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## CSB innovation – high efficiency in a compact size

Reference Report Bosch Industrial

### New boiler system for Lippstädter Hartschaum

The new process heat system at Lippstädter Hartschaum needs to be space-saving yet powerful and efficient, making this an ideal location to use the steam boiler from the innovative CSB product range. It has been developed by Bosch as a compact boiler with helix-tube technology for a high level of energy efficiency.

Lippstädter Hartschaum in Germany produces polystyrene rigid foam for thermal insulation, impact sound insulation or for packaging purposes. Thanks to its thermal insulation properties, the material saves huge quantities of heat energy in buildings, is used over a lifetime and is then fully recyclable with minimum energy required. Even during its manufacture, the company ensured that it handled energy and resources prudently – ideal requirements for integra-

ting the new Bosch CSB steam boiler for processing polystyrene. “Right from the outset, the boiler made a really great impression. The size, economic efficiency and even the price-performance ratio were all just right,” said André Flügel, QA technology apartment at Lippstädter Hartschaum. When developing the CSB boiler, Bosch placed special emphasis on a space-saving design and, at the same time, innovative structural elements for a high level of efficiency.

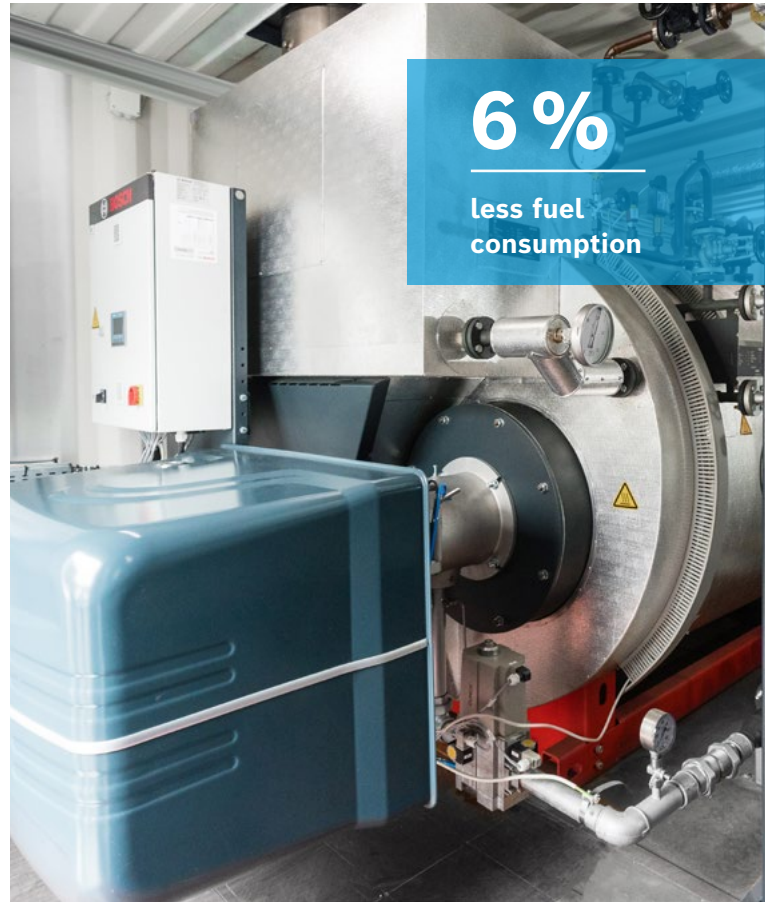


**LIPPSTÄDTER  
HARTSCHAUM**  
*Wenn was dazwischen kommt...*

The boiler used is designed with a rated output of 2,000 kg/h at maximum 13 bar and is fitted in a container in front of the company's production hall. Its smaller dimensions are not the only advantage offered by the CSB here. The economizer, the control and the natural gas burner are compactly integrated onto the boiler, coordinated as one unit and are fully fitted in the Bosch plant. In addition to the space-savings, the effort and expense required for installation is significantly lower. In order to comply with the latest efficiency standards, special helical heat exchanger tubes are used for the CSB. These allow for a highly efficient heat exchange and a reduced flue gas temperature. In combination with the economizer, the steam boiler achieves efficiency of over 95% – an increase of around 6% when compared with the boiler that was previously installed at Lippstädter Hartschaum, which leads to both reduced fuel consumption and, therefore, reduced CO<sub>2</sub> emissions.

#### Water vapour as a central component

The steam-drying unit and the generously dimensioned steam chamber in the CSB design have a positive effect on the high level of steam quality and reliable supply. At Lippstädter Hartschaum, the supply of water vapour is a central component in the process in order to expand the polystyrene granules



Compact unit with economizer, control system and burner.

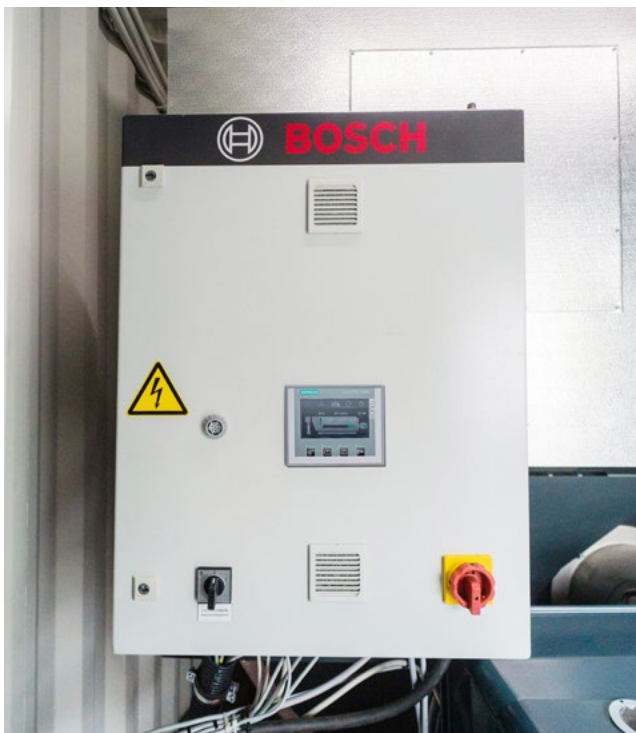


Easy internal inspection thanks to telescopic reversing chamber.

and, in the second step, manufacture panels, moulded parts and blocks. To ensure that the steam generation runs smoothly, the boiler is equipped with the CSC compact control. It automatically regulates the output and the water level in the boiler, for example. Thanks to its ease of use, all relevant operating parameters can be quickly called up via a touch display. An additional innovative characteristic of the compact boiler is its telescopic reversing chamber. Without inserts in the flue gas routing, it is significantly easier to access for maintenance measures and cleaning. The regular internal inspection of the pressure vessel can be carried out in a cost-optimised way with small effort. In the end, Lippstädter Hartschaum had to leave only a little more space in the container to be able to open the reversing chamber. With its special Bosch insulating concept, the reversing chamber is designed for life-long operation. Thanks to the insulating effect, its surface barely becomes warmer than the ambient temperature during operation. This also contributes to the high overall efficiency.

Bosch customer service technician Martina Reisinger tailored the water treatment to the local conditions.

For a long-lasting system, the steam boiler is completed by modules, such as the WSM-T partial deaeration. The module can be easily combined with smaller boiler outputs and uses the heat supply to dissolve corrosive substances in the feed water. For the optimal system settings and exact required chemical dosing, Bosch customer service technician Martina Reisinger was on hand to provide support to the team at Lippstädter Hartschaum. Following successful water analyses and fine adjustment, the thermal degassing process and the process of adding dosing agents are now fully automatic. Similar to the boiler, the WSM-T is particularly space-saving and could be installed quickly in the container as a completely assembled component by the plant construction company Seidenstücker.



### Summary

With the CSB boiler system, Lippstädter Hartschaum found a future-proof process heat supply. The new steam boiler from Bosch stands out thanks to its high efficiency values yet low emissions. This is confirmed by the manager at Lippstädter Hartschaum:

“Water vapour is a key component in our production. With the new boiler, the process is now even more energy-efficient and environmentally friendly. Last but not least, the compact unit from Bosch with attached control can be installed in a small space.”

**Albert Wroblewski-Sperl**

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#### Intuitive operation concept

- ▶ Compact control CSC mounted on the boiler
- ▶ Fully wired and individually programmed for quick commissioning

#### Boiler efficiency >95%

- ▶ Integrated economiser for flue gas heat recovery
- ▶ Innovative insulation concept
- ▶ Reduced power consumption thanks to low resistance on the flue gas side

#### Easy cleaning and maintenance

- ▶ Thanks to telescopic reversing chamber
- ▶ No inserts in the heat exchanger tubes

#### Fit for the future with low emissions

- ▶ Below strict emission limit values
- ▶ Universally applicable with different fuels

#### Large heating surface in compact design

- ▶ Innovative helical heat exchanger tubes
- ▶ Compact design optimised for ease of transport and simple installation

## Our partner in the CSB steam boiler project

#### Plant operator:

Lippstädter Hartschaumverarbeitung GmbH  
+49 2947 9778-0  
info@lphv.de  
www.lphv.de

#### Installation:

Maschinenfabrik Seidenstücker GmbH  
+49 551 61500  
info@goettex.de

#### We are:

Bosch Industriekessel GmbH  
+49 9831 56-0  
info@bosch-industrial.com  
www.bosch-industrial.com

Bosch Industriekessel GmbH  
Nuernberger Strasse 73  
91710 Gunzenhausen  
Germany  
Tel. +49 9831 56-253  
Fax +49 9831 56-92253  
sales@bosch-industrial.com

Bosch Industriekessel Austria GmbH  
Haldenweg 7  
5500 Bischofshofen  
Austria  
Tel. +43 6462 2527-300  
Fax +43 6462 2527-66300  
sales-at@bosch-industrial.com

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