Loughton Methodist Church - Ecoforest HP 25-100kW

Loughton Methodist Church was previously heated with 30 year old natural gas fired boilers. As these boilers were coming towards the end of their useful life, the church looked into the possibility of becoming carbon neutral to reduce their impact on the environment.

It soon became clear that if the church were to source its electricity from a renewable source and then install a ground source heat pump, the carbon foot print could be reduced to virtually nothing.

With this in mind, the church contacted Nuenta to see what heat pump system would be feasible. Nuenta conducted a review of the heating requirements at the church and specified a 100kW ground source heat pump to provide 100% of the spatial heating for the church. Energy is collected by eight 160 meter boreholes in the car parking area. Boreholes were the only feasible option as there was insufficient space for a horizontal collector array due to the urban location of the church.

The heat pump itself is an inverter-driven, modulating output compressor, heat pump which allows a range of different power outputs between 25kW and 100kW depending on the building's needs at the time as determined by the outside temperature. The colder it is outside, the more heat the heat pump releases into the building. An additional benefit of having a modulating heat pump is that no heating buffer tank is required for this system which saves space in the plantroom and also makes the installation more efficient as you are not storing hot water.

The collected heat is emitted into the building using the existing radiator circuits with just a few radiator upgrades.

Technical Specification

Ecoforest 25-100 kW Heat Pump

8 x 160m bore holes

Commercial RHI for space heating

West Hill Avenue – Ecoforest 3-12kW

Located in the suburbs of London, this family home was one of the first to benefit from the latest EcoForest model with its variable speed compressor.

Three boreholes, each over 100m deep, were required to meet the heating demand and these were installed in the front garden.

Although potentially connected to the mains gas grid, the new owner took the opportunity during renovation work to move away from a fossil fuel system and rely entirely on the ground source heat pump.

The domestic hot water tank provides sufficient volume for normal family usage and can be recharged quickly thanks to the 12kW output compressor and intelligent control system. A utility room was created to house the unit. Space was limited but due to the fact that the unit is fully modulating no buffer tank was required saving space and cost.

The family are benefiting from claiming the domestic Renewable Heat Incentive for the next 7 years.

Technical Specification

Ecoforest 3-12kW Heat Pump

3 x 100m bore holes

Domestic RHI eligible

Donnington Cottage Ecoforest 3-12kW with DHW tank

Donnington Cottage is located south of Chichester in the West Sussex countryside.

This family home was originally running on an LPG-fired boiler so the homeowners chose to upgrade to a heat pump in order to reduce fuel costs, minimise the house's CO2 footprint and to benefit from the government Renewable Heat Incentive scheme.

Heat for the heat pump is collected by a total of 800 meters of horizontal collector array in the garden. The ground source heat pump was installed in the garage to save space within the house and highly efficient pre-insulated pipe was used to connect the heat pump to the house's heating and hot water distribution circuits.

The inverter-driven design of the heat pump means it can modulate its output between 3kW and 12kW. Space in the garage was tight so the heat pump specified has a 170l integrated hot water tank and as it is fully modulating no buffer tank was required saving more space and also costs.

Technical Specification

Ecoforest 3-12kW Heat Pump with integrated 170l DHW tank

800m horizontal ground source array

Eligible for domestic RHI