Welcome to Adveco's March 2024 newsletter,

We begin this month with the news that global warming has, for the first time, exceeded 1.5C across an entire year. Exceeding this benchmark should be seen as a watershed moment throwing the importance of net zero into stark focus. Everyone and every business need to be doing their part to arrest global warming, but getting started in a meaningful way is perhaps the most difficult challenge. It's one that drives Adveco as a business and the reason why the company has focussed so directly on water heating. We see water heating as the most accessible launchpad for low-carbon commercial building projects.

With the world becoming increasingly warmer, the internal air quality (IAQ) and comfort of buildings is also increasingly on the agenda. So this month we also take a look at cooling buildings, with a focus on chilled water tanks and how new systems can take advantage of renewables including heat pumps and solar thermal as part of a building's cooling strategy.

Finally, following the launch of our Chilled Water System (CWS) tank range we also are able to give you a first look at the completely redesigned Chilled Water Tank (CWT) range coming this March...

Whether heating or cooling, Adveco has an answer for your commercial projects water demands...

Launching A Sustainable Buildings Strategy

The importance of launching a sustainable strategy for commercial buildings has never been more important. According to data from the EU's climate service, which was reported by the BBC, global warming has, for the first time, exceeded 1.5C across an entire year. This temperature limit, promised by world leaders in 2015, has been seen as crucial to help avoid the most damaging impacts of global warming. A 2018 UN report said that the risks from climate change – such as intense heatwaves, rising sea levels and loss of wildlife – were much higher at 2C of warming than at 1.5C.

Limiting long-term warming to 1.5C above "pre-industrial" levels has been a key symbol of international efforts to tackle climate change, and whilst the report notes that this first year-long breach doesn't break that landmark Paris Agreement, it does bring the world closer to doing so in the long-term.

All the major datasets agree on the recent warming trajectory and that the world is in by far its warmest period since modern records began – and likely for much longer. Berkeley Earth reported that the calendar year 2023 was more than 1.5C above pre-industrial levels. Other science bodies, such as NASA, put the past 12 months slightly below 1.5C of warming. Fluctuations in reporting are expected, but at the current rate of emissions, the Paris goal of limiting warming to 1.5C as a long-term average – rather than a single year – could be crossed within the next decade.

This new data sends out yet another clarion call to the commercial sector, where sustainability has become a defining theme for modern businesses increasingly seeking ways to reduce their environmental impact. While numerous avenues exist, prioritising water heating in a commercial sustainability strategy offers unique advantages, making it the optimal starting point for many organisations.

So why is addressing water heating in commercial buildings so significant? And how can it serve as a springboard for launching a sustainable strategy to more broadly support commercial organisations?

Water heating often accounts for a significant portion of a building's energy consumption, ranging from 15-40% depending on the industry and usage patterns. This makes hot water both familiar and more often than not business critical, so reducing hot water demand and implementing efficient heating methods translates to substantial energy savings and emission reductions that have recognisable advantages to its users across the built estate.

Diverse solutions, from upgrading equipment, especially gas-fired to more efficient gas or grid-electric, and utilising renewables such as solar thermal and air source heat pumps can be tailored to various building sizes, budgets, and hot water demands. This scalability makes hot water systems a readily addressable target for sustainability initiatives, with easily quantifiable impact that can be demonstrated to stakeholders. Critically, many water heating efficiency measures offer attractive payback periods, this is especially true of solar thermal where up to 30% offsetting of annual energy demands means initial investment is often quickly recovered. This economic attractiveness makes it a compelling entry point for sustainability efforts.

Addressing water heating can also have wider positive impacts on a business. One area which has seen far greater focus since the COVID-19 outbreak has been improved Indoor Air Quality (IAQ). Certain water heating solutions, especially air source heat pumps, eliminate the need for combustion processes, potentially reducing harmful emissions and improving indoor air quality for occupants.

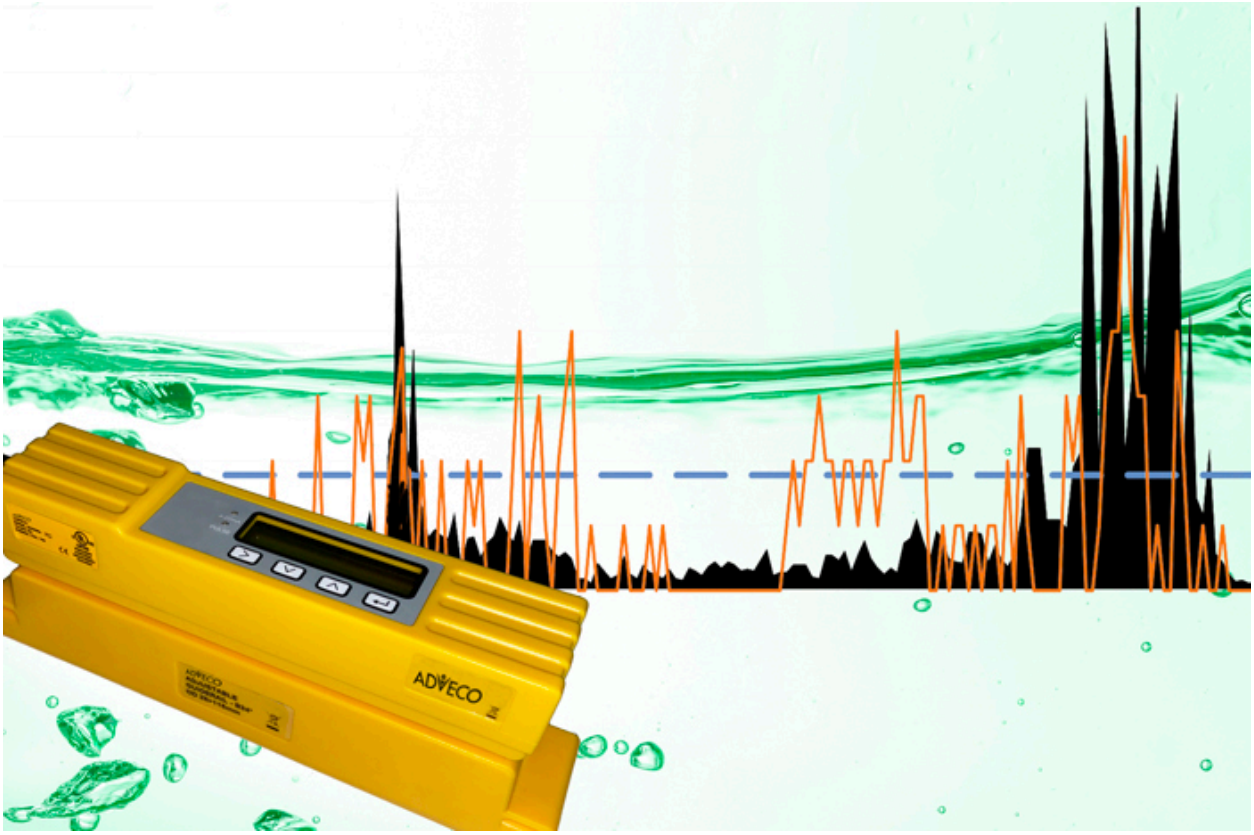
By demonstrating commitment to sustainability through water heating upgrades, companies not only meet regulatory compliance helping to avoid potential fines or penalties, but can demonstrate active corporate social responsibility which resonates positively with customers, employees, and investors, boosting brand image and reputation. This function of a business is increasingly being recognised, with notable examples of organisations across the leisure and catering markets in particular, embracing a sustainable approach to enhance engagement with customers and define services from competitors. This also resonates with employees, meaning that an initial focus on water heating, which is both familiar and also often business critical can be a starting point for engaging employees in broader sustainability initiatives, fostering a culture of environmental awareness and responsibility.

So where do you begin?

The most valuable, yet possibly single lowest cost, activity you can start with is to conduct an energy audit to assess your buildings' hot water consumption patterns and identify key areas for improvement. Adveco provides a comprehensive service that incorporates live metering of your system and creates an accurate, cost-effective system design that can deliver carbon reductions and meet all your business hot water demands. This provides the data you need to evaluate any upgrade and a benchmark against which to explore various alternatives such as high-efficiency gas or electric boilers, heat pumps, and solar thermal systems, which can be deployed in isolation or as hybrid systems. It also enables consideration of other factors

like budget, space constraints, and fuel availability, which all factor into launching a sustainable strategy for a building. Working with Adveco at this early stage gives you access to expert guidance from qualified professionals who can provide necessary consultation to determine the most suitable approach for your building's specific needs, and provide a working design that can help secure funding from within the organisation, or externally via government grants, financial incentives, or green loans to offset the initial investment costs of your chosen system design.

With a live metered dataset, you also gain insight into prospective carbon reductions and operational costs of the new system. These can be tracked and monitored against, to demonstrate real-world savings in energy consumption and emission reductions, which can be applied toward regulatory compliance as well as used to celebrate achievements by sharing sustainability efforts with stakeholders through transparent communication.



Water Heating as a Stepping Stone to Comprehensive Sustainability

While water heating serves as a powerful launchpad, achieving true sustainability requires a holistic approach. Once successful water heating initiatives are implemented, businesses can leverage this momentum to expand their sustainability efforts by investing in wider energy efficiency across other building systems such as lighting, ventilation and especially space heating, all of which can require greater levels of physical alteration, operational disruption and accompanying costs. Also, greater attention should be given to further integration of renewable energy, exploring options for on-site renewable energy generation such as installing solar PV panels alongside the higher efficiency solar thermal collectors used in

water heating. PV enables the generation of electricity that can be deployed to a range of building systems. Since PV requires greater roof space than solar thermal, clear decision-making is required when available space for solar collection is limited, with solar thermal recommended to be prioritised as the more effective means of delivering water heating for a small footprint.

Whichever route is decided upon, organisations should choose environmentally responsible suppliers and prioritise products with low environmental footprints as part of the procurement process. Increasingly building consultants will factor this into a project design, calculating the embodied carbon of any new system, whether water heating, space heating, ventilation and so forth. It's an important consideration when launching a sustainable strategy, ensuring that a project meets, or preferably exceeds current building regulations ensures projects are not held up or shelved, which will be costly to both the business and the environment.

Focusing on water heating presents a strategic and impactful starting point for commercial buildings embarking on their sustainability journey. By addressing this often-overlooked area, businesses can achieve significant energy savings, emission reductions, and tangible business benefits. Furthermore, this initial success creates a springboard for wider sustainability initiatives, ultimately contributing to a more responsible and environmentally conscious future. Remember, sustainability is a continuous journey, and by starting with water heating, businesses can unlock a pathway towards a greener and more sustainable future.

NET ZERO WATER HEATING

Cool and Efficient: Chilled Water Tanks For Commercial Buildings

Chilled water is a key element for maintaining comfortable temperatures in commercial buildings, and is typically deemed crucial for occupant well-being, productivity, and even

equipment functionality. While various cooling systems exist, chilled water tanks play a vital role in ensuring efficient and reliable cooling, particularly in large buildings. In this article Adveco explores the applications of chilled water tanks in conjunction with chillers, fan coils, and heat pumps, highlighting their benefits and considerations.

These systems work by circulating chilled water through a closed loop connected to heat exchangers that transfer coolness to the building's air. Central to this system is the chilled water tank, acting as a thermal reservoir that stores pre-cooled water generated by a chiller. This stored water allows the chiller to operate less frequently, reducing energy consumption and wear and tear.

Chilled water tanks offer versatility and can be integrated into various cooling systems. The most common applications are based around chiller plants, fan coil units (FCUs) or air source heat pumps (ASHPs). When used in combination with traditional chillers, tanks create a buffer, allowing the chiller to operate in longer cycles even during peak demand periods. This reduces energy costs and extends chiller lifespan. In buildings with FCUs, the chilled water tank provides the cool water circulated through the FCUs' heat exchangers, cooling the air in individual rooms or zones. Chilled water tanks can also be integrated with reversible ASHPs. During cooling periods, they store chilled water; during heating seasons, they could be used as thermal buffers for hot water generated by the heat pump, although designated tanks for heating and cooling are recommended for commercial-scale applications

Deploying the tanks delivers several advantages. Critically storing chilled water reduces energy consumption since the tanks allow chillers to operate less frequently, minimising energy use and associated costs. Tanks can also store cool water during off-peak hours. By enabling peak demand shaving reliance on the grid during peak periods when electricity prices are often higher is reduced. The buffer effect of tanks also optimises chiller operation for improved system efficiency, reducing wear and tear and extending its lifespan.

Employing the tanks also ensures a consistent supply of chilled water, this helps prevent temperature fluctuations creating more comfortable conditions for a building's occupants. Chiller water tanks can also be combined with solar thermal systems to sustainably generate a portion of the cooling needs. While this may sound counterintuitive, the heat captured from solar thermal collectors can be deployed in an absorption chiller where the captured heat boils a refrigerant, creating vapor. This vapor expands and cools, producing chilled water. Compared to traditional electric chillers, solar thermal systems can save significant energy, reducing reliance on the grid and lowering electricity bills, not only during the summer months but also contributing pre-cooling in shoulder seasons.

Integrating a tank seamlessly into existing or new cooling systems requires careful planning and expertise and, depending on capacity needs, space needs to be dedicated for installation. At Adveco we can support the planning phase with system design and advice. The latest chilled water tanks from the Adveco, the CWS range offers 10 models from 300 litre to 5000 litre capacity with high-capacity connections providing greater versatility to cater for a wide range of system applications with moderate to high flow rates. These tappings enable the tanks to be used with multiple cooling sources including chillers, heat pumps and FCUs. Adveco also provides manufacturer-grade warranty service since regular maintenance of the tank and its components is crucial for optimal performance and longevity.

Whether a chilled water tank is the right fit for your commercial building depends on several factors including size, cooling demand, budget and sustainability goals. Larger buildings with high cooling needs benefit most from the efficiency gains offered by chilled water tanks and

with multiple connection options compatibility is maximised enabling the tanks to be integrated with various systems. While the initial investment might be higher for premium models, long-term cost savings need to be considered, both in terms of potential energy savings and reduced operational costs over time. This and the capability to facilitate the use of renewable energy sources for cooling also helps to contribute towards sustainability objectives and achieve strategic goals as part of a building-wide net zero initiative.

Chilled water tanks play a critical role in optimising cooling systems for commercial buildings, offering numerous benefits from energy savings and improved comfort to flexibility and potential integration with renewables. However, careful consideration of investment costs, space requirements, and system compatibility is essential. By thoughtfully evaluating your needs and seeking professional guidance, you can determine if chilled water tanks can be the key to unlocking a more efficient, sustainable, and comfortable cooling solution for your commercial space.

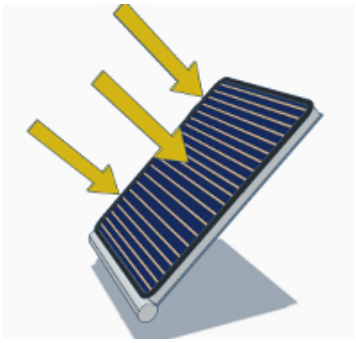
ADVECO CHILLED WATER SYSTEM TANKS

First Look - CWT Reimagined

This March Adveco will also completely revamp its Chilled Water Tank (CWT) range. The all new Adveco CWT range of carbon steel primary system vessels has been carefully redesigned to serve a wide range of central heating and chiller applications that require an inertia tank or energy storage vessel.

The range comes as standard with high and low level flow and return connections on each side of the tank, and have additional connections in the middle to cater for systems featuring multiple heat or chiller sources, low and high grade sources, or varying flow and return temperatures. capacities start at 300 litres rising to 5000 litres.

Sustainable Electric Hot Water



Solar Thermal

A proven and extremely reliable technology, solar thermal offers a clear path to reducing CO_2 emissions and offsetting expensive electric costs for organisations using large amounts of hot water. Adveco's collectors with drain back provide a low maintenance option to help achieve sustainability goals.

Air Source Heat Pumps

The FPi32 & L70 ranges of commercial Air Source Heat Pumps (ASHP) for the provision of preheat in domestic hot water applications. Adveco ASHPs can be supplied as a part of a bespoke hybrid, or all-electric system, as wellas an element of a prefabricated plant room system.

ARDENT Electric Boiler

ARDENT is designed to serve as an indirect water heater or heating system. Wall-hung and oorstanding variants for those seeking to avoid a reliance on gas energy supplies. In hard water areas the ARDENT electric boiler can be used to dramatically reduce the costly build up of damaging limescale.

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Adveco 2024 Product Guide

Get our handy reference guide to Adveco's current product portfolio. Don't forget these are just the start of our offering, acting as the buildings blocks for your bespoke hot water systems...

2024 PRODUCT GUIDE

Discover Adveco's expanding range of low carbon and renewable products

Live Metering
Solar Thermal Systems
FPi R32 monobloc Air Source Heat Pump
L70 Air Source Heat Pumps for larger projects
FUSION packaged electric water heaters
Electric Boilers
Hot Water Cylinders, Indirect Water Heaters, Calorifiers & Buffers
Commercial Gas-Fired Water Heaters
Standalone Heat Recovery from Chillers
Offsite Constructed Packaged Plant Rooms

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