

# ecodan<sup>®</sup>

Advanced Heating Technology

Central Home Heating and Hot Water Supply



# Ecodan – Next Generation Central Heating and Hot Water Heating Combined

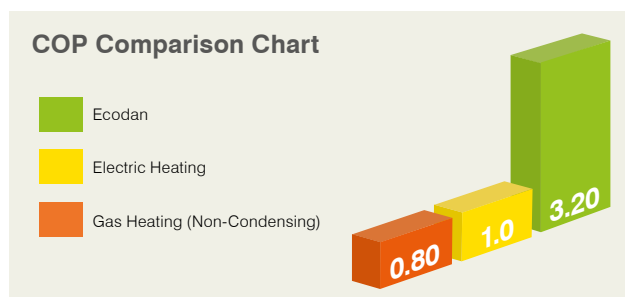
Increasing energy bills, coupled with the need to heat our homes and hot water efficiently, is driving the demand for alternative forms of domestic heating. Mitsubishi Electric has utilised their expertise and industry-leading technology to develop Ecodan – a super energy efficient heat pump solution that combines both hot water heating and room heating through one system.

**On average, hot water and home heating needs combined account for over 67%\*1 of the overall energy bill in New Zealand homes.**

Domestic heating is therefore an obvious area to target in reducing energy bills. This is especially pertinent during the winter months, where a combination of taking longer, hotter showers and the increased need for a warm and dry home, typically drives up power bills. An Ecodan Heat Pump System can help reduce your heating and hot water bill when compared to gas and direct electric systems.

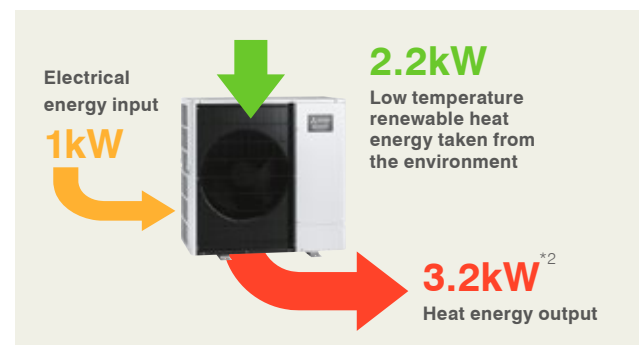
## What is Ecodan?

Ecodan is an advanced heat pump system that cleverly combines the hot water heating supply for a home with energy efficient whole home central heating; all through the same system.



Heat pumps use electrical energy and take low grade heat energy from the outdoor air, to heat refrigerant which in turn heats water for domestic use and space heating. The efficiency of a heat pump is known as the Coefficient of Performance or COP. This is a ratio of the heat delivered to power consumed. For every 1kW of electrical input energy, Ecodan absorbs renewable heat energy from the outdoor air to provide the home with an average of at least 3.2kW\*2 of heat output. Compared to typical gas and direct electric heating systems that can

have higher running costs with COPs as low as 0.80\*3, Ecodan provides an energy efficient alternative.



## Return on Investment

The estimated return on investment of an Ecodan Hot Water Heat Pump, when compared to a gas or direct electric heating system is on average four years\*4. There are ways of reducing this payback period further, such as taking advantage of lower cost nightly electricity tariffs available; reducing homeowners' energy bills by heating the hot water cylinder during the night. Large households with high hot water usage could bring the payback period down significantly.

- **Savings on your hot water and heating costs could be up to 70%\*5** when compared to traditional water heating.

\*1 Based on data sourced from EECA New Zealand.

\*2 As independently tested by BSRIA based upon BSEN14511 Part 3 standard rating conditions. Due to the method of operation, the performance of heat pumps will vary based upon the temperature of the heat source and the requirements of the heat delivered. The BSEN14511 testing relates to the heat pump performance only and not the entire heating system.

\*3 Based on manufacturer information for gas instant hot water heater (non-condensing).

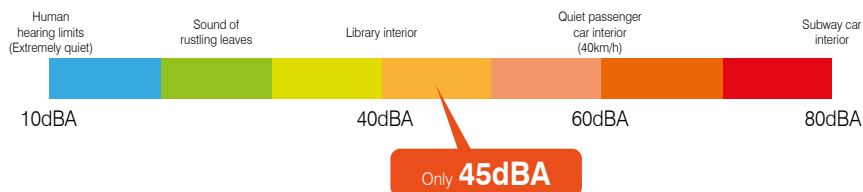
\*4 Payback period comparison based on average energy supplier costs per kWh. Actual return on investment may vary in line with gas and electricity price fluctuations and seasonal conditions. This is an estimate only.

\*5 Estimated using COP data based on BSEN14511 standard rating conditions. 7°C outdoor temp, 35°C outlet water temp. The BSEN14511 testing relates to the heat pump performance only and not the entire heating system.

## The Ultra Quiet Ecodan Takes Hot Water Heat Pumps to the Next Level

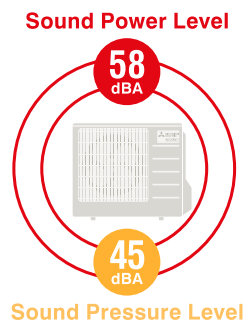
Our market leading Ecodan Hot Water Heat Pumps are designed to provide your home with reliable, trouble free renewable heating and hot water.

These new models offer superb style, market-leading energy efficiency, and sound levels. Designed especially for residential applications the 6.0kW and 11.2kW units are three times quieter than previous models, making them the perfect choice for high density housing.



### Ideal for High Density Housing

With space often being a premium on new build development sites, Ecodan will operate discreetly where dwellings are in close proximity to each other. The outdoor unit provides very quiet operation as low as 45dBA (SPL)\* and 58dBA (PWL).



### FTC5 Controller with Energy Monitoring

The Mitsubishi Electric Fifth Generation Controller (FTC5) includes intelligent room temperature control as standard. This, together with advanced weather compensation, ensures the system delivers efficient, comfortable heating regardless of the season. FTC5 now also includes energy monitoring, showing consumed and produced energy.



### Fast Heat Up Times!

- Fast water heating times from 15–55°C in one hour for a three bedroom house\*<sup>1</sup>
- Less than 30 minutes to re-heat half the tank (100 litres)\*<sup>1</sup>
- Even faster heat up times with Zubadan Technology\*<sup>2</sup>

\* Measured at 1m from the front of the outdoor unit.

\*<sup>1</sup> When using PUHZ-W112VAA, ambient temperature above 2°C.

\*<sup>2</sup> Zubadan only available on specific models – see specification tables.

You could **save**  
up to **70%** on your  
**hot water** and  
**heating bills.**



# Ecodan Central Heating with Domestic Hot Water Systems

Ecodan is a highly energy efficient hot water heat pump system comprised of an outdoor hot water heat pump and an indoor component – a Hydrobox or a Cylinder Tank. A reliable total home heating solution, using radiators and/or underfloor heating in conjunction with a hot water supply, that provides year-round comfort with advanced control.

**With proven Mitsubishi Electric Technology, Ecodan is designed for New Zealand conditions; maintaining high performance during the winter months when heating is in high demand.**

Whether you need central whole home heating, hot water or both, Ecodan Hydrobox and Cylinder Systems can provide the perfect solution.

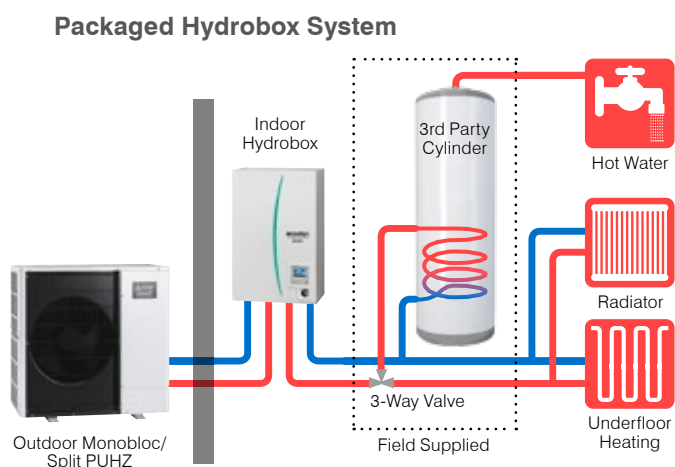
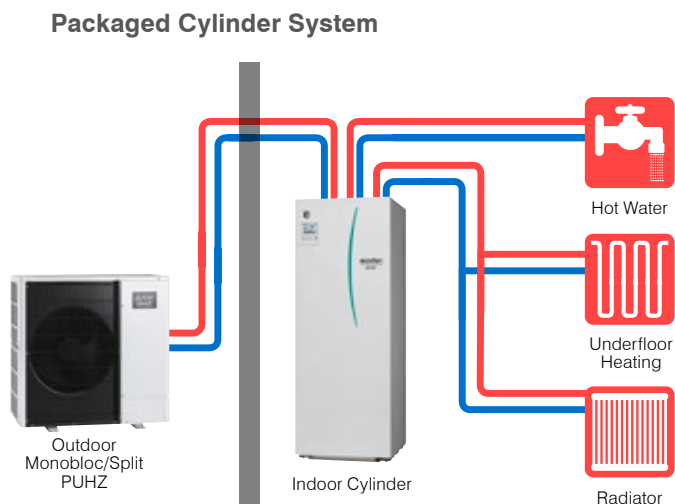
Both the Hydrobox and Cylinder are compatible with the Monobloc and Split Type Ecodan outdoor units ranging from 5–23kW of heating and hot water for your home or light commercial application.

## Packaged Cylinder System

The 200 litre Cylinder provides improved performance and fast heat up times through the use of Plate Heat Exchanger Technology and FTC5 Control. The Cylinders are completely pre-plumbed and wired for ease of installation. The Cylinder can provide heating and hot water to your home.

## Packaged Hydrobox System

The Hydrobox is primarily for space heating in the form of underfloor or radiators or a mixture. With a small footprint and sized similarly to gas hot water systems, they are a highly adaptable solution for retrofit and new builds. For systems where a 3rd Party Cylinder with a heat exchanger coil is to be installed, this can be easily catered for by adding a 3-Way Valve to the system and connecting to the FTC5 Controller.





# Ecodan for Swimming and Spa Pool Applications

Ecodan Hot Water Heat Pumps provide highly efficient hot water to swimming pools and spas. Comprising of a durable outdoor hot water heat pump, specialised heat exchanger, flow switch and advanced controller, Ecodan is the ideal and cost efficient way to heat your pool or spa all year round.

## Spa Pools

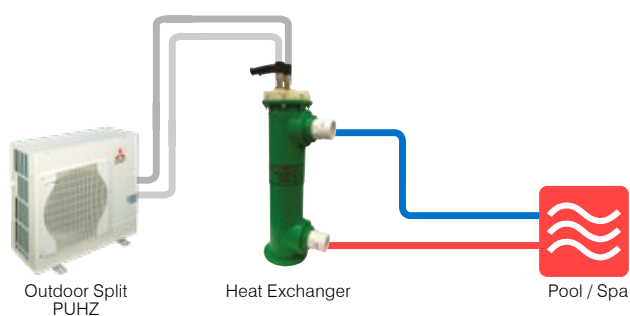
Spa pools consume more power than many swimming pools due to higher temperatures and potential heat losses. Installing a hot water heat pump to an existing spa pool can significantly reduce your heating costs. Power consumption can be reduced by three to four times.

## Swimming Pools

Most swimming pools are used during the summer months and remain unused for the rest of the year. Installing a hot water heat pump can enable you to enjoy your swimming pool year-round!

A range of titanium coil with PVC / Nylon shell heat exchangers are matched to the PUHZ Hot Water Heat Pump units. This removes any risk of corrosion-related damage due to salt or chlorine water treatment and simplifies pool water pipe work.

## Packaged Heat Exchanger System



**ecodan**<sup>®</sup>  
Advanced Heating Technology



# Ecodan Technology, Smart Energy Monitoring and System Management

State of the art energy monitoring and management of the Ecodan Heat Pump System means families now have the visibility and freedom to efficiently manage their overall household power consumption for heating and hot water. Energy monitoring ensures households can take advantage of off-peak tariffs, providing them the ability to save even more on their power bill.

## Smart Energy Monitoring

View electricity consumption and heat output on the remote controller. End-users can now easily check the energy data of the Ecodan Heat Pump.

### Data Shown on the Remote Controller:

- Consumed electrical energy for space heating, cooling and domestic hot water (kWh).
- Delivered energy for space heating, cooling and domestic hot water (kWh).

## Other Features

- Daily, monthly and yearly data are stored and can be displayed using the main remote controller.
- External power meter and heat meter can be connected for accurate measurement.
- An SD card is included for storing usage data.



Heating capacity produced



Electric energy used



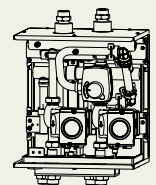
## 2-Zone Control allows you to simultaneously control two different temperature zones.

Using Ecodan, it is possible to control two different flow temperatures, thereby managing two different heating load requirements.

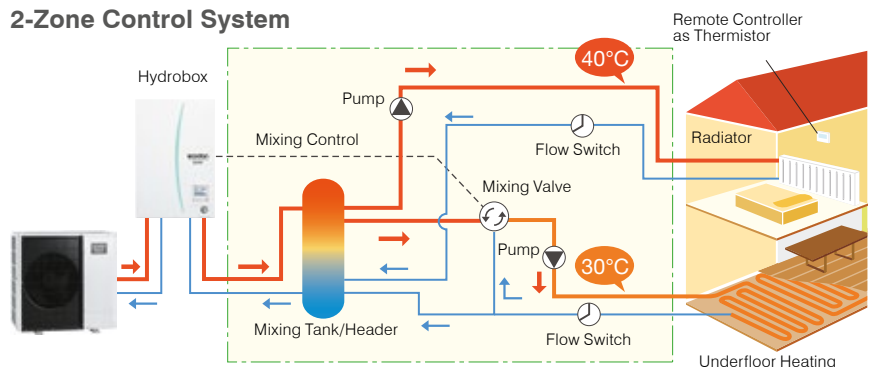
The system can adjust and maintain two flow temperatures when different temperatures are required for different rooms; for example, controlling a flow temperature of 40°C for the bedroom radiators and another flow temperature of 30°C for the living room underfloor heating.

## Optional PAC-TZ01-E 2-Zone Kit

- Easy installation: G1 screw type flexi piping connections.
- Compact: fits on top of Cylinder or wall mountable with Hydrobox.
- All in one kit: key functional components are incorporated.\*



## 2-Zone Control System

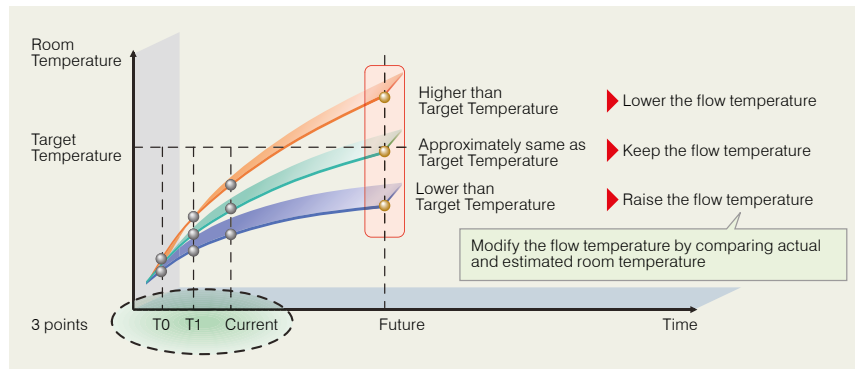


\*Flow switch not included - field supplied

## Auto Adaptation

Our advanced Auto Adaptation Function measures the room temperature and outdoor temperature, calculating the required heating capacity for the room. The flow temperature is automatically controlled according to the required heating capacity, while optimal room temperature is maintained at all times; ensuring the appropriate heating capacity and preventing energy wastage.

## Future Room Temperature Estimation



By estimating future changes in room temperature, the system works to prevent unnecessary increases and decreases in the flow temperature. Auto Adaptation maximises both comfort and energy savings.

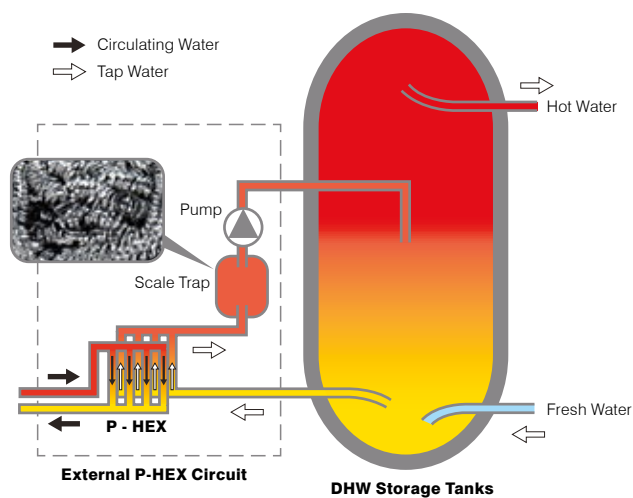
## Plate Heat Exchanger and Patented Scale Trap Technology\*

The Aluminium Plate Heat Exchanger and patented Scale Trap Technology help achieve greater efficiencies. In conventional systems, there is a risk of calcium scale building up on the Plate Heat Exchanger if it is exposed to tap water directly; therefore making it difficult to heat tap water. To resolve this problem, Ecodan is equipped with a "Scale Trap" that catches calcium nuclei in the tap water before it has a chance to grow into large scales, thereby inhibiting build-up in the External Heat Exchanger.

Ecodan can use a Plate Heat Exchanger to heat tap water, resulting in much higher domestic hot water performance.

In the case of special localised conditions such as very hard tap water, please consult a specialist before installation.

## The Secret Behind Our External Plate Heat Exchanger System



\* Only available on Mitsubishi Electric made cylinders.





# Zubadan – Reliable Performance in Low Temperature Outdoor Conditions

New generation Zubadan\* provides powerful heating in cold regions. Zubadan's rated heating capacity is maintained even in outdoor temperatures as low as  $-15^{\circ}\text{C}$ , guaranteeing total home comfort when you need it most.

## Zubadan Inverter Technology

New generation Zubadan Inverter Technology\* provides powerful heating in cold regions where heat pump performance can diminish. With Zubadan, rated heating capacity is maintained even in outdoor temperatures as low as  $-15^{\circ}\text{C}$ , with guaranteed heating operation at  $-25^{\circ}\text{C}$ . Zubadan guarantees a warm, comfortable home when you need it most. Furthermore, Zubadan can provide even faster tank heat up times in low ambient temperatures compared to standard models.

# ZUBADAN

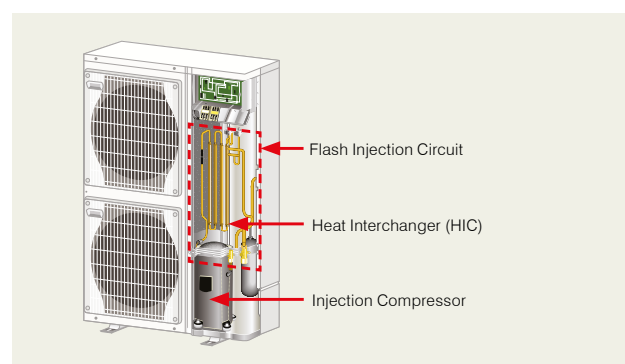


\* Zubadan only available on specific models – see specification tables pg 9, 11 and 15.

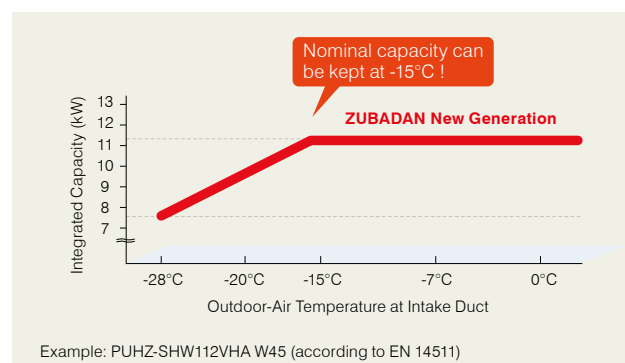
## Flash Injection Technology

The Flash Injection Circuit is an original Mitsubishi Electric Technology. A heat exchange process at the Heat Interchanger transforms liquid refrigerant into a two-phase, gas-liquid state and then compresses the gas-liquid refrigerant at the Injection Compressor. This circuit secures a sufficient flow rate of refrigerant for heating when outdoor temperatures are very low.

Thanks to an improved Heat Interchanger and the introduction of a new Injection Compressor, the Flash Injection Circuit is now more powerful than ever.



## Benefits of Zubadan New Generation





# Technical Specifications

## Ecodan Monobloc Air Source Heat Pumps

### PUHZ-(H)W OUTDOOR UNITS

Our range of Ecodan Monobloc Air Source Heat Pumps are available in 6kW, 11.2kW and 14kW capacities. Designed to suit a wide range of heating and cooling applications, these models offer a viable solution for the varying requirements that domestic and small commercial applications demand.

#### Key Features

- Self-contained unit, only requiring water and electric connections
- No need for gas supply, flues or ventilation
- Single phase power supply with a low starting current
- Low maintenance and quiet operation
- Operates with outside temperatures as low as -25°C with Zubadan – HW Models
- 5°C – 60°C outlet water temperature
- Optional 2-Zone Energy Efficient Space Heating Control
- Energy monitoring as standard

#### Domestic Applications

- Heating and hot water
- The vast majority of NZ homes

#### Commercial Applications

- Small retail outlets
- Dental and doctors' surgeries
- Public sector and commercial buildings



PUHZ-W60VAA



PUHZ-W112VAA



PUHZ-HW140VHA2

|   |                           | ZUBADAN                              |                                      |                                      |
|---|---------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OUTDOOR UNIT                            |                           | PUHZ-W60VAA                          | PUHZ-W112VAA                         | PUHZ-HW140VHA2                       |
| HEATING*1<br>(A7/W35)                   | Capacity (kW)             | 6.00                                 | 11.20                                | 14.00                                |
|   | Power Input (kW)          | 1.24                                 | 2.47                                 | 3.29                                 |
|   | COP                       | 4.83                                 | 4.54                                 | 4.26                                 |
| HEATING*2<br>(A2/W35)                   | Capacity (kW)             | 6.00                                 | 11.20                                | 14.00                                |
|   | Power Input (kW)          | 1.65                                 | 3.34                                 | 4.50                                 |
|   | COP                       | 3.64                                 | 3.35                                 | 3.11                                 |
| OPERATING AMBIENT TEMPERATURE (°C DB)*4 |                           | -20 ~ +35°C                          | -20 ~ +35°C                          | -25 ~ +35°C                          |
| SOUND PRESSURE LEVEL AT 1M (dBA)*1      |                           | 45                                   | 47                                   | 53                                   |
| LOW NOISE MODE (dBA)*1                  |                           | N/A                                  | N/A                                  | 50                                   |
| WATER DATA                              | Water Pipe Size           | 1" BSP Parallel Thread ISO 228/1-G1B | 1" BSP Parallel Thread ISO 228/1-G1B | 1" BSP Parallel Thread ISO 228/1-G1B |
|   | Max Flow Rate (l/min)     | 17.2                                 | 32.1*5                               | 40.1*5                               |
|   | Water Pressure Drop (kPa) | 16                                   | 24                                   | 9                                    |
| DIMENSIONS (mm)                         | Width                     | 1050                                 | 1050                                 | 1020                                 |
|   | Depth                     | 480                                  | 480                                  | 330+30*3                             |
|   | Height                    | 1020                                 | 1020                                 | 1350                                 |
| WEIGHT (kg)                             |                           | 97                                   | 118                                  | 134                                  |
| ELECTRICAL DATA                         | Electrical Supply         | 230V, 50Hz                           | 230V, 50Hz                           | 230V, 50Hz                           |
|   | Phase                     | Single                               | Single                               | Single                               |
|   | Maximum Current (A)       | 13                                   | 28                                   | 35                                   |
|   | Fuse Rating               | 16                                   | 32                                   | 40                                   |

\*1 Under normal heating conditions at outdoor temp: 7°CDB / 6°CWB, outlet water temp 35°C, inlet water temp 30°C as tested to BS EN14511.

\*2 Under normal heating conditions at outdoor temp: 2°CDB / 1°CWB, outlet water temp 35°C, inlet water temp 30°C.

\*3 Grille.

\*4 Heating maximum ambient temperature 21°CDB, DHW hot water maximum ambient temperature 35°CDB.

\*5 When connected to Hydrobox/Cylinder, max flow rate is limited to 27.7 l/min.

# Ecodan Split Air Source Heat Pumps



## PUHZ-SW OUTDOOR UNITS

The Ecodan Split Air Source Heat Pump ranges from 5kW to 16kW. Designed to suit a wide range of heating and cooling applications, these models offer a viable solution for the varying requirements that domestic and small commercial applications demand.

### Key Features

- Split unit allowing water connections to be made internally
- No need for gas supply, flues or ventilation
- Single phase power supply with a low starting current
- Low maintenance and quiet operation
- 2-Zone Space Heating Control
- Energy monitoring as standard

### Domestic Applications

- Heating and hot water
- The vast majority of NZ homes

### Commercial Applications

- Small retail outlets
- Dental and doctors' surgeries
- Public sector and commercial buildings



PUHZ-SW50VKA



PUHZ-SW75VHA



PUHZ-SW120VHA

| OUTDOOR UNIT                            |                                  | PUHZ-SW50VKA              | PUHZ-SW75VHA               | PUHZ-SW120VHA              |
|---|----------------------------------|---------------------------|----------------------------|----------------------------|
| HEATING*1<br>(A7/W35)                   | Capacity (kW)                    | 5.50                      | 8.00                       | 16.00                      |
|   | Power Input (kW)                 | 1.24                      | 1.82                       | 3.90                       |
|   | COP                              | 4.42                      | 4.40                       | 4.10                       |
| HEATING*2<br>(A2/W35)                   | Capacity (kW)                    | 5.00                      | 7.50                       | 12.00                      |
|   | Power Input (kW)                 | 1.68                      | 2.21                       | 3.70                       |
|   | COP                              | 2.97                      | 3.40                       | 3.24                       |
| OPERATING AMBIENT TEMPERATURE (°C DB)*4 |                                  | -15 ~ +35°C               | -20 ~ +35°C                | -20 ~ +35°C                |
| SOUND PRESSURE LEVEL AT 1M (dBA)*1      |                                  | 46                        | 51                         | 54                         |
| LOW NOISE MODE (dBA)*1                  |                                  | 42                        | 48                         | 51                         |
| WATER DATA                              | MAX Flow Rate (l/min)            | 15.8                      | 22.9                       | 45.9*6                     |
|   | Width                            | 809+62*5                  | 950                        | 950                        |
| DIMENSIONS (mm)                         | Depth                            | 300                       | 330+30*3                   | 330+30*3                   |
|   | Height                           | 630                       | 943                        | 1350                       |
| WEIGHT (kg)                             |                                  | 43                        | 75                         | 118                        |
| REFRIGERANT DATA                        | Type                             | R410A                     | R410A                      | R410A                      |
|   | Charge (kg) - 10m Pipe Length    | 1.4                       | 3.2                        | 4.6                        |
|   | Pipe Size - Gas/Liquid (mm (in)) | 12.7 (1/2") / 6.35 (1/4") | 15.88 (5/8") / 9.52 (3/8") | 15.88 (5/8") / 9.52 (3/8") |
|   | Connection Type                  | Flared                    | Flared                     | Flared                     |
|   | Max Pipe Length (m)              | 40                        | 40                         | 75                         |
|   | Min Pipe Length (m)              | 2                         | 2                          | 2                          |
|   | Max Height Difference (m)        | 30                        | 30                         | 30                         |
| ELECTRICAL DATA                         | Electrical Supply                | 230V, 50Hz                | 230V, 50Hz                 | 230V, 50Hz                 |
|   | Phase                            | Single                    | Single                     | Single                     |
|   | Maximum Current (A)              | 13                        | 17                         | 29.5                       |
|   | Fuse Rating                      | 16                        | 25                         | 40                         |

\*1 Under normal heating conditions at outdoor temp: 7°CDB / 6°CWB, outlet water temp 35°C, inlet water temp 30°C as tested to BS EN14511.

\*2 Under normal heating conditions at outdoor temp: 2°CDB / 1°CWB, outlet water temp 35°C, inlet water temp 30°C.

\*3 Grille.

\*4 Heating maximum ambient temperature 21°CDB, DHW hot water maximum ambient temperature 35°CDB.

\*5 Electrical cover.

\*6 When connected to Hydrobox/Cylinder, max flow rate is limited to 27.7 l/min.

# Ecodan Split Air Source Heat Pumps



## PUHZ-SHW ZUBADAN OUTDOOR UNITS

The Ecodan Split Zubadan Air Source Heat Pump ranges from 8kW to 23kW. Designed to suit a wide range of domestic and commercial applications, these models maintain full heating capacity as ambient temperatures drop below zero right down to -15°C. Proven in cold climate areas such as Mt Ruapehu, Zubadan systems won't let you down in the cold.

### Key Features

- Split unit allowing water connections to be made internally
- No need for gas supply, flues or ventilation
- Single phase power supply with a low starting current
- Low maintenance and quiet operation
- 2-Zone Space Heating Control
- Energy monitoring as standard
- Operates in outside temperatures as low as -28°C with Zubadan Technology



PUHZ-SHW80/112VHA



PUHZ-SHW230YKA2

|   |                                  | ZUBADAN                    | ZUBADAN                    | ZUBADAN                      |
|---|----------------------------------|----------------------------|----------------------------|------------------------------|
| OUTDOOR UNIT  |                                  | PUHZ-SHW80VHA              | PUHZ-SHW112VHA             | PUHZ-SHW230YKA2 <sup>†</sup> |
| HEATING* <sup>1</sup><br>(A7/W35)                   | Capacity (kW)                    | 8.00                       | 11.20                      | 23.00                        |
|   | Power Input (kW)                 | 1.72                       | 2.51                       | 6.31                         |
|   | COP                              | 4.65                       | 4.46                       | 3.65                         |
| HEATING* <sup>2</sup><br>(A2/W35)                   | Capacity (kW)                    | 8.00                       | 11.20                      | 23.00                        |
|   | Power Input (kW)                 | 2.25                       | 3.35                       | 9.71                         |
|   | COP                              | 3.55                       | 3.34                       | 2.37                         |
| OPERATING AMBIENT TEMPERATURE (°C DB) <sup>*4</sup> |                                  | -28 ~ +35°C                | -28 ~ +35°C                | -25 ~ +35°C                  |
| SOUND PRESSURE LEVEL AT 1M (dBA) <sup>*1</sup>      |                                  | 51                         | 52                         | 59                           |
| LOW NOISE MODE (dBA) <sup>*1</sup>                  |                                  | 49                         | 49                         | 56                           |
| WATER DATA  | MAX Flow Rate (l/min)            | 22.9                       | 32.1 <sup>*6</sup>         | 65.9 <sup>*7</sup>           |
| DIMENSIONS (mm)                                     | Width                            | 950                        | 950                        | 1050                         |
|   | Depth                            | 330+30 <sup>*3</sup>       | 330+30 <sup>*3</sup>       | 330+30 <sup>*3</sup>         |
|   | Height                           | 1350                       | 1350                       | 1338                         |
| WEIGHT (kg)   |                                  | 120                        | 120                        | 149                          |
| REFRIGERANT DATA                                    | Type                             | R410A                      | R410A                      | R410A                        |
|   | Charge (kg) - 10m Pipe Length    | 5.5                        | 5.5                        | 7.7 <sup>*8</sup>            |
|   | Pipe Size - Gas/Liquid (mm (in)) | 15.88 (5/8") / 9.52 (3/8") | 15.88 (5/8") / 9.52 (3/8") | 25.4 (1") / 12.7 (1/2")      |
|   | Connection Type                  | Flared                     | Flared                     | Flared                       |
|   | Max Pipe Length (m)              | 75                         | 75                         | 80                           |
|   | Min Pipe Length (m)              | 2                          | 2                          | 2                            |
|   | Max Height Difference (m)        | 30                         | 30                         | 30                           |
| ELECTRICAL DATA                                     | Electrical Supply                | 230V, 50Hz                 | 230V, 50Hz                 | 400V, 50Hz                   |
|   | Phase                            | Single                     | Single                     | Three                        |
|   | Maximum Current (A)              | 29.5                       | 35                         | 26                           |
|   | Fuse Rating                      | 32                         | 40                         | 32                           |

<sup>1</sup> Under normal heating conditions at outdoor temp: 7°CDB / 6°CWB, outlet water temp 35°C, inlet water temp 30°C as tested to BS EN14511.

<sup>2</sup> Under normal heating conditions at outdoor temp: 2°CDB / 1°CWB, outlet water temp 35°C, inlet water temp 30°C.

<sup>3</sup> Grille.

<sup>4</sup> Heating maximum ambient temperature 21°CDB, DHW hot water maximum ambient temperature 35°CDB.

<sup>5</sup> Electrical cover.

<sup>6</sup> When connected to Hydrobox/Cylinder, max flow rate is limited to 27.7 l/min.

<sup>7</sup> When connected to Hydrobox/Cylinder, max flow rate is limited to 61.5 l/min.

<sup>8</sup> For first 30m, then add additional refrigerant.

<sup>†</sup> Not compatible with Cylinder EHST20D/C-VM2C.

# Packaged Cylinder for Ecodan Monobloc and Split Units



## PACKAGED CYLINDER

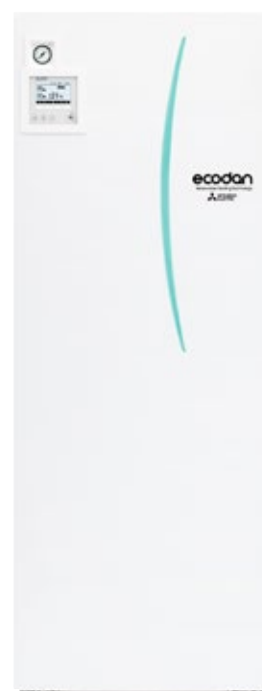
The Packaged Cylinder offers a highly adaptable heating solution for retrofit or new builds. Designed specifically by Mitsubishi Electric to integrate with the Ecodan Monobloc and Split Air Source Heat Pump Range, the Cylinder provides improved performance and faster heat up times through the use of Plate Heat Exchanger Technology. Fast commissioning via an SD card and energy monitoring functions are included.

### Key Features

- Simple graphical control
- Optional 2-Zone Space Heating Control
- Scale Trap Technology
- Floor Dry-Up Mode
- Pre-plumbed and wired for faster installation
- SD card commissioning
- Energy monitoring as standard
- Compatible with home automation via Modbus
- BMS compatible



MelcoBEMS Mini (Modbus)



EHST/EHPT Cylinder

| CYLINDER                          |  |  | EHST20D(C)-VM2C <sup>†</sup>             | EHPT20X-VM2C                         |
|-----------------------------------|--|--|--|--------------------------------------|
| CYLINDER TYPE                     |  |  | Packaged Split                           | Packaged Monobloc                    |
| OUTDOOR CAPACITY RANGE (kW)       |  |  | 5 - 16                                   | 5 - 14                               |
| NOMINAL HOT WATER VOLUME (LITRES) |  |  | 200                                      | 200                                  |
| HEATING OPERATING RANGE           | HEATING FLOW TEMP                                  |  | 25°C - 60°C                              | 25°C - 60°C                          |
|                                   | DHW  |  | 40°C - 60°C                              | 40°C - 60°C                          |
| SOUND PRESSURE LEVEL AT 1M (dBA)  |  |  | 28                                       | 28                                   |
| WATER DATA                        | Max Flow Rate (l/min)                              |  | 27.7                                     | 27.7                                 |
|                                   | Primary Pump                                       |  | Grundfos UPM2 15-70 130                  | Grundfos UPM2 15-70 130              |
|                                   | Sanitary Hot Water Pump                            |  | Grundfos UPSO 15-16 130 CIL2             | Grundfos UPSO 15-16 130 CIL2         |
|                                   | Connection Size (mm) Heating / DHW                 |  | 28 / 22                                  | 28 / 22                              |
|                                   | Primary Expansion Vessel (Litres)                  |  | 12                                       | 12                                   |
|                                   | Charge Pressure (MPa (Bar))                        |  | 0.1 (1)                                  | 0.1 (1)                              |
| WATER SAFETY DEVICES              | Water Circuit                                      | Control Thermistor (°C)                          | 1 - 80                                   | 1 - 80                               |
|                                   |  | Pressure Relief Valve (MPa (Bar))                | 0.3 (3)                                  | 0.3 (3)                              |
|                                   |  | Flow Sensor min flow rate (L/min)                | 5.0                                      | 5.0                                  |
|                                   | DHW Cylinder                                       | Control Thermistor (°C)                          | 75                                       | 75                                   |
|                                   |  | Temp and Pressure Relief Valve (°C)/ (MPa (Bar)) | 1.0 (10)                                 | 1.0 (10)                             |
|                                   |  | Legionella Prevention (°C)                       | 60-70                                    | 60-70                                |
| DIMENSIONS (mm)                   | Width  |  | 595                                      | 595                                  |
|                                   | Depth  |  | 680                                      | 680                                  |
|                                   | Height   |  | 1600                                     | 1600                                 |
| WEIGHT EMPTY / FULL (kg)          |  |  | EHST20D: 103 / 312<br>EHST20C: 110 / 320 | 98 / 307                             |
| ELECTRICAL DATA                   | Control Board (Optionally Powered by Outdoor Unit) | Electrical Supply                                | 230V, 50 Hz                              | 230V, 50 Hz                          |
|                                   |  | Phase  | Single                                   | Single                               |
|                                   |  | Breaker (A)                                      | 10                                       | 10                                   |
|                                   | Booster Heater                                     | Electrical Supply                                | 230V, 50 Hz                              | 230V, 50 Hz                          |
|                                   |  | Phase  | Single                                   | Single                               |
|                                   |  | Capacity (kW)                                    | 2  | 2                                    |
|                                   |  | Max Running Current (A)                          | 9  | 9                                    |
|                                   |  | Breaker (A)                                      | 16                                       | 16                                   |
| MECHANICAL ZONES                  |  |  | DHW and 1 Heating Zone* <sup>1</sup>     | DHW and 1 Heating Zone* <sup>1</sup> |



# Packaged Hydrobox for Ecodan Monobloc and Split Units

## PACKAGED HYDROBOX

The Hydrobox is primarily used for space heating in the form of underfloor and/or radiators. A small footprint and a similar size to combi boilers, they are a highly adaptable solution for retrofit and new builds. Whether connecting the Packaged or Split unit, only two pipes are connected to supply the unit just like the Cylinder. Hydraulic components are included with Flow Temperature Control and the split type model features the Heat Exchanger built into the Hydrobox. SD card commissioning and energy monitoring are included. For systems where a 3rd Party Cylinder is to be installed, a 3-Way Valve can be added to the system and connected to the Flow Temperature Controller.

### Key Features

- Simple graphical control
- 2-Zone Space Heating Control
- Floor Dry-Up Mode
- Pre-plumbed and wired for faster installation
- SD card commissioning
- Energy monitoring as standard
- Compatible with home automation via Modbus
- BMS compatible



MelcoBEMS Mini (Modbus)



EHSC/EHSD/EHPX Hydrobox

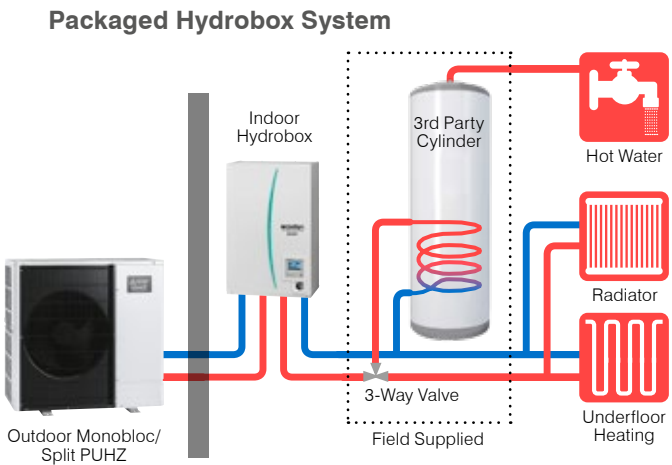
| HYDROBOX                         |  |                                   | EHPX-VM2C               | EHSD(C)-VM2C†                  | ERSE-VM9EC                       |
|----------------------------------|--|-----------------------------------|-------------------------|--------------------------------|----------------------------------|
| HYDROBOX TYPE                    |  |                                   | Packaged Monobloc       | Packaged Split                 | Packaged Split                   |
| OUTDOOR CAPACITY RANGE           |  |                                   | 5.0-14kW                | 5-16kW                         | 16-23kW                          |
| HEATING OPERATING RANGE          | HEATING FLOW TEMP                                  |                                   | 25°C - 60°C             | 25°C - 60°C                    | 25°C - 60°C                      |
| SOUND PRESSURE LEVEL AT 1M (dBA) |  |                                   | 28                      | 28                             | 30                               |
| WATER DATA                       | Max Flow Rate (l/min)                              |                                   | 27.7                    | 27.7                           | 61.5                             |
|                                  | Primary Pump                                       |                                   | Grundfos UPM2 15-70 130 | Grundfos UPM2 15-70 130        | Grundfos UPMXL GEO 25-125 180PWM |
|                                  | Connection Size (mm) Heating / DHW                 |                                   | 28                      | 28                             | G1 - 1/2B                        |
|                                  | Primary Expansion Vessel (Litres)                  |                                   | 10                      | 10                             | 10                               |
|                                  | Charge Pressure (MPa (Bar))                        |                                   | 0.1 (1)                 | 0.1 (1)                        | 0.1 (1)                          |
| WATER SAFETY DEVICES             | Water Circuit                                      | Control Thermistor (°C)           | 1 - 80                  | 1 - 80                         | 1 - 80                           |
|                                  |  | Pressure Relief Valve (MPa (Bar)) | 0.3 (3)                 | 0.3 (3)                        | 0.3 (3)                          |
|                                  |  | Flow Sensor min flow rate (L/min) | 5.0                     | 5.0                            | 5.0                              |
| DIMENSIONS (mm)                  | Width  |                                   | 530                     | 530                            | 600                              |
|                                  | Depth  |                                   | 360                     | 360                            | 360                              |
|                                  | Height   |                                   | 800                     | 800                            | 950                              |
| WEIGHT EMPTY / FULL (kg)         |  |                                   | 37 / 42                 | EHSD: 44 / 50<br>EHSC: 48 / 55 | 63 / 73                          |
| ELECTRICAL DATA                  | Control Board (Optionally Powered by Outdoor Unit) | Electrical Supply                 | 230V, 50Hz              | 230V, 50Hz                     | 230V, 50Hz                       |
|                                  |  | Phase                             | Single                  | Single                         | Single                           |
|                                  |  | Breaker (A)                       | 10                      | 10                             | 10                               |
|                                  | Booster Heater (Optionally Powered if Required)    | Electrical Supply                 | 230V, 50Hz              | 230V, 50Hz                     | 400V, 50Hz                       |
|                                  |  | Phase                             | Single                  | Single                         | Three                            |
|                                  |  | Capacity (kW)                     | 2                       | 2                              | 9                                |
|                                  |  | Max Running Current (A)           | 9                       | 9                              | 13                               |
|                                  |  | Breaker (A)                       | 16                      | 16                             | 16                               |

Hydrobox includes: Flow Temperature Controller (FTCS) with Main Controller and Temperature Sensors, Water Circulation Pump, Flow Sensor, 2kW Booster Heater and Expansion Vessel.

† Reversible option available for cooling applications.

# Third Party Cylinder via Hydrobox for Ecodan Monobloc and Split Units

We offer a range of New Zealand made hot water cylinders manufactured to the highest standards, complete with a Heat Exchanger Coil designed specifically for Mitsubishi Electric Hot Water Heat Pump Hydrobox Systems. Cylinders are supplied as standard with all water connections on the front and include standard electric element, thermostat and TPR Valve. Sensor pockets are correctly positioned for the Cylinder temperature sensor. There are sizes for mains pressure cylinders or buffer tanks and these can be made up to 800 litres. Custom designs are also available.



## HOT WATER AND HEATING CONTROL WITH THIRD PARTY HEAT EXCHANGER

For hot water and heating systems that require integrating separate heat exchangers with our range of outdoor units can easily be applied using the FTC5 or FTC2B Interface Controllers. The FTC2B Controller has the ability to connect to 3rd Party BMS and home automation with a series of simple hardwired controls.

| FTC5            |                   | PAC-IF061B-E                   |
|-----------------|-------------------|--------------------------------|
| DIMENSIONS (mm) | Width             | 393                            |
|                 | Depth             | 86.7                           |
|                 | Height            | 422                            |
| WEIGHT (KG)     |                   | 4.0                            |
| ELECTRICAL DATA | Electrical Supply | Powered by Outdoor Unit (230V) |
|                 | Phase             | Single                         |

| FTC2B           |                   | PAC-IF032B-E                   |
|-----------------|-------------------|--------------------------------|
| DIMENSIONS (mm) | Width             | 336                            |
|                 | Depth             | 69                             |
|                 | Height            | 278                            |
| WEIGHT (KG)     |                   | 2.4                            |
| ELECTRICAL DATA | Electrical Supply | Powered by Outdoor Unit (230V) |
|                 | Phase             | Single                         |



PAC-IF061B-E



PAC-IF032B-E

# Ecodan Split Units for Pool and Spa Applications



## PUHZ-S(H)W OUTDOOR UNITS

These split systems are ideal for pool and spa applications and require an External Heat Exchanger. The flexibility of this system allows the installer to position the Heat Exchanger right where the hot water is required for both new and retrofit installations. Vaportec HXTi with high density plastics and a titanium coil Heat Exchanger for swimming and spa pool heating will require mounting and installation of refrigerant pipe work to the PUHZ-SW outdoor unit. The system is controlled by the advanced PAC-IF061B-E or PAC-IF032B-E controller.

### Key Features

- Reliable year-round water heating
- Inverter driven for maximum energy efficiency
- Operation in outdoor temperatures as low as -25°C
- Easy to use LCD Wall Controller with 7 Day Timer – PAC-IF061B-E
- BMS Control and Monitor



|                       |                  |               |               |               | ZUBADAN       | ZUBADAN        | ZUBADAN         |
|-----------------------|------------------|---------------|---------------|---------------|---------------|----------------|-----------------|
| OUTDOOR UNIT*         |                  | PUHZ-SW50VKA  | PUHZ-SW75VHA  | PUHZ-SW120VHA | PUHZ-SHW80VHA | PUHZ-SHW112VHA | PUHZ-SHW230YKA2 |
| HEATING*1<br>(A7/W35) | Capacity (kW)    | 5.50          | 8.00          | 16.00         | 8.00          | 11.20          | 23.00           |
|                       | Power Input (kW) | 1.24          | 1.82          | 3.90          | 1.72          | 2.51           | 6.31            |
|                       | COP              | 4.42          | 4.40          | 4.10          | 4.65          | 4.46           | 3.65            |
| HEATING*2<br>(A2/W35) | Capacity (kW)    | 5.00          | 7.50          | 12.00         | 8.00          | 11.20          | 23.00           |
|                       | Power Input (kW) | 1.68          | 2.21          | 3.70          | 2.25          | 3.35           | 9.71            |
|                       | COP              | 2.97          | 3.40          | 3.24          | 3.55          | 3.34           | 2.37            |
| FLOW SWITCH           |                  | FSW50         | FSW85         | FSW140        | FSW85         | FSW125         | FSW200          |
| HEAT EXCHANGER        |                  | Vaportec HXTi | Vaportec HXTi | Vaportec HXTi | Vaportec HXTi | Vaportec HXTi  | Vaportec HXTi   |

Ancillary equipment such as water pumps and expansion tanks are to be provided separately by the installer, and selected to meet the individual system pressure and flow requirements. This system is supplied with the Vaportec HXTi Heat Exchanger.

\* For full outdoor specifications see pages 10 to 11.

\*1 Under normal heating conditions at outdoor temp: 7°CDB / 6°CWB, outlet water temp 35°C, inlet water temp 30°C as tested to BS EN14511.

\*2 Under normal heating conditions at outdoor temp: 2°CDB / 1°CWB, outlet water temp 35°C, inlet water temp 30°C.

| VAPORTEC HEAT EXCHANGER       |        | HXTi 8                         |
|-------------------------------|--------|--------------------------------|
| WATER PIPE SIZE (mm)          |        | 50mm PVC (max. pressure 4 bar) |
| LIQUID / GAS PIPE SIZE (inch) |        | 3/8" / 5/8" / 1"               |
| DIMENSIONS<br>(mm)            | Width  | 165                            |
|                               | Depth  | 235                            |
|                               | Height | 740                            |
| WEIGHT (kg)                   |        | 4.4                            |



Vaportec HXTi  
Heat Exchanger



PAC-IF061B-E/PAC-IF032B-E



## Manufactured in the United Kingdom

The Mitsubishi Electric manufacturing facility in Livingston, Scotland produces Ecodan Air Source Heat Pumps, Controls and Cylinders for the UK and European markets and includes a purpose-built Ecodan testing facility.



## Full 5 Year Warranty

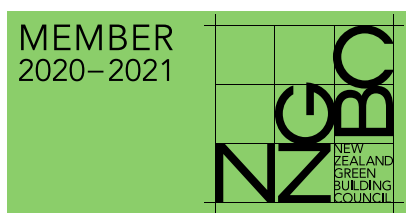
Every Ecodan Air Source Heat Pump comes with a full 5 year warranty as standard, subject to the following conditions:

- The Ecodan purchase and installation is registered with BDT.
- The Ecodan must be installed and commissioned by a trained BDT Installer.



## Home Automation and Commercial

- Ecodan Systems are compatible with a range of home automation systems via Modbus using the MelcoBEMS Mini Modbus Interface.
- As part of a wider range of applications, commercial Ecodan products are also available. Please contact your local BDT Representative or branch nearest you for more details.



## Member of the NZGBC

The New Zealand Green Building Council (NZGBC) is a non-profit membership organisation that promotes better buildings. Thousands of buildings are being constructed, providing healthier and happier workplaces and homes for thousands of Kiwis.



Black Diamond  
Technologies Limited



Exclusive New Zealand  
Partner Since 1981



### Wellington

Head Office  
1 Parliament Street  
PO Box 30772  
Lower Hutt 5040  
Phone 04 560 9147

### Auckland

Unit 1 / 4 Walls Road  
PO Box 12726  
Penrose  
Auckland 1642  
Phone 09 526 9347

### Christchurch

44 Halwyn Drive  
PO Box 16904  
Hornby  
Christchurch 8441  
Phone 03 341 2837



PLEASE LOOK AFTER THE  
ENVIRONMENT AND RECYCLE

For more information on Ecodan Hot Water Heat Pumps please visit our website or call our Customer Service Team.

[www.mitsubishi-electric.co.nz](http://www.mitsubishi-electric.co.nz) | 0800 784 382