

# HEATING CONCEPT USING A WOOD GASIFIER

## Sustainable production at the Zipfel sawmill

### A PAST RICH IN TRADITION

The Zipfel sawmill, in the spa town of Eisenbach in the Black Forest, has been processing wood since 1842. Since 1995, the family company with a rich history has been run by Andreas Zipfel. The products and services offered range from wood drying to sawn timber of all kinds, structural timber, environmentally sound impregnation and planed goods. By constant modernisation and expansion of the company's machine park, the sawmill always aims to respond to customer requirements flexibly and individually. At present the sawmill only has one drying kiln, as they were lacking a suitable heating concept for another wood drier, although it is actually necessary – the existing boiler is already working at full capacity.

### THE WOOD GASIFIER CONCEPT

Burkhardt was able to convince Zipfel of the wood gasifier concept. At that time, planning of which drying kiln should be used had already been completed. In future, a model V3.90 pellet wood gasifier, as well as an ECO 180 HG CHP, will be used to generate the heat needed to dry the wood. In addition to its thermal output of

270 kW, it also produces 180 kW of electricity, which can be fed into the grid. A new power house was built especially for the two system modules, with an adjoining pellet bunker and bucket elevator. The building was designed so as to allow a second wood gasifier to be set up in the course of future upgrades.

The CHP is accommodated in an adjacent Burkhardt concrete cell. In addition to this, a 50 m<sup>3</sup> buffer was erected outside to cope with fluctuating demand.

### HIGH-ENERGY WOOD GAS

The Burkhardt wood gasifier is an autothermal gasification process, which means that no external source of heat is needed. The gasification converts about 110 kg of pellets into combustible gas per hour, which is then burned in the engine. The advantage of the Burkhardt process lies in the fact that it produces homogeneous and pure gas. Tarry residues are almost completely decomposed due to the homogeneous reaction conditions and the long dwell period at high temperatures, guaranteeing that the system can run for over 7500 h/a at full load.

### FACTS AND FIGURES

**Location:** Zipfel sawmill, Eisenbach, Baden-Württemberg, Germany

### Burkhardt plant information:

1x Burkhardt V 3.90 wood gasifier,  
1x Burkhardt ECO 180HG CHP

with a total output of:  
180 kWel and 270 kWth

### Commissioned:

2017

