



Modular chiller improves production for toiletries manufacturer

Mission critical applications are widely associated with financial services, IT, co-location sites and data centres but for manufacturers in the process industries such as food, beverage and toiletries have equally critical applications. Just one part of the process failing can cause production and supply chain issues ultimately affecting the bottom line.

Critical cooling is a requirement for one of the UK's cutting-edge manufacturers in the personal care industry, who produces many of the well-known bath oils, gels, mouth washes, body lotions and fragrances as well as niche brands. At the heart of processes is an Aermec modular chiller.

The UK market for beauty and personal care products is worth in excess of £10 billion and spending on beauty and personal care products is set to continue growing.

But one company in Southern England has successfully cornered the market and produces over one million units every month. It is a full-service provider rather than a contract filler which means that its team of chemists develop various formulations. As well as filling tubes, jars and bottles of varying sizes, the company also has a cello and shrink-wrapping assembly enabling goods to leave the site ready for retail.

The plant has two tube fillers which can handle 5ml up to 300ml and these may be used for example be used for hand creams and shampoos. The tubes are capped, filled with product then crimped at the base. There is also an adjacent high-speed filler which is used for fragrances for both multiples and small niche brands. The smells wafting around the facility can be heady but intoxicating.

Aermec's NRV modular chiller is used for the cream room where a number of mixing vessels are located including the company's recently acquired vessel primarily used for shampoos and conditioners.

The NRV chiller is part of the modular range that secured Aermec an industry award for innovation and it delivers cooling for the steam jacketed vessels. The unit has replaced aged kit which was costly and challenging to maintain and was over specified for what the company needed at the time.

The business invested in Aermec's NRV modular chiller as this addressed environmental concerns but also offered the energy efficiencies and performance levels required. A modular cooling strategy also provided a flexible strategy, that enabled extra modules to be easily added at a later date as the cooling requirements grew.

Meticulous planning was required when it came to installing Aermec's award winning chiller - production could not be interrupted. Everyone of the company's products has its own formulation, which requires varying degrees of heating and cooling.

The workflow of products on the shop floor can be complex and unlike other industries there is no set peak times other than autumnal months when production is frenetic with products destined for shelves in the run up to Christmas. Depending on the scheduling the factory can be coping with small batches of exclusive products on one side and larger volumes for major supermarkets on the other, but cooling underpins the formulations each use.

"We require critical cooling 24/7, all year round" says a company spokesperson "If we can't cool it, we can't make."

The switchover to the new chiller successfully took place over the summer without the need for any standby chillers. Hot filled products, such as waxes were re-scheduled so that production was not impacted whilst the chiller was being installed and the work was completed before the company ramped up production producing products for the Christmas period.

Installation and commissioning including all the pipework, electrics and pump sets was carried out over a seven-day period. The end result is a closed system circuit using largely recycled water, providing cooling down to 5°C.

Benefits

Aermec's modular chiller design has set new standards in cooling technologies and offers a new approach to system design. Designed for outdoor installation, the NRV comprises individual modules that can be connected to each other to provide 970kW. Each individual module features high efficiency scroll compressors, axial fans, micro-channels coils and plate exchanger on the system side.

Each module also has its own electrical panel and the management logic allows individual modules to be operated independently or in synergy with the others to ensure continuity, even if one or more of the other modules is not operational.

Up to nine chillers can be coupled together for maximum flexibility and this reduces the overall dimensions of the unit to a minimum. This flexibility appeals to customers integrating forward planning and trying to future-proof their applications as much as possible. The modular NRV does not lock the business into one solution.

The integrated free cooling enables the company to benefit from further energy efficiencies and the simplified maintenance was also a bonus - the refrigerant components are located in a draw that simply slides out from the front. Any noise concerns are alleviated as the chiller has been designed to be quiet and guarantees good acoustic comfort when using the night mode profile.

The chiller also features aluminium micro-channel coils which provide high levels of efficiency and allow less refrigerant to be used compared to tradition cooper/aluminium coils, which in turn has less environmental impact.

With the personal care market set to continue growing, the modular approach for cooling provides the flexibility the business needs.

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