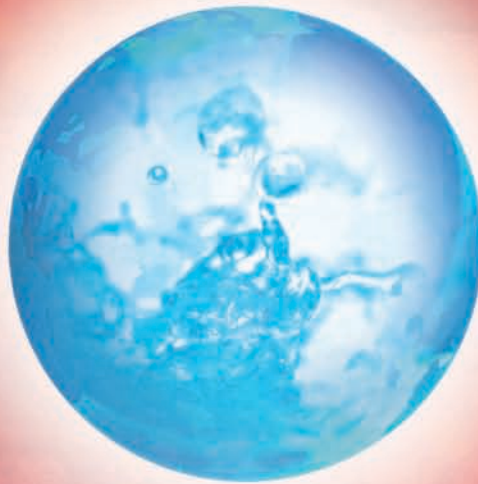




# ecolution

## High Performance Air to Water Heat Pump



*Hydrolution*  
**HM**

Air to Water Heat Pump

 **MITSUBISHI**  
HEAVY INDUSTRIES, LTD.

50Hz  
09MH01E-A-0

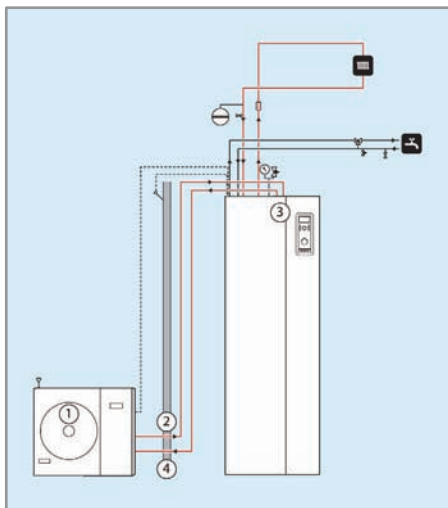
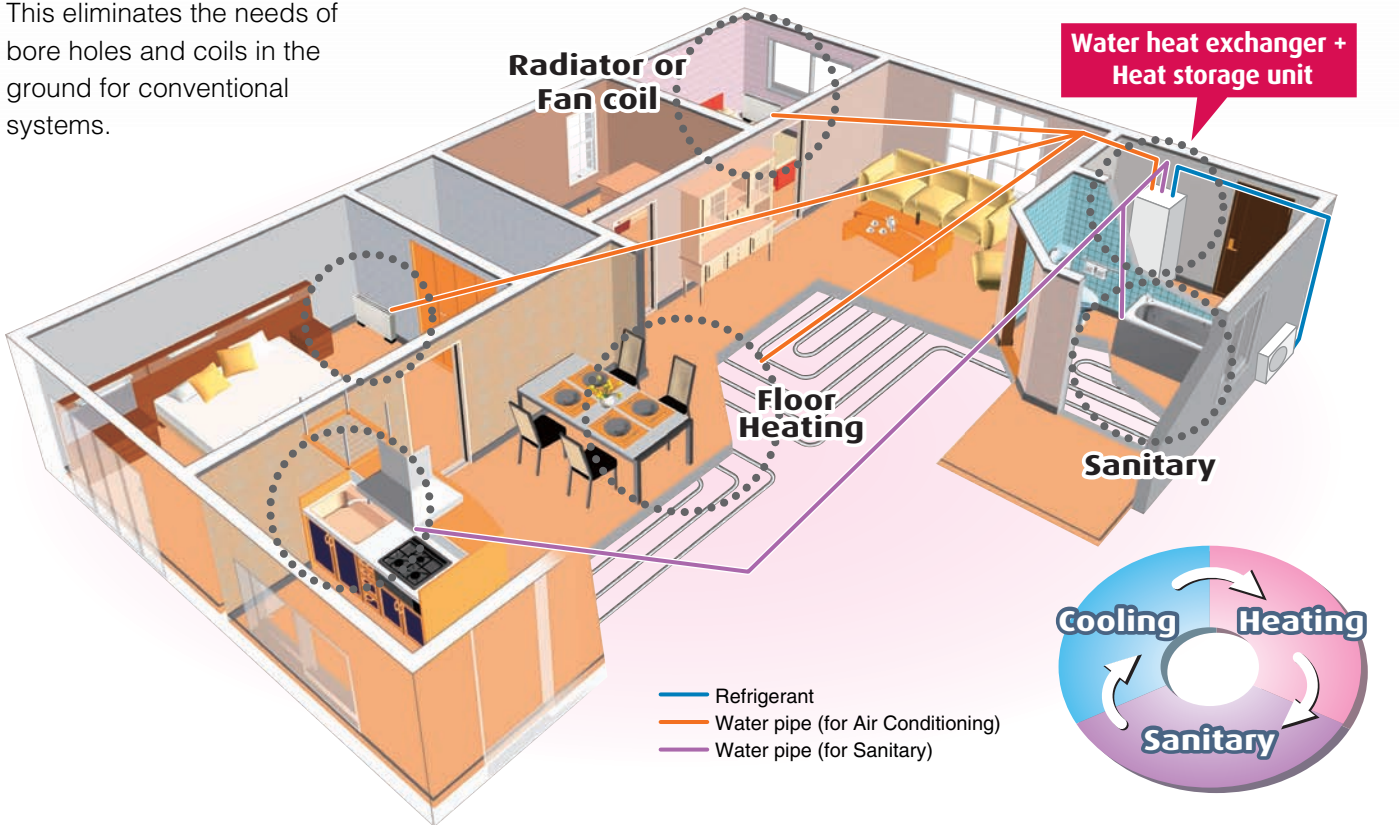
# Air to Water Heat Pump

## Product Information

Our Air to Water Heat Pump is a complete modern system for heating, cooling and producing hot sanitary water for small houses, offering effective energy saving and reducing carbon dioxide emission. Our product is safe and economical with integrated hot water heater, immersion heater, circulating pump and climate system within the indoor unit.

The heat energy is retrieved from the outdoor air through an outdoor unit (FDCW100VNX), and is transferred to the indoor unit (HM270V) by the medium of refrigerant circulated in closed piping system.

This eliminates the needs of bore holes and coils in the ground for conventional systems.



## Function

Our Air to Water Heat Pump is a system that can offer heating, hot sanitary water and cooling. The mechanism of heat pump during heating can be simplified as follows.

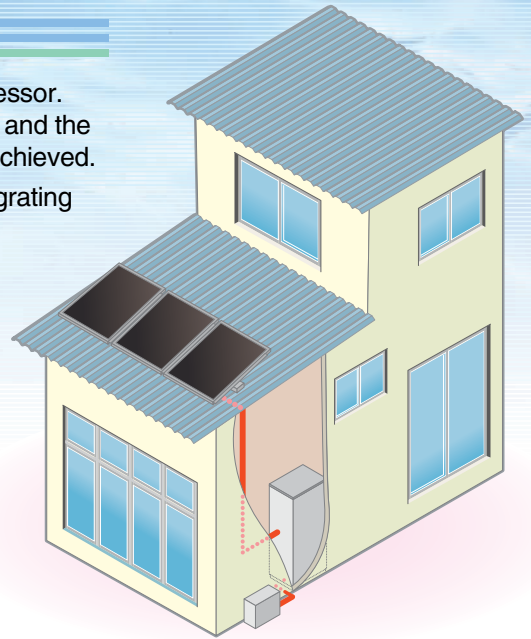
1. The outdoor unit FDCW100VNX retrieves the heat energy from outdoor air (heat source) and increases its temperature through compressing process by compressor.
2. The hot refrigerant (now in gas state) is routed to HM270V.
3. The refrigerant releases the heating energy to water for further distribution in the climate system.
4. The refrigerant (now in liquid state) is routed back to FDCW100VNX and this process is repeated.

By reversing the entire process for cooling, the refrigerant in this system retrieves the heat energy from water and releases it to outdoor air in accordance with heat pump theory.

HM270V determines when FDCW100VNX is to run or not to run by using the collated data from the temperature sensor. In the event of extra heat demands, HM270V can utilize additional heat in the form of the immersion heater, or any connected external addition.

## Features

- Optimum annual operation costs thanks to the inverter driven compressor. The speed of the compressor is controlled according to the demand, and the industries highest COP level of 3.70 in heating operation has been achieved.
- The compact size (600x650mm footprint) has been achieved by integrating the hot water tank for sanitary water together with the water heat exchanger in indoor unit. Electric wiring and piping works are simpler due to integrated indoor unit design.
- Max temperature flow line is 65°C with use of a large-capacity auxiliary electric heater as standard equipment for back-up so that the system will be able to cope with irregular and excessive use of hot water. (58°C with only use of compressor)
- Various sterilization temperature settings according to the requirements of each country.
- Possible to connect external heating sources including solar collectors. Refer to our installation manual for details.



## Specifications

### Heating

Nominal Capacity (min~max)	9.0 (3.5~12.0) kW
COP (Nominal)	3.70
Tapping Capacity (Sanitary hot water) in:15°C → out:40°C	270 liter 12 liter/min
Tapping Capacity (Sanitary hot water) in:15°C → out:40°C	200 liter 16 liter/min

### Cooling

Nominal Capacity (min~max)	8.0 (3.0~9.0)
COP (Nominal)	2.87

### Split system

Working range during heating with compressor (ambient temperature)	-20 - +43°C
Working range during cooling (ambient temperature)	+15 - +43°C
Max temperature flow line	65°C
Max temperature flow line, only use of compressor	58°C
Refrigerant quantity (R410A)	2.9 kg (included in FDCW100VNX)
Max length, refrigerant pipe	12 m
Max height difference, refrigerant pipe	7 m
Dimensions, refrigerant pipe	Gas pipe : OD15.88 (5/8") Liquid pipe : OD9.52 (3/8")
Pipe connections	Flare

### HM270V (Indoor unit)

Immersion heater	Max 9 kW
Volume, total	270 litre ±5%
Volume, hot water coil	14 litre
Height	1760 mm (+20-50 mm, adjustable feet)
Width	600 mm
Depth	650 mm
Weight (without water in tank)	140 kg
Electrical connections	1Phase 230V / 3Phase 400V 50Hz

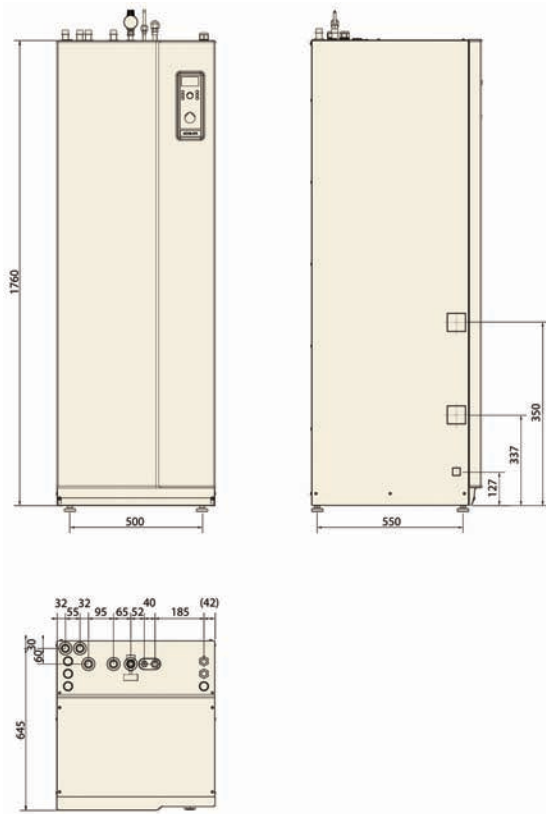
### FDCW100VNX (Outdoor unit)

Height	845 mm
Width	970 mm
Depth	370 mm (+80 mm with foot rail)
Weight	74 kg

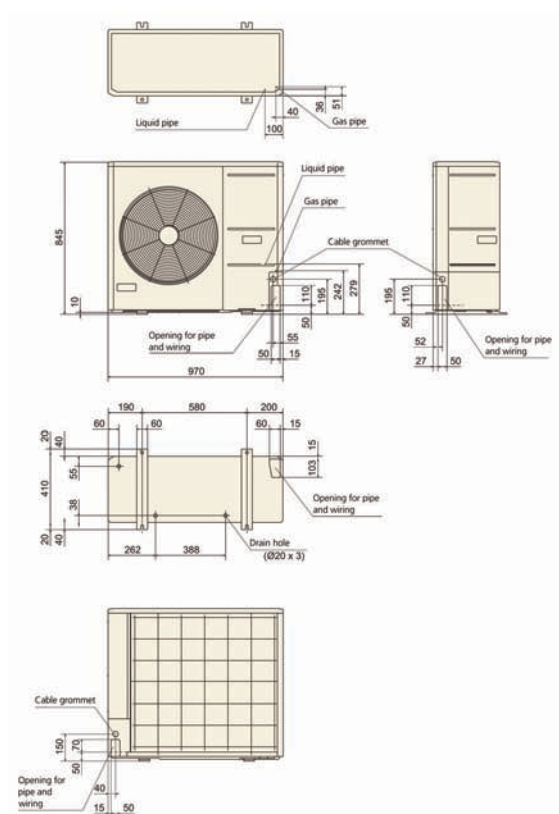
Operation Conditions			Cooling (°C)	Heating (°C)
	Water Temperature	Inlet	12	40
	Outlet	7	45	
	Outdoor Temperature	35	7	

# Dimensions

## Indoor unit



## Outdoor unit



## Before starting use

### Before use

In order to get the greatest benefit from Our Air to Water Heat Pump, read thoroughly the User's manual.

### Places

Do not install in places where combustible gas could leak or where there are sparks.  
Keep away from places where combustible gas could be generated, flow or accumulate, or locations containing carbon fibers otherwise there is a danger of fire.

### Installation

Installation must be carried out in accordance with current norms and directives.

Current regulations require the inspection of installation before commissioning and the inspection must be carried out by suitable qualified personnel and should be documented.  
Improper installation will lead to water leakage, electric shocks, fires and other serious problems.

Make sure that the indoor unit and the outdoor unit are stable in installation and fixed on stable base.



### Japan Head Office:

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108-8215, Japan  
[www.mhi.co.jp](http://www.mhi.co.jp)

#### ISO9001

Our Air Conditioning & Refrigeration Systems Headquarters is an ISO9001 approved factory for residential air conditioners and commercial-use air conditioners (including heat pumps).



BIWAJIMA PLANT  
Mitsubishi Heavy Industries, Ltd.  
Air-conditioning & Refrigeration Systems Headquarters  
Certified ISO 9001  
Certificate number: JQA-0709



MITSUBISHI HEAVY INDUSTRIES-  
MAHAJAK AIR CONDITIONERS CO., LTD.  
Certified ISO 9001  
Certificate Number: 04100 1599 0813

#### ISO14001

Our Air Conditioning & Refrigeration Systems Headquarters has been assessed and found to comply with the requirements of ISO14001.



BIWAJIMA PLANT  
Mitsubishi Heavy Industries, Ltd.  
Air-conditioning & Refrigeration Systems Headquarters  
Certified ISO 14001  
Certificate number: JQA-EM0256



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MAHAJAK AIR CONDITIONERS CO., LTD.  
Certified ISO 14001  
Certificate Number: 04104 1988 0813 ES

