Newsletter
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BOSCH
Invented for life

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In Focus

Welcome to Issue 1/2014 of the Bosch Industrial Newsletter. We are currently presenting the new heat recovery steam boiler HRSB. In conjunction with a combined heat and power unit, the boiler makes an effective contribution to the efficient use of primary energy. Through Haribo and other practical examples, we are also providing you with information about individual solutions for energy generation.

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.

Efficient generation of process heat
New heat recovery steam boiler from Bosch
The ideal addition to combined heat and power units

The new heat recovery steam boiler HRSB from Bosch Industriekessel is the ideal addition to energy concepts involving combined heat and power generation. It provides an efficient way of using accumulated flue gas heat by converting it into process steam. The new type series will be available from March 2014 and, depending on the version, will generate between 400 and 4 100 kilogrammes of steam per hour.

The heat recovery boiler, which is certified in accordance with the Pressure Equipment Directive, consists of a highly efficient tubular heat exchanger – whose efficiency it is possible to boost even further thanks to the option of integrating an economiser. In addition, the boiler is insulated with effective heat-insulating materials and features state-of-the-art safety equipment. Meanwhile, the tried-and-tested, PLC-based boiler control BCO makes operation exceptionally straightforward and convenient.

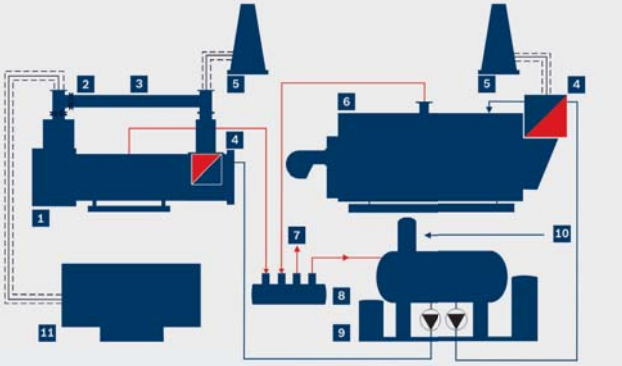
Efficient generation of process heat: The new, modular heat recovery boiler from Bosch.

Used in conjunction with a combined heat and power unit, the heat recovery boiler can play a significant part in strategies for using primary energy efficiently. The hot flows of flue gas from the upstream combustion processes are conducted via the tubular heat exchanger and used for steam generation purposes. This additional option for using heat means that combined heat and power units can generally be designed on a larger scale than thermal heat-driven plants. The result is that the plant operator is able to obtain more of its own electricity, which in turn leads to excellent savings on energy costs and short payback periods.

The heat recovery boiler can be combined with combined heat and power units in the electrical power range from approximately 0.5 to 4 megawatts. Thanks to its modular design and compact dimensions, it is the ideal choice for both new plants and modernisation projects alike.

By launching the heat recovery steam boiler HRSB, Bosch is expanding its already extensive product range to offer more options in the area of efficient process heat, hot water and electricity generation. Perfectly harmonised system solutions from a single source significantly simplify the planning and installation of the energy systems. Additionally, a wide range of services such as customised maintenance packages are available to ensure the system will keep running efficiently for years to come.

Further information on the new heat recovery steam boiler from Bosch can be found at www.bosch-industrial.com under the Products - Waste heat recovery systems section.



Extremely simplified diagram

Bosch offers an efficient energy system with everything from a single source: combined heat and power unit, heat recovery boiler, and peak load boiler.

New boiler system improves efficiency and conserves resources

Beck+Heun GmbH offers innovative roller shutter casings and breakthrough solutions for windows. In 2013, the company modernised its machinery at its headquarters in Mengerskirchen, Germany. In addition to new production facilities, a steam boiler system from Bosch Industriekessel was also purchased. The aim was to increase capacities and guarantee a more energy-efficient and resource-conserving production strategy.

The previous steam generation facility comprised three boilers with a total capacity of 5 500 kg/h, the oldest boiler dating back to the nineteen seventies. The steam is used to pre-foam the polystyrene granulate that is subsequently required to produce roller shutter casing shells. To accommodate the additional pre-foaming station, the new boiler system was rated for a steam capacity of 8 tonnes.

The two type UL-S Bosch boilers are fitted with integrated economisers. To thermally exploit the flue gases even further, two stainless steel condensing heat exchangers were used; an efficiency exceeding 100 percent is achieved. The boilers are fired by modern gas firing systems with energy-saving speed controls. An oxygen control was also installed. This continually measures the oxygen content in the flue gas and controls the air supply accordingly. This reduces fuel consumption and ensures low emissions.

The feed water is degassed by the water service module WSM-V. Further Bosch equipment components contribute to a highly economic operation of the overall system: The vapour cooler VC uses the thermal energy contained in exhaust vapours and returns them to the water service module. The hot desalting water is expanded via the heat recovery module EHM. The expansion steam produced in this process helps to heat up the feed water tank.

The PLC-based boiler and system controls BCO/SCO offer transparent operation in line with demand. Energy consumption, emissions and wear are minimised, simply by opti-

mising all measuring and control functions. All operating messages and the latest process data for the overall boiler system are transmitted via the link to the company‘s process control centre by means of Profibus-DP.

The new boiler system technology from Bosch permits energy-efficient and environmentally-friendly steam production. The efficiency of the overall system was improved by approximately 20 percent, the CO_2 and NOx emissions have reduced accordingly. The installation of the boiler system was entrusted to the experienced plant construction company AGO AG Energie + Anlagen from Kulmbach. The boilers were commissioned by Bosch Customer Service.

The modern Universal steam boilers UL-S with oxygen and speed-regulated natural gas firings.

The water service module WSM-V for feed water treatment and degassing.

Haribo chooses Bosch boiler technology

With its gold bears and other fruit gum, marshmallow and liquorice products, Haribo is one of the world's most well-known confectioners. For the expansion of its markets in Eastern Europe, the company founded the Haribo Hungària Kft plant in Hungary in the year 2000. A steam boiler U-HD from Bosch Industriekessel has reliably been working away there since production started. Yet in order to meet the increased energy demand that expansion of the plant brought with it, Haribo has recently decided to opt for a new boiler system, once again from Bosch.

The new system has a steam capacity of 4 000 kg/h. It is efficient to operate and features intelligent control functions. In addition, coordinated components help to keep energy usage and CO_2 emissions to a minimum. The integrated economiser uses the hot flue gases from the boiler to preheat the feed water, reducing fuel demand and flue gas losses. The use of flue gas condensate using the downstream stainless steel condensing heat exchanger also contributes to an increase in efficiency. The perfectly coordinated natural gas firing system provides for particularly low-emission combustion.

The new steam boiler UL-S in Haribo's Hungarian plant.

The system equipment also includes modules for water treatment and disposal as well as the recovery of condensate. The water service module WSM-V degases the make-up water in order to prevent corrosion. Feed water pumps transport the thermally treated water to the steam boiler. The blow-down, expansion and cooling module BEM is used to dispose of the hot waste water in the boiler. The condensate service module CSM recovers condensate from the process, thereby reducing energy usage and the demand for fresh water.

The management systems BCO and SCO play a key role when it comes to ensuring that the boiler and system are operated with optimum energy efficiency. All the operating data can be analysed, evaluated and set via the intuitive operator interface. A teleservice connection provides quick and simple support in the event of a fault.

Hungarian company Kazantrade was responsible for implementing the innovative and energy-efficient overall concept at Haribo. The system was also commissioned by this long-standing Bosch partner.

Energy efficiency is optimised by an integrated economiser and downstream condensing heat exchanger.

The water service module WSM-V supplies the steam boiler with treated feed water.

Bosch plant in mobile boiler house provides oil terminal

Inter Terminals Oil Storage Company SGOT from Denmark operates seven oil storage tanks at its Stigsnaes terminal with a total volume of 406 000 m^3. In order to ensure optimum stockpiling of oil, the oil storage tanks must be maintained at a temperature of 55 °C. A new Bosch steam boiler system with a performance of 4 500 kg/h is being used for this purpose.

The oil terminal possesses an extensive steam network with a multitude of pipes. The steam boiler UL-SX is equipped with a superheater module in order to prevent condensation and unnecessary energy losses on the way to the consumers. The steam is superheated to 195 °C which is 30 °C higher than the saturation temperature at the operating pressure. When combined with the corresponding boiler and system technology in a modular design, the operator can enjoy an efficient and reliable energy supply:

- Integrated economiser uses heat potential from the boiler flue gases to preheat feed water
- Modern natural gas firing increases efficiency and minimises emissions
- Using a speed control ensures low power consumption and reduced sound volume in the partial-load operational range
- Combustion-optimising control system which monitors the remaining oxygen content in the flue gas keeps fuel usage low
- Water service module WSM-V provides the boiler with thermally treated feed water and takes care of desalting and blow-down
- Automated operation via innovative boiler and system control BCO/SCO
- Transfer of all information relating to operation, to a central monitoring system by means of Profibus-DP

Robert Bosch A/S, together with plant construction company Vagn Hansen A/S were responsible for the overall boiler systems engineering. They also provided support during development of the bespoke boiler house. It can be moved flexibly on the oil terminal as required.

The complete Bosch system is situated in the mobile boiler house on the Stigsnaes oil terminal.

Reliable energy supply
for milk processing

The milk processing company „Eco Milk“ TOO is currently setting up a new production plant in the town of Akkol, Kazakhstan. In brief, up to 10 tons of milk can be processed there each day. A steam boiler system from Bosch Industriekessel provides the energy required for sterilisation and purification, with an overall performance of 2 500 kg/h.

The new system consists of two U-HD type steam boilers which are controlled by touchscreen. The boiler controls BCO incorporate all functions required for reliable boiler operation which will meet your demands. Diverse system data can be analysed, evaluated and transparently displayed via a traffic light model using the „Condition Monitoring basic“ integrated software. This makes for a constantly high level of system efficiency and availability. The system’s additional equipment includes a water service module WSM-V. It provides both boilers with deaerated and chemically treated feed water.

The entire boiler system was introduced into a container unit. The implementation was carried out by plant construction company „KSM“ TOO in Karaganda, in close cooperation with Bosch Kazakhstan. A fast and simple installation was guaranteed, thanks to the compact design of the U-HD series and the modules which come ready for connection.

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