

Case study



Flagship steel store strikes the right climate balance with NIBE

Faced with the challenge of keeping £15m-worth of steel at the perfect temperature and humidity levels – while maintaining low energy costs – major logistics firm AV Dawson has fitted ten NIBE ground source heat pumps (GSHPs) at its new warehouse in Teesside.

Unveiled earlier this year, the 130,000m³ warehouse has been built specifically to store steel coils for a nearby international car manufacturer. With steel at risk of 'sweating' and rusting in high humidity levels exceeding 65%, AV Dawson was tasked with ensuring a very specific climate for the warehouse, without which the steel would be rendered unusable. NIBE GSHPs provided the optimum solution – guaranteeing consistently low humidity levels, while keeping energy costs to a minimum.

The ten F1345 60kW GSHPs are each paired with their own ventilating unit and 500L NIBE UKV buffer tank – producing a total output of 600kW. Solar panels on the roof provide an additional 220kW to help meet the warehouse's electricity needs. Howard Tribick, director at HT Energy specified, designed and fitted the heat pump system. He explains: "We considered a whole host of options, but none matched up to the NIBE GSHPs when it came to ensuring high efficiency and reliability, matched with minimal maintenance and long-term cost savings."

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"Given the site was built on top of an active water table (the River Tees), we were able to make the most of the surroundings as a natural energy source. The heat pumps collect heat from 70 bore holes, each 150m deep – that's 10,500m of active bore hole depth in total. The results have been even better than expected, with a seasonal performance factor (SPF) of 3.65 and average humidity levels of just 47%."

Commenting on the install, AV Dawson managing director Gary Dawson says: "This system made perfect commercial sense for us. While the initial outlay was greater than some of the other alternatives, GSHPs provided the most cost-effective solution by far in the long term. In fact, compared to natural gas, we will be making an impressive energy saving of 1.58 million kW/h each year. Our projected payback period is just ten years and we're also benefiting from Renewable Heat Incentive (RHI) payments for each unit of renewable energy we're generating."

Interconnected with 3km of header pipes, the ten GSHPs are spaced equidistantly along one side of the 264m-long building. The units are set up as separate systems, so they can work independently of each other or together as required. This provides an added level of security for the customer, ensuring the system can cope at all times and steel is kept at optimum conditions.

NIBE's MCS-accredited F1345 GSHPs are specially designed for use in larger residential, commercial and industrial installations, using ground, rock or lake as a heat source. Available in an output range of 24kW-60kW to suit applications of various sizes, the high-efficiency units perform at an industry-leading COP of up to 4.51 at 0/35°C. They also feature an integrated control system for bespoke programming and a multi-colour user display for straightforward and intuitive operation.

Phil Hurley, managing director at NIBE, concludes: "This is a truly pioneering project that perfectly showcases the scope of what can be achieved with ground source heat pump technology. The sheer scale of the application, coupled with its unique climate demands, make the AV Dawson installation a real first for the UK. Armed with the right technology and expertise, Howard and the HT Energy team were able to design a system that not only met the customer's brief, but actually exceeded their expectations – and in doing so, they have raised the bar for future buildings of this nature."

For more information on NIBE's range of ground source heat pumps, or any of the products in its market-leading portfolio of heating, ventilation, cooling and heat recovery solutions, please visit www.nibe.co.uk.

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ENDS

Notes to Editors:

NIBE – Energy for Life

NIBE Energy Systems Ltd (a subsidiary of NIBE Heating) is a leading European manufacturer in the heating sector. The company is committed to sustainable construction and specialises in providing high-tech energy-saving solutions for heating, ventilation, cooling and heat recovery. It offers 'Energy for Life' when it comes to renewable heating solutions, from ground source, air source and exhaust air heat pumps to biomass, solar thermal packages and whole-house ventilation. NIBE also prides itself on delivering a variety of training courses at locations across the UK, aimed at providing installers with all the knowledge and expertise needed to carry out efficient, start-to-finish installations. For more information, visit www.nibe.co.uk.

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