

Flash steam recovery from Spirax Sarco helps Smurfit Kappa cut boiler fuel costs by 21%

Steam system improvements delivered by Spirax Sarco have cut boiler fuel costs by 21% at Smurfit Kappa UK's corrugated board factory in Weston-super-Mare. Recycling condensate and flash steam back to the boiler has also halved the amount of water treatment chemicals needed and reduced the site's water bill by between £300 and £400 a month.

The biggest single contributor to this success is a Spirax Sarco FREME (Flash Recovery Energy Management Equipment) system, which is designed to recover energy from condensate and flash steam. The project also included improved temperature controls for the Smurfit Kappa's process steam and the installation of automatic pump traps to clear condensate from key items of plant reliably, even if the traps sometimes have to work against significant back pressure.

According to Andy Bale, Smurfit Kappa's Engineering Manager, the project was part of a wider initiative to save energy at the factory: "We are working with the Carbon Trust to improve the energy management in a number of different areas, including compressors, steam and electrical equipment."

"Spirax Sarco was very professional and managed the whole process for the steam system while keeping me up to date with every single detail. We're very pleased with the results."

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The new FREME system was supplied as a prefabricated, skid-mounted rig, comprising a flash separation vessel and two plate heat exchangers. Pressurised condensate from the production process enters the separator where it splits into separate streams of condensate and flash steam. Each stream passes through a separate heat exchanger, where it heats the boiler feed water. The two streams are then recombined and sent back to the boiler feed tank.



Crucially, FREME systems are typically positioned downstream of the boiler feed pump. This allows feedwater temperatures to be elevated well above 100°C, without pump cavitation. In the case of Smurfit Kappa, this has enabled the company to have heated feedwater entering the boiler at 130 and 140°C, rather than the 85 or 90°C that was previously possible.

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