

BROMSGROVE LEISURE CENTRE

SAVING £10,000 A YEAR ON HEATING AND POWER



The Bromsgrove Sport and Leisure Centre, operated by Everyone Active, is a £10.3m facility situated in the heart of Bromsgrove that offers some of the finest sports and leisure facilities in the area.

The state of the art building opened in late 2017 and features a six-lane, 25 metre main swimming pool as well as a 15 by 10 metre second pool with an innovative moving floor allowing for an adjustable depth. The facility also includes a sports hall and climbing wall in addition to a 100-station gym, a fully featured spa, and a café, thereby providing a range of services not otherwise available to the local community. As part of a wider local redevelopment project by Bromsgrove District Council, the new sports and leisure centre was built as a replacement to an adjacent facility dating from the 1970's. As a new build project, the building was designed to meet strict building and environmental standards. With two swimming pools and the accompanying level of year-round heat demand, the leisure centre demanded a high-performance heating system which was designed and installed by Yorkshire Building Services Ltd (YBS).

Customer
Everyone Active

Sector
Leisure

Location
Bromsgrove, Worcestershire

Application
Cogeneration of hot water and power

Products
Adveco Totem T25 m-CHP
Adveco 3000 litre buffer vessel
Adveco stainless steel calorifiers
Adveco controls and ancillaries
A.O. Smith BFC120 condensing water heaters

ADVECO

EXPERTLY ENGINEERED FOR YOU



To achieve the high level of energy efficiency required for a modern building, a combined heat and power system was selected to reduce emissions and improve the total efficiency of the system beyond the levels achievable by conventional heating appliances.

The contract to supply the combined heat and power (CHP) system was secured by Adveco Ltd., who delivered a 25kWe, 57kWth TOTEM T25 m-CHP appliance as well as a bespoke 3000 litre buffer vessel, including controls and ancillaries, to serve the building's heating system. Adveco additionally supplied two A.O. Smith BFC120 condensing water heaters to serve the domestic hot water supply to the leisure centre.

The CHP installation at Bromsgrove Leisure Centre was designed as a boiler pre-feed system, allowing the CHP unit to maximise its input by prioritising the higher energy demand present in the building's heating system. The CHP unit is connected to the lower half of a large, custom-built 3000 litre buffer vessel, pre-heating the energy storage tank before water drawn from the top half is further heated by a boiler system arrangement. This is possible because the TOTEM CHP is a condensing appliance, so the total efficiency is maximised. This energy store then supplies heat to the building and swimming pools, while the combined

240kW BFC water heaters provide for the domestic hot water supply.

Combined heat and power is the simultaneous production of electricity and heat from a single source of fuel. Electricity is produced and consumed on-site by connecting an automotive engine directly to a generator, eliminating transmission losses from grid-supplied power while providing equivalent levels of production efficiency and reducing the building's reliance on the local grid. The waste heat produced from this process is captured through a series of heat exchangers and used towards the high heat demand of the system. With a significant continuous demand, a combined heat and power unit can run for very long periods of time and thus drastically reduce the reliance on conventional boiler technology and improve the overall efficiency of a building.

Since commissioning in early 2018, the TOTEM T25 at Bromsgrove Leisure Centre is on track to achieve 7,000 operational hours a year and predicted annual savings as high as £10,000. By producing both electricity and heat from the same supply of input fuel, the associated net reduction in carbon emissions is expected to be more than 65,000 kg per year.

TOTEM M-CHP

- Purpose-built for operation on natural gas
- Combined Heat and Power range with outputs of 10, 20, 25 and 50 kWe
- Total cogeneration efficiency up to 107.4%
- Ultra-low emissions: NO_x at <12 mg/kWh and <10 mg/Nm³,
- CO at <10 mg/Nm³
- Unparalleled reliability.
- Eligible for full points under the revised POL02 category of the 2018 BREEAM New Construction Scheme, even when installed in high pollution urban areas.



With almost 50 years of industry experience, Adveco Ltd. is the trusted specialist provider of bespoke hot water, heating and power systems to the building services industry. Committed to partnering with its commercial and government customers, Adveco helps create comfortable, efficient, functional, safe and sustainable buildings through invaluable support in the design, supply, commissioning and service of business-critical hot water, heating and power. Headquartered in the UK, the company operates across Europe from offices in the Netherlands and Belgium.