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Newsletter

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Content

Reliable energy for the whole world

Whether for emergency supply in a power plant, for producing paper products, in the oil refining process or for heating supply in hospitals or entire city districts – we offer reliable energy solutions for virtually all applications worldwide. Our focus is on availability, efficiency and the seamless integration into our customers' processes. In our latest issue you can look forward to impressive case studies from a wide range of different areas.

We hope you enjoy reading all about them.

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More than 100 Bosch boilers for clean air in Beijing

Below the limit value: 22 mg/m³ NO_X emissions

Clean and energy-efficient heating technology in China's metropolises is now more important than ever. Particularly stringent emission standards have been introduced in order to reduce pollutant emissions. In Beijing the nitric oxide limit value for heat generation systems and power plants is just 30 mg/m³. Bosch Thermotechnik optimised its Uni Condens 6000 F heating systems, to replace the existing heating boilers in the metropolis. The new, natural-gas-fired heat generators produce even lower emissions than the stipulated limit values, and use condensing technology to offer maximum efficiency.

Beijing Huaying Tianrun Energy Technology Co. Ltd. operates several heating plants in Beijing and approached Bosch Thermotechnik for the first time in 2016. The objective was to use new heating systems to significantly reduce nitric oxide emissions and improve energy efficiency. Special factors had to be taken into account during the early technical design phase, above all the high levels of air pollution in Beijing. Not all burner technologies are capable of reliably reducing nitric oxide emissions. Bosch Thermotechnik worked with a reputable burner manufacturer to develop an innovative solution. In addition to an optimised combustion chamber

Invented for life: Boiler systems from Bosch are helping to improve air quality in Beijing.

Extremely low NO_x emissions: The optimised Uni Condens boilers with recirculation technology.

and modified control system, the Uni Condens 6000 F boilers also use the recirculation technology, which is commonly used for industrial boilers. They are characterised by their extremely robust design, are resistant to contamination and guarantee extremely low NO_x values in the exhaust gas with a relatively low excess O_2 level of less than 3.5 %: Depending on the set burner output, NO_x emissions are between 22 and 29 mg/m³ – and therefore below the limit value for Beijing of 30 mg/m³.

The 1.2 MW Uni Condens boilers also use sophisticated condensing technology, which further reduces the amount of energy used as well as nitric oxide emissions. In comparison to their predecessors, the boilers use up to 15 % less fuel. The low NO_x values and excellent efficiency were also confirmed in March 2018 by the "China Special Equipment Inspection and Research Institute (CSEI)", who carried out measurements on site. With its further-developed boilers, Bosch Thermotechnik successfully implemented a top solution for a special market requirement in just a few months. Since the delivery of the first 20 boilers in 2016, Beijing Huaying Tianrun Energy Technology Co. Ltd. commissioned a further 118 low-emission Uni Condens 6000 F boilers in 2017 and 2018. They are all contributing to reducing climate-damaging greenhouse gases – for better air quality in Beijing.

40 tonnes of steam for the largest oil refinery in Denmark

Just over a year has passed since seven trucks arrived at the Equinor's oil refinery in Denmark – loaded with two steam boilers weighing 54 tonnes as well as system equipment from the Bosch industrial boiler plant in Gunzenhausen in Germany. The state-of-the-art boiler system can generate over 40,000 t/h of steam for the largest oil refinery in Denmark. When processing 5.5 million tons of crude oil every year the process steam is used directly in the refining process or to heat process equipment and piping.

The ability to produce its own steam for refining and to therefore become more independent were topics widely discussed by Equinor for a long time. It was previously supplied with the required energy by a Danish power plant. Equinor was faced with many challenges when it came to setting up and integrating a brand new steam generation system at its site. The considerable steam quantities needed to be supplied efficiently and with a high degree of automation. At the same time, strict safety regulations and high quality requirements had to be met in the oil refinery while guaranteeing maximum reliability of supply. During the early stages of the project, Bosch Denmark provided intensive support together with an optimum technical solution from a single source. The boiler system has a redundant design and all of the necessary components for safe, cost-efficient plant operation. For Equinor, it was not only about technology, but also competent support during and after the project phase. Bosch Denmark provided the best overall package: From consultation and technical elaboration to installation in collaboration with long-standing partner Hauge Installation, through to commissioning and services for maintenance, spare parts supply and remote service.

The new boiler system generates the steam required in superheated form. To reach temperatures of 250 °C, Bosch combined the two UL-SX single-flame tube boilers with superheater modules. The superheated steam temperature control on the flue gas side ensures reliable operation. A large number of devices such as for continuous conductivity measurement, blowdown, desalting and control automate boiler

Pictures: Lifting into the boiler house, installation and commissioning of the UL-SX steam boilers.

operation, ensure smooth operation with low material stress and increase safety. All boiler and module controls are combined in the higher-level SCO system control – it performs various functions such as actuating the deaeration system, chemical dosing or sequence control to ensure the smooth operation of the multi-boiler system. The controllers transmit important signals and data to the central control room of the refinery via a BUS connection. For cost-efficient service and instant support, Bosch service experts can analyse the plant, change parameter settings and locate and eliminate possible faults remotely. The operator can also view the status of the boiler system at any time via MEC Remote and respond quickly to any deviations. Further, the Bosch service team inspects and maintains the boiler system at regular intervals – a safe plant is the top priority for Equinor.

Customised steam boiler system

Quality, efficiency and environmental protection: These are just some of the benefits of steam and heating solutions offered by Bosch Industriekessel for commercial and industrial operations throughout the world. With more than 150 years' experience on the market, the German company has a unique understanding of industry-specific requirements and needs. Bosch Industriekessel also manufactured a customised steam boiler system for Chilean paper mill SCA. Eduardo Riveros, Head of Technical Infrastructure at SCA, explains, "For us, working with Bosch was a very enjoyable experience. We were impressed by the quality of the steam boiler and knew we were in safe hands thanks to the excellent technical support." All aspects of the boiler technology at SCA are perfectly coordinated – from the three-pass boiler to control and automation devices, right through to water treatment components. The system is also impressive when it comes to efficiency: The integrated economizer uses waste heat to pre-heat feed water, the air pre-heating system increases the temperature of the combustion air, the EHB expansion module recovers thermal energy from desalting water – all of which saves fuel. In a short interview, Eduardo Riveros described the quality of the boiler technology used.

Powerful and highly efficient: the UL-S steam boiler can provide up to 20 t/h of steam for producing hygienic paper products.

How has SCA benefited?
"We have saved money on thermal energy and electricity and reduced maintenance costs considerably. That is without doubt the greatest advantage of the project."

How does the system benefit the environment?
"With the new steam generation system, we have been able to switch our energy matrix over from carbon to natural gas. This has reduced pollutant emissions by an average of 75 % and eliminated solid and liquid waste."

Would you invest in this product again? Why?
"Yes, as these products allow us to make our production processes more efficient."

You visited the Bosch factory in Gunzenhausen. What was that experience like?
"A plant that produces more than 1,000 boilers with different capacities every year requires expertise, experience and ad hoc teams. In Gunzenhausen, I saw for myself that that's exactly what Bosch has."

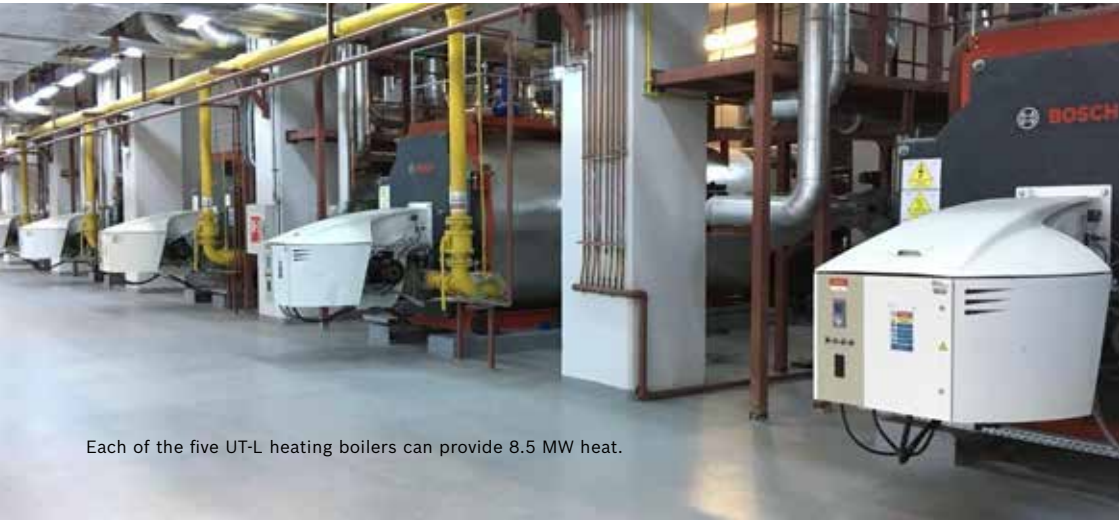
All components are matched to each other – the water service module supplies the boilers with feed water, free of corrosive substances.

Bosch boilers heat huge health campus

The huge health campus in Adana, Turkey.

The proven Bosch Unimat UT-L boilers are flexible, energy-efficient and exceptionally durable – they are used almost everywhere in the world, including at the Adana Integrated Health Campus. Bosch Termoteknik in Turkey was commissioned by RMI Rönesans Medikal A.Ş, which belongs to Rönesans Holding – one of the investors in the project, to supply a total of five heat generators from the UT-L series. Together, they produce 42.5 MW of heat for the health campus. By way of comparison, this heat output could heat over 5,000 single-family homes. Thanks to their robust design, high quality and integrated safety equipment, they easily meet the stringent reliability requirements for clinical operations and guarantee efficient heating comfort around the clock. Equipped with integrated exhaust gas heat exchangers and state-of-the-art dual-fuel burners, they make optimum use of energy and have a high efficiency of more than 97 %.

About the Adana Integrated Health Campus
The 320,000 m² campus has three clinics with a total of 1,550 beds: The central hospital with 1,300 beds is the main consumer of heat, plus a clinic for physiotherapy and rehabilitation as well as a high-security psychiatric hospital. The state-of-the-art Adana Integrated Health Campus also features further buildings and a helipad.



Each of the five UT-L heating boilers can provide 8.5 MW heat.

Reliable energy for emergency situations

Providing a stable supply of energy around the clock, offering competitive prices, adhering to legal guidelines and reducing environmental impact are some of the challenges faced by energy supply companies. The technology used in power plants must therefore be both energy-efficient and, above all, reliable. Bosch is the competent partner for energy providers throughout the world – state-of-the-art boiler technology, cogeneration of heat and power and solar heat extend its solutions for generating and supplying energy. The range of applications is extensive – from base load supply to peak load and emergency protection, right through to supporting start-up processes. The last two apply to the Bosch steam boiler in the Eno Nováky power plant in Slovakia. The power plant generates some of the electrical energy for the Slovakian Republic and supplies various cities and industrial companies with heat. Steam from three existing older boilers is used to start up the turbines (power generation). In the event of failures or faults, the new UL-SX steam boiler from Bosch with an output of approx. 22 t/h is available around the clock. Thanks to its integrated superheater module, superheated steam at temperatures of up to 270 °C can be generated. The overheating minimises residual moisture in the steam, which means that the resulting superheated steam is better for turbines and energy efficiency also increases. The boiler is designed for use with both natural gas and light fuel oil, which further enhances the reliability of supply.

The UL-SX steam boiler ensures stable power plant operation.

Bosch Industriekessel GmbH
Nuernberger Straße 73
91710 Gunzenhausen
Germany
Tel. +49 (0)9831 56-0
Fax +49 (0)9831 56-92957
E-mail info@bosch-industrial.com

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