

Heating and Hot Water - A Heat Pump Solution



Within the UK the traditional method of providing heating and hot water has been to use either a gas or oil fired boiler or an electric heating system. Although this has been effective for many years, technology has now advanced to give us new, more efficient and environmentally conscious products.

As the UK seeks to achieve its green objectives, technological advances have been made which offer new solutions, delivered to cater for these changing needs. The UK government has developed many new initiatives, incentives and guidelines to help reduce the UK's carbon footprint and deliver reduced emission targets.

In the case of domestic dwellings the 'Code for Sustainable Homes' was introduced with guidelines that new homes should adhere to. A new approach and new technology was needed to achieve these specifications. The use of air sourced heat pumps to provide both the heating and hot water is now recognised as one of the most straightforward

and cost effective solutions. The Renewable Heat Incentive, due to be introduced in April 2011, will make renewable heat an accessible and attractive proposition to all.

Mitsubishi Electric has developed two options to provide a solution for heating and hot water within the home and for commercial properties. In domestic properties Mitsubishi Electric are able to offer the award winning 'Ecodan' air source heat pump boiler. For the commercial sector we combine the technology of our systems to use a heat pump boiler attached to our VRF systems (PWFY) to provide both heating and hot water.



Ecodan for Domestic Applications

The Ecodan unit has three different models 5kW, 8.5kW and 14kW (all in heating only mode); these units cater for a 2 bedroom terraced property up to a large detached family house. The refrigerant is contained within one outdoor air sourced heat pump unit and does not enter the property. This allows for simple installation by a qualified plumber. Installation of the Ecodan package, including the domestic hot water cylinder, is very simple, only requiring the connection of the flow and return heating pipes and 6 electrical connections.

The Ecodan air source heat pump is equally suited for retrofit to an existing dwelling as to a new build property and is also perfect for certain commercial applications, for example small offices. An Ecodan outdoor unit is used for each dwelling. The controls remain the same as those used for a conventional heating system i.e. gas or oil fired. This ensures that this highly efficient technology is easy to use by the homeowner or tenant.

The Ecodan air source heat pump is the perfect solution for achievement of the Code for Sustainable Homes either as a stand-alone technology or in conjunction with other renewable solutions. This SAP Appendix Q qualification gives a true reflection of just how efficient an inverter controlled heat pump is over the bulk of our competitors.

PWFY for Commercial Applications

An outdoor air sourced or ground sourced heat pump unit is used to heat the refrigerant within the system. The heat pump transfers heat to the water that is used for heating and hot water. In addition the system can transfer spare heat energy from other parts of the building as part of this process. This greatly improves the efficiency ratings compared to traditional gas boilers.

With the addition of a booster unit hot water can be increased to 70°C.

Up to 25kW of heating can be provided from each unit and 75kW can be provided by combining them. Cooling is also available if required, via each individual unit, for under floor cooling applications.

What are Heat Pumps used for?

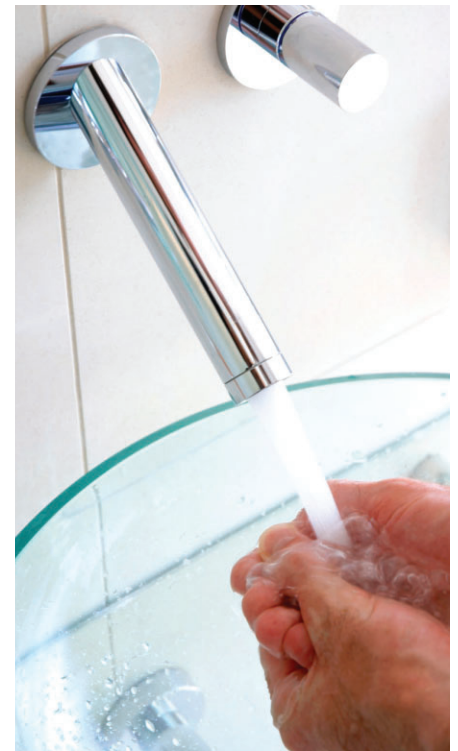
Hot water - heats up the cylinder at desired periods over a day to maintain a constant supply of hot water.

Space heating - hot water is pumped through the radiators or under-floor pipework to convect heat into the room. Studies have shown that a more efficient way of heating is via

under-floor systems as the flow temperature can be lower; thus reducing energy costs and usage.

Swimming Pools - can be used constantly to maintain the heat of a swimming pool. This method is very efficient over the summer months.

If you have a need to provide heating or hot water to a domestic or commercial property Mitsubishi Electric have the solution.



Further information is available for the Ecodan air source heat pump at www.mitsubishielectric.co.uk/heating and for commercial heating products at www.mitsubishielectric.co.uk/aircon

➤ The next knowledge file will concentrate on heating only heat pumps for commercial heating and hot water applications.

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Advanced Heating Technology