

Article for the corrugated cardboard industry Industrial Heat



Climate-friendly solutions for process heat in the corrugated cardboard industry **Sustainably produced packaging at Violeta: Hybrid steam boiler from Bosch uses green electricity**

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Bosch Industriekessel has been offering dedicated process heat solutions for the corrugated cardboard industry worldwide for many decades. In the manufacturing and fabricating of cardboard, a considerable part of the energy demand is for steam generation, among other things for forming and adhesion. When it comes to how to approach their process heat in future, manufacturers are facing various challenges, especially regarding fuel selection, energy prices and climate neutrality. "With our technologies, we are a pioneer for environmentally friendly process heat, and offer a wide range of solutions from electrical steam generation and hydrogen boilers right through to hybrid systems. At the same time, we help industries to operate existing systems more efficiently, with more environmental friendliness and with greater reliability," emphasises Daniel Gosse, Head of Marketing at Bosch Industriekessel.

An example is future steam provision at Violeta. The manufacturer of hygiene products and liquid detergent, based in Bosnia and Herzegovina, is investing in a new corrugated cardboard system for its own packaging needs. The focus of this project is energy saving, sustainability and more independence. Bosch's solution is a hybrid steam boiler equipped with an electric heater and burner system, so that two different energy sources can be used at the same time. In addition to high security of supply, Violeta benefits from a better ecological balance. The boiler is designed for a capacity of six tonnes of steam per hour. Of this, around three tonnes of steam per hour can be generated electrically – without flue gases. Violeta obtains green energy from its own PV system at its production site. In this way, fossil fuels, their procurement costs and CO₂ emissions can be significantly reduced. Bosch's control system prioritises freely available green energy surpluses and switches on the LPG burner only when the current steam demand requires additional capacity. The steam generation process is highly efficient due to the system concept. Flue losses, energy consumption, fresh water needs and demand for dosing agents for water treatment can be

minimised. This is enabled, among other things, by effective use of waste heat via the integrated economiser of the hybrid boiler, as well as use of high-pressure condensate at temperatures of around 175 °C in the thermal deaerator system from Bosch. At the same time, the boiler control achieves high automation and the associated reliability.

Another attractive option for environmentally friendly steam generation in the corrugated cardboard industry is the ELSB electric steam boiler. The ELSB is completely electric and climate-neutral when using green power. A multivalent system with electrically heated steam boiler and existing steam boiler system is also a possible application. If fuels like green hydrogen or biofuels are available or being planned, all industrial boilers from Bosch can be designed for these green fuels, including in combination with multi-fuel firing systems. For existing systems, Bosch offers so-called "energy quick checks", which quickly show potential savings and their profitability in an initial step. An upgrade to alternative fuels can also be implemented in many existing systems. "Using our multi-technology approach, we enable manufacturers to model their steam and heat supply in a climate-friendly and future-proof way, based on available infrastructure and individual requirements," says Daniel Gosse.



Image_01: The hybrid boiler at the Bosch factory shortly before being shipped to Bosnia and Herzegovina.



Image_02: Via the electric heating element, the hybrid boiler will generate up to three tonnes of steam per hour with green electricity.



Image_03: Electrical steam boiler system from Bosch with 100 per cent green energy utilisation.

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