

# Case Study



## > Cable & Wireless

Cable & Wireless is a major global telecommunications business and its UK operations are focused on the provision of high performance Internet Protocol (IP) and data services to business customers. As one of the leading owners of cable capacity in the world Cable & Wireless has recently invested in a new cable landing station in Bude on the Cornish coast. Airedale International has worked closely with Cable & Wireless to develop and supply an innovative solution to the Bude site's specialised cooling requirements.

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## Design Criteria

Cable & Wireless recently completed the construction of its new cable landing station in Bude on the Cornish coast which will support the new transatlantic cable system, designated Apollo, which came into service at the end of 2002. Apollo is Cable & Wireless's transatlantic cable link between their Thameside switch in London and New York. The Alcatel supplied undersea fibre-optic cable is designed to provide four fibres of up to eighty channels, each capable of transmitting 10 G.bit/s of data.

A major requirement of the system design brief was the need for energy efficiency and low noise levels, whilst still providing the cooling capacity to maintain accurate temperature and humidity conditions within the new station.

"Choosing the right team resulted in the project being delivered on time and under budget"

## Unit Specification

Airedale International dedicated a team of engineers to work alongside the project's main consulting engineers to develop a system which included a dry cooler attached to the main chilled water distribution, with a plate heat exchanger attached to each of the chillers forming two individual circuits.

"Choosing the right team in terms of skills and experience resulted in the project being delivered on time and under budget," confirmed Cable & Wireless Project Manager Simon Goff.

Airedale supplied:

- > 2 Ultima USC750 DQ screw compressor chillers
- > 12 AlphaCool Downflow chilled water close control units

The chillers were pre-supplied with R407C refrigerant; electronic expansion valves; and phenolic-coated condenser coils to withstand the effects of the coastal environment.

The system supplies chilled water at 7°C with return water at 13°C, against an external design ambient of 35°C.

"The use of free cooling circuits has resulted in considerable energy savings"

## Free-Cooling

The system takes advantage of free-cooling by using the dry cooler to reduce the return water temperature via a secondary glycol/water circuit. The net effect is that the compressor running hours are reduced at times when the external ambient allows free-cooling to operate, i.e. when the external ambient temperature is a few degrees below the design return water temperature. "The use of free-cooling circuits has resulted in considerable energy savings and the screw compressor chillers operate at sound levels which do not pose problems within the locality. If no free-cooling was available the chiller compressors would run at the design load irrespective of the external ambient temperature according to the room load which applied at any point in time", stated Paul Morris, Associate Director at WWP who was the lead consultant on the project.

## Future Development

"The chillers and close control units are now commissioned and functioning according to the design parameters. The project also includes a second phase, which is currently being planned, to provide a third chiller which will satisfy additional demand," concludes Colin Reid of installers W. Hamilton Reid.

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ENG-CASE-CW(CHIL)-02/04