Newsletter
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BOSCH
Invented for life

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In Focus

Welcome to our Bosch Industrial Newsletter. In the 3/2014 issue we are presenting two successful projects from the brewery sector. In addition to this, we are also introducing the first Bosch Thermotechnology plant in Russia. You can also learn in our new Technical Report about the many possibilities for increasing efficiency and saving energy in boiler systems.

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.

Oettinger Brauerei modernises its central energy generation
Designing steam generation more efficiently with Bosch boiler technology

Oettinger Brauerei (Bavaria) has modernised its steam generation at its North Oettingen site with Bosch boiler technology to the latest standards for efficiency and environmental protection. The modernisation involved an economizer, firing systems with speed and oxygen control, intelligent boiler control technology and other system accessories from Bosch Industriekessel. Thanks to these measures, the brewery has reduced its CO_2 emissions by more than 650 tonnes per year and also its energy usage, which means an annual reduction in fuel costs of around 20 percent.

The two three-pass boilers under the Loos brand name (which has now become Bosch) have been providing the brewery company with steam very reliably since 1991 and 1993. One of the boilers had not yet been equipped with an economizer. In order to use the heat potential

The modernised steam boilers with oxygen and speed-controlled natural gas burners at Oettinger Brauerei.

in the boiler flue gases, which are around 230 °C, an economizer was installed downstream from the steam boiler as part of the modernisation. The flue gas temperature is reduced by almost 115 °C through preheating the feed water. This increases the boiler efficiency by around six percent and reduces the fuel usage, as well as helping to keep emissions low.

The replacement of the existing dual burners with modern, modulating natural gas burners resulted in a further increase in efficiency. Thanks to the use of speed control, the motor speed is reduced depending on the burner output. The electrical power consumption in the partial load range is therefore 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, making combustion ineffective, the volume of combustion air is reduced. This optimises the efficiency of the burner system and reduces the environmental impact as well as energy costs.

The downstream economizer reduces fuel usage and provides higher efficiency.

The boiler controls BCO with a forward-looking monitoring system for operating conditions guarantee a high level of transparency and simple boiler operation.

In order to guarantee that there is always the optimum water quality in the boiler, automatic desalting and blow-down devices were retrofitted. The installed feed water regulation modules ensure that there is a constant water level in the boiler. In addition to increasing the degree of automation, these measures provide a more even level of operation with less material stress, as well as ensuring that energy losses are reduced.

Thanks to the integration of the boiler controls BCO, all the available control functions can be called up, and the actual and setpoint values can be visualised or altered on the touchscreen display. With the integrated software Condition Monitoring basic, the operating company benefits from a consistently high level of efficiency and availability for the boiler system. The widest range of data, such as for example flue gas temperature, desalting quantity or boiler load, is analysed and evaluated by the forward-looking monitoring system for operating conditions, and the data is then depicted clearly for the operating personnel by means of a traffic light model. The teleservice connection offers additional support and rapid elimination of faults.

The consulting engineers, Harald Moroschan from Muhr am See, were entrusted with the planning of the modernisation project. The overall responsibility for the modernisation of the steam boiler plant lay with Sell GmbH from Helmbrechts.

Brewery in Wales **with new Bosch steam boiler**

Following an analysis of its energy requirements, a brewery based in Wales, UK decided to renew its steam generation. Bosch fulfilled the requirements of increased efficiency, economy and reliability with a steam boiler system Universal UL-S.

A boiler unit with eleven tonnes of steam capacity was in use for providing energy to various production processes, such as mashing, cooking and cleaning. The output reduction for the new system to six tonnes resulted from a thorough investigation of the actual consumption values in the brewery operation. The optimised, needs-based plant design, in conjunction with modulating firing with a control range of 1 : 7, minimises the frequency of burner switching and energy loss by pre-ventilating the flue gas paths.

The new steam boiler is equipped with an integrated economizer to further increase the energy efficiency. This uses the hot flue gases to preheat the feed water. That results in an efficiency rate rise of almost seven percent and reduces energy usage. Low-emission firing of natural gas is used for the boiler. The use of oxygen control improves the efficiency of the burner system and helps to save energy costs. It continually measures the residual oxygen content in the flue gas and controls the air supply accordingly.

Boiler control BCO with Condition Monitoring basic for efficiency and status monitoring completes the system. The control continuously records and evaluates a large number of operating states, operating data and measured values, and it displays the results in a meaningful diagnostic way. The integrated monitoring and protective functions provide operating and supply safety. Operating messages and up-to-date process data from the steam boiler system are transmitted by means of Ethernet via the link to the brewery‘s process control centre.

The brewery now benefits with the new boiler system from energy-optimised steam generation. The control unit provides a high level of boiler availability and ensures that there is permanently economical operation. Bosch Thermotechnology Ltd in the UK was at the customer‘s side with its expertise throughout the entire course of the project on site, as well as for the instruction and training of the operators.

Saving energy - reducing costs - protecting the environment: modernise with Bosch

New technical report on energy saving

The life expectancy of a boiler system is between 20 and 40 years. Typical efficiency gains achieved by replacing or modernising old systems is between 10 and 30 percent, depending on the initial situation. At current fuel costs, even extensive measures often pay for themselves in just a short time.

There are many different ways of increasing efficiency and saving energy in boiler systems. Available technologies, such as economizers, condensing heat exchangers and air preheating systems, reduce fuel costs enormously. Burner systems with speed and oxygen control also make a not insignificant contribution and help to minimise emissions. There is further potential for saving for example from condensate recovery, since less fresh water has to be provided in the use of energy. Process-related heat loss, which is contained for example in exhaust vapour or desalting water, can similarly be recovered by means of suitable solutions.

The investment in energy-optimised systems is cost-effective for companies in many different ways: a higher level of energy efficiency reduces production costs, minimises CO_2 emissions and strengthens the power of innovation, thereby increasing competitiveness. The new technical report with the title “Energy, cost and emission-saving solutions for shell steam boiler systems” from Bosch Industriekessel shows how potential savings in energy and costs can be realised with a wide range of concepts.

Energy-efficient Bosch steam boiler Universal UL-S with integrated economizer and condensing heat exchanger.

You can download the technical report as a PDF free of charge on the website **www.bosch-industrial.com** under the heading „About us – Documents“, or you can request it in paper form via the contact form.

First Bosch Thermotechnology plant in Russia opened

Gas heating boilers and industrial boilers for the Russian and Eastern European market

The official opening of the first Bosch Thermotechnology production site in Russia took place at the beginning of July. The new plant at Engels is situated some 900 kilometres south of Moscow on the Volga, and it will produce in future wall-mounted gas heating boilers, as well as industrial boilers, for the Russian and Eastern European market.

8 300 square metre total area

The ground-breaking ceremony took place in May 2013, and just 56 weeks later all the work had been completed. Production could begin. The new plant comprises a total area of 8 300 square metres. The production area accounts for 6 200 square metres, while 2 100 square metres are available for offices. When production is in full swing, there will be around 190 employees at the new site.

Heating boilers and industrial boilers

Wall-mounted heating boilers for the residential sector, as well as large boilers for commercial and industrial applications, are manufactured in Engels. The gas heating boilers, which provide room heating and domestic hot water, are produced in the output classes of 18 to 24 kilowatt. They are marketed under the Bosch and Buderus brands. As regards the large industrial boilers, six types of boiler will initially be manufactured with outputs from 2.5 to 6.5 megawatt.

First products from Engels

The first industrial heating boiler Unimat UT-L for the Russian market was produced in Engels in May of this year. The heating boiler achieves very high efficiency and is suitable for all burner systems, as well as producing very low emissions during combustion and keeping CO_2 pollution low with its energy-efficient operation. The boiler with its Unimat 3-pass design is seen as exceptionally robust, reliable and durable. In addition to this, it can be used very flexibly: for example in hospitals, office buildings, in all sectors of industry or as reserve or peak load boiler in heating stations.

Four gigantic boilers on the way to the Czech Republic

A total of four steam boilers Universal ZFR were recently delivered. The gigantic boilers, which each measure twelve metres in length and four and a half metres in width, and which have a transportation weight of over 90 tonnes, were transported in two stages to the port of Roth in Central Franconia. They continued on their way to the Czech Republic on an inland waterway barge.

The boilers are to be used in a large Czech power station. The commissioning will be carried out by the Bosch service team. Bosch Industriekessel delivers around 1 500 shell boiler systems every year to locations all over the world. The worldwide sales and service network ensures that there is comprehensive customer support.

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