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Klima-Therm's Rhoss EXP project shortlisted for three major awards in Cooling Industry finals

Klima-Therm has been shortlisted in three award categories in the forthcoming Cooling Industry Awards 2016.

The nominations relate to the ground-breaking installation of a Rhoss EXP hybrid heat pump chiller at new Creative Industries Centre at Kingston College, London.

The three-storey state-of-the-art facility is designed to offer outstanding energy efficiency, and houses the college's programmes in art and design, fashion, photography, music and games design.

The innovative heat pump-based chiller was installed by Lowe & Oliver, and specified by consultant Hamson JPA for its excellent energy efficiency and ability to provide simultaneous chilled water and hot water, linked to whole-building energy harvesting.

Standing for excellence in polyvalent technology, EXP is a new type of hybrid chiller heat pump and heat recovery system that automatically balances simultaneous cooling and heating demands, optimising total energy use and heat recovery within multi-compartmented buildings, to deliver maximum efficiency and occupant comfort.

It is a unique combination of three technologies: a high efficiency heat pump based chiller, an energy recovery system, and a sophisticated control system that regulates and optimises the functioning of the combined system across a building to deliver the lowest possible energy usage while delivering set conditions.





Predicted load profiles for the new college building suggested EXP would provide an ideal solution, given the requirement for simultaneous heating and cooling across the building for much of the year. The unit specified, an EXP TXAETY 2100 with cooling capacity of 105kW and heating capacity of 83kW, has intelligent on-board controls to ensure delivery of heating and cooling to meet the building's changing demands with little BMS intervention.

The chiller has separate heat exchangers for chilled and hot water production, and unlike other heat pump-based systems these are connected separately to their respective hot and chilled circuits by dedicated pipe work.



Temperature sensors across the relevant evaporator or hot water production heat exchanger enable the chiller to sense changes in cooling and heating requirements. When demand is for cooling only or heating only, the air-cooled condenser section of the chiller is

used to reject or absorb heat as required, boosting efficiency and improving overall system performance for the comfort of building occupants.

Andrew Latus, who headed the project for Klima-Therm said: “The building design and diverse use lends itself to EXP technology. This, coupled with the requirements for class leading efficiency to meet the building’s green credentials, provided an excellent application for the technology.”

Michael White, who headed up the project for Lowe & Oliver, said: “We have worked with Klima-Therm on previous occasions, and they were able to provide comprehensive technical documentation and proof of performance for the EXP system. EXP provides a good solution in situations where there is a simultaneous demand for cooling and hot water, and particularly in a building where there is significant potential for internal heat recovery.”

Features of EXP hybrid heat pump chiller

- **Compressor:** hermetic scroll type, complete with thermal protection and crankcase heater.
- **Electronic expansion valve:** for improved efficiency and control.
- **Main and secondary heat exchangers:** cross-flow stainless steel plate exchangers, complete with anti-freeze heater, closed cell polyurethane foam insulation and water flow differential pressure switch.
- **Air side heat exchanger:** finned coil with copper pipes and aluminium fins.
- **Fans:** electric axial fans with EC motor with continuous adjustment of the rotation speed, equipped with internal thermal protection.
- **Control:** microprocessor electronic control with Adaptive Function Plus logic.
- **Structure:** galvanised painted sheet steel, with polyester powder coating.

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