Newsletter
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BOSCH
Invented for life

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In Focus

Welcome to Issue 2/2014 of the Bosch Industrial Newsletter. From the compact steam boiler system for the hospital, through proven heating boiler technology for container systems, and right up to the huge boiler with 50 tonnes of steam capacity for the automobile industry – Bosch offers the right solution for every application. Also experience the innovative control technology with the new diagnostics function for more transparency and operating safety.

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.

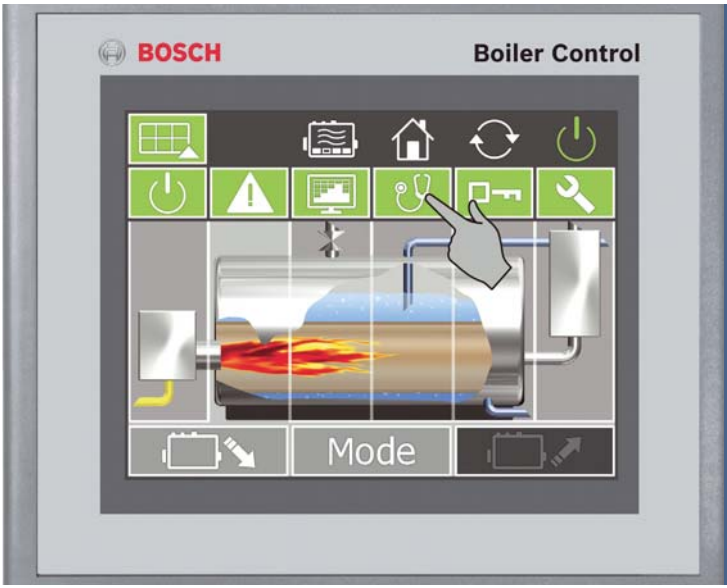
Bosch control technology for efficient boiler and system operation **More transparency with innovative diagnostics function**

Bosch Industriekessel GmbH is upgrading its boiler control BCO with an innovative diagnostics function. This provides a further increase in transparency and operating safety, and it is available from the middle of July 2014 for all Bosch single-flame tube steam boilers with boiler control.

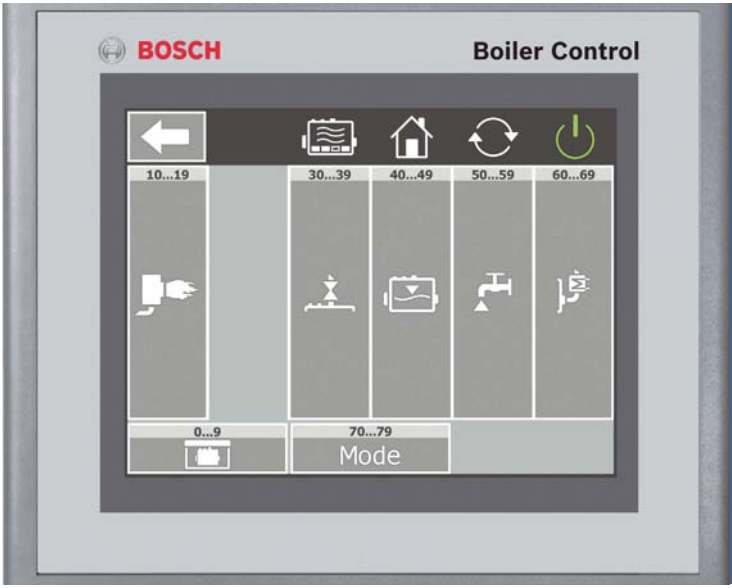
The diagnostics information shows all the influencing factors on the most important boiler functions, such as burner control, output control, steam extraction, water supply and flue gas control. It supports the boiler operating company or the Bosch service technician with an objective analysis of the current operating parameters. In addition to the unrivalled operating optimisation, which is possible with this, the causes of irregularities in operation can be quickly localised and eliminated.

Reliable and efficient operation is facilitated by the boiler control BCO with diagnostics function and other innovative software modules, such as Condition Monitoring basic for efficiency and status monitoring, or the automatic start-up control SUC. The high quality of the data makes operating and controlling the energy-generating system much easier – the operating company is relieved of pressure in terms of time and specialised skills. In addition to this, first-class support services by Bosch Service are guaranteed.

Transparent – Efficient – Smart: new trailer about the innovative Bosch control technology is available! Visit us at www.bosch-industrial.com under the Components for control – Boiler control BCO section.



Start page with the new button diagnostics function.



Selection menu with the most important boiler functions.

Mobile heating plant with integrated Bosch boiler technology

Efficient heat supply by means of condensing heat exchanger

Hotmobil, a supplier of mobile energy plants for heat, cooling and steam, has presented a technical innovation in the area of mobile heating plants: the six-metre long Hotmaster MHC 1500 container system, which weighs 8500 kilograms, with integrated Bosch heating boiler and condensing heat exchanger features a high standard utilisation efficiency of up to 104 % at an output of 1500 kW.

“This mobile heating plant with condensing technology, which is the largest on the market, is yet another result of the many years of successful cooperation between Hotmobil and Bosch Industriekessel”, says Reto Brütsch, Technical Director of Hotmobil. The Bosch heating boiler UT-L in 3-pass design, which is built into this heating plant, has already proven its worth thousands of times in practical use. The integrated condensing heat exchanger ensures that the system operates particularly economically. It reduces the flue gas temperature below the flue gas dew point and uses the condensation heat, which is released. The efficiency increases, emissions and fuel use decrease. The dual oil/gas firing system ensures that there is the greatest possible flexibility.

The new Hotmobil container system with integrated Bosch boiler technology has three sides, which can be opened completely. This makes operation easier and enables maintenance to be carried out quickly and efficiently. Another advantage is the extremely compact construction, which means that the logistics costs remain at a very low level. In emergencies the plant can be made ready within a few hours. The possible applications of the mobile energy plant are very varied. As a mobile and modular solution, which is also capable of being upgraded, it can be used for office buildings, hospitals, large residential complexes, local and district heat supply and for a wide range of applications to provide process heat.

The mobile heating plant with integrated Bosch boiler and condensing heat exchanger provides up to 1 500 kW with a container length of only six metres.

Efficiency and reliable energy at the Winsen Hospital

The operator

The two hospitals, Buchholz in der Nordheide and Winsen (Luhe), are located close to the southern edge of the city of Hamburg in the Lüneburg Heath. The Buchholz Hospital has about 300 beds and approximately 1 600 rooms. The Winsen Hospital can accommodate 280 patients. It has 1 400 rooms in an area of approximately 34 500 m². Since August 1999, the hospitals combined to form an LLC with Harburg County providing the sole support.

The project

The energy supply centers in the hospitals rarely come to the attention of management. A very high potential for energy savings remains unexploited despite numerous available mature and reliable technologies. Success stories such as those below illustrate how energy consumption can be systematically and permanently reduced.

Gas-fired steam boilers provide a significant amount of energy for the Buchholz and Winsen hospitals. The generated steam is used for the kitchens, the central sterilisation department, air-conditioning humidification and for the laundry (Buchholz hospital).

The 38-year-old steam supply system at Winsen was replaced in 2012. Dipl.-Ing. Torsten Riemer, the technical manager of the hospital, developed an energy concept that was optimised both economically and in terms of the environment. In addition to increasing energy efficiency, reliability was a key consideration. The approach included two Bosch steam boilers U-MB. Thanks to its compact and ready-to-connect design, the boilers could be very quickly moved into position and installed by the plant construction company Berger from Stelle. The decision to use Bosch industrial boilers was easy since two steam boilers UL-S with integrated Bosch economizers had been used successfully since 2006 in Buchholz.

The new boiler system is efficient to operate and features intelligent control functions. With an overall output of 1 200 kg of steam per hour, it is optimally tailored to the given requirements. Both boilers run in parallel during the day, and one switches to heat maintenance during the night.

Reducing power consumption

The standard integrated economizers maximise energy efficiency. The boiler feed water is fed into the heat exchanger and preheated with hot flue gases. The result: An increase in efficiency of approximately 5%. The fuel consumption and emissions are correspondingly reduced.

Low-emission natural gas is used to fire the two boilers. In addition, light fuel oil is available for one boiler. Given the wide control range in gas operation, the burner output can be smoothly adjusted to the actual steam requirement. The switching frequency of the burners is strongly reduced. Energy losses caused by upstream ventilation of the flue gas channels are reduced.

The compact steam boiler U-MB with aeconomizer and fired with natural gas.

Intelligent control technology

The transparent management systems BCO and SCO ensure an energy optimised boiler and plant operation. A wide variety of operating data in the form of curve diagrams and totals displays can be analysed and adjusted to requirements using the boiler controls BCO. Integrated monitoring and protection functions help protect against improper use.

The start-up, standby and shutdown control SUC for additional reliability takes the burden off operating personnel. With this equipment version within the boiler control BCO, the start-up and shutdown processes of the steam boilers are triggered by a pushbutton or are automated by an external request signal. During normal operation, the integrated automatic functions protect the boilers and the plant from corrosion, water impact and brining. In the heat maintenance phase, steam extraction is facilitated every time the burner is switched on, stimulating natural water circulation inside the boiler and breaking up temperature stratification.

The system control SCO combines the individual controls into one universal system control. The integrated sequence control switches between the primary and follow-in boilers for smooth and economic use of the steam boiler. The sequence control comprises a steam volume measuring system and controlled steam shutoff valve. Once the adjustable amount of steam is exceeded, the follow-in boiler is connected by opening the steam shutoff valve. If the amount of steam falls below a specific value, the valve of the follow-in boiler closes. Both boilers are equipped with a heat maintenance device via the burner system. The heat of the follow-in boiler is maintained at a low pressure to minimize radiation loss while retaining quick availability.

The intelligent control technology enables the optimum control of the boiler plant and provides reliability of supply.

All operating messages and the latest process data for the boiler system are transmitted via the link to the hospital's process control center by means of Profibus-DP. For example, the selection of fuel or the switchover from maintenance heating to normal operation and back can be directed from the control center.

Additional energy generation

In addition to the process steam generation, the Buchholz and Winsen hospitals have cogeneration systems for economically generating electricity and heat.

The result

The modern energy generation systems by Bosch Industriekessel have improved energy efficiency and reliability in the Winsen Hospital. The hospital's technical managers, Dipl.-Ing. Torsten Riemer and Thorsten Holz, are highly satisfied: "Modernization immediately yielded savings in natural gas of about 15%. Furthermore, by reducing CO2 emissions, we are doing our part to protect the environment." Regular servicing and tests are offered by Bosch's customer service department, ensuring maximum reliability and consistently economical operation in the long term. The availability of the systems is increased, fuel consumption is optimized, and potential savings are identified early on.

The hospital's technical managers, Dipl.-Ing. Torsten Riemer (right) and Thorsten Holz, are highly satisfied with Bosch's products and services.

Large-scale boiler for French automobile manufacturer

The Bosch steam boiler ZFR-X, which is almost twelve metres long and over five metres wide, has been in operation now for several months at a French automobile manufacturer. The giant steel colossus with an operating weight of around 137 tonnes has a steam capacity of 50 000 kilograms per hour. It ensures a reliable heating and process heat supply in the production facilities of the car manufacturer.

The new steam boiler from Bosch with its modern concept replaced an ageing water-tube boiler. The LCI Group from Carvin in France was responsible for the implementation and support on site as well as for the installation. Commissioning was also handled by this long-standing partner of Bosch Industriekessel.

The ZFR-X is a shell boiler with three-pass technology and two flame tubes, as well as completely separate flue gas paths. An integrated superheater module on the boiler generates superheated steam instead of saturated steam, which means that temperatures of up to 230 °C can be achieved.

The steam boiler is equipped with an integrated economizer to use the heat potential within the hot flue gases. Feed water is fed into the heat exchanger and preheated to approx. 140 °C. The flue gas temperature falls to approx. 130 °C during this process. This not only saves energy, but also protects the environment. Use of a highly-developed natural gas burner system ensures that combustion produces reduced pollution with particularly low NOx emissions. Speed control helps to reduce the power costs and sound level in the partial load range. The burner system is also equipped with oxygen control. The excess air in the flue gas is reduced to a minimum, in order to ensure effective combustion and therefore achieve greater efficiency.

This is yet another occasion, when the French automobile manufacturer has opted for the proven boiler technology of Bosch. In addition to the new steam boiler the company operates four hot water boilers UT-HZ and one steam boiler UL-S at various sites in France.

The modern natural gas burner system provides low-pollution combustion.

The steam boiler ZFR-X with integrated economizer and superheater module has an operating weight of around 137 tonnes.

Fax reply

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