

ATW Unit - Booster Unit

PWFY-P100VM-E1-BU



Benefiting from the heat recovery operation of the CITY MULTI R2 system, the booster unit converts energy from the air to higher temperatures suitable for supplying hot water with virtually no wasted energy.

Connectable to

CITY MULTI
R2 Series

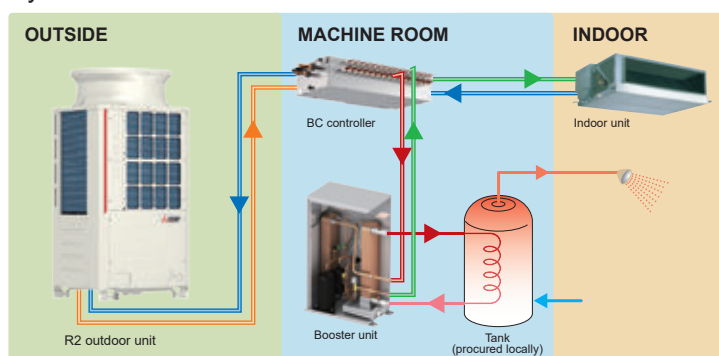
Applications

Sanitary water,
shower, etc.

Operation

Up to 70°C

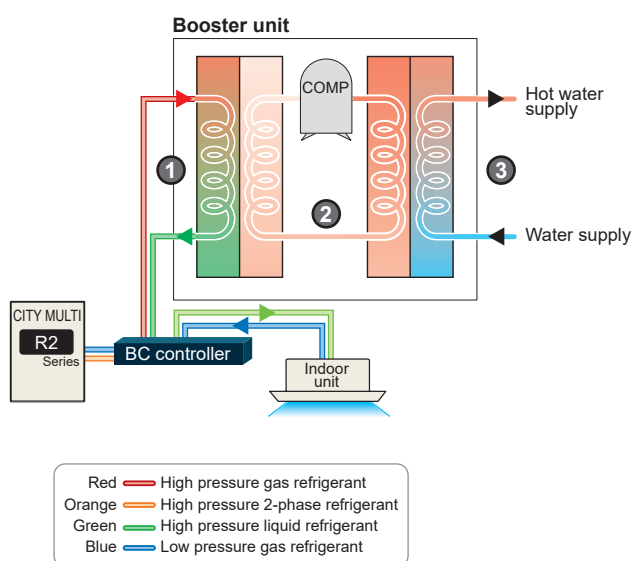
• System outline



The booster unit is connected to a BC controller with refrigerant pipes and to the water tank with water pipes. The waste heat from cooling operation is utilized in the heating operation for providing hot water.

Red — High pressure gas refrigerant
Orange — High pressure 2-phase refrigerant
Green — High pressure liquid refrigerant
Blue — Low pressure gas refrigerant

What makes the booster unit unique?



Refrigerant flow

- From the BC controller, high pressure R410A gas refrigerant is delivered to the Booster unit to exchange heat with the low pressure R134a liquid refrigerant circulating through ② and returns to the BC controller as a high pressure liquid refrigerant.
- Refrigerant R134a circulates inside the two plate heat exchangers inside the unit. Temperature rises as low pressure R134a gas refrigerant is compressed by the compressor and becomes a high pressure gas refrigerant.

Water supply

- Water entering the Booster unit exchanges heat with high pressure R134a gas refrigerant. The hot water circulates to heat the water inside the tank, to be used for showers, sanitary water, etc.

Lineup &
Functions

Y-Series

R2-Series

ZUBADAN
-Series

S-Series

BC Controllers

Ceiling
cassette type

Ceiling
concealed type

Ceiling
suspended type

Wall-mounted
type

Floor standing
type

Functions

LOSSNAY
System

Remote
Controller

Hot Water
Solution

BC Controller

- CMB-M104-M1016V-J1
- CMB-M108-M1016V-JA1
- CMB-P1016V-KA1
- CMB-M104, 108V-KB1

To connect the R2 Series outdoor units and ATW indoor units a BC controller is required.

		BC controller
Model		CMB-M104-M1016V-J1 CMB-M108-M1016V-JA1 CMB-P1016V-KA1 CMB-M104, 108V-KB1
Connectable ATW system		Booster
Outdoor unit	Connectable series	R410A R2
	Connectable capacity	P200-P1100
ATW/ Indoor unit	Connectable quantity	1-50
	Connection method	With a BC port
	Operation mode	Cooling AND heating
Product image		

CASE STUDY

Application: Restaurant
Country: Italy



Unit information

Outdoor unit: Air-cooled R2-Series ×5, BC controller ×5
ATW unit: Booster unit ×3 Indoor unit: Floor mounted concealed type ×18
Control: AG-150A ×1, ATW controller ×3, ME remote controller ×27, Power supply unit ×1
Other: OA processing unit ×9

●Background

The restaurant required air conditioning, fresh air, and sanitary water. As a perfect solution that can provide all three, the consultant proposed the Air to Water system+CITY MULTI+OA processing unit. With the combination of Mitsubishi Electric's product lineup, the system can provide hot water without a boiler and air conditioning with a high COP. What's more, with the OA processing unit in the system, suitable ventilation with top quality air and energy saving environment is created.

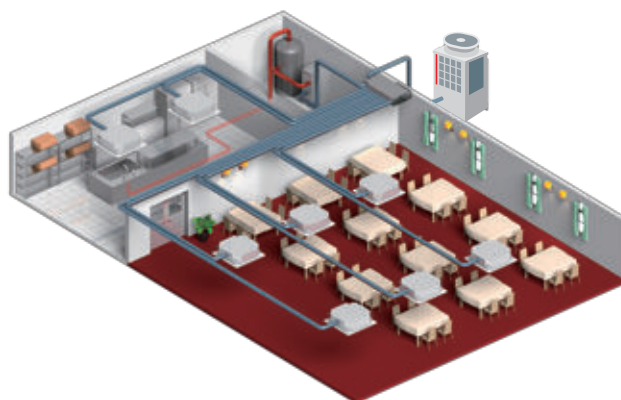
APPLICATION EXAMPLE

The application examples here indicate why ATW systems are chosen and how the great potential offered by using ATW systems can be best utilized.

RESTAURANTS

Reason for ATW

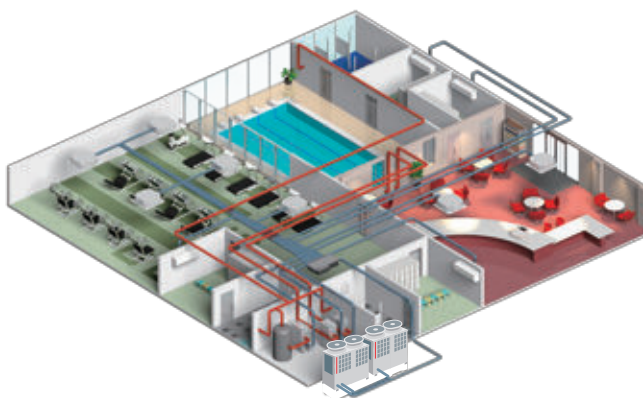
- >Hot water is almost always required in the kitchen.
- >Waste heat from the kitchen can be used to cool the dining hall in the summer and increase efficiency of the system.



HEALTH CLUBS

Reason for ATW

- >Gym space requires year-round cooling.
- >Swimming pools and shower rooms require hot water.



OFFICES

Reason for ATW

- >Different requirements for different tenants/rooms mean cooling/heating/hot water is expected throughout the year.
- >In the winter, waste heat from the cooling operation in rooms with large numbers of computers can be used for hot water in small kitchens.
- >In the summer, cooling operation can be performed in all rooms while hot water is available in small kitchens.



RESIDENCES

Reason for ATW

- >Hot water is required throughout the year for the shower and kitchen.
- >Can be used for under floor heating in winter and cooling in summer.



Lineup &
Functions

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R2-Series

ZUBADAN
-Series

S-Series

BC Controllers

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Solution

Booster unit

PWFY-P100VM-E1-BU



Model			PWFY-P100VM-E1-BU
Power source			1 - phase 220 - 230 - 240V 50 / 60Hz
Heating capacity (Nominal)	*1	kW	12.5
	*1	BTU / h	42,700
	Power input	kW	2.48
	Current input	A	11.63 - 11.12 - 10.66
Temp. range of heating	Outdoor unit condition	W.B.	-20 ~ 32°C (-4~90°F) R2-Series
	Booster unit inlet water temp.	-	10 ~ 70°C (50 ~ 158°F)
Connectable outdoor unit	Total capacity	-	50 ~ 100% of outdoor unit/heat source unit capacity
	Model / Quantity		PURY-(E)P•Y(S)NW-A2(-BS) PQRY-P•Y(S)LM-A1/A2
Sound pressure level (measured in anechoic room) dB <A>			44
Diameter of refrigerant pipe	Liquid	mm (in.)	ø9.52 (ø3/8") Brazed
	Gas	mm (in.)	ø15.88 (ø5/8") Brazed
Diameter of water pipe	Inlet	mm (in.)	R3/4
	Outlet	mm (in.)	Rc3/4
Field drain pipe size		mm (in.)	ø32 (1-1/4")
External finish			NO
External dimension H × W × D		mm	848 (833 without legs) × 450 × 300
		in.	33-7/16" (32-13/16" without legs) × 17-3/4" × 11-13/16"
Net weight		kg (lbs)	63 (138)
Compressor	Type		Inverter rotary hermetic compressor
	Starting method		Inverter
	Motor output	kW	1.0
	Lubricant		NEO22
Circulating water	Operation volume Range	m³ / h	0.6 ~ 2.15
Protection on internal circuit (R134a)	High pressure protection		High pressure sensor, High pressure switch at 3.60 MPa (601 psi)
	Inverter circuit (COMP)		Over-heat protection, Over-current protection
	Compressor		Discharge thermo protection, Over-current protection
Refrigerant	Type × original charge	*2	R134a × 1.1kg (0.50lb)
	GWP	*3	1,430
	CO ₂ equivalent	*3 t	1.6
	Control		LEV
Design pressure	R410A	MPa	4.15
	R134a	MPa	3.60
	Water	MPa	1.00
Drawing	External		WKB94C7Q4
	Wiring		WKE94L369
Standard attachment	Document		Installation Manual, Instruction Book
	Accessory		Strainer, Heat insulation material, Wire x 1 set
Optional parts			NONE
Remark			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.

Note: *1Nominal heating conditions
<R2-Series>
Outdoor Temp. : 7°CDB/6°CWB (45°FDB / 43°FWB)
Pipe length : 7.5 m (24-9/16 ft)
Level difference : 0m (0ft)
Inlet water Temp. 65°C (149°F) Water flow rate 2.15m³/h

*2Do not use refrigerant other than the type indicated in the manuals provided with the unit and on the nameplate.
- Doing so may cause the unit or pipes to burst, or result in explosion or fire during use, during repair, or at the time of disposal of the unit.
- It may also be in violation of applicable laws.
- MITSUBISHI ELECTRIC CORPORATION cannot be held responsible for malfunctions or accidents resulting from the use of the wrong type of refrigerant.
*3These values are based on Regulation (EU) No.517/2014.

* Due to continuing improvement, the above specifications may be subject to change without notice.
* The unit is not designed for outside installations.
* Please don't use the steel material for the water piping material.
* Please always make water circulate or add the brine to the circulation water when the ambient temperature becomes 0°C (32°F) or less.
* Please always make water circulate or pull out the circulation water completely when not using it.
* Please do not use groundwater and well water.
* Install the Outdoor unit (R2-Series) in an environment where the wet bulb Temp. will not exceed 32°C (90°F).
* The water circuit must use the closed circuit.
* Please do not use it as a drinking water.

Unit converter

BTU / h =kW × 3.412
cfm =m³ / min × 35.31
lbs =kg / 0.4536

* The specification data is subject to rounding variation.