BIOMACON compact converter, a tool in the fight against climate change

Climate change, resource scarcity, soil desertification and groundwater pollution are the big challenges of the 21st century. The **BIOMACON** technology constitutes one important component as far as dealing with these challenges is concerned. Apart from systematic resource conservation, there is currently no other promising solution to these challenges.

Biomass is one of the most important global CO2 storages, besides water, soil and atmosphere. In conventional use of biomass for energy generation, the amount of CO2 that is released always equals the amount that is previously bound by the biomass. The **BIOMACON** technology, on the other hand, only uses the hydrogen contained in the biomass for energy generation. Chemically stable carbon is systematically decoupled as biochar. Biochar is an important tool in the fight against climate change. One kilogram of pure carbon binds 3.6 kg CO_2 for more than 1000 years. Biochar is also a strong tool for the prevention of soil desertification. By replacing nitrate-containing fertilizers with biochar, surface water and groundwater are actively protected.

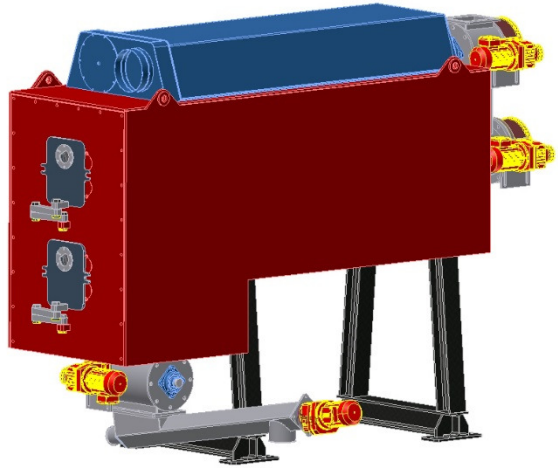
Compared to the previously developed **BIOMACON** Simplex converters, the new **BIOMACON** compact converters are even more efficient, less noisy (42dB) and produce purer biochar

BIOMACON compact converters offer an integrated system for the effective use of all existing resources.

- The converter is designed for lignin –containing materials with a maximum water content of less than 50%. Under these conditions, the converter can fully utilise the in-build technical innovations.
- The compact converter requires only small amounts of space and can therefore be easily integrated into existing buildings.
- The compact design ensures maximum heat efficiency and minimal radiation losses.
- Thanks to low specific investment costs, the facility can be operated in a heat-controlled mode.
- The ceramic lining allows for extremely high process temperatures. The result is low-emission high-quality biochar.

BIOMACON compact converters are heat driven and designed according to required heat consumption. They are available in different sizes. The modulating output control automatically adapts to the required heat consumption.

Model size	Surface	Biochar	Thermal output
S	1000x2000	6,2kg/h	25-40kW
M	1000x2500	9,7kg/h	35-63kW
L	1250x2500	13,8kg/h	50-100kW
XL	1250x3000	24,1kg/h	80-160kW
XXL	1450x3000	34,2kg/h	125-250kW
n x XL	Designed according to local conditions		



Through the sector gate, the raw material reaches the converter screw, which then transports the biomass through a combustion chamber. Within this chamber, the biomass is dried, pre-heated and pyrolised, and further energy is added in the reformer chute. As during the production of active carbon, a very hot gas mixture passes through the smouldering biomass. The residence time is extremely long and leads to an exceptionally clean biochar..

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BIOMACON compact converter

The system for combined production of heat and biochar CHB (COMBINED HEAT AND BIOCHAR)

HEAT SHIELD Technology

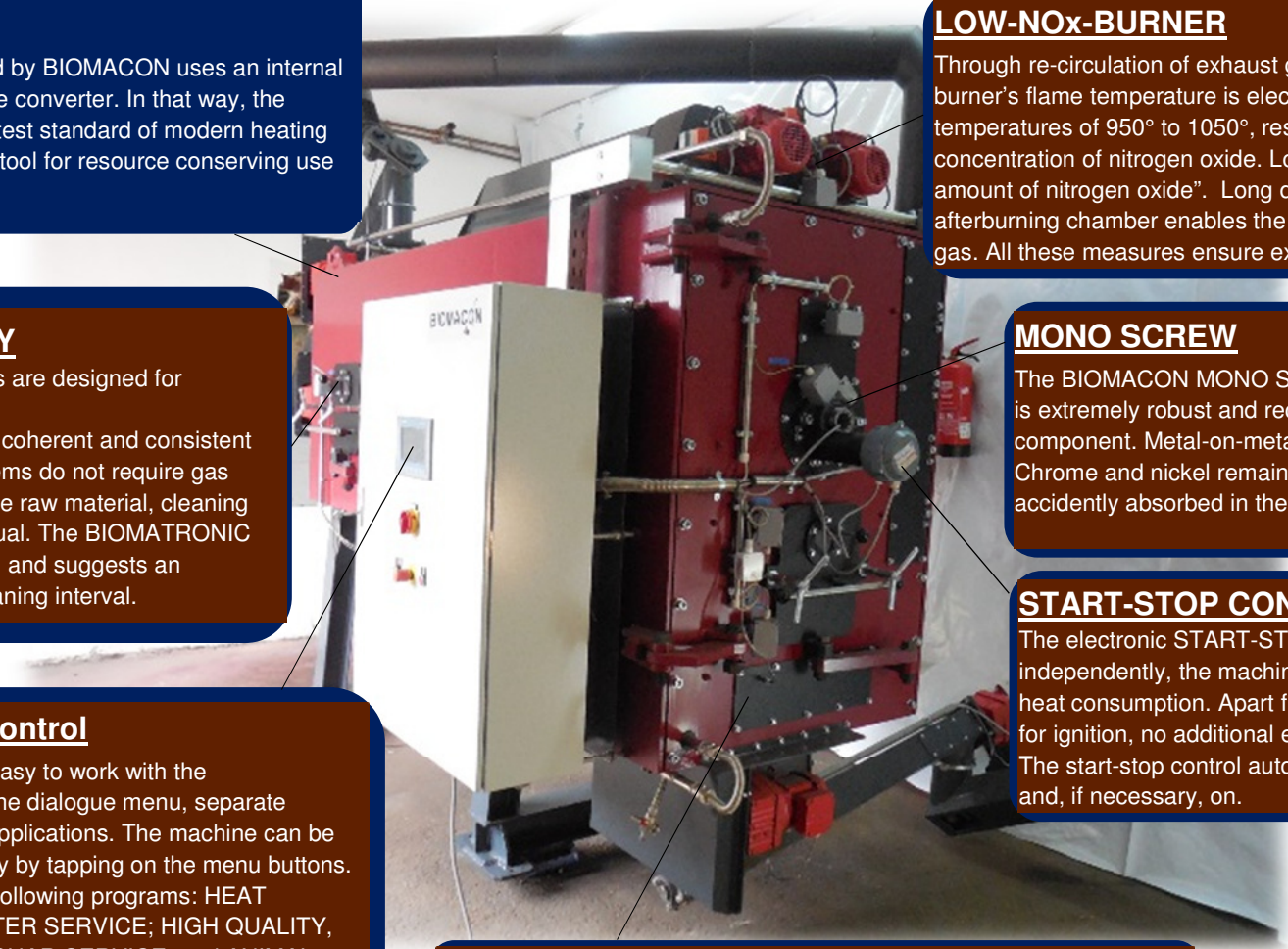
The Heat Shield technology developed by BIOMACON uses an internal water jacket which surrounds the entire converter. In that way, the thermal efficiency complies with the latest standard of modern heating systems and is therefore a pioneering tool for resource conserving use of biogenic raw materials.

MAINTENANCE FRIENDLY

The BIOMACON compact converters are designed for everyday continuous operation.
In addition to top quality materials, a coherent and consistent design is indispensible for. Our systems do not require gas pipes. Depending on the quality of the raw material, cleaning intervals of over 2000h are not unusual. The BIOMATRONIC displays the degree of contamination and suggests an additional timeframe for the next cleaning interval.

BIOMATRONIC dialogue control

Even untrained personnel will find it easy to work with the BIOMATRONIC dialogue control. In the dialogue menu, separate programs are stored for the various applications. The machine can be switched to the different modes simply by tapping on the menu buttons. The standard version has stored the following programs: HEAT CONTROLLED SUMMER AND WINTER SERVICE; HIGH QUALITY, PREMIUM AND COMMERCIAL BIOCHAR SERVICE; and ANIMAL FOOD. The BIOMATRONIC is permanently connected with the BIOMACON server and the customers' machines. Remote control via computer or smartphone is included in the basic configuration.



LOW-NOx-BURNER

Through re-circulation of exhaust gases, the Low-NOx burner's flame temperature is electronically regulated to temperatures of 950° to 1050°, resulting in extremely low concentration of nitrogen oxide. Low-NOx means 'small amount of nitrogen oxide". Long dwelling time in the afterburning chamber enables the complete reaction of all gas. All these measures ensure excellent emission values.

MONO SCREW

The BIOMACON MONO SCREW with double bearing is extremely robust and requires only one movable component. Metal-on-metal friction is ruled out. Chrome and nickel remain in the machine and are not accidently absorbed in the biochar.

START-STOP CONTROL

The electronic START-STOP control works independently, the machine automatically adapts to heat consumption. Apart from some electric power for ignition, no additional energy input is required. The start-stop control automatically turns itself off and, if necessary, on.

HIGH TEMPERATURE REFORMER

The production of biochar of very high quality is enabled through long retention time within the high temperature reformer. Optionally, the machine can be equipped with a gas or steam activator. The temperature in the **coal can then easily rise to above 1000°C.**

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