



Taking control

The implications of poor energy management cost the earth

A typical six-lane 25 metre indoor swimming pool will lose the equivalent of a bath full of water in evaporation every two hours. That is the same as an average village pond every week or the entire water content of ten, 25 metre school swimming pools every year.

Just like boiling a kettle, the energy consumption associated with all this evaporation amounts to 44kW every two hours which is extremely bad news for running costs and catastrophic for the planet's dwindling natural resources.

Cruise control

Commercial pool operators are increasingly turning to Calorex to recover and reuse the latent energy that evaporates from swimming pool water with their 21st century range of environmental control systems. Simple yet sophisticated, our intelligent cruise control for pools gives wet leisure operators the optimum in energy recovery.

These high-tec systems are designed to simultaneously monitor and control humidity, air quality and air and water temperatures, all within a self-contained packaged air handling unit. Ideally, swimming pool environmental systems will recover both the latent heat lost by the pool

due to evaporation as well as the sensible energy in the pool hall air. Plate recuperators can only return about 70% of the sensible energy to the air in winter, dropping to almost zero when external air temperatures are high. By contrast, Calorex units can return both the sensible and latent energy to either the pool hall air or pool water, all year round. This is just one of the unique features of Calorex, minimising the pool heating requirement all year round.

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But Calorex's efficiency does not stop there. There is a unique arrangement of fans, which gives several distinct advantages:

Firstly, the system maintains the pool hall under negative pressure. This prevents moist air migrating to other parts of the building where it can do damage and create unwanted odours.

Secondly, the system reduces the volume of exhaust air required, allowing the exhaust fan to be only 60% of the capacity of the main fan, with consequent energy savings and a massive reduction in exhaust duct sizing.

Thirdly, it allows a reversible refrigeration coil to be positioned in the exhaust air stream. This provides either heat recovery or a true air conditioning facility to offset heat gains, all within the packaged air handling unit.

Intelligently rejecting unusable energy to the outside and cooling incoming fresh air, comfortable air temperatures within the pool hall are ensured regardless of the external conditions. From an energy efficiency stand point, this waste heat can also be recycled to the pool water, ensuring that free solar energy otherwise causing over heating of the pool hall in summer and thrown away without energy recovery by plate recuperator systems is recycled by the Calorex unit into the swimming pool water.

This feature is especially useful when a client requires the pool hall air temperature to be maintained below the water temperature or at a temperature that is below the external summer air temperature. The lower air temperatures create increased evaporation with consequent greater latent energy loss from the pool water. Using Calorex becomes an even bigger bonus on these types of pool, where the greater latent energy recovery provides massive savings to the pool operator.

Only heat recovery circuits incorporating a refrigeration circuit can recover such large quantities of latent energy and provide true air conditioning that will maintain design temperatures throughout the year.

Energy efficiency

Calorex systems recover latent heat with consummate ease. The moisture-laden air is in intimate contact with a surface that is below its dew-point. The longer the contact period, the higher the moisture removal and the greater the energy recovery. As moisture in the air stream condenses on the cold heat exchanger surface, it surrenders heat into the refrigeration circuit which can then be reused wherever it is needed most.

It is important to remember, the pool water will always demand energy to maintain its temperature regardless of the season, whilst plate recuperators are totally unable to provide any of the water heating requirements.

When using gas boilers for primary heating, Calorex provide savings against fresh air ventilation systems of up to 20% with respective carbon savings of 25%. Using the same scenario but with oil boilers to provide primary heat, the savings are as high as 33% with carbon emission savings of 38%.

All Calorex environmental control systems are purpose built for swimming pool applications. Dedicated swimming pool equipment will always give better service than machines that are simply 'thrown together' for the occasional swimming pool application. When units intended for general office use are modified for pools, they are not only far less efficient, but never being designed for pool environments, often give shortened operation life.



Calorex HRD30



Calorex's products are designed and manufactured in the UK.

For more information on Calorex's comprehensive range of environmental control units, email sales@calorex.com call +44 (0)1621 856611 or visit the website calorex.com