITY MULTI systems. Mixed installations can therefore be created with complete freedom, using the MSZ-LN, MSZ-EF and MSZ-SF wall-mounted units and MFZ-KJ floor-standing units.

THE LEV KIT SYSTEM



The Mitsubishi Electric external units compatible with the LEV Kit are:

- **Small Y Line**
- **Small Y Compact Line**
- **Y Ecostandard Line**
- **Y Line**
- **Y High Efficency Line**
- **R2 Line**
- **R2 High Efficency Line**
- **WY Line**
- **WR2 Line**
- **Y Zubadan Line**

Residential indoor units	15	18	20	22	25	35	42	50
MSZ-LN					•	•		•
MSZ-EF_VG (NEW)		•		•	•	•	•	•
MSZ-EF_VE		•		•	•	•	•	•
MSZ-SF	•		•		•	•	•	•
MFZ-KJ					•	•		•

Functions

M-Net Power

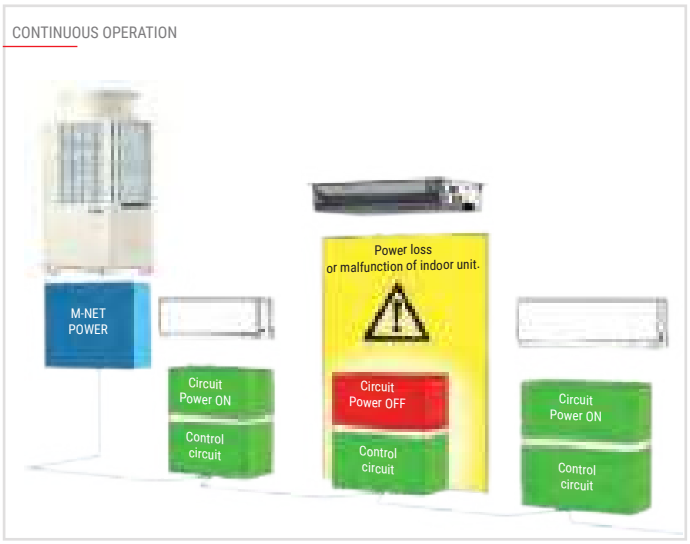
With the M-Net transmission line and the use of separate power and control circuits for indoor units, the following states can be identified automatically:

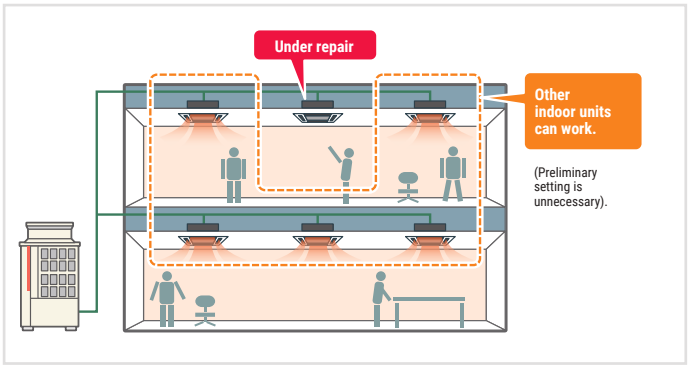
- indoor unit malfunction
- power loss to indoor unit.

In the event of one of these conditions, the outdoor unit isolates the malfunctioning indoor unit or indoor unit receiving no power to ensure the continued electrical and refrigeration functionality of the system with no action required from a technician and/or a system administrator. This allows total flexibility in planning and laying out 220V AC power circuits, without the need for shared main lines and without requiring any additional devices to attain compliance with legislation for electrical systems. This circuit configuration is essential for situations where the system itself is shared by multiple owners or tenants, and where each must be able to electrically isolate their respective indoor terminal sections when required.

Continuous operation

In the event of power loss or partial malfunction of one or more indoor units, the system continues to function uninterruptedly and without requiring any action from a technician and/or system administrator.

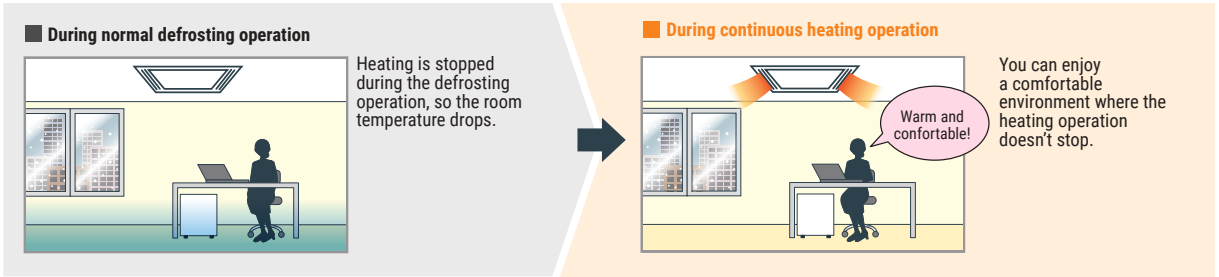




Continuous heating operation

Normally, it is necessary to stop the heating operation during defrosting. However, the continuous heating operation method makes it possible to perform defrosting while the heating operation continues.

Reduction in the stoppage time of the heating operation prevents drops in room temperature.
Use a dip switch on the outdoor unit to switch between the continuous heating operation method and the conventional defrosting method.



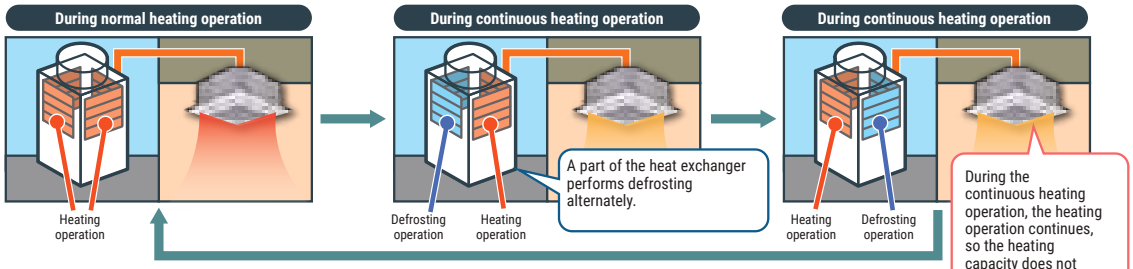
Continuous heating operation image (single unit)

The heat exchanger of the outdoor unit is split into parts. Even when defrosting is necessary, the heating operation is continued with a part of the heat exchangers.

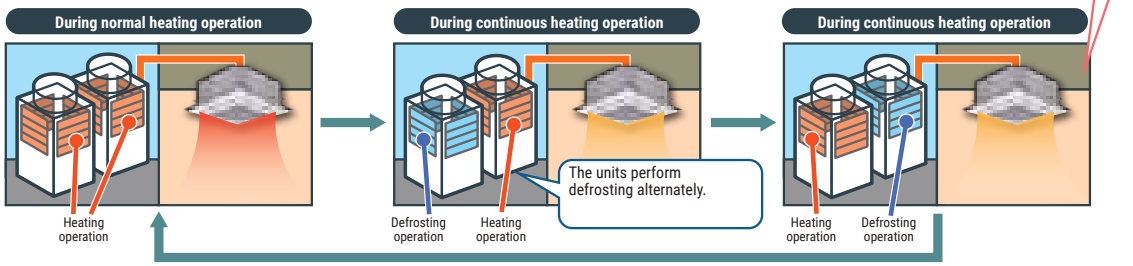
Continuous heating operation image (combination)

With the combination model, units perform defrosting alternately. While one unit is performing defrosting, the other continues heating.

CONTINUOUS HEATING OPERATION IMAGE



CONTINUOUS HEATING OPERATION IMAGE



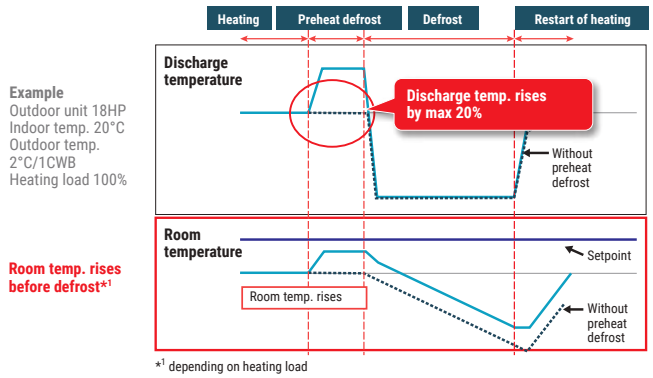
Preheat defrost operation

The new outdoor unit is equipped with a preheat defrost operation that raises the discharge temperature of the air before beginning defrost operation. This contributes to raising the room temperature before the start of defrost operation and prevents room occupants experiencing a chilling sensation.

Flexible Noise Setting

The "Low Noise" mode, which conventionally only had one pattern, has been increased to four patterns so that a mode can be selected from a total of five patterns, including the rated pattern. The low-noise mode has four patterns 85%, 70%, 60% and 50% in respect to the fan speed. This can be set with the outdoor unit's DIP switch. The pattern can be selected according to the customer's requests when low-noise operation is required.

PREHEAT DEFROST ON/OFF



During activation of the Preheat defrost, the indoor ambient temperature does not exceed the set-point temperature.

FLEXIBLE NOISE SETTING

Settings function

1) 50%
2) **60%**
3) **70%**
4) **85%**

3 new settings available

5) 100% (nominal speed)

200% extended connectivity system

The innovative Ecodan® HWS & ATW unified VRF system by Mitsubishi Electric for cooling, heating and domestic hot water production brings VRF technology to the heating market.
To ensure correct power usage in applications such as centralized residential systems and hotels, where permitted by the coincidence factor, Mitsubishi Electric offers a system allowing up to 200% extended connectivity.
The 200% extended connectivity system offers the advantage of simplified, intuitive and, most importantly, automated operation comparable to a conventional centralized heating system (e.g. gas boiler), meaning that the professional installer is no longer required to include complicated, redundant management and adjustment systems.

Extension of operating limit in Cooling to 52°C

In certain types of installation and in areas with high building density the passage of air can be obstructed. In very high outdoor temperature conditions and if the air expelled by the unit's fan is not correctly removed, it can stagnate and increase the air temperature around the machine. Thanks to an extended operating range of up to 52°C, the system can operate uninterruptedly even in these conditions.

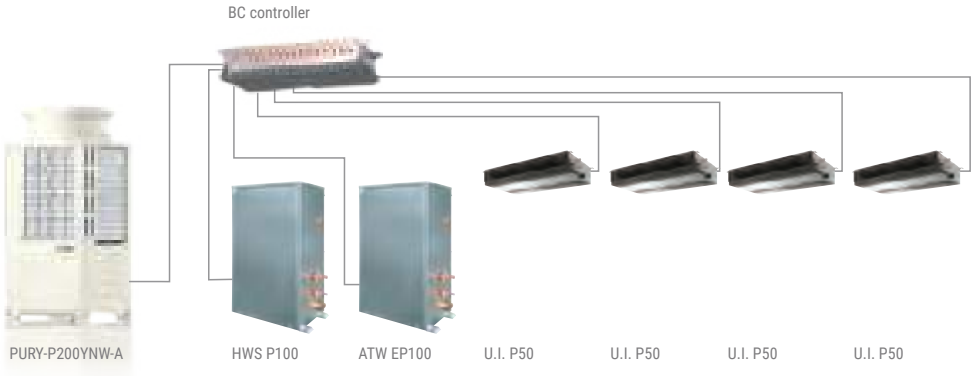
System architecture

For example, in a hypothetical installation with a P200 outdoor unit, this system permits the connection of units with a total power index equal to 200% that of the outdoor unit (P400), subdivided according to the following rules:

- Maximum power index for hydronic modules = P200 (100% of outdoor unit power index)
- Maximum power index for indoor modules = P200 (100% of outdoor unit power index)

A VRF Ecodan® installation with this configuration will ensure simultaneous operation up to a power index of 130%, in the case of a Y heat pump system, and up to 150% in the case of an R2 heat recovery simultaneous heating and cooling system.

EXAMPLE OF 200% EXTENDED CONNECTIVITY SYSTEM WITH R2 SERIES



The right power for the right application

The 200% extended connectivity system conceived by Mitsubishi Electric is applicable only for mixed configurations with simultaneous production functions: Heating with standard VRF indoor units, primary heating function with ATW hydronic modules and domestic hot water production with HWS modules (in this case, only with R2 heat recovery simultaneous cooling and heating systems). This system requires that a precise operating limit is defined that will ensure that the outdoor unit power drawn is appropriate for the ambient loads effectively to be satisfied in all operating conditions and at all times. As a consequence, it is always important to evaluate maximum simultaneous power demand in the different operating modes possible.

Operation with heat pump systems (Small Y (PUMY) and Y (PUHY))

Application	ATW Hydronic Module Indoor unit	Indoor unit
	Primary Heating	Air Cooling and Heating
Winter	On	Off
Autumn/Spring	Off	On
Summer	Off	On

Operation with simultaneous cooling and heating heat recovery systems (R2 (PURY))

Application	ATW Hydronic Module	ATW Hydronic Module	Indoor unit
	DWH Production	Primary Heating	Air Cooling and Heating
Winter	On (365days/year)	Off	Off
Autumn/Spring	On (365days/year)	On	On
Summer	On (365days/year)	On	On

Extended settable temperature range in cooling mode, with minimum temperature of 14°C

Where the ability to cool to temperatures lower than the standard lowest comfort value of 19°C (typically for sports centres, laboratories etc.) is necessary, the settable temperature range in cooling mode may be extended to offer a lowest temperature of 14°C on the following models:

- Floor-standing
- Built-in floor units
- 2-way cassette
- Ducted

The indoor unit fan is run at a higher speed in this configuration (except with the SMALL Y model outdoor unit of the PUMY series).

Emergency backup function

Y Series (Ecostandard Line, Y Line and Y High Efficiency Line) and R2 Series (R2 Line and R2 High Efficiency Line) combined modules offer unparalleled reliability with the new emergency backup function, which is easily activated from the remote control of any indoor unit in the event of a system malfunction.

The backup function allows the system to continue operating in heating and cooling mode for an average period of 4 hours.

Rotation function

Y Series (Ecostandard Line, Y Linea nd Y High Efficiency Line) and R2 Series (Y Line and Y High Efficiency Line) combined modules use an automatic “Rotation Function” routine which optimises the usage of indoor and outdoor units to extend the lifespan of all system components.

Energy efficiency control

Evaporating temperature control (during cooling)

In a traditional system, the evaporation temperature is kept constant regardless of the system load conditions. In low load conditions (when thermal loads to be dealt with are limited) increasing the evaporation temperature of the system decreases the compressor's workload and consequently limits the electrical absorption of the outdoor unit without affecting the environmental comfort level.

EVAPORATING TEMPERATURE CONTROL (DURING COOLING) NORMAL MODE

The evaporating temperature is kept constant regardless of the load. Even at low loads, the normal evaporating temperature does not change, which leads to energy losses during partial load operation.

SMART EVAPORATING TEMPERATURE CONTROL MODE

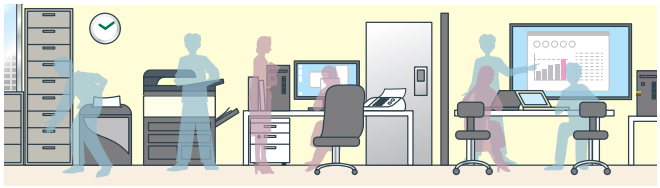
The evaporating temperature is increased and the compressor input is decreased according to the load, resulting in increased operating efficiency.
There are two patterns to control the evaporating temperature as follows.

1) The evaporating temperature is controlled to be constant, regardless of the ΔT. The evaporating temperature is set to a value that is higher than the normal evaporating temperature.

2) The evaporating temperature is controlled by shifting it according to the ΔT. The user can select from 4 control patterns.

* The availability of 1 and 2 varies depending on the model. Refer to the function table.
* Changing the evaporating temperature reduces latent heat capacity. Select an appropriate pattern according to the installation conditions.

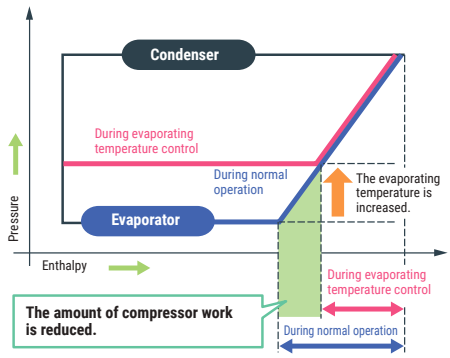
SUITABLE SITUATIONS



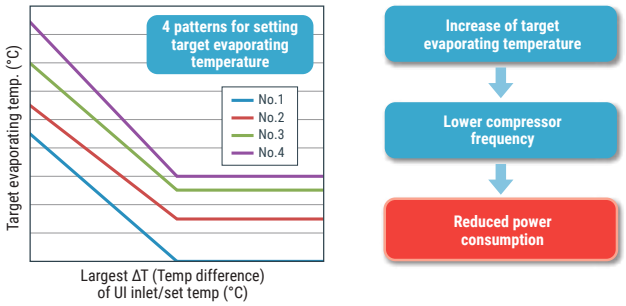
- Spaces with constant high temperatures from heat sources such as OA equipment
- When the load is low during periods when air conditioners are used for cooling (such as during the morning).

The new outdoor units are equipped with an evaporation temperature selection function, which automatically takes the system load conditions into account.

1) EVAPORATING TEMPERATURE CONTROL IMAGE



2) EVAPORATING TEMPERATURE CONTROL IMAGE (WITH 4 PATTERNS)

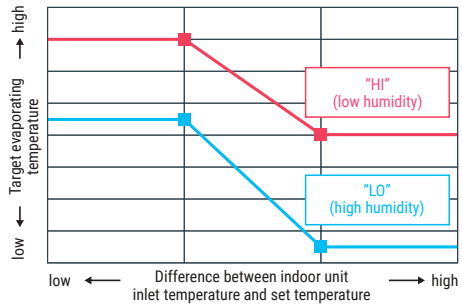


*1) To change the evaporating temperature setting, it is necessary to change the setting of the dip switch on the outdoor unit.
*2) When the difference between the indoor unit air-intake temperature and the actual temperature setting exceeds 1°C, the evaporating temperature based on this difference is constant.

High sensible heat

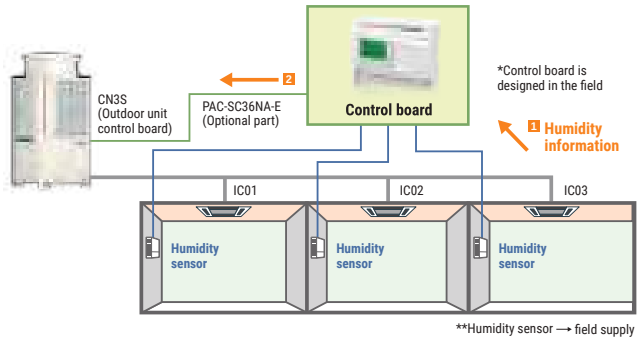
High sensible heat operation

The evaporating temperature is controlled according to room temperature and humidity, and refrigerant pressure.



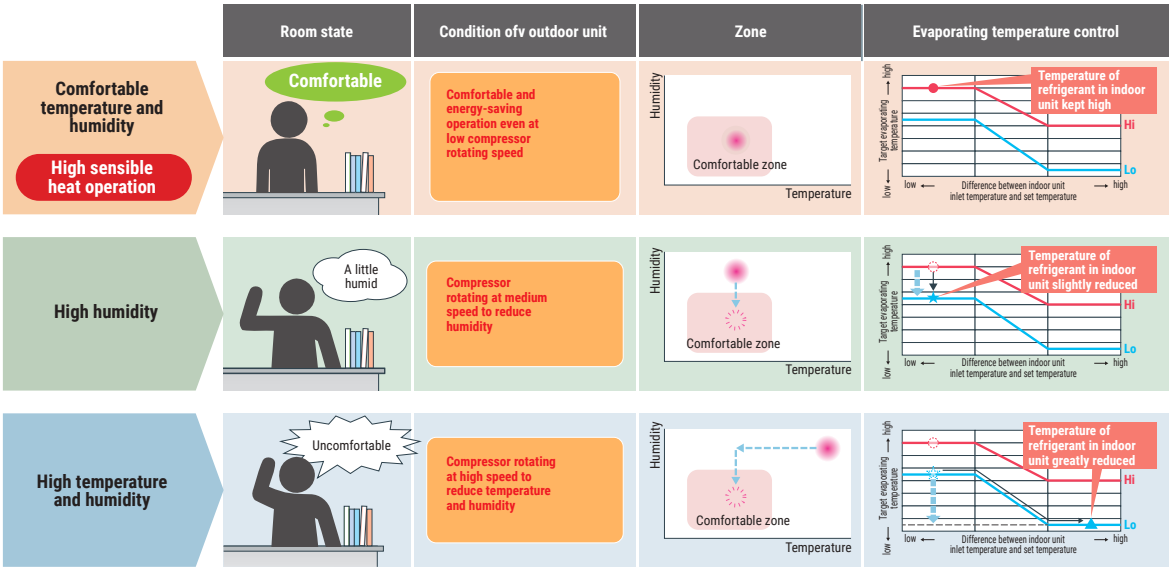
With high sensible heat operation mode activated, air conditioners consume less energy, thereby realizing cost savings. If a locally-procured humidity sensor is installed, the evaporating temperature of the outdoor unit can be controlled optimally as shown below according to the difference between the indoor unit inlet temperature and set temperature. A wide range of temperature settings are available, from a low evaporating temperature close to the temperature for normal operation to a high evaporating temperature to realize energy savings.

LOCALLY-PROCURED HUMIDITY SENSOR INSTALLATION IMAGE



1 Humidity information is sent to the control board.
2 The control board judges the humidity information, and sends a HIGH/LOW signal to the outdoor unit through CN3S. The outdoor unit shifts the evaporating temperature depending on the information from the control board.

TEMPERATURE AND HUMIDITY CONDITIONS

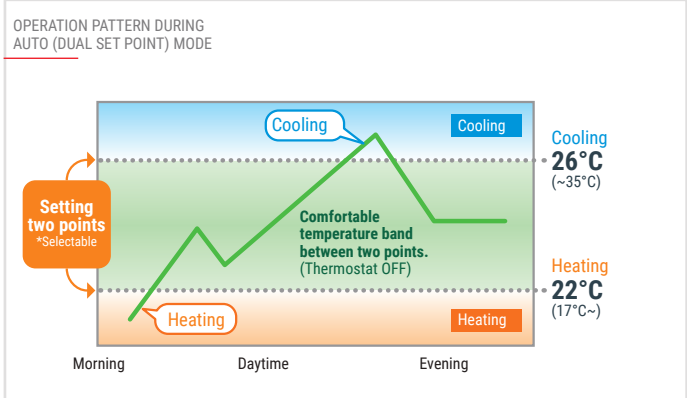


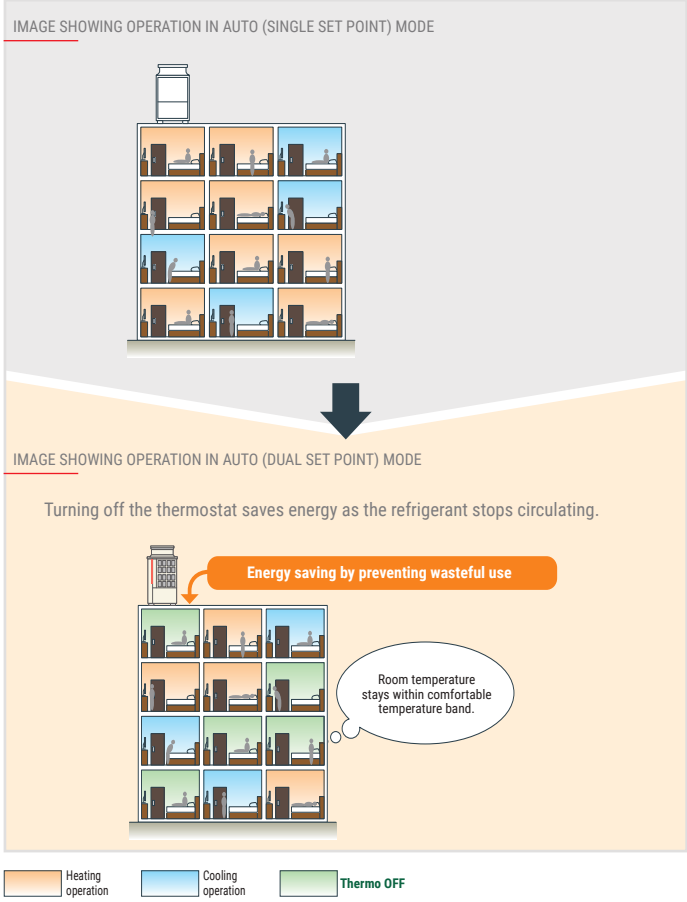
Dual Set Point

Normally, the desired room temperature is set to the same value for cooling and heating. However, the dual set point function makes it possible to set different temperatures for cooling and heating. When operation switches from cooling to heating or vice versa, the preset temperature changes accordingly.

Setting dual set points for the Auto mode on R2 and WR2 helps improve energy efficiency, compared to setting a single set point.

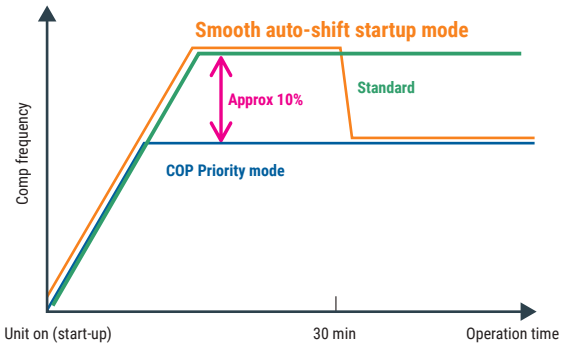
When the operation mode is set to the Auto (dual set point) mode, two preset temperatures (one each for cooling and heating) can be set. Depending on the room temperature, the indoor unit will automatically operate in either the Cool or Heat mode and keep the room temperature within the preset range. The outdoor unit does not operate in the dead band defined by two temperature points where the thermostat is off. This cuts down on unnecessary operation of the air conditioning system.





Smooth auto-shift startup mode

Smooth auto-shift startup mode, a new operation mode on the outdoor unit, can now be selected in addition to the conventional COP Priority and Capacity Priority modes. In order to heat the room faster, Capacity Priority mode runs for 30 minutes when heating operation starts. The unit then switches to COP Priority mode to increase energy-saving efficiency. This enables both improved comfort and energy savings.



Compressor: new induction heating technology

The Y Line and R2 Line outdoor units employ a pre-heating system for the scroll compressor based on induction technology. This solution is used to warm the compressor housing to minimise energy absorption in stand-by state. Yet another solution contributing to reducing energy consumption.

Installation and maintenance

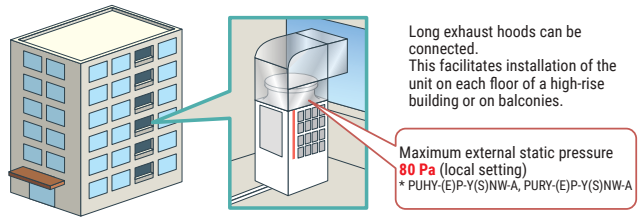
R410A R407C R22

Multi-refrigerant

The indoor units of VRF CITY MULTI systems are the first and only products on the market with multi-refrigerant capability. These units can operate with R22, R407C and R410A systems with no loss in performance, irrespective of the different pipe sizes.This allows unparalleled freedom for installation, as well as offering total reverse compatibility in the event of replacing indoor units with an R22 or R407C VRF CITY MULTI system.

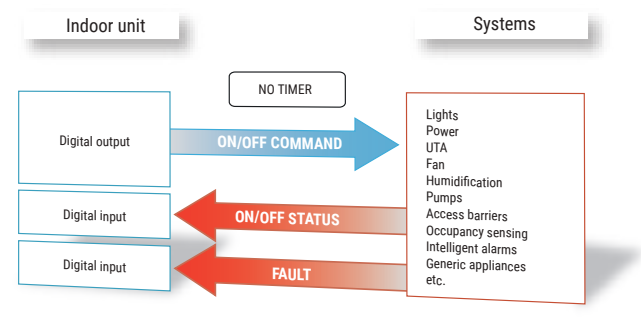
80Pa Selectable external static pressure of the outdoor unit

The static pressure specification of the outdoor unit can be selected (0, 30, 60, or 80 Pa). This facilitates installation of the unit on each floor of a high-rise building or on balconies.
* The static pressure that can be set varies depending on the model.



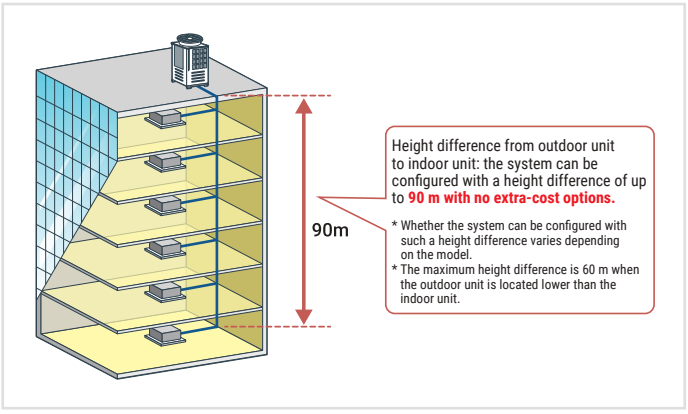
Intelligent Terminal Boards

Intelligent indoor unit terminal boards are a unique feature of Mitsubishi Electric VRF systems.
These intelligent terminal boards make it possible to use the air conditioning system and the M-NET communication network, via the indoor units, as a vehicle for collecting, transferring and monitoring field signals from generic appliances such as lighting, power, access management, intelligent alarm systems etc.
Using the intelligent terminal boards of the indoor units together with the existing infrastructure drastically reduces the number of cables needed to collect these field signals and the amount of labour required to route the cables to the centralized units.
Typically, each indoor unit supports the following signals and functions:



90m Usable in an application with a large vertical separation of up to 90 meters

A height difference of up to 90 m from the outdoor unit to the indoor unit can be supported with no extra-cost options.
This increases design flexibility and facilitates installation of these units even in high-rise buildings.



Self-diagnosis of VRF CITY MULTI system

For even simpler maintenance, CITY MULTI systems have a self-diagnostic function which is capable of communicating malfunctions on different levels using fault codes. With the special Maintenance Tool software developed by Mitsubishi Electric, the user can connect to any point in the transmission line to acquire all technical operating information interactively.

USB Downloading operating data via USB

Operation data was retrieved from conventional models using the maintenance tool. On the new model, the data can be retrieved quickly via USB*1. It is unnecessary to carry the personal computer in which the maintenance tool has been installed, reducing field operation time and improving convenience.
Software can be rewritten via USB, while data for up to 4 days and the 5 minutes after an error has occurred can be stored in the the USB memory device*2.

*1 In the case of OC-IC maximum configuration
*2 USB memory devices conforming to USB2.0 can be used.

Remote monitoring and control systems

	3D Tablet Controller	MELCloud CITY MULTI	RMI
Group/Individual simplified management*2	•	•	•
Available for Smartphone and Tablet	•	•	•
Dedicated App		•	•
User restrictions	•	•	•
Outside the building (Cloud)		•	•
Internet connection needed		•	•
WEB Server centralized control needed	•		•
Advanced energy monitoring			•
Monthly/Custom charts and reports			•
Multi-site management			•
Energy consumption apportioning			•

*2 For compatible product lines please refer to catalogues or contact headoffice

3D Tablet Controller

3D Tablet Controller is the new solution by Mitsubishi Electric allowing portable system management from Smartphone and Tablet **inside the building**. User configuration, with restrictions and privileges, makes it the ideal solution in those application serving different environments, such as offices or appartments.
Thanks to its simple and intuitive interface the user is able to control and monitor **air conditioning** and **hot water production** units on **mobile device**, just as easily as he would on a traditional remote control. This is possible thanks to WEB Server 3D centralized control installed on site, connected to the building Wi-Fi router.

MELCloud

- Cloud remote **monitoring and control** system.
- Born for residential aplications, it's now being expanded to VRF CITY MULTI.
- **Complete and intuitive** solution with all main control and monitoring functions.
- Does not require WEB Server 3D centralized control (AE-200, EW-50).

RMI

- Cloud remote monitoring and control system **for professional use**.
- Allows all main remote control and monitoring functions.
- **Advanced energy monitoring** features are available, such as hourly cunsumption view, custom charts and data collection and display.
- Geo-localized **multi-site** management.
- **Multi-user** management for centralized systems.
- Energy **consumption apportioning**.

VRF-HVRF Systems

Outdoor units

Air condensed

Water condensed

Air condensed for system replacement R22/R407C

Y REPLACE MULTI LINE

BC controllers for R2 lines

WCB water-refrigerant connection box

Refrigerant piping lenght

		Line	Small Y Compact LINE	Small Y LINE	Y Ecostandard LINE		Y LINE
		Model	PUMY-SP-Y(V)KM	PUMY-P-Y(V)KM4	PUHY-P-Y(S)KA	PUHY-P-YK(S)B	PUHY-P-Y(S)NW-A
Technology		Inverter-driven compressor technology	•	•	•	•	•
		IH warmer			•	•	•
		Flat tube Heat exchanger					
Function	Operation mode	COP priority mode			•	•	•
		Low noise mode	• Super silent mode	•	50, 100%	50, 100%	50, 60, 70, 85, 100%
		Auto-shift mode					•
		Dual set point	•	•	•	•	•
	Energy efficiency control	Evaporating temperature control (Fixed temperature control irrespective of the ΔT)			+4 °C, +9°C, 14°C	+4 °C, +9°C, 14°C	+6°C, +9°C, 14°C
		Evaporating temperature control (Automatic control shifting according to the ΔT)			4 patterns	4 patterns	4 patterns
		High sensible heat operation (during cooling)				•	•
		Demand control	4 steps	4 steps	12 steps	12 steps	12 steps
	Defrosting	Continuous heating operation				•	•
		Pre-heat defrost					•
	External static pressure	Selectable external static pressure of outdoor unit	30 Pa		0, 30, 60, Pa	0, 30, 60 Pa	0, 30, 60, 80 Pa
	High ambient temperature	Operation at high outside temperatures	52°C	52°C	52°C	52°C	52°C
	Piping lenght flexibility	Usable in an application with a large vertical separation of up to 90 meters					•
	Maintenance	Rotation control			•	•	•
		Emergency operation mode			•	•	•
		Pump down function			•	•	• Automatic
		M-Net Power	•	•	•	•	•
		USB Data download					•

* Power supplied to the heater only for 22HP and 24HP (P550 and P600) single modules

Y High Efficiency LINE	Y Zubadan LINE	Y Replace Multi LINE	WY LINE	R2 LINE	R2 High Efficiency LINE	WR2 LINE
PUHY-EP-Y(S)NW-A	PUHY-HP-Y(S)HM-A	PUHY-RP-Y(S)JM-B	PQHY-P-Y(S)LM-A2/A1	PURY-P-Y(S)NW-A	PURY-EP-Y(S)NW-A	PQRY-P-Y(S)LM-A2/A1
•	•	•	•	•	•	•
•			• *	•	•	• *
•					•	
•		•		•	•	
50, 60, 70, 85, 100%	50, 100%	50, 100%	50, 100%	50, 60, 70, 85, 100%	50, 60, 70, 85, 100%	50, 100%
•				•	•	
•	•	•	•	•	•	•
+6°C, +9°, +14°C			+6°C, +9°, +14°C	+6°C, +9°, +14°C	+6°C, +9°, +14°C	+6°C, +9°, +14°C
4 patterns			4 patterns	4 patterns	4 patterns	4 patterns
•			•	•	•	•
12 steps	12 steps	12 steps	8 steps	8 steps	8 steps	8 steps
•				•	•	
•				•	•	
0, 30, 60, 80 Pa	0, 30, 60 Pa	0, 30, 60 Pa		0, 30, 60, 80 Pa	0, 30, 60, 80 Pa	
52°C			-	52°C	52°C	-
•				•	•	
•	•	•	•	•	•	•
•	•	•	•	•	•	•
• Automatic	•	•	•	• Automatic	• Automatic	•
•	•	•	•	•	•	•
•				•	•	

SMALL Y COMPACT LINE

OUTDOOR UNITS - PUMY-SP Y(V)KM(-BS)

COMPACT SIZE AND LOW WEIGHT

MAXIMUM FLEXIBILITY OF CONNECTION THROUGH BRANCH BOX

TOP OF THE RANGE EFFICIENCY

SUPER SILENT MODE

UP TO 30 PA STATIC PRESSURE OUTDOOR FAN UNIT

FLEXIBLE PIPE CONNECTION

Compact dimensions

The new SMALL Y COMPACT (PUMY-SP) delivers the power and performance of a VRF system in residential applications with a significantly smaller footprint than ever before, thanks to its new single-fan design.

PUMY-P YKM3(-BS)

Height 1,338mm

Weight 125kg

PUMY-SP Y(V)KM(-BS)

27% down

Height 981mm

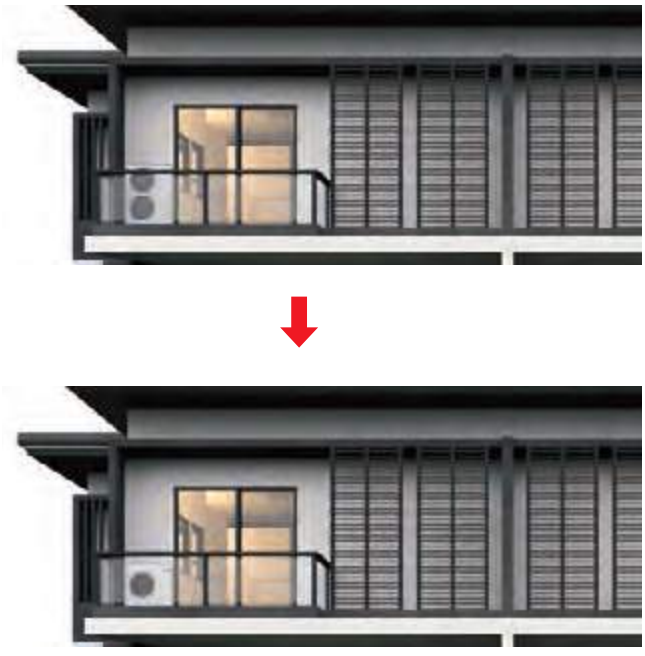
25% down

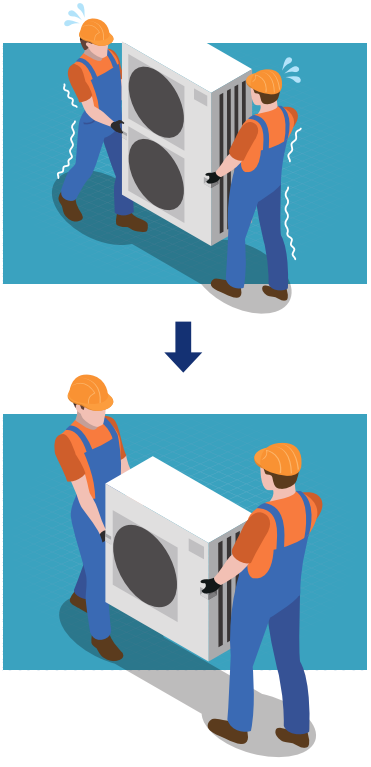
Weight 94kg

Easy installation and transport

The compact chassis of the SMALL Y COMPACT (PUMY-SP) and above all its low height (under one metre) make the machine suitable for installation on balconies. The low weight makes the unit easy to transport.

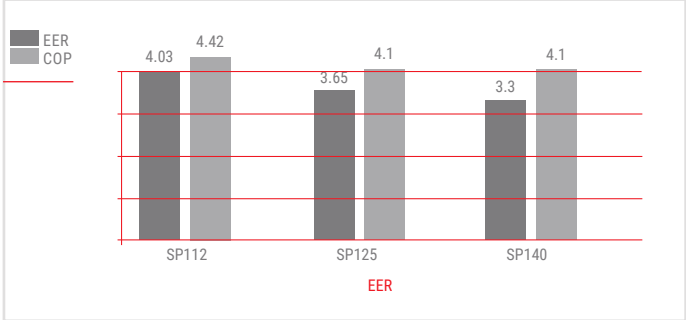
THE OUTDOOR UNIT CAN BE INSTALLED ON BALCONIES





Top of the range efficiency

Despite its compact size and low weight, the new SMALL Y COMPACT (PUMY-SP) provides top of the range efficiency. This reduces operating costs.



Super Silent Mode

The SMALL Y COMPACT (PUMY-SP) is the first model in the range that can operate in the new "Super Silent" mode, which reduces sound emission by -10dB(A). It is therefore possible to install the unit even in particularly sensitive acoustic environments.

*The optional PAC-SC36NA-E connector is required in order to activate "Super Silent" mode.
*System capacity is reduced if "Silent" or "Super Silent" mode is activated.

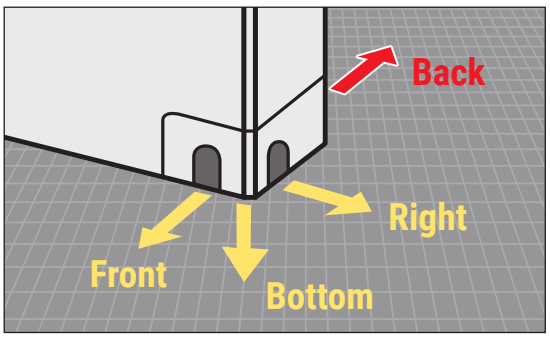
Geometric limits

The compactness of the new model SMALL Y COMPACT (PUMY-SP) does not affect the system's flexibility, so it is still possible to have extended and capillary pipe development.

GEOMETRIC LIMITS	
	PUMY-SP112/125/140 VKM(-BS)/YKM(-BS)
Total length of pipes	120 m
Total pipe length after branch box/boxes	95 m
Maximum level difference between UI and UE (UE above)	50 m
Maximum height difference between UI and UE (UE below)	30 m

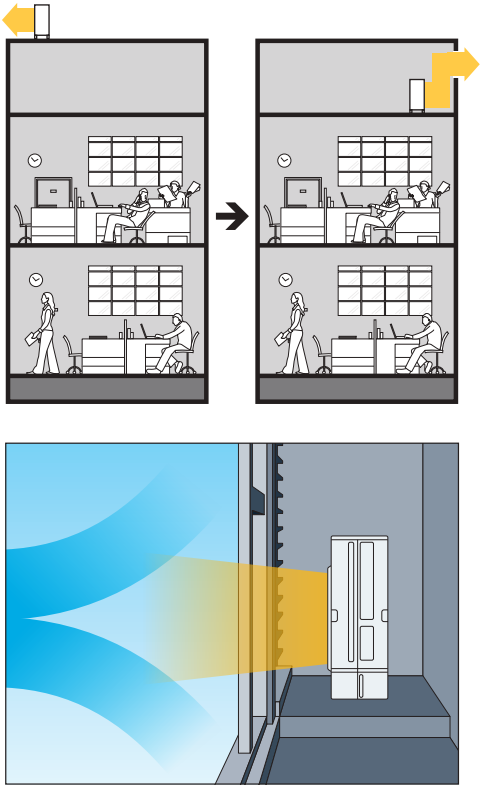
Flexible connection

The new SMALL Y COMPACT line is equipped with front, side, rear and lower refrigeration connections, making it easier to install.



Static pressure outdoor fan unit

The 30 Pa static pressure option increases flexibility in the choice of the unit's installation point.



Connectivity

SMALL Y COMPACT (PUMY-SP) single-fan units can be connected to Residential and Commercial line indoor units by branch-box PAC-MK31(3)/51(3). It is also possible to create mixed systems with VRF indoor units and residential and commercial units. Thanks to these features, the system has essentially unlimited flexibility, serving every need.

New Branch Box (3 and 5 connections) - Total flexibility

The new Branch Boxes are designed to give the system the highest possible flexibility of configuration. It is therefore possible to create systems with CITY MULTI VRF units, consisting exclusively of Residential/ Commercial Series indoor units or mixed systems in which the two types of units coexist.

M-NET Branch Box

The new PAC-MK31(3)/51(3) branch boxes are designed for direct connection to MELANS control and supervision systems. To connect a system composed of internal units of the Residential or Commercial Line to an M-Net centraliser, it is therefore not necessary to provide a dedicated interface. Instead it is sufficient to use Branch Boxes and connect them to the communication bus consisting of a simple two-wire, non-polarised cable. In addition, the new Branch Boxes do not need to be prepared for condensate drainage.

Model	1 Branch Box		2 Branch Box	
	Via Branch Box	CITY MULTI Indoor units	Via Branch box	CITY MULTI Indoor units
PUMY-SP112	Max. 5	Max. 5	Max. 7	Max. 3
			Max. 8	Max. 2
PUMY-SP125	Max. 5	Max. 5	Max. 8	Max. 3
PUMY-SP140				

Indoor units connectable

			Wall																						Floor			1 way cassette			4 way cassette									Ceiling concealed									Ceiling		
			Kirigamine Style		Kirigamine Zen						Plus line																				60x60			90x90						Compact											
Nr. IU Connectable	Min/Max con-nectable capacity*	MODEL	MSZ-LN		MSZ-EF						MSZ-SF						MSZ-AP						MSZ-GF		MFZ-KJ			MLZ-KP			SLZ-M			PLA-M EA						SEZ-M					PEAD-M JA				PCA-M KA		
			25	35	18	22	25	35	42	50	15	20	25	35	42	50	15	20	25	35	42	50	60	71	25	35	50	25	35	50	25	35	50	25	35	50	60	71	100	35	50	60	71	100	50	60	71	100	50	60	71
	63/162	PUMY-SP112	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
8	71/182	PUMY-SP125	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	80/202	PUMY-SP140	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

* [kW]x10

Technical specifications

MODEL				PUMY-SP112VKM	PUMY-SP112YKM	PUMY-SP125VKM	PUMY-SP125YKM	PUMY-SP140VKM	PUMY-SP140YKM
HP				4.5	4.5	5.0	5.0	6.0	6.0
Power	Phases/Voltage/Freq.		V/Hz/n°	1-phase 220-240V 50Hz	3-phase 380-400-415V 50Hz	1-phase 220-240V 50Hz	3-phase 380-400-415V 50Hz	1-phase 220-240V 50Hz	3-phase 380-400-415V 50Hz
Cooling	Nominal capacity*1		kW	12.5	12.5	14.0	14.0	15.5	15.5
	Power absorption		kW	3.10	3.10	3.84	3.84	4.70	4.70
	EER			4.03	4.03	3.65	3.65	3.30	3.30
	SEER			6.76	6.76	6.74	6.74	6.49	6.49
	Operating temperature range	Indoor WB	°C	15.0~24.0	15.0~24.0	15.0~24.0	15.0~24.0	15.0~24.0	15.0~24.0
		Outdoor DB	°C	-5.0~52.0	-5.0~52.0	-5.0~52.0	-5.0~52.0	-5.0~52.0	-5.0~52.0
Heating	Nominal capacity*2		kW	14.0	14.0	16.0	16.0	16.5	16.5
	Power absorption		kW	3.17	3.17	3.90	3.90	4.02	4.02
	COP			4.42	4.42	4.10	4.10	4.10	4.47
	SCOP			3.98	3.98	3.93	3.93	3.90	3.90
	Operating temperature range	Indoor WB	°C	15.0~27.0	15.0~27.0	15.0~27.0	15.0~27.0	15.0~27.0	15.0~27.0
		Outdoor DB	°C	-20.0~15.0	-20.0~15.0	-20.0~15.0	-20.0~15.0	-20.0~15.0	-20.0~15.0
Sound pressure*3	Heating/Cooling		dB(A)	52/54	52/54	53/56	53/56	54/56	54/56
Connectable indoor units				50 to 130% of capacity of O.U.	50 to 130% of capacity of O.U.	50 to 130% of capacity of O.U.	50 to 130% of capacity of O.U.	50 to 130% of capacity of O.U.	50 to 130% of capacity of O.U.
	Model/Quantity	CITY MULTI		P15~P140/9	P15~P140/9	P15~P140/10	P15~P140/10	P15~P140/12	P15~P140/12
		Branch Box		P15~P100/8	P15~P100/8	P15~P100/8	P15~P100/8	P15~P100/8	P15~P100/8
		Sistema misto		please refer to databook					
External diameter of refrigerant connectors		Liquid/Gas	mm	9.52/15.88	9.52/15.88	9.52/15.88	9.52/15.88	9.52/15.88	9.52/15.88
	External dimensions		mm	981 x 1050 x 330	981 x 1050 x 330	981 x 1050 x 330	981 x 1050 x 330	981 x 1050 x 330	981 x 1050 x 330
	Net weight		kg	93	94	93	94	93	94
	Ref Charge R410A*4/CO_2 Eq		kg	3.5 / 7.31	3.5 / 7.31	3.5 / 7.31	3.5 / 7.31	3.5 / 7.31	3.5 / 7.31

*1 Nominal cooling conditions: Indoor: 27°C DB / 19°C WB. Outdoor 35°C DB. Piping length 7.5 m, vertical difference 0 m.
*2 Nominal heating conditions: Indoor 20°C DB. Outdoor 7°C DB / 6°C WB. Piping length 7.5 m, vertical difference 0 m.
*3 Values measured in anechoic chamber.
*4 GWP value of HFC R410A 2088 according to 517 / 2014.

SMALL Y LINE

OUTDOOR UNITS - PUMY-P Y(V)KM4(-BS)

Made in Japan

MORE QUIETNESS THANKS TO THE NEW FAN

CONNECTABLE TO ecodan ATW MODULES FOR HOT WATER PRODUCTION UP TO 55°C

GEOMETRIC PIPING LIMITATIONS INCREASED

H.I.C. CIRCUIT (HEAT INTER CHARGER) FOR THE SUBCOOLING CONTROL

HEATING OPERATION RANGE EXTENDED UP TO -20°C OUTDOOR TEMPERATURE

TOP PERFORMANCE AND COP> 4 ON THE ENTIRE RANGE

POWER RANGE EXTENDED WITH THE INTRODUCTION OF THE NEW 8 HP THREE-PHASE SIZE

NEW CHASSIS WITH INCREASED HEAT EXCHANGE SURFACE

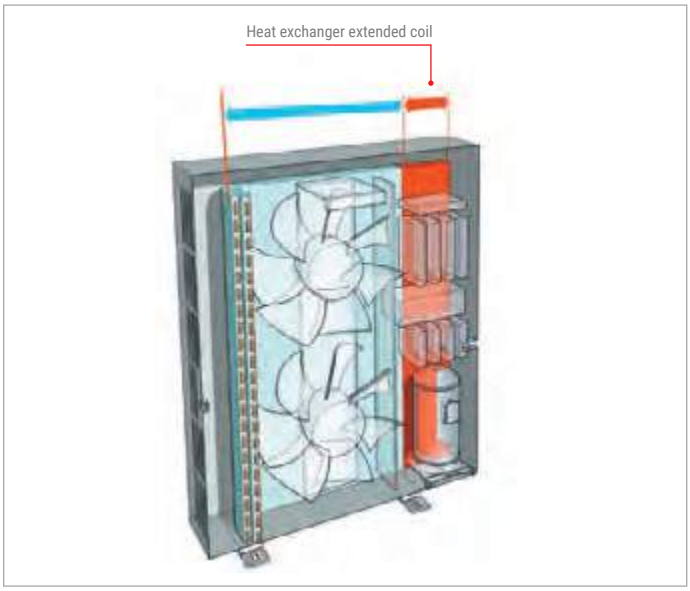
INCREASED RELIABILITY

CONNECTABLE TO RESIDENTIAL AND COMMERCIAL INDOOR UNITS BY LEV-KIT AND BRANCH BOX

NATIVE REPLACE TECHNOLOGY FUNCTION FOR THE REPLACEMENT OF R22 SYSTEMS

New PUMY Y(V)KM4 - The smallest, but with all the technology and efficiency of our bigger units

The SMALL Y (PUMY) series of outdoor units by Mitsubishi Electric, which now offers 7 different variants (with single and three-phase 4.5, 5 and 6 HP versions and a three-phase 8 HP version), is the ideal solution for large homes and medium-sized offices. These outdoor units may be connected to up to 12 indoor units of different type and power rating. This system offers exceptional savings in operating costs and is suitable for both residential and commercial applications.



Class-beating energy efficiency

The new SMALL Y (PUMY) series has been designed to offer extraordinary levels of energy efficiency in both summer (EER) and winter (COP) operation. The entire range scores **COP values above 4**, making these units usable even in regions where legislation sets more restrictive performance limitations.

Total comfort. Even at -20°C

The new SMALL Y (PUMY) series is now capable of operating in heating mode over an even broader temperature range (from -20 to +15 °C).

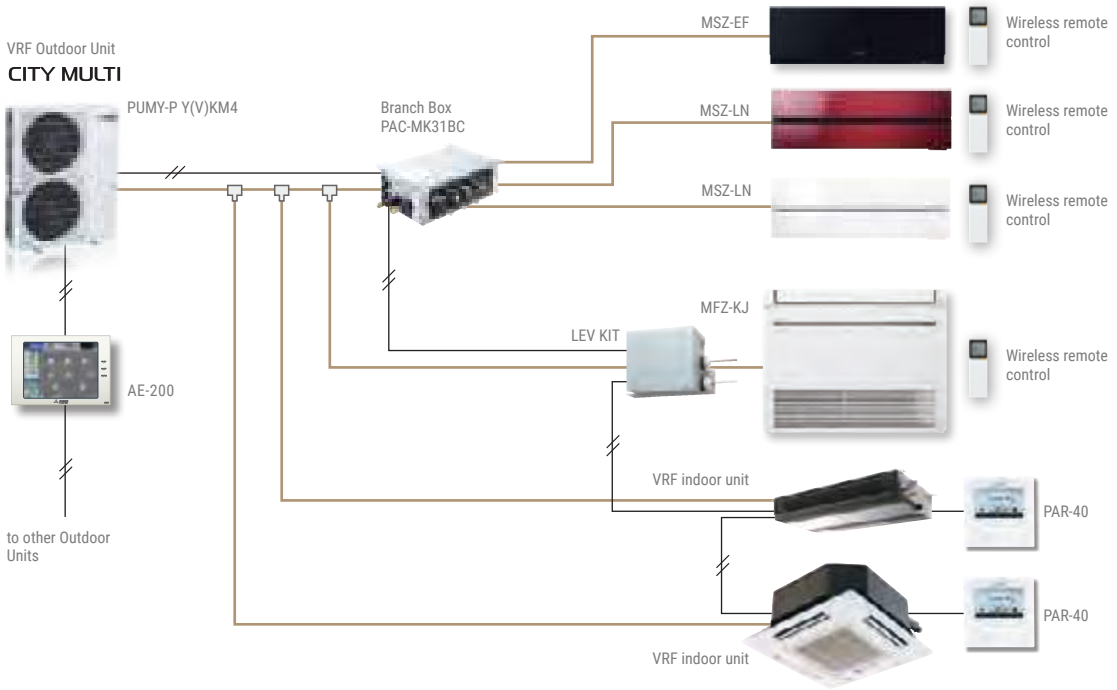
New chassis with larger heat exchange surface area

The new design of the SMALL Y (PUMY) series has made it possible to use a direct expansion coil with greater heat exchange surface area and density. Together with the introduction of the **Heat Inter Charger** overcooling circuit – a technological solution now appearing for the first time in units of this series – these improvements ensure superlative performance and extraordinary energy efficiency in cooling mode. The flat fin configuration of the coil and special Blue Fin treatment protect the coil itself against corrosion, ensuring that the unit continues to function with the same outstanding thermal exchange efficiency and performance over time.

The power of a VRF, the elegance of a residential Multi-Split

With the **LEV KIT** and the new dedicated **Branch Box** (available as 3 and 5 connection versions), the outdoor units of the Small Y series can now be connected to the entire range of **residential and commercial** indoor units, with looks that are perfectly suited to applications (such as residential buildings and hotels) where design and elegance are decisive factors in the choice of indoor units.

THE POWER OF A VRF, THE ELEGANCE OF A RESIDENTIAL MULTI-SPLIT



New Branch Boxes (3 or 5 connections) – Total flexibility

The new Branch Boxes are designed to offer the greatest configuration flexibility possible for the system. This makes it possible to create systems consisting entirely of CITY MULTI VRF units, systems with Residential/ Commercial series indoor units only, or mixed systems with both types of unit.

Model	1 Branch Box		2 Branch Box	
	Branch Box ways	CITY MULTI Indoor units	Branch Box ways	CITY MULTI Indoor units
PUMY-P112	Max. 5	Max. 5	Max. 7	Max. 3
			Max. 8	Max. 2
PUMY-P125	Max. 5	Max. 5	Max. 8	Max. 3
PUMY-P140				

Total flexibility for installation and maintenance

With increased geometric limits for piping, the SMALL Y (PUMY) series offers unparalleled flexibility for installation.

INCREASED GEOMETRICAL LIMITS FOR PIPING	
	PUMY P112-P125-P140 Y(V)KM4
Total effective length	300 m
Effective length of a single circuit	150 m
Maximum vertical difference between indoor units	15 m
"Maximum vertical difference between indoor and outdoor units (with outdoor unit in lower position)"	40 m

Indoor units connectable

Nr. IU Connectable	Min/Max connectable capacity*	MODEL	Wall																					
			Kirigamine Style		Kirigamine Zen						Plus line													
			MSZ-LN		MSZ-EF						MSZ-SF						MSZ-AP						MSZ-GF	
			25	35	18	22	25	35	42	50	15	20	25	35	42	50	15	20	25	35	42	50	60	71
8	30/162	PUMY-P112	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	30/182	PUMY-P125	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	30/202	PUMY-P140	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	112/291	PUMY-P200	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Nr. IU Connectable	Min/Max connectable capacity*	MODEL	Floor			1 way cassette			4 way cassette									Ceiling concealed									Ceiling		
									60x60			90x90						Compact											
			MFZ-KJ			MLZ-KP			SLZ-M			PLA-M EA						SEZ-M					PEAD-M JA				PCA-M KA		
			25	35	50	25	35	50	25	35	50	25	35	50	60	71	100	35	50	60	71	100	50	60	71	100	50	60	71
8	30/162	PUMY-P112	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	30/182	PUMY-P125	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	30/202	PUMY-P140	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	112/291	PUMY-P200	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

* [kW]x10, excluding hydronic module where it is compatible (PUMY-P112~140)

Mixed systems

SMALL Y series (PUMY) sizes 4.5-5-6 HP can be connected to **Ecodan HYDROBOX and HYDROTANK**, allowing mixed systems (domestic hot water, radiant panels or air heating and air cooling). Thanks to this feature the system can produce **hot water** up to **55°C**.

Unparalleled silence

The new fans cut through the air more effectively and minimise turbulence, for superlative static overpressure with **minimum noise impact**. These fans generate a **10% higher outdoor air flow than the previous version** while operating at the same noise levels. Small Y (PUMY) is also capable of operating in "low noise" mode, reducing sound pressure levels by 2 dB. By connecting an external timer or switch to the fan, this mode can be set for specific time brackets during the day.

New fan

Diameter increased from 490 mm to 550 mm.
The new fan has longer, differently shaped blades to direct air more effectively, reduce turbulence and increase efficiency.

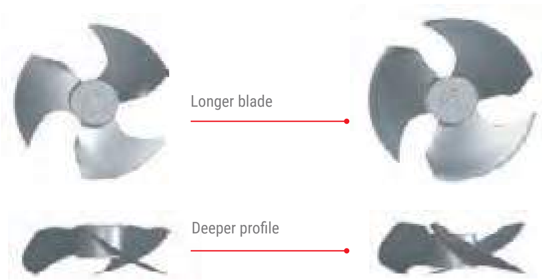
New PUMY Y(V)KM with Replace Technology

The EU regulation 2037/2000/EC **has banned the use of virgin HCFC refrigerants (R22)** since 1/1/2010. As a result, in the event of a fault or even just a refrigerant leak in an air conditioning system using R22, it is no longer possible to recharge the system. With small to medium-sized installations in particular, the most cost effective solution is to replace the entire air conditioning system. This is because of the following reasons:

- New generation outdoor units with R410A are much more efficient, with lower electric power consumption;
- They are quieter and offer more effective air filtration;
- Taking advantage of tax rebates offered for replacing winter air conditioning systems will minimise the time necessary to recoup the initial outlay.

The main problem in replacing an existing air conditioner using R22 fluid with a system using new R410A refrigerant is posed by the residue of chlorine and mineral oils remaining in the existing piping onto which the air conditioner system containing R22 was connected. This residue is extremely harmful for the new air conditioner, and unless the circuit is flushed out extremely thoroughly, may degrade the new oil and/or cause obstructions in the refrigerant circuit and, as a result, lead to system malfunctions. Moreover, the diameters and thickness of the existing piping may not be compatible with the new units.

NEW FAN



ECODAN MULTI

LEGEND
Refrigerant
Water

The **SMALL Y (PUMY)** Lines of outdoor units features **Mitsubishi Electric Replace Technology**, which allows the **existing piping to be used** without modification, even with piping with different diameters and wall thicknesses. By using exclusive HAB oil and special low friction technology for the compressor, the majority of our air conditioners may operate with the original piping, cutting installation times and costs and material costs while minimising environmental impact.

AC PRE-HEATING compressor pre-heating system

AC pre-heating system is used for the compressor. The pre-heat routine is based on the temperature of the refrigerant and of the compressor.
AC control reduces power absorption in stand-by state, increasing seasonal efficiency.

Technical specifications

MODEL				PUMY-P112VKM4(-BS)	PUMY-P125VKM4(-BS)	PUMY-P140VKM4(-BS)
HP				4.5	5.0	6.0
Power	Phases/Voltage/Freq.			Single phase 220-230-240V 50Hz		
Cooling	Nominal capacity*1		kW	12.5	14.0	15.5
	Power absorption		kW	2.79	3.46	4.52
	EER			4.48	4.05	3.43
	SEER			6.55	6.60	6.25
	Operating temperature range	Indoor WB	°C	15.0~24.0	15.0~24.0	15.0~24.0
		Outdoor DB	°C	-5.0~46.0	-5.0~46.0	-5.0~46.0
Heating	Nominal capacity*2		kW	14.0	16.0	18.0
	Power absorption		kW	3.04	3.74	4.47
	COP			4.61	4.28	4.03
	SCOP			4.64	4.63	4.42
	Operating temperature range	Indoor WB	°C	15.0~27.0	15.0~27.0	15.0~27.0
		Outdoor DB	°C	-20.0~15.0	-20.0~15.0	-20.0~15.0
Sound pressure*3	Heating mode		dB(A)	51	52	53
	Cooling mode		dB(A)	49	50	51
Connectable indoor units	Total capacity			50 to 130% of capacity of O.U.	50 to 130% of capacity of O.U.	50 to 130% of capacity of O.U.
	Model/Quantity			P15~P140 / 1~9	P15~P140 / 1~10	P15~P140 / 1~12
External diameter of refrigerant connectors	Liquid		mm	9.52	9.52	9.52
	Gas		mm	15.88	15.88	15.88
Fan air flow rate			m^3/min	110	110	110
External dimensions (HxLxW)			mm	1338x1050x330	1338x1050x330	1338x1050x330
Net weight			kg	122	122	122
Ref. Charge R410A*4/CO_2 Eq			kg/Tons	4.8/10.02	4.8/10.02	4.8/10.02

*1 Nominal cooling conditions: Indoor: 27°C DB / 19°C WB. Outdoor 35°C DB. Piping length 7.5 m, vertical difference 0 m.
*2 Nominal heating conditions: Indoor 20°C DB. Outdoor 7°C DB / 6°C WB. Piping length 7.5 m, vertical difference 0 m.
*3 Values measured in anechoic chamber.
*4 GWP value of HFC R410A 2088 according to 517 / 2014.
The SEER and SCOP data are based on the EN14825 measurement standard

Technical specifications

MODEL				PUMY-P112YKM4(-BS)	PUMY-P125YKM4(-BS)	PUMY-P140YKM4(-BS)
HP				4.5	5.0	6.0
Power	Phases/Voltage/Freq.			3-phase, 380-400-415V, 50Hz		
Cooling	Nominal capacity*1		kW	12.5	14.0	15.5
	Power absorption		kW	2.79	3.46	4.52
	EER			4.48	4.05	3.43
	SEER			6.55	6.60	6.25
	Operating temperature range	Indoor WB	°C	15.0~24.0	15.0~24.0	15.0~24.0
		Outdoor DB	°C	-5.0~46.0	-5.0~46.0	-5.0~46.0
Heating	Nominal capacity*2		kW	14.0	16.0	18.0
	Power absorption		kW	3.04	3.74	4.47
	COP			4.61	4.28	4.03
	SCOP			4.64	4.63	4.42
	Operating temperature range	Indoor WB	°C	15.0~27.0	15.0~27.0	15.0~27.0
		Outdoor DB	°C	-20.0~15.0	-20.0~15.0	-20.0~15.0
Sound pressure*3	Heating mode		dB(A)	51	52	53
	Cooling mode		dB(A)	49	50	51
Connectable indoor units	Total capacity			50 to 130% of capacity of O.U.	50 to 130% of capacity of O.U.	50 to 130% of capacity of O.U.
	Model/Quantity			P15~P140 / 1~9	P15~P140 / 1~10	P15~P140 / 1~11
External diameter of refrigerant connectors	Liquid		mm	9.52	9.52	9.52
	Gas		mm	15.88	15.88	15.88
Fan air flow rate			m^3/min	110	110	110
External dimensions (HxLxW)			mm	1338x1050x330	1338x1050x330	1338x1050x330
Net weight			kg	125	125	125
Ref. Charge R410A*4/CO_2 Eq			kg/Tons	4.8/10.02	4.8/10.02	4.8/10.02

*1 Nominal cooling conditions: Indoor: 27°C DB / 19°C WB. Outdoor 35°C DB. Piping length 7.5 m, vertical difference 0 m.
*2 Nominal heating conditions: Indoor 20°C DB. Outdoor 7°C DB / 6°C WB. Piping length 7.5 m, vertical difference 0 m.
*3 Values measured in anechoic chamber.
*4 GWP value of HFC R410A 2088 according to 517 / 2014.
The SEER and SCOP data are based on the EN14825 measurement standard

SMALL Y 8HP LINE

OUTDOOR UNITS - PUMY-P YKM2(-BS)

Made in Japan

MORE QUIETNESS THANKS TO THE NEW FAN

GEOMETRIC PIPING LIMITATIONS INCREASED

H.I.C. CIRCUIT (HEAT INTER CHARGER) FOR THE SUBCOOLING CONTROL

HEATING OPERATION RANGE EXTENDED UP TO -20°C OUTDOOR TEMPERATURE

TOP PERFORMANCE AND COP> 4

POWER RANGE EXTENDED WITH THE INTRODUCTION OF THE NEW 8 HP THREE-PHASE SIZE

NEW CHASSIS WITH INCREASED HEAT EXCHANGE SURFACE

INCREASED RELIABILITY

CONNECTABLE TO RESIDENTIAL AND COMMERCIAL INDOOR UNITS BY LEV-KIT AND BRANCH BOX

NATIVE REPLACE TECHNOLOGY FUNCTION FOR THE REPLACEMENT OF R22 SYSTEMS

The power and performance of a VRF with the compact dimensions of a multisplit

The new PUMY-P200YKM 8HP is the ideal solution for all applications where there can be no compromise in efficiency, power and installation flexibility – even where installation space is limited.

The power of a VRF, the elegance of a residential Multi-Split

With the use of the **LEV KIT** and **Branch Box** (available as 3 and 5 connection versions) the outdoor units of the Small Y series in **8 HP** size can now be connected to the entire range of indoor units of the **residential and commercial series**, with looks that are perfectly suited to applications (residential and hotel buildings) where design and elegance are decisive factors in the choice of indoor units.

Branch Box (3-5 ports) - Total flexibility

New Branch Box grants high flexibility in system design and indoor unit choice. It is possible to connect Residential/Commercial units and/or City Multi VRF units, realizing mixed systems with both types.
Note: PUMY-P200YKM2 to Branch Box connection is **only available in AtA configuration.**

Model	1 Branch Box		2 Branch Box	
	Branch Box ways	CITY MULTI Indoor Units	Branch Box ways	CITY MULTI Indoor Units
PUMY-P200	Max. 5	Max. 5	Max. 8	Max. 3

Indoor units connectable

Nr. IU Connectable	Min/Max con-nectable capacity*	MODEL	Wall																						Floor			1 way cassette			4 way cassette								Ceiling concealed									Ceiling		
			Kirigamine Style		Kirigamine Zen						Plus line																				60x60			90x90					Compact											
			MSZ-LN		MSZ-EF						MSZ-SF						MSZ-AP						MSZ-GF		MFZ-KJ			MLZ-KA(P)			SLZ-M			PLA-RP EA					SEZ-KD(M)					PEAD-M JA				PCA-M KA		
			25	35	18	22	25	35	42	50	15	20	25	35	42	50	15	20	25	35	42	50	60	71	25	35	50	25	35	50	25	35	50	25	35	50	60	71	35	50	60	71	100	50	60	71	100	50	60	71
8	30/162	PUMY-P112	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	30/182	PUMY-P125	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	30/202	PUMY-P140	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	112/291	PUMY-P200	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

* [kW]x10, excluding hydronic module where it is compatible (PUMY-P112~140)

Technical specifications

MODEL					PUMY-P200YKM2(-BS)
HP					8
Power	Phases/Voltage/Freq.				3-phase, 380-400-415V, 50Hz
Cooling	Capacity*1			kW	22.4
	Power input			kW	6.05
	EER				3.70
	SEER				5.45
	Temperature operating field	Indoor WB		°C	15.0~24.0
		Outdoor DB		°C	-5.0~52.0 *2*3
Heating	Capacity*4			kW	25.0
	Power input			kW	5.84
	COP				4.28
	SCOP				4.21
	Temperature operating field	Indoor WB		°C	15.0~27.0
		Outdoor DB		°C	-20.0~15.0
Sound power level*5				dB(A)	56/61
Connectable indoor units					50~130% of kW outdoor unit capacity
	Model/Quantity	CITY MULTI			P15-P200/12
		Branch Box			kW index: 15-100/8*6
		Mixed system	1 Branch Box	CITY MULTI	P15-P200/5
				Branch Box	kW index: 15-100/5
			2 Branch Box	CITY MULTI	P15-P200/3
				Branch Box	kW index: 15-100/8
Ø Ref. piping	Liquid/Gas			mm	9.52/19.05
External dimensions (HxLxW)				mm	1338 x 1050 x 330
Net weight				kg	141
Ref. Charge R410A*7/CO_2 Eq				kg/Tons	7.3/15.24

*1 Nominal cooling conditions: Indoor: 27°C DB / 19°C WB. Outdoor 35°C DB. Piping length 7.5 m, vertical difference 0 m.
*2 10.0~52.0 when connecting PKFY-P15/20/25VBM, PFFY-P20/25/32VLE(R)M, PFFY-P20/25/32VKM, MSZ-GF series, MSZ-EF series, MSZ-SF series, MSZ-FH series and MFZ-KJ series.
*3 -15.0~52.0 when using accessory PAC-SH95AG-E. Not available when connecting units listed in*2
*4 Nominal heating conditions: Indoor 20°C DB. Outdoor 7°C DB / 6°C WB. Piping length 7.5 m, vertical difference 0 m.
*5 Values measured in anechoic chamber (Cooling/Heating)
*6 At least 2 IU connected to Branch Box.
*7 GWP value of HFC R410A 2088 according to 517 / 2014.
The SEER and SCOP data are based on the EN14825 measurement standard

Y ECOSTANDARD LINE

OUTDOOR UNITS - PUHY-P Y(S)KA(-BS)

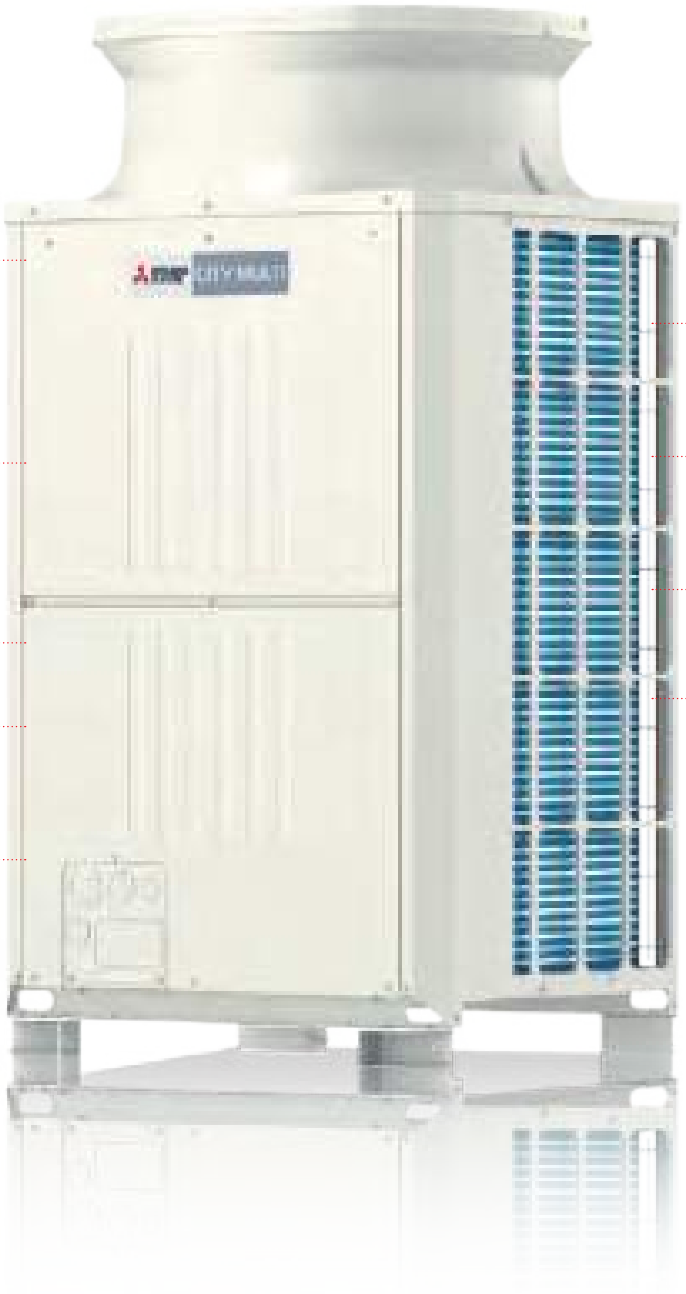
OUTDOOR UNIT OPTIMISED FOR COOLING PERFORMANCE (EER)

SINGLE MODULE SYSTEM FOR INSTALLATIONS UP TO 20HP, FOR MINIMISED SPACE USAGE AND EXTREME SIMPLICITY OF INSTALLATION

EXTENDED OPERATING RANGE IN COOLING MODE, WITH MAXIMUM TEMPERATURES UP TO 52°C

MAX SIZE UP TO 60 HP

EVAPORATING TEMPERATURE CONTROL SYSTEM (E.T.C.)



NEW FLANGED DUCT AND NEW DC INVERTER FAN MOTOR

MORE COMPACT AND LIGHTER THAN YHA OUTDOOR UNIT SERIES

CONVENTIONAL BI-METAL (COPPER/ALUMINIUM) HEAT EXCHANGER

EXTENDED PIPING LENGHT

Technical specifications

MODEL Single				PUHY-P200YKA(-BS)	PUHY-P250YKA(-BS)	PUHY-P300YKA(-BS)	PUHY-P350YKA(-BS)	PUHY-P400YKA(-BS)	PUHY-P450YKA(-BS)	PUHY-P500YKA(-BS)
HP				8	10	12	14	16	18	20
Power supply	Tens./Freq./Phase		V/Hz/n°	3 phase 380-400-415 50Hz						
Cooling	Capacity*1		kW	22,4	28	33,5	40	45	48	55
	Power input		kW	5,19	6,89	8,86	11,69	13,55	15,78	18,39
	EER			4,31	4,06	3,78	3,42	3,32	3,04	2,99
	SEER			7.12	7.28	6.39	6.67	6.30	6.13	6.44
	Temperature operating field	Indoor WB	°C	15~24	15~24	15~24	15~24	15~24	15~24	15~24
		Outdoor DB	°C	-5~52	-5~52	-5~52	-5~52	-5~52	-5~52	-5~52
Heating	Capacity*2		kW	22,4	28	33,5	40	45	48	55
	Power input		kW	5,05	6,33	8,11	9,61	10,92	13,33	15,71
	COP			4,43	4,42	4,13	4,16	4,12	3,6	3,5
	SCOP			4.12	3.87	3.92	3.56	3.50	3.50	3.51
	Temperature operating field	Indoor WB	°C	15~27	15~27	15~27	15~27	15~27	15~27	15~27
		Outdoor DB	°C	-20~15,5	-20~15,5	-20~15,5	-20~15,5	-20~15,5	-20~15,5	-20~15,5
Sound pressure level*3			dB(A)	57	58	61	61	63	63	65
Connectable indoor units	Total capacity			50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity
	Model/Quantity			P15~P250/1~17	P15~P250/1~21	P15~P250/1~26	P15~P250/1~30	P15~P250/1~34	P15~P250/1~39	P15~P250/1~43
Ø Ref. piping diameter	Liquid/Gas			9,52/22,2	9,52/22,2	9,52/22,2	9,52/28,58	12,7/28,58	15,88/28,58	15,88/28,58
External dimentions	(HxLxD)		mm	1650x920x740	1650x920x740	1650x920x740	1650x1220x740	1650x1220x740	1650x1220x740	1650x1750x740
Net weight			kg	195	195	211	256	253	253	288
Ref. Charge R410*4/ CO_2 Eq			kg/Tons	8/16,7	8/16,7	8/16,7	11,5/24,01	11,5/24,01	11,5/24,01	11,8/24,64

Technical specifications

MODEL Double				PUHY-P550 YSKA(-BS)	PUHY-P600 YSKA(-BS)	PUHY-P650 YSKA(-BS)	PUHY-P700 YSKA(-BS)	PUHY-P750 YSKA(-BS)	PUHY-P800 YSKA(-BS)	PUHY-P850 YSKA(-BS)	PUHY-P900 YSKA(-BS)	PUHY-P950 YSKA(-BS)	PUHY-P1000 YSKA(-BS)
HP				22	24	26	28	30	32	34	36	38	40
Modules				PUHY-P250YKA PUHY-P300YKA	PUHY-P250YKA PUHY-P350YKA	PUHY-P250YKA PUHY-P400YKA	PUHY-P250YKA PUHY-P450YKA	PUHY-P300YKA PUHY-P450YKA	PUHY-P400YKA PUHY-P400YKA	PUHY-P400YKA PUHY-P450YKA	PUHY-P450YKA PUHY-P450YKA	PUHY-P450YKA PUHY-P500YKA	PUHY-P500YKA PUHY-P500YKA
Twinning joint				CMY-Y100VBK3	CMY-Y100VBK3	CMY-Y100VBK3	CMY-Y200VBK2	CMY-Y200VBK2	CMY-Y200VBK2	CMY-Y200VBK2	CMY-Y200VBK2	CMY-Y200VBK2	CMY-Y200VBK2
Power supply	Tens./Freq./Phase		V/Hz/n°	3 phase 380-400-415 50Hz									
Cooling	Capacity*1		kW	63	68	73	76	81,5	90	93	96	103	110
	Power input		kW	16,07	18,18	19,78	21,4	23,9	27,1	29,24	31,57	34,21	36,78
	EER			3,92	3,74	3,69	3,55	3,41	3,32	3,18	3,04	3,01	2,99
	SEER			6,67	6,79	6,75	6,14	5,70	6,44	6,14	5,98	6,21	6,63
	Temperature operating field	Indoor WB	°C	15~24	15~24	15~24	15~24	15~24	15~24	15~24	15~24	15~24	15~24
		Outdoor DB	°C	-5~52	-5~52	-5~52	-5~52	-5~52	-5~52	-5~52	-5~52	-5~52	-5~52
Heating	Capacity*2		kW	63	68	73	76	81,5	90	93	96	103	110
	Power input		kW	15,51	16,7	18,02	20	22,2	23,01	25,4	28,07	30,56	33,13
	COP			4,06	4,07	4,05	3,8	3,67	3,91	3,66	3,42	3,37	3,32
	SCOP			3,76	3,81	3,57	3,45	3,40	3,38	3,40	3,39	3,61	3,61
	Temperature operating field	Indoor WB	°C	15~27	15~27	15~27	15~27	15~27	15~27	15~27	15~27	15~27	15~27
		Outdoor DB	°C	-20~15,5	-20~15,5	-20~15,5	-20~15,5	-20~15,5	-20~15,5	-20~15,5	-20~15,5	-20~15,5	-20~15,5
Sound pressure level*3			dB(A)	63	63	64,5	64,5	65,5	66	66	66	67,5	68
Connectable indoor units	Total capacity			50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity
	Model/Quantity			P15~P250/2~47	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50
Ø Ref. piping diameter	Liquid/Gas			15,88/28,58	15,88/28,58	15,88/28,58	19,05/34,93	19,05/34,93	19,05/34,93	19,05/41,28	19,05/41,28	19,05/41,28	19,05/41,28
External dimentions	(HxLxD)		mm	1650x920x740 1650x920x740	1650x920x740 1650x1220x740	1650x920x740 1650x1220x740	1650x920x740 1650x1220x740	1650x920x740 1650x1220x740	1650x1220x740 1650x1220x740	1650x1220x740 1650x1220x740	1650x1220x740 1650x1220x740	1650x1220x740 1650x1750x740	1650x1750x740 1650x1750x740
Net weight			kg	406	451	448	448	464	506	506	506	541	576
Ref. Charge R410*4/ CO_2 Eq			kg/ Tons	16/33,4	19,5/33,4	19,5/33,4	19,5/48,02	19,5/48,02	23/48,02	23/48,02	23/48,02	23,3/48,65	23,6/49,28

*1 Nominal cooling conditions: Indoor: 27°C DB / 19°C WB. Outdoor 35°C DB. Piping length 7.5 m, vertical difference 0 m.
*2 Nominal heating conditions: Indoor 20°C DB. Outdoor 7°C DB / 6°C WB. Piping length 7.5 m, vertical difference 0 m.
*3 Values measured in anechoic chamber.
*4 GWP value of HFC R410A 2088 according to 517 / 2014.

Key Technologies


Technical specifications

MODEL Triple				PUHY-P1050 YSKA(-BS)	PUHY-P1100 YSKA(-BS)	PUHY-P1150 YSKA(-BS)	PUHY-P1200 YSKA(-BS)	PUHY-P1250 YSKA(-BS)	PUHY-P1300 YSKA(-BS)	PUHY-P1350 YSKA(-BS)	PUHY-P1400 YSKA(-BS)	PUHY-P1450 YSKA(-BS)	PUHY-P1500 YSKA(-BS)
HP				42	44	46	48	50	52	54	56	58	60
Modules				PUHY-P300YKA PUHY-P300YKA PUHY-P450YKA	PUHY-P300YKA PUHY-P350YKA PUHY-P450YKA	PUHY-P350YKA PUHY-P400YKA PUHY-P400YKA	PUHY-P400YKA PUHY-P400YKA PUHY-P400YKA	PUHY-P400YKA PUHY-P400YKA PUHY-P450YKA	PUHY-P400YKA PUHY-P450YKA PUHY-P450YKA	PUHY-P450YKA PUHY-P450YKA PUHY-P450YKA	PUHY-P450YKA PUHY-P450YKA PUHY-P500YKA	PUHY-P450YKA PUHY-P500YKA PUHY-P500YKA	PUHY-P500YKA PUHY-P500YKA PUHY-P500YKA
Twinning joint				CMY-Y300VBK3	CMY-Y300VBK3	CMY-Y300VBK3	CMY-Y300VBK3	CMY-Y300VBK3	CMY-Y300VBK3	CMY-Y300VBK3	CMY-Y300VBK3	CMY-Y300VBK3	CMY-Y300VBK3
Power supply	Tens./Freq./Phase		V/Hz/n°	3 phase 380-400-415 50Hz									
Cooling	Capacity*1		kW	115	121,5	130	135	138	141	144	151	158	165
	Power input		kW	32,57	35,63	38,8	40,66	43,12	45,77	48,64	52,24	55,83	59,56
	EER			3,53	3,41	3,35	3,32	3,2	3,08	2,96	2,89	2,83	2,77
	SEER			5,96	5,97	6,41	6,50	6,41	6,02	5,91	6,23	6,34	6,44
	Temperature operating field	Indoor WB	°C	15~24	15~24	15~24	15~24	15~24	15~24	15~24	15~24	15~24	15~24
		Outdoor DB	°C	-5~52	-5~52	-5~52	-5~52	-5~52	-5~52	-5~52	-5~52	-5~52	-5~52
Heating	Capacity*2		kW	115	121,5	130	135	138	141	144	151	158	165
	Power input		kW	31,5	33,8	35,51	37,7	40,35	42,98	46,15	49,5	52,49	56,12
	COP			3,65	3,59	3,66	3,58	3,42	3,28	3,12	3,05	3,01	2,94
	SCOP			3,47	3,42	3,42	3,41	3,40	3,40	3,39	3,50	3,51	3,51
	Temperature operating field	Indoor WB	°C	15~27	15~27	15~27	15~27	15~27	15~27	15~27	15~27	15~27	15~27
		Outdoor DB	°C	-20~15,5	-20~15,5	-20~15,5	-20~15,5	-20~15,5	-20~15,5	-20~15,5	-20~15,5	-20~15,5	-20~15,5
Sound power level*3			dB(A)	66,5	66,5	67,5	68	68	68	68	68,5	69,5	70
Connectable indoor units	Total capacity			50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity	50 to 130% of O.U. capacity
	Model/Quantity			P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50
Ø Ref. piping diameter	Liquid/Gas			19,05/41,28	19,05/41,28	19,05/41,28	19,05/41,28	19,05/41,28	19,05/41,28	19,05/41,28	19,05/41,28	19,05/41,28	19,05/41,28
External dimentions	(HxLxD)		mm	1650x920x740 1650x920x740 1650x1220x740	1650x920x740 1650x1220x740 1650x1220x740	1650x1220x740 1650x1220x740 1650x1220x740	1650x1220x740 1650x1220x740 1650x1220x740	1650x1220x740 1650x1220x740 1650x1220x740	1650x1220x740 1650x1220x740 1650x1220x740	1650x1220x740 1650x1220x740 1650x1220x740	1650x1220x740 1650x1220x740 1650x1750x740	1650x1220x740 1650x1750x740 1650x1750x740	1650x1750x740 1650x1750x740 1650x1750x740
Net weight			kg	675	720	762	759	759	759	759	759	829	864
Ref. Charge R410*4/CO_2 Eq			kg/Tons	27/57,41	31/64,72	34,5/72,03	34,5/72,03	34,5/72,03	34,5/72,03	34,5/72,03	34,8/72,66	35,1/73,29	35,4/73,92

*1 Nominal cooling conditions: Indoor: 27°C DB / 19°C WB. Outdoor 35°C DB. Piping length 7.5 m, vertical difference 0 m.
*2 Nominal heating conditions: Indoor 20°C DB. Outdoor 7°C DB / 6°C WB. Piping length 7.5 m, vertical difference 0 m.
*3 Values measured in anechoic chamber.
*4 GWP value of HFC R410A 2088 according to 517 / 2014.
The SEER and SCOP data are based on the EN14825 measurement standard

Y ECOSTANDARD+ LINE

OUTDOOR UNITS - PUHY-P Y(S)KB-A1(-BS)

OUTDOOR UNIT
OPTIMIZED FOR MAXIMUM
PERFOMANCE AT NOMINAL
LOAD CONDITIONS

EXTENDED OPERATING
RANGE IN COOLING
MODE, WITH MAXIMUM
TEMPERATURES UP TO 52°C

CONTINUOUS
HEATING

SINGLE MODULE SYSTEM
FOR INSTALLATIONS UP
TO 14HP

EVAPORATING
TEMPERATURE CONTROL
SYSTEM (E.T.C.)

Technical specifications

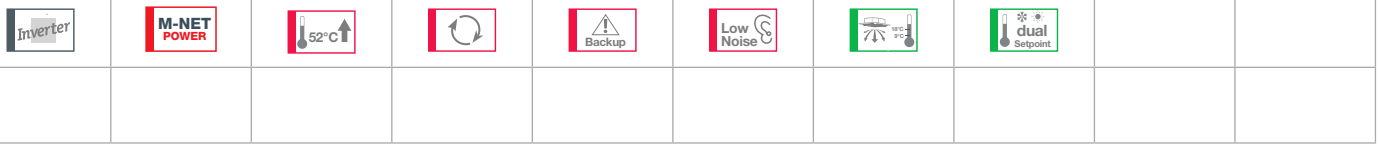
MODEL Single				PUHY-P200YKB-A1	PUHY-P250YKB-A1	PUHY-P300YKB-A1	PUHY-P350YKB-A1	PUHY-P400YKB-A1	PUHY-P450YKB-A1	PUHY-P500YKB-A1
HP				8	10	12	14	16	18	20
Power supply	Tens./Freq./Phase		V/Hz/n°	3 phase 380-400-415 50Hz						
Cooling	Capacity*1		kW	22.4	28.0	33.5	40.0	45.0	50.0	55.0
	Power input		kW	5.19	6.88	8.56	11.69	13.55	14.79	18.39
	EER			4.31	4.06	3.91	3.42	3.32	3.38	2.99
	SEER			7.16	7.34	6.95	6.67	6.30	6.92	6.45
	Temperature operating field	Indoor WB	°C	15.0~24.0						
		Outdoor DB	°C	-5.0~52.0						
Heating	Capacity*2		kW	25.0	31.5	37.5	45.0	50.0	56.0	63.0
	Power input		kW	5.81	7.34	9.07	11.13	12.50	15.55	18.52
	COP			4.30	4.29	4.13	4.04	4.00	3.60	3.40
	SCOP			4.12	3.87	3.95	3.56	3.50	3.55	3.51
	Temperature operating field	Indoor WB	°C	15.0~27.0						
		Outdoor DB	°C	-20.0~15.5						
Sound pressure level*3			dB(A)	57	59	61	61	63	66	66
Connectable indoor units	Total capacity			50 to 130% of O.U. capacity						
	Model/Quantity			P15~P250/1~17	P15~P250/1~21	P15~P250/1~26	P15~P250/1~30	P15~P250/1~34	P15~P250/1~39	P15~P250/1~43
Ø Ref. piping diameter	Liquid/Gas			9.52/22.2	9.52/22.2	9.52/22.2	12.7/28.58	12.7/28.58	15.88/28.58	15.88/28.58
External dimentions	(HxLxD)		mm	1710 x 920 x 740	1710 x 920 x 740	1710 x 1220 x 740	1710 x 1220 x 740	1710 x 1220 x 740	1710 x 1750 x 740	1710 x 1750 x 740
Net weight			kg	190	199	251	251	251	304	304
Ref. Charge R410*4/ CO_2 Eq			kg/Tons	6.5/13.57	8.0/16.70	11.5 / 24.01	11.5 / 24.01	11.5 / 24.01	11.8 / 24.64	11.8 / 24.64

Technical specifications

MODEL Double				PUHY-P400YSKB-A1	PUHY-P450YSKB-A1	PUHY-P500YSKB-A1	PUHY-P550YSKB-A1	PUHY-P600YSKB-A1	PUHY-P650YSKB-A1	PUHY-P700YSKB-A1
HP				16	18	20	22	24	26	28
Modules				PUHY-P200YKB-A1 PUHY-P200YKB-A1	PUHY-P200YKB-A1 PUHY-P250YKB-A1	PUHY-P250YKB-A1 PUHY-P250YKB-A1	PUHY-P250YKB-A1 PUHY-P300YKB-A1	PUHY-P250YKB-A1 PUHY-P350YKB-A1	PUHY-P300YKB-A1 PUHY-P350YKB-A1	PUHY-P350YKB-A1 PUHY-P350YKB-A1
Twinning joint				CMY-Y100VBK3						CMY-Y200VBK2
Power supply	Tens./Freq./Phase		V/Hz/n°	3 phase 380-400-415 50Hz						
Cooling	Capacity*1		kW	45.0	50.0	56.0	63.0	69.0	73.0	80.0
	Power input		kW	11.0	12.59	14.54	16.66	19.43	20.97	24.69
	EER			4.09	3.97	3.85	3.78	3.55	3.48	3.24
	SEER			7.08	7.14	7.24	7.01	6.82	6.78	6.59
	Temperature operating field	Indoor WB	°C	15.0~24.0						
		Outdoor DB	°C	-5.0~52.0						
Heating	Capacity*2		kW	50.0	56.0	63.0	69.0	76.5	81.5	88.0
	Power input		kW	12.24	13.72	15.46	17.29	19.36	21.0	22.97
	COP			4.08	4.08	4.07	3.99	3.95	3.88	3.83
	SCOP			3.99	3.87	3.75	3.78	3.81	3.57	3.47
	Temperature operating field	Indoor WB	°C	15.0~27.0						
		Outdoor DB	°C	-20.0~15.5						
Sound pressure level*3			dB(A)	60	61.5	62.0	63.5	63.5	64	64
Connectable indoor units	Total capacity			50 to 130% of O.U. capacity						
	Model/Quantity			P15~P250/1~34	P15~P250/1~39	P15~P250/1~43	P15~P250/2~47	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50
Ø Ref. piping diameter	Liquid/Gas			12.7/28.58	15.88/28.58	15.88/28.58	15.88/28.58	15.88/28.58	15.88/28.58	19.05/34.93
External dimentions	(HxLxD)		mm	1710 x 920 x 740 1710 x 920 x 740	1710 x 920 x 740 1710 x 920 x 740	1710 x 920 x 740 1710 x 920 x 740	1710 x 920 x 740 1710 x 1220 x 740	1710 x 920 x 740 1710 x 1220 x 740	1710 x 1220 x 740 1710 x 1220 x 740	1710 x 1220 x 740 1710 x 1220 x 740
Net weight			kg	380	389	398	450	450	502	502
Ref. Charge R410*4/ CO_2 Eq			kg/Tons	13 /27.14	14.5 /30.27	16 /33.41	19.5 /40.72	19.5 /40.72	23 /48.02	23 /48.02

*1 Nominal cooling conditions: Indoor: 27°C DB / 19°C WB. Outdoor 35°C DB. Piping length 7.5 m, vertical difference 0 m.
*2 Nominal heating conditions: Indoor 20°C DB. Outdoor 7°C DB / 6°C WB. Piping length 7.5 m, vertical difference 0 m.
*3 Values measured in anechoic chamber.
*4 GWP value of HFC R410A 2088 according to 517 / 2014.

Key Technologies



Technical specifications

MODEL Double/Triple				PUHY-P750YSKB-A1	PUHY-P800YSKB-A1	PUHY-P850YSKB-A1	PUHY-P900YSKB-A1	PUHY-P950YSKB-A1	PUHY-P1000YSKB-A1	PUHY-P1050YSKB-A1
HP				30	32	34	36	38	40	42
Modules				PUHY-P350YKB-A1 PUHY-P400YKB-A1	PUHY-P350YKB-A1 PUHY-P450YKB-A1	PUHY-P400YKB-A1 PUHY-P450YKB-A1	PUHY-P450YKB-A1 PUHY-P450YKB-A1	PUHY-P250YKB-A1 PUHY-P300YKB-A1 PUHY-P400YKB-A1	PUHY-P300YKB-A1 PUHY-P300YKB-A1 PUHY-P400YKB-A1	PUHY-P300YKB-A1 PUHY-P350YKB-A1 PUHY-P400YKB-A1
Twinning joint				CMY-Y200VBK2						CMY-Y300VBK2
Power supply	Tens./Freq./Phase		V/Hz/n°	3 phase 380-400-415 50Hz						
Cooling	Capacity*1		kW	85.0	90.0	96.0	101.0	108.0	113.0	118.0
	Power input		kW	26.56	27.86	30.18	31.46	30.25	32.10	35.01
	EER			3.20	3.23	3.18	3.21	3.57	3.52	3.37
	SEER			6.40	6.44	6.56	6.87	6.64	6.64	6.63
	Temperature operating field	Indoor WB	°C	15.0~24.0						
		Outdoor DB	°C	-5.0~52.0						
Heating	Capacity*2		kW	95.0	100.0	108.0	113.0	119.5	127.0	132.0
	Power input		kW	24.93	27.62	29.90	33.0	30.40	32.70	34.25
	COP			3.81	3.62	3.61	3.42	3.93	3.88	3.85
	SCOP			3.43	3.39	3.42	3.43	3.64	3.61	3.50
	Temperature operating field	Indoor WB	°C	15.0~27.0						
		Outdoor DB	°C	-20.0~15.5						
Sound pressure level*3			dB(A)	65.5	67.5	68	69	66.5	66.5	66.5
Connectable indoor units	Total capacity			50 to 130% of O.U. capacity						
	Model/Quantity			P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50
Ø Ref. piping diameter	Liquid/Gas			19.05/34.93	19.05/34.93	19.05/41.28	19.05/41.28	19.05/41.28	19.05/41.28	19.05/41.28
External dimentions	(HxLxD)		mm	1710 x 1220 x 740 1710 x 1220 x 740	1710 x 1220 x 740 1710 x 1750 x 740	1710 x 1220 x 740 1710 x 1750 x 740	1710 x 1750 x 740 1710 x 1750 x 740	1710 x 920 x 740 1710 x 1220 x 740 1710 x 1220 x 740	1710 x 1220 x 740 1710 x 1220 x 740 1710 x 1220 x 740	1710 x 1220 x 740 1710 x 1220 x 740 1710 x 1220 x 740
Net weight			kg	502	555	555	608	701	753	753
Ref. Charge R410*4/ CO_2 Eq			kg/Tons	23 /48.02	23.3 /48.65	23.3 /48.65	23.6 /49.28	31/64.73	34.5 /72.04	34.5 /72.04

Technical specifications

MODEL Triple				PUHY-P1100YSKB-A1	PUHY-P1150YSKB-A1	PUHY-P1200YSKB-A1	PUHY-P1250YSKB-A1	PUHY-P1300YSKB-A1	PUHY-P1350YSKB-A1
HP				44	46	48	50	52	54
Modules				PUHY-P350YKB-A1 PUHY-P350YKB-A1 PUHY-P400YKB-A1	PUHY-P350YKB-A1 PUHY-P350YKB-A1 PUHY-P450YKB-A1	PUHY-P350YKB-A1 PUHY-P400YKB-A1 PUHY-P450YKB-A1	PUHY-P350YKB-A1 PUHY-P450YKB-A1 PUHY-P450YKB-A1	PUHY-P400YKB-A1 PUHY-P450YKB-A1 PUHY-P450YKB-A1	PUHY-P450YKB-A1 PUHY-P450YKB-A1 PUHY-P450YKB-A1
Twinning joint				CMY-Y300VBK2					
Power supply	Tens./Freq./Phase		V/Hz/n°	3 phase 380-400-415 50Hz					
Cooling	Capacity*1		kW	124.0	130.0	136.0	140.0	146.0	150.0
	Power input		kW	38.62	40.24	44.10	43.80	47.80	47.40
	EER			3.21	3.23	3.08	3.19	3.05	3.16
	SEER			6.44	6.61	6.50	6.69	6.59	6.79
	Temperature operating field	Indoor WB	°C	15.0~24.0					
		Outdoor DB	°C	-5.0~52.0					
Heating	Capacity*2		kW	140.0	145.0	150.0	156.5	163.0	168.0
	Power input		kW	36.60	39.29	40.76	44.08	46.04	49.12
	COP			3.82	3.69	3.68	3.55	3.54	3.42
	SCOP			3.45	3.43	3.41	3.42	3.43	3.44
	Temperature operating field	Indoor WB	°C	15.0~27.0					
		Outdoor DB	°C	-20.0~15.5					
Sound pressure level*3			dB(A)	66.5	68.5	69.0	70	70	71
Connectable indoor units	Total capacity			50 to 130% of O.U. capacity					
	Model/Quantity			P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50	P15~P250/2~50
Ø Ref. piping diameter	Liquid/Gas			19.05/41.28	19.05/41.28	19.05/41.28	19.05/41.28	19.05/41.28	19.05/41.28
External dimentions	(HxLxD)		mm	1710 x 1220 x 740 1710 x 1220 x 740 1710 x 1220 x 740	1710 x 1220 x 740 1710 x 1220 x 740 1710 x 1750 x 740	1710 x 1220 x 740 1710 x 1220 x 740 1710 x 1750 x 740	1710 x 1220 x 740 1710 x 1750 x 740 1710 x 1750 x 740	1710 x 1220 x 740 1710 x 1750 x 740 1710 x 1750 x 740	1710 x 1750 x 740 1710 x 1750 x 740 1710 x 1750 x 740
Net weight			kg	753	806	806	859	859	912
Ref. Charge R410*4/ CO_2 Eq			kg/Tons	34.5 /72.04	34.8 /72.66	34.8 /72.66	35.1 /73.29	35.1 /73.29	35.4/ 73.92


4
Dining & Beauty
3
Tech & Electronics
2
Toys & Children's Wear
1
Fashion