

Ground Source Heat Pumps keep chicks warm at new Herefordshire poultry farm

Heating



A 1.2MW Ecodan ground source heat pump (GSHP) system from Mitsubishi Electric has been installed to provide warmth to young chickens in a new poultry farm development on the site of a Herefordshire farm.



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Chicks are very sensitive to their environments and require proper care in order to grow into healthy chickens. They need a comfortable and controllable temperature, a constant food source and plenty of fresh drinking water.

Flag Station Farm is based in Mansel Lacy, in the countryside north-west of Hereford, and managed by farmer Thomas Powell and his family.

Flag Station is a grade II listed building and in 2014 plans for a chicken farm that would house up to 180,000 birds on the site were approved by Herefordshire Council. Four sheds were constructed to accommodate chickens from one day old to six weeks. The project was completed in 2017.

Mitsubishi Electric's Ecodan system has already worked effectively on other poultry farms so it was the ideal choice at Flag Station Farm, particularly given its large, rural location.

Bavenhill Mechanics of Preston Cross, Herefordshire, installed 20 Ecodan CRHV heat pumps in a cascade system, supported by 40km of ground loop pipework. Bavenhill Mechanics is an accredited Ecodan installer operating throughout the West Midlands and the Welsh border counties.

The family-run company has been working in the agricultural sector for more than 60 years and boasts a proven track record in promoting the benefits of heat pump installations in farm developments throughout the West Midlands and the Welsh border counties.

Chris Chapman, Managing Director of Bavenhill Mechanics, commented:

“Our past projects involving Ecodan have shown that indirect heating is more beneficial to young chickens in helping them reach their full growth potential. This system eliminates the problem of cold spots and draughts resulting in happier and healthier livestock.”



The GSHP system operates by absorbing low grade heat from the ground via the loop pipework and raises its temperature efficiently to be suitable for space heating and / or hot water.

Ecodan can provide water temperatures of up to 65°C (without a backup electric heater) utilising ground or water temperatures as low as -5°C.

The Ecodan system is also an energy efficient form of heating that qualifies for the Renewable Heat Incentive (RHI), a government financial incentive to promote the use of renewable heat, meaning the farm will also benefit financially in the long-term.

The heat pumps for all four sheds are controlled centrally by a building management system so that temperature and ventilation can be adjusted in accordance with weather conditions and design broiler cycle curves. The heat is emitted throughout the sheds via underfloor heaters.

For the first week of their lives, chicks need temperatures of about 90 - 95 degrees Fahrenheit, and the temperature should be reduced by five degrees each week thereafter until they are acclimatised to the surrounding environment.

With the chicken sheds now in full operation, farmer Thomas Powell said:

“We knew the Mitsubishi Electric system would work well for us as we had already used it on other smaller sites, and it made sense financially as it qualifies for the Renewable Heat Incentive.

Having plenty of land to work with meant a GSHP system was the right choice for the new development and we are delighted with the results.”



Installation Summary



20 x Ecodan CRHV Monobloc Ground / Water Source Heat Pumps



CRHV-P600YA-HPB



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Note: The fuse rating is for guidance only. Please refer to the relevant databook for detailed specification. It is the responsibility of a qualified electrician/electrical engineer to select the correct cable size and fuse rating based on current regulation and site specific conditions. Mitsubishi Electric's air-conditioning equipment and heat pump systems contain a fluorinated greenhouse gas, R410A(GWP:2088), R32(GWP:675), R407C (GWP:1774) or R134a (GWP:1430). These GWP values are based on Regulation (EU) No 517/2014 from IPCC 4th edition. In case of Regulation (EU) No 626/2011 from IPCC 3rd edition, these are as follows. R410A(GWP:1975), R32(GWP: 550), R407C (GWP:1650) or R134a (GWP:1300).



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