

# Hydrobox Hot Water Heat Pump

The Next Generation in Super Energy Efficient Hot Water Heating



# Black Diamond Hydrobox Hot Water Heat Pump

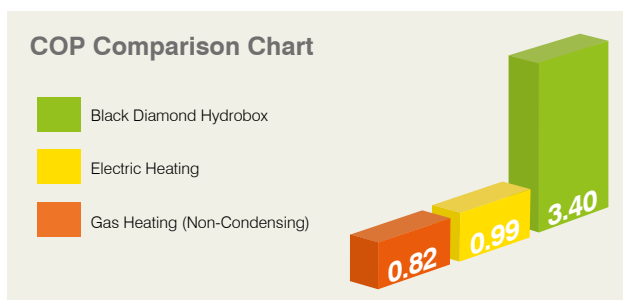
## Next Generation Heat Pump Technology for Super Energy Efficient Hot Water Heating

Hot water heating can account for up to 40% of household energy use\*<sup>1</sup>. So with the ever increasing cost of electricity, there is a drive to now also use heat pump technology to heat up our domestic hot water efficiently. The locally developed and tested Black Diamond Hydrobox Hot Water Heat Pump System is specifically designed to provide hot water for the whole family all year long, no matter what the temperature.

Utilising their expertise and access to industry-leading technology, local company Black Diamond Technologies has developed a super energy efficient heat pump solution to heat potable hot water in the most efficient and cost effective way.

The Black Diamond Hydrobox Hot Water Heat Pump System is versatile and designed for both new builds as well as retrofitted to an existing cylinder in the home.

### The Black Diamond Hydrobox Hot Water Heat Pump is super energy efficient



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. 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, the heat pump absorbs renewable heat energy from the outdoor air to provide the home with an average of at least 3.4kW\*<sup>2</sup> of heat output.

Compared to typical gas and direct electric heating systems that can have higher running costs with COPs as low as 0.82\*<sup>3</sup>, Black Diamond Hydrobox provides an energy efficient alternative.

#### Key features:

- ✓ Heats potable water to above 60°C
- ✓ High efficiency, fast payback.
- ✓ Guaranteed hot water in cold conditions
- ✓ Three operation modes
  1. Eco – lower power consumption
  2. Standard – very fast recovery
  3. Disinfect – for poor water quality areas
- ✓ 7 ON/OFF User Timers
- ✓ Smart User LCD Display
- ✓ Simple easy to use control panel
- ✓ Can be used on both normal and ripple controlled power feeds
- ✓ Superior low temperature performance
- ✓ Fast recovery of cold tank
- ✓ No outdoor water pipes means no freezing pipes
- ✓ Legionella compliance built into the control system

\*<sup>1</sup> Based on data sourced from ECEA New Zealand.

\*<sup>2</sup> The overall system efficiency and energy savings will depend on the comparison with your current heating system, satisfactory system design and installation, and operational settings i.e. how you use the heating system.

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

## Key benefits:

- **Operates from -15°C to 45°C ambient**

Able to work in New Zealand's extreme temperature environments, the Black Diamond Hydrobox System has been developed with cold temperatures in mind and tested in some of the most extreme environments in New Zealand.

- **Cost effective solution with fast payback period**

The estimated return on investment of a Black Diamond Hydrobox System, when compared to a gas or direct electric heating system, could be as low as 3 years\*. 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.

- **Fast recovery of cold tank**

Can reheat an entire 180L cylinder in 2 ½ hours where traditional electric cylinders can take up to 4 ¼ hours in winter.

- **Water is hot and ready to be used straight away**

Water is heated to 62°C and is fed directly into the top of the cylinder. This means that this water is ready to use straight away. In a traditional electric system it can take hours to heat the water cylinder enough to produce 60°C water from a cold tank situation.

- **Continuously optimises performance**

The Hydrobox has an intelligent computer control which ensures that the system continually optimises performance.

- **Effective energy savings no matter what family size!**

Low water users can achieve large energy savings as the power saved by the Hydrobox can make their homes lower power users and therefore reduce electricity line charges.

- **Designed and manufactured in New Zealand using high quality components**



### Next Generation Technology



It contains R32 refrigerant in the outdoor unit which has 1/3 the Global Warming Potential (GWP) of R410A commonly used in other systems, meaning it is better for the environment compared to other common heat pumps.

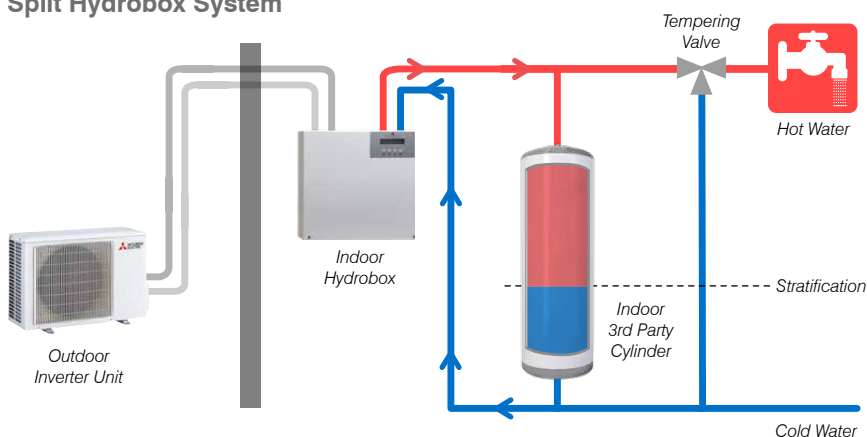


\* Payback period comparison based on average energy supplier costs per kWh over an average winter heating period. Actual savings may vary in line with gas and electricity price fluctuations and seasonal conditions. This is an estimate only.

## Specifications

|                           |  |               |         |                             |
|---------------------------|--|---------------|---------|-----------------------------|
| <b>HEATING</b>            | Capacity   | Rated         | [kW]    | 3.4                         |
|                           |  | Min-Max       | [kW]    | 0.9 – 4.5                   |
|                           | Input  | Rated         | [kW]    | 0.82                        |
|                           |  | Min-Max       | [kW]    | 0.004 - 1.460               |
|                           | Sound Level  | Outdoor (SPL) | [dBA]   | 49                          |
| <b>Power Supply</b>       | (powered from indoor unit)   |               |         | 230V / Single Phase / 50 Hz |
| <b>Controller</b>         | In-Built 7 Day Timer, External Temperature Probe, Ripple mains feed compatible |               |         |                             |
| <b>Water Piping</b>       | Diameter (Inlet/Outlet)  |               | [inch]  | ½                           |
|                           | Water Flow   |               | [L/min] | 0.6 – 2.4 (1.2 typically)   |
|                           | Water Head Height  | Min           | [m]     | 5                           |
|                           | Water Pressure   | Max           | [kPa]   | 500                         |
|                           | Water Temperature Range  | Input         | [°C]    | 5 - 55                      |
| <b>Refrigerant Piping</b> | Diameter (Liquid/Gas)  |               | [mm]    | 6.35 / 9.52                 |
| <b>Indoor</b>             | Dimensions (WxDxH)   |               | [mm]    | 455 x 240 x 395             |
|                           | Weight   |               | [kg]    | 23.1                        |
| <b>Outdoor</b>            | Refrigerant  |               | R32     | 10m (Chargeless Length)     |
|                           | Dimensions (WxDxH)   |               | [mm]    | 800 x 285 x 550             |
|                           | Weight   |               | [kg]    | 33                          |

### Split Hydrobox System



**Black Diamond Hydrobox is designed and manufactured in New Zealand using high quality components.**



For more information on Black Diamond Hydrobox Hot Water Heat Pumps, please visit [www.bdt.co.nz](http://www.bdt.co.nz) or call our Customer Service Team on **0800 784 382**



**Black Diamond Technologies**  
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