

POLYTECHNIK
Biomass Energy

POLYHELD®

HIGH EFFICIENCY LOW DUST

Innovative biomass
gasification technology

CARBON NEUTRAL & POWERFUL

Our innovative grate technology with its staged air supply is unique in its performance class and allows for low-emission and efficient use of different fuels.

With our carbon-neutral combustion technology, POLYHELD significantly contributes to eco-friendly, sustainable and low-resource energy production.

POLYHELD makes it possible to use a variety of fuels, all whilst remaining highly efficient and keeping emissions low – without additional flue gas cleaning.

As it takes up little space and requires low maintenance, POLYHELD is also an economically sustainable solution.



REFERENCES

Sulzberg, Austria	400 + 600 kW
Sulz, Austria	1.000 kW
Hainfeld, Austria	1.000 kW
Leobersdorf, Austria	1.500 kW
Röthlein, Germany	2 x 2.000 kW

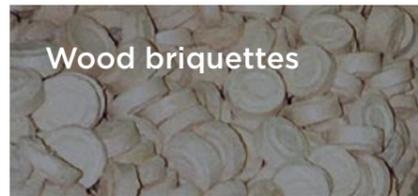


USE A VARIETY OF FUELS

The innovative technology allows for the use of residual materials from the wood and forestry industries and most woody fuels with a water content of up to M45, as well as agricultural waste.



Wood pellets



Wood briquettes



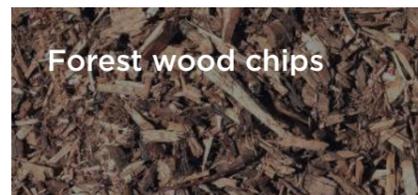
Scrap wood chips



Agricultural pellets

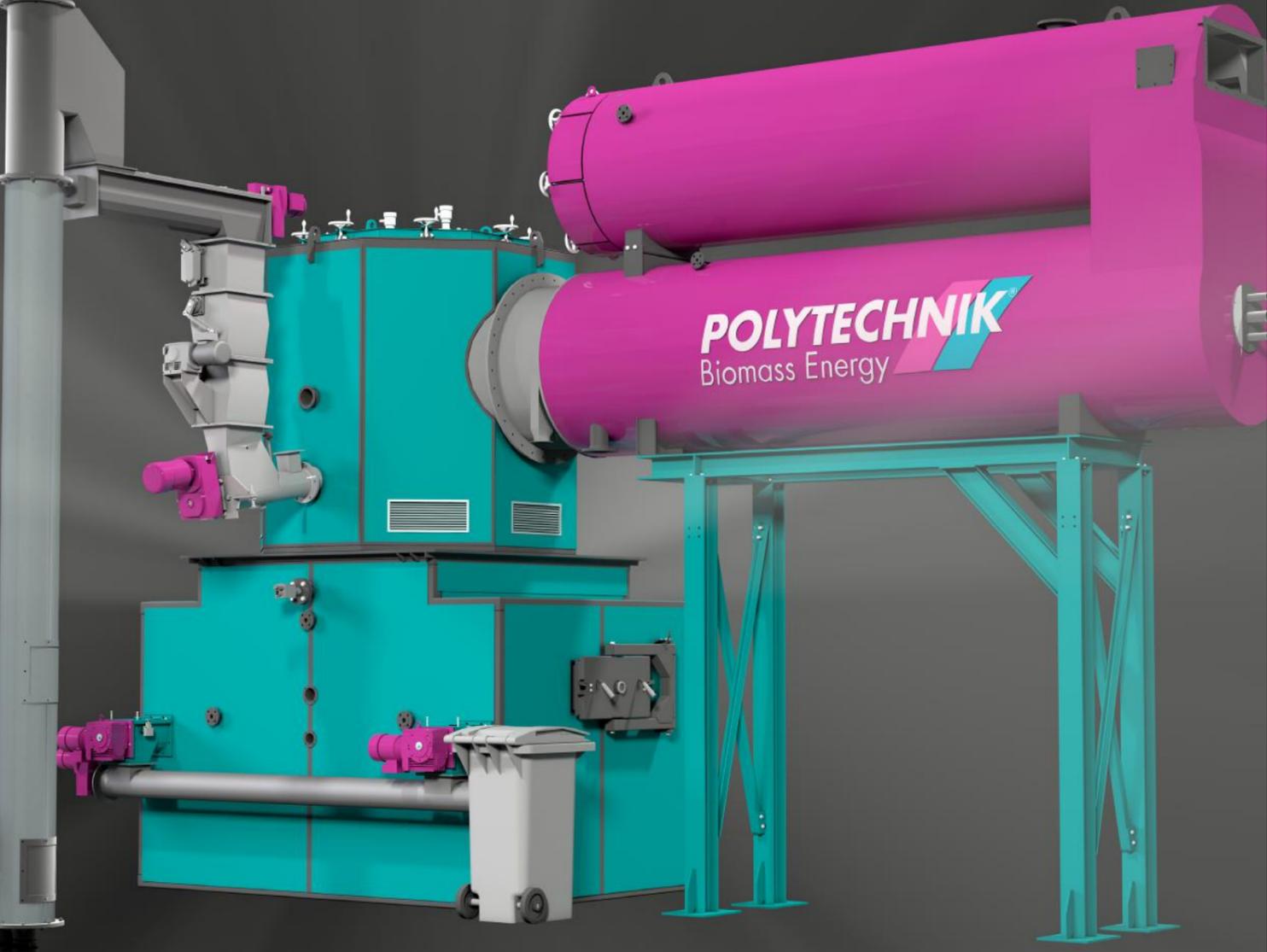


Industrial wood chips



Forest wood chips





HOW IT WORKS

The dust particles released through gasification are filtered in the fuel bed. Fine dust and grate ash are hereby automatically removed to one central compartment. The wood gas simultaneously pre-dries the fuel at the top level.

Thermal energy is stored in a firebrick-lined upper compartment, which ensures that auto-ignition is possible when regularly operated.

The wood gas flows under a controlled, staged air supply into a combustion chamber, where it is efficiently and completely burnt, and the production of nitrogen oxides is reduced to a minimum.

Temperature control in the combustion chamber is achieved with recirculated flue gas.

The hot, clean flue gases are cooled in the adjacent boiler. During this process, efficiencies of over 92% can be achieved. Water, steam, thermal oil and hot air are used as heat transfer media.

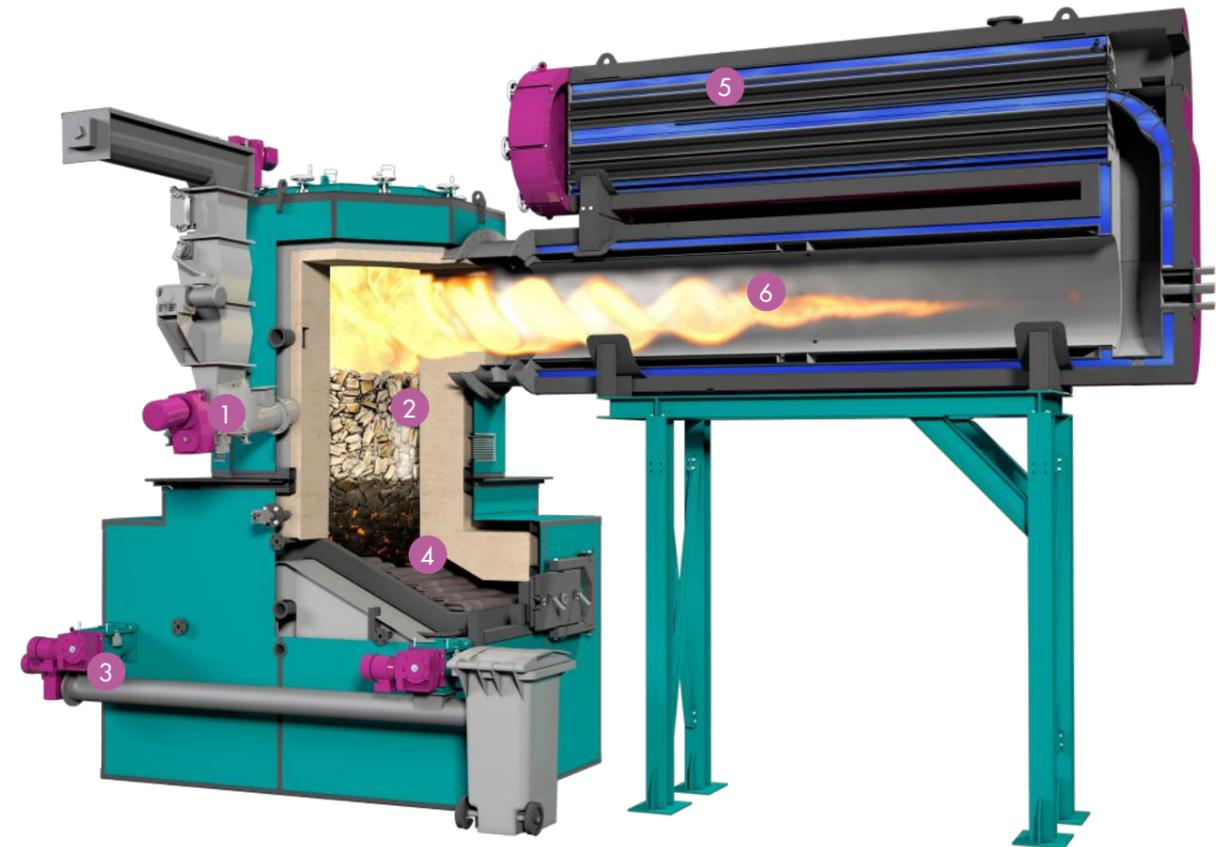
1. Inlet 2. Fuel bed 3. Gasifier grate 4. Ash removal 5. Heat exchanger 6. Special low-NO_x burner

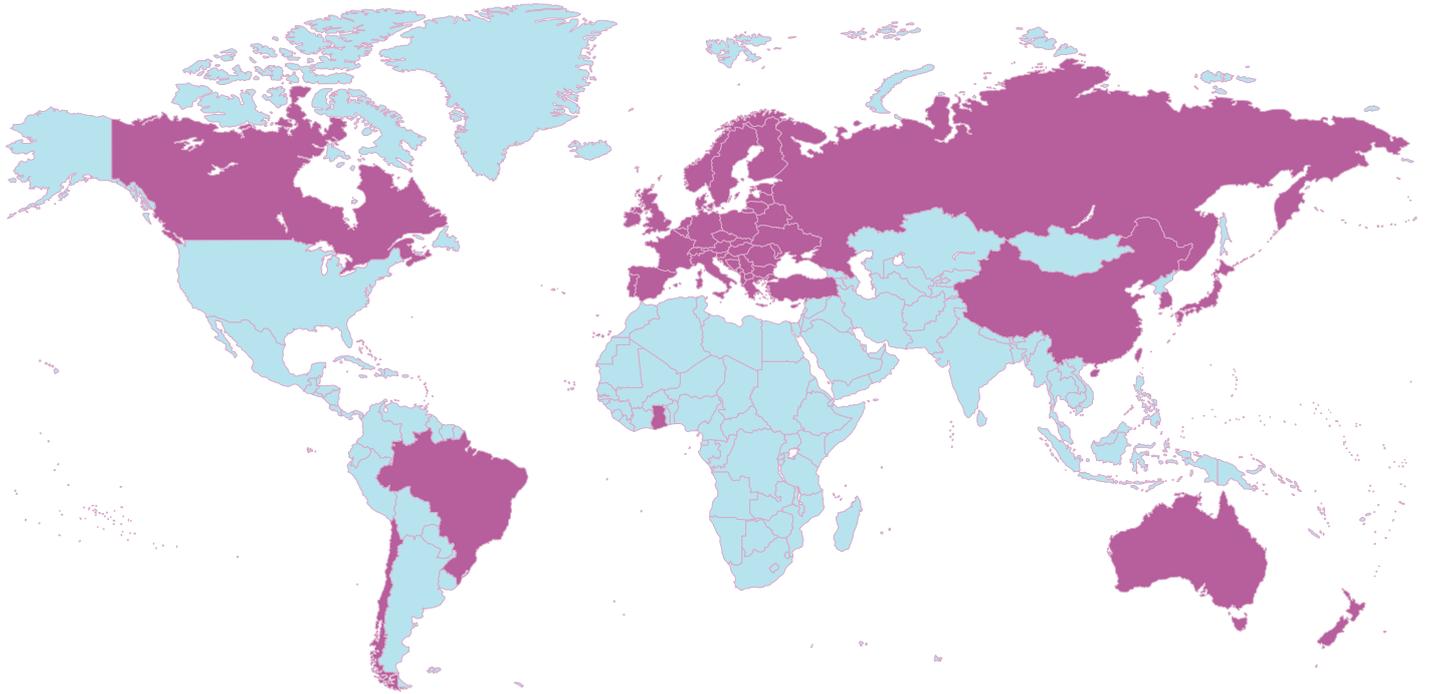
POLYHELD

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The innovative combustion system is fed with different fuels, depending on the customer's wishes, using a stoker screw — whereby the filling level and the fuel bed height are continuously controlled.

The grate under the fuel bed was developed exclusively by POLYTECHNIK for this technology. After the fuel is ignited for the first time, the combustion air is supplied from below the grate. Once the system is in regular operation, the high temperature and the air supply are sufficient to ignite the wood gas.





POLYHELD

HIGH EFFICIENCY LOW DUST

Use a variety of fuels: residual materials from the wood and forestry industries and most woody fuels (with a water content of up to M45)

Efficiency: >92% (+5% compared to traditional burners)

NO_x: -25% compared to traditional burners

Dust: <20mg/Nm³; 11% O₂ (without additional emission purification)

Power range: 25-100%

Low maintenance costs

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