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Salisbury Hospital chiller project breaks new ground with underground DX pipework on Turbomisers

A major R22 chiller replacement project at Salisbury Hospital has set what is believed to be a new industry record for underground refrigerant pipework on a Turbomiser installation.

Four new chillers, with a combined cooling capacity of some 1.4MW, are connected to air-cooled condensers by DX pipework up to 75m in length. The large-gauge copper tube (up to 3in 5/8 on the discharge and 2in 5/8 on liquid lines) runs beneath a road in a concrete-lined culvert.

The installation, which took nine weeks to complete, required refrigerant pipe to be mounted on custom-fabricated brackets every 1.5m along the length of the underground structure. Each chiller and condenser is on an independent circuit.





The high efficiency R134a-based chillers replace four aging R22-based Hitachi units, on dual screw compressors, believed to be up to 20 years old. The Turbomisers were installed on the existing mounting points, however they occupy two-thirds the space, due to their high performance relative to their size.

The Turbomisers, fitted with an Economiser based on a high efficiency brazed plate heat exchanger, provide cooling for the hospital's air handling units, serving wards, administration areas and waiting rooms. They are linked to a hospital-wide Building Management System (BMS), with control based on return water temperature. The BMS controls chiller sequencing and run-time to even-out operational hours and prolong working life.



Cool-Therm provided a complete turn-key installation, including design, supply, installation and commissioning. The company has also secured a five year service and maintenance contract for the chillers.

In a previous project at the site, Cool-Therm supplied a packaged air-cooled Turbomiser chiller, complete with integral condenser, enabling it to be located in a restricted space in an enclosed area of the hospital.

Rob Young, Cool-Therm project director, said: "Due to the need to maintain continuity of cooling throughout, it required a carefully managed staged approach. Because of the time of year, we were able to remove three of the four original chillers and leave one operational, after ensuring it was capable of meeting all anticipated demand.



"When two of the three new systems were operational, the fourth original unit was decommissioned and removed, and the final chiller and associated condenser installed."

He added: "The need to route pipe work under a road and a delivery area obviously added an extra dimension, and one that we had not encountered before. However, the custom-designed mounting system we developed proved very effective."

Jerry Henderson, who headed the project for Salisbury Hospital, said: "The new Turbomisers are part of a hospital-wide efficiency programme, designed to reduce running costs and improve our carbon footprint. We were impressed by the proven performance of the chiller and the significant potential energy savings. Cool-Therm were highly professional and worked closely with our on-site team to deliver a complex project ahead of schedule, and – crucially – without interruption to hospital cooling."

The Cool-Therm installation team was led by Simon Umlandt, assisted by Steve Baker and Andy Comerford.

ENDS

Issued by:

Andrew Bailey
Lingfield Public Relations
9 Gleave Close
East Grinstead
West Sussex
RH19 3XD

Email: andrew.lingfield@btinternet.com
Tel: 01342 312 215
Mob: 07925 187 647

On behalf of:

Cool-Therm (UK) Ltd
Unit 5 Trubody's Yard,
121 London Rd,
Bridgegate
Bristol,
BS30 5NA

Tel: 0117 9610006

Fax : 0117 9478642

Email: enquiries@cooltherm.co.uk