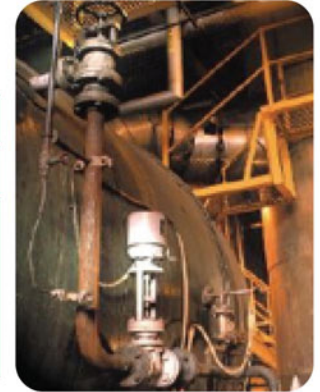


Case Study

Heat Recovery from Boiler Blowdown at a Creamery

Main activities	Creamery
Region	EU
Energy Consumption	The costs for steam at 13 bar used to be €800,000 per year



Project goals

The creamery needed a heat load of approximately 12,000 kg/h steam. The main processes for which this is used are pasteurizing, the evaporative dryer, other dryers, and cheese vat heating. The steam is generated by 3 packaged shell and tube boilers rated between 9,000 and 16,400 kg/h steam. The aim was to improve the energy efficiency of these processes.

Main investments

Total Dissolved Solids (TDS) control equipment
Heat recovery system

Installation of a TDS system to each boiler comprising a modulating 2 port blowdown valve located on the side of the boiler. The valve is opened and closed as dictated by the TDS control unit. The control unit continuously senses the conductivity of the boiler water and sets it to an appropriate instantaneous blowdown rate.

Each of the boiler control systems runs independently. The side blowdown from the boilers is fed via a common header arrangement to a single flash steam heat recovery vessel. The vessel is mounted at high level within the boiler house, adjacent to the hotwell.

Benefits

For every 1 Kg of blowdown water, 0.78 kg of water is recovered and 0.17 Kg of water evaporated into fresh steam. Increased TDS control and increased blowdown return reduced the need for fresh feed water and chemical treatment. Additional waste heat is available to use elsewhere in the process.

Applications

Any industrial process with a steam boiler.

Investment type	Cost (€)	Energy saved (KWh/year)	Saving achieved (€/year)	Payback period from energy saving
Steam boiler	310,000	27,740	93,000	3.3 years
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