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## Six boilers for Szarvas biogas plant

Reference Report Bosch Industrial

Using energy efficiently



In 2011 Hungary's largest and most state-of-the-art biogas plant was put into operation. The project was implemented by r.e Bioenergie GmbH from Regensburg via its Hungarian subsidiary in close cooperation with the food processing company Gallicoop Pulykafeldolgozó Zrt based in Szarvas. The plant produces approximately 12,500,000 Nm<sup>3</sup> of raw biogas annually from organic waste and energy crops. The accumulating waste heat from electricity generation is used by Gallicoop for heating and cooling.

Two Loos heating boilers UT-L fired with LPG or biogas and one combined heat and power (CHP) unit supply the necessary heat for operation of the fermenters (biogas production). The second boiler serves primarily as a redundancy and covers peak loads. The boilers are equipped with low-emission burners and integrated flue gas heat exchangers for

maximum energy utilisation. Efficiencies of nearly 97 percent can be achieved even at very low loads.

A gas line four kilometres long transports most of the biogas produced to the Gallicoop site. There, three further CHP units convert the gas into electrical energy. The resulting waste heat is used by three Loos heat recovery boilers to provide the process steam base load for poultry production. About 1,820 kilogrammes of saturated steam can be produced per hour. An additional Loos steam boiler with an integrated economiser and two further steam generators already on site cover the peak loads and at the same time ensure redundancy for the highest level of supply reliability. The Universal UL-S steam boiler has an output of 5,000 kilogrammes of steam per hour and is fired with natural gas or biogas.



The two compact heating boilers UT-L produce the heat for operation of the fermenter.



The waste heat boilers use the CHP waste heat for cost-efficient steam generation.



The steam boiler UL-S is used as back-up and for peak loads at Gallicoop.



Deaeration plant (above) for corrosion-free feed water and condensate module for storage returning condensate.

**Bosch Industriekessel GmbH**  
Nuernberger Strasse 73  
91710 Gunzenhausen  
Germany  
Tel. +49 9831 56-253  
Fax +49 9831 56-92253  
sales@bosch-industrial.com

**Bosch Industriekessel Austria GmbH**  
Haldenweg 7  
5500 Bischofshofen  
Austria  
Tel. +43 6462 2527-300  
Fax +43 6462 2527-66300  
sales-at@bosch-industrial.com

info@bosch-industrial.com  
www.bosch-industrial.com  
www.bosch-industrial.com/YouTube