

Lower Emission & Heat Rate Efficiency

Severe Service Isolation Valve Solutions

Customer: Combined cycle power plant

Location: United Kingdom

Plant type: Fossil power

Background: A low-carbon economy is a concept that refers to an economy which has a minimal output of greenhouse gas emissions into the biosphere, specifically greenhouse gas, carbon dioxide (CO₂). A power station near the town of Selby, England, is the largest, cleanest and most efficient coal burning power station in the United Kingdom. With a generating capacity of 3,960 megawatts, its current output levels generates enough electricity to meet the needs of seven percent of the United Kingdom. Understanding they have a very important role to play in the transition towards a low-carbon economy, this power station is committed to reducing hazardous emissions and has various projects ongoing which will not only reduce emissions, but deliver significant savings.

Solution: Severe service valve leakage significantly reduces a plant's heat rate performance, because BTUs leak away, never reaching the turbine. By utilizing ValvTechnologies' V Series metal seated ball valves and IsoTech® parallel slide gate valves for vents and drains, steam and water leakage is eliminated, improving the plant's thermal efficiency. Additionally, less fuel is burned to produce megawatts, which not only leads to lower emissions, but improved plant efficiency.

ValvTechnologies' high performance zero-leakage isolation valves typically improve a plant's heat rate performance by 1-2%, even up to 5-6% in some cases. In 2004 ValvTechnologies began supplying this power station with V Series severe service ball valves for problem areas such as drains and bypasses.

Result: Due to the V Series valves reliability of isolation provided on the plant's drains and bypasses, the plant began using ValvTechnologies' IsoTech® valves on their feed waters systems (start and standby feed pumps, HP heater feed inlet and outlets). The feed system pumps powerfully move water at a rate of 150 gallons every second. The IsoTech® valves provided single isolation, allowing maintenance to be carried out on tube leaks without shutting down the entire system. ValvTechnologies' zero-leakage valve range is seen as a solution provider where isolation is required for critical and severe service applications, and the way forward in helping achieve the targets set for reducing emissions.



High pressure heater feed outlet with ValvTechnologies' zero-leakage severe service valve installed

ValvTechnologies' zero-leakage high-performance isolation valves improve a power plant's heat rate performance up to 5-6%.