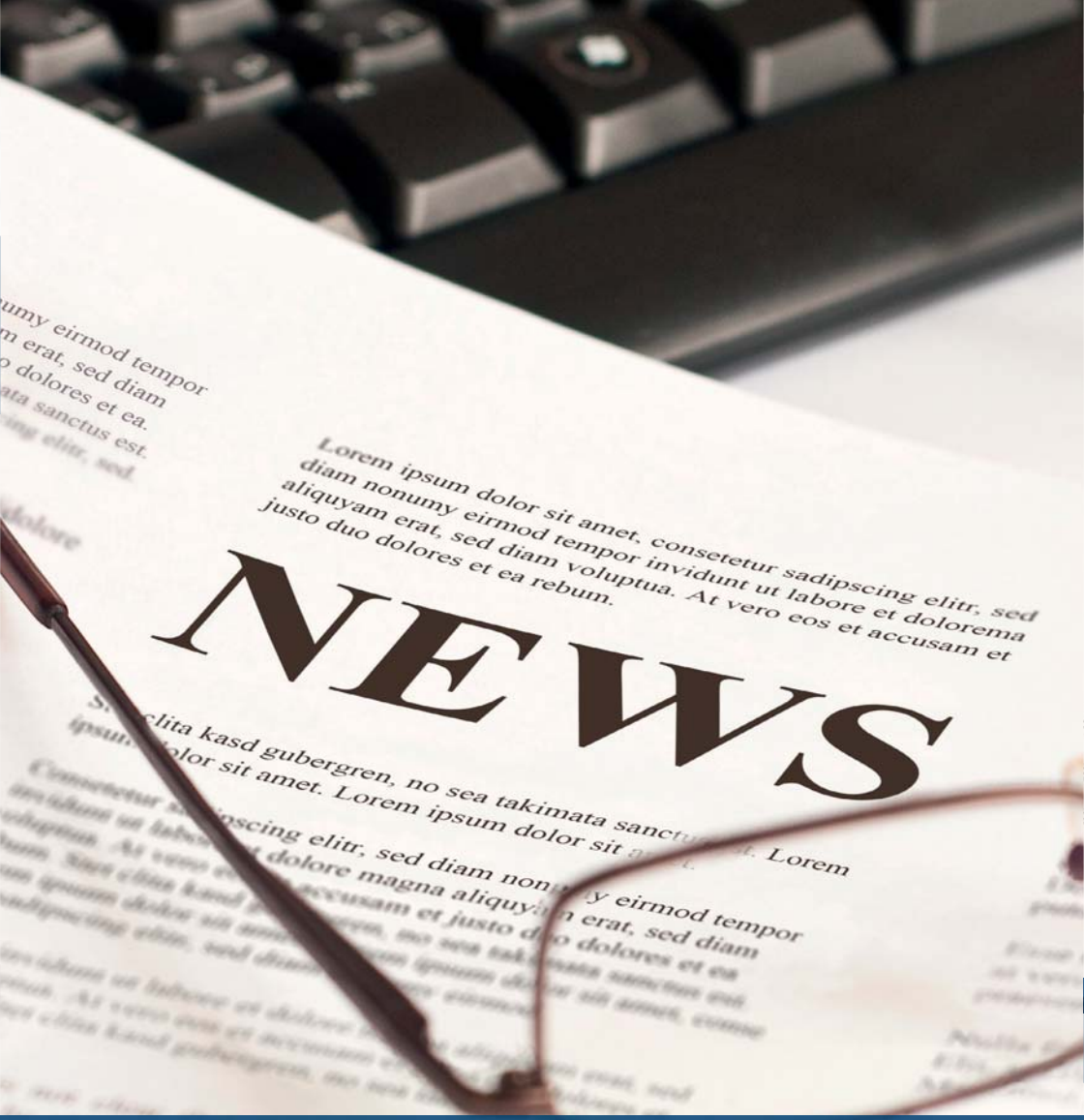

Newsletter
3/2013

BOSCH
Invented for life

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In Focus

Welcome to Issue 3/2013 of the Bosch Industrial Newsletter! With the aid of interesting, practical examples from the food, beverage and animal feed sectors, we provide you with information on the individual options for efficient and environmentally-friendly energy generation. At the Drinktec trade fair we present innovative boiler technology and modular system solutions - we look forward to your visit!

If you would like to be one of the first to read the latest news straight from the source, you can subscribe to our free digital Newsletter with the postcard attached. We hope you enjoy browsing through this issue.

Bosch steam boiler system **cleverly combined with solar heat**

An increase in production capacity provided Fixkraft Futtermittel GmbH, a producer of animal feed based in the Danube port town of Enns, Austria, with the opportunity to restructure its energy supply. A system concept from plant construction company Ing. Aigner Wasser-Wärme-Umwelt GmbH in Neuhofen/Krems, Austria was introduced. It comprises a Bosch steam boiler plant combined with solar heat. With the new energy supply, Fixkraft is able to reduce its CO_2 emissions by around 85 tons per year and make energy cost savings of approximately 15 per cent compared against the old system.

The UNIVERSAL UL-S steam boiler from Bosch with an output of 2 500 kg/h provides the process heat required to produce the animal feed. The saturated steam is introduced directly into the product, meaning that the amount of condensate that is returned is very low. A solar system with an installed collector area of 320 m² is used to help preheat the feed water.

The state-of-the-art Bosch steam boiler efficiently provides the process heat for the production of animal feed.

The fresh water needed is taken from the company's own well, treated and then supplied to a 6 000-litre heat storage tank. The solar collectors absorb the sun's energy and pass it on to the water in the heat storage tank via a heat exchanger.

The WSM-V water service module deaerates the make-up water. It is heated to 103 °C. The gases contained in the water dissolve and leave the deaeration system with a small quantity of steam, known as exhaust vapour. The VC vapour cooler uses the thermal energy contained in the exhaust vapour and feeds it back to the water service module. Heating-up steam is saved and the energy efficiency of the system increased.

The feed water itself is heated further in the economiser, reducing the flue gas temperature of the boiler. In order to make additional use of the flue gas condensate, a condensing heat exchanger made of stainless steel is installed downstream of the economiser. The make-up water preheated by solar heat absorbs the condensation heat before it is supplied to the feed water tank via the exhaust vapour heat exchanger and deaerator dome.

The boiler equipment also includes the low-emission natural gas firing system with oxygen control. This continually measures the oxygen content in the flue gas and controls the air supply accordingly. Modern touchscreen controls with a teleservice connection enable the system to be operated reliably and based on individual requirements.

Thanks to the use of solar energy and heat recovery facilities, Fixkraft benefits from a highly efficient and environmentally-friendly steam supply. Energy use is reduced and efficiency increased.

The condensing heat exchanger increases the efficiency of the system.

Efficient operation with modular Bosch technology

Following an energy analysis in 2012, Valenzi GmbH & Co. KG from Suderburg in the Lower Saxony region of Germany decided to replace its steam supply. A state-of-the-art, complete system from Bosch was installed. Through this investment, the manufacturer of preserved wild berries anticipates making annual energy savings of around 40 000 euro. It also cuts its CO_2 emissions by approximately 300 tons.

The existing boilers had been in operation for up to 31 years and were replaced with two modern UL-S type steam boilers with speed-controlled natural gas firing systems, each with an output of 5 000 kg/h. The company primarily uses steam to preserve mushrooms and refine wild berries and soup ingredients. The second boiler is used as a backup and to cover peak loads.

The modular design of the Bosch system ensures energy-optimised boiler operation. Integrated economisers make efficient use of the energy from the hot boiler flue gases to heat the feed water. The efficiency of the system increases by 4.8 per cent and fuel consumption decreases by the same proportion.

Water treatment components provide optimum feed water quality. Softened make-up water is produced in the WTM softening system. To reduce susceptibility to corrosion, thermal deaeration is performed after the softening process via the WSM-V water service module. Using the compact EHB heat recovery module, thermal energy from the hot desalted water is used to preheat the feed water. This leads to an increase in efficiency and a reduction in fuel, cooling water and waste water costs.

In addition, the system is fitted with a CSM condensate service module. The module collects and stores accumulated condensate and channels it back to the water treatment system. The lower demand for make-up water reduces water and energy consumption.

The intuitive touchscreen BCO/SCO controls make it easy to operate and adjust the boilers and system. Triggered by the push of a button or an external request signal, the start-up and shut-down processes for the steam boilers are performed automatically using the integrated SUC start-up, standby and shut-down control. The sequence control applies the consumption-optimised operating mode for the multi-boiler system. The system is kept warm by means of a heating coil that is built into the boiler end. This ensures the rapid availability of the steam boilers.

The modular design of the Bosch boilers and components meant that effort for planning and installation could be kept low. Planning office Westfalia Wärmetechnik from Rödinghausen and plant construction company AME-Technik from Hamelin were commissioned to complete this work. The operator benefits from the increased degree of automation of the economically and ecologically optimised energy generation system. In addition to the new boiler system, further measures such as waste heat utilisation in the compressors and cold stores improve Valenzi's energy consumption further.

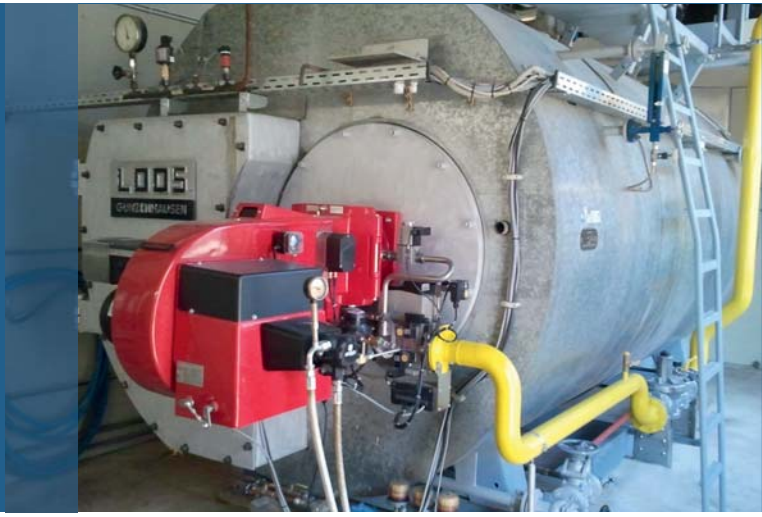
The highly efficient Bosch steam boiler system with speed-controlled natural gas firing systems.

The WSM-V water service module provides the steam boilers with treated feed water. The integrated EHB heat recovery module uses the thermal energy from the hot desalted water.

Wildbräu brewery modernises steam generation

The Wildbräu Grafing brewery opted to modernise their steam generation using components from Bosch Industriekessel in order to bring the energy efficiency of the system in line with modern standards. Thanks to the measures taken, Wildbräu Grafing GmbH is able to reduce the energy consumption of the system by approximately 90 megawatt hours per year. The CO_2 emissions are reduced by 21 tons per year. The modernisation and switch to natural gas saves the brewery around 36 000 euro in running costs per year. The return on investment is 40 per cent.

A UL steam boiler from Loos (now Bosch) with an output of four tons of steam per hour has been responsible for supplying the process steam since 1978. For efficient use of the hot flue gases, which are up to 230 °C, an economizer from Bosch Industriekessel is now in use. The boiler feed water is preheated while the flue gas temperature is reduced by around 100 °C. The boiler efficiency is increased by a reduction in flue gas losses of approximately five per cent, the fuel consumption is likewise reduced at full load.



The modernised steam boiler at the Wildbräu brewery with the oxygen and speed-regulated firing.

The replacement of the existing light oil burner with a modern dual burner resulted in a further increase in efficiency. Natural gas is used as the main fuel and light fuel oil is only used during peak load operation or in an emergency. An electronic compound control now ensures correct dosing of the fuel/air ratio. In comparison to the mechanical compound control of the old burner, this achieves a more precise setting for the air supply and reduces the fuel consumption accordingly. In addition, the new firing enables completely infinitely variable operation. Combined with a high turndown ratio, switching the burner on and off, which goes hand in hand with energy loss, is considerably reduced.

The motor speed is reduced in relation to the burner capacity through the use of speed regulation. The electrical power consumption in the partial load range is considerably lower and at the same time there is also a significant reduction in the sound pressure level. Even the oxygen content in the flue gas is continually recorded. If this is too high, and the combustion is thus ineffective, the volume of combustion air is reduced. The oxygen regulation thus optimises the efficiency of the burner system, reduces its environmental impact, and helps to save energy costs.

The newly integrated boiler control BCO comes with all the necessary information and functions for operation according to need. An intuitive touchscreen display indicates operating states, operating data, and measured values as well as operating settings.

The retrofitting project was planned by the IGS Ingenieurbüro in Hallbergmoos while the Ernst Huber Wärmetechnik GmbH in Rott am Inn carried out the installation.

The retrofitted economizer makes efficient use of the energy from the hot boiler flue gases.

Bosch – Leaders in large thermal plants

In addition to an extensive range of steam, hot water and heating boilers with modular technology, Bosch also offers individual system solutions for combined heat and power (CHP), large-scale solar plants, heat pumps and Organic Rankine Cycle (ORC) systems.

An example of this is the combination of a combined heat and power unit and a self-firing waste heat boiler for process steam generation. The steam boiler has an additional smoke tube pass, which uses the waste gas heat from the CHP unit for base load steam generation. Peak loads are covered by the integrated firing. The costs to the plant operator are 20 to 40 per cent less than those for a separate waste heat boiler. Bosch can offer its customers all the components of this complete solution from a single source.

A highlight is the new ‘Condition Monitoring basic’ boiler management function for large-scale boiler systems. The preemptive condition monitoring has a positive effect on consistently high efficiency and availability of steam, hot water and heating boilers.

Thanks to the project experience it has gained from supplying over 110000 systems worldwide, Bosch offers the food and beverage industry solutions for efficient and environmentally-friendly energy supply which is tailored to individual requirements. We are a strong partner to our customers at every stage of the project, from planning and support to after-sales.

Pay a visit to the Bosch trade fair stand and convince yourself of our range of modular large-scale systems.

Bosch at the Drinktec trade fair in Munich,
16 – 20.09.2013; hall B6, stand 100

Professional seminars at Bosch
Generating electricity, process and thermal heat efficiently

This year again, Bosch Industriekessel is offering interesting professional seminars on large-scale plants and system solutions. The seminars are aimed at anyone who works in the design and construction of energy systems. The focus will be on the efficient generation of process heat using industrial boiler systems that are optimised in terms of their equipment and size. Further aspects of industrial energy supply, such as combined heat and power (CHP), will also be examined and practical proposals for combining the technologies will be put forward.

A tour of the plant will also allow participants to visit the state-of-the-art production facilities for the manufacture of high-quality boiler systems.

The seminars are held at our head office in Gunzenhausen or at our Bischofshofen plant and are presented in German.

Seminars in Gunzenhausen, Germany:
Thursday/Friday 24/25 October 2013
Thursday/Friday 07/08 November 2013

Seminar in Bischofshofen, Austria:
Thursday/Friday 14/15 November 2013

Are you interested in our professional seminars? For further information, contact marketing@bosch-industrial.com

Fax reply

Newsletter application:
please complete and send by fax to: **+49 9831 5692222**

I would like to receive the Newsletter in digital form in future. ☐ German ☐ English

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Company address

eMail address*

Date* Signature*

*Mandatory field