

A collage of four images: a forest of tall trees, a modern wooden building on a snowy slope, a large blue water turbine, and a man and woman in work clothes standing in front of industrial machinery.

   
**ELECTRICITY  
& HEAT**  
GENERATED FROM WOOD

# ELECTRICITY & HEAT

## GENERATED FROM WOOD

Motivated by the pioneer Bernd Joos, a small team from Spanner Re<sup>2</sup> GmbH ventured into wood gasifier technology in 2007. Together with our first customers, we successfully brought this exciting technology to market and have installed more than 700 Biomass CHP globally.

We are convinced that „wood power“ in German “Holz-Kraft” will play a significant part in the future of Renewable Energies. The technology generates power and heat from the domestic and renewable resource of wood, regardless of weather. With wood power, you can take care of your energy supply by yourself, and become independent from big corporations as well as fossil energy imports. We offer tailor-made complete solutions and know-how generated from more than 20,000,000 hours of operation. Get into partnership with us to ensure your business has a sustainable energy future.



Thomas Bleul

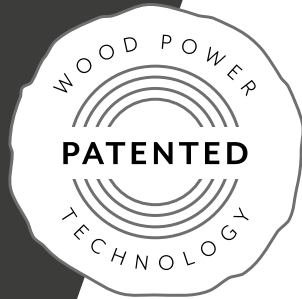
Director Spanner Re<sup>2</sup> GmbH



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The sun radiates 3,600 times more energy to the earth than we consume, only to capture, store and make use of it. Biomass or wood is like stored solar energy and we have an enormous worldwide natural reserve of it. With our technology, we are able to transform biomass into power and heat by using wood that is produced during thinning or wood processing.





# BIOMASS CHP FROM RE<sup>2</sup>

The Re<sup>2</sup> Biomass CHP generates electricity and heat according to the principle of combined heat and power (CHP). The unit consists of a wood gasifier and the combined heat and power unit (CHP). The generated electricity will either be consumed by the owner or sold into the grid. The heat generated during the process can be used for the heating of buildings, for drying grain and wood or in district heating systems.



## WOOD GASIFIER

The reformer is the heart of the plant. It produces wood gas from natural wood chips in a controlled process, which works on the downdraft principle: the wood chips and the wood gas moves in the same direction. With our patented and proven technology we produce an extremely clean wood gas.

## CHP

The cooled wood gas passes through two filter systems, before it drives a powerful engine, which produces the electricity and heat.



# 20,000,000 HOURS EXPERIENCE

Biomass CHP from Re<sup>2</sup> is built on the experience gained from over 20,000,000 operating hours. Our Biomass CHP units have proved themselves all over the world and show that sustainability and economy can be achieved simultaneously. Our vast experience and technology development as a pioneer in this field make Re<sup>2</sup> the leading manufacturer of Biomass CHP.

Our company was established in 2004 as a business unit called „Renewable Energies“ of the Spanner Group. With over 80 qualified and dedicated employees in Neufahrn in Germany, we constantly progress the optimization of our pioneering energy technology and always strive towards our main goal: To make Renewable Energies competitive!

# TRANSFORM YOUR BUSINESS WITH BIOMASS CHP

By cleverly converting regionally available wood chips into electricity and heat, a variety of diverse business operators are benefiting from the many advantages of Biomass CHP.



SMALL BUSINESS



WELLNESS & SPA



WOOD PROCESSING  
BUSINESS



AGRICULTURE /  
FORESTRY



HOTEL &  
RESTAURANT



PUBLIC  
INSTITUTION



INDUSTRY



DISTRICT  
HEATING

# HKA 10

## TECHNICAL DATA



Electrical power	9 kW
Heat power	22 kW
Wood chip quality	Natural wood Max. water content <13% Max. fines (<4 mm grain size) 30%
Wood chip consumption*	0,9 kg/kWh <sub>el</sub>
Dimensions**	2,10 x 1,40 x 2,20 m (LxWxH)
Flow temperature	Max. 85°C
Return temperature	Max. 60°C
Control	Intelligent control technology with modern touch display
Planning	Quick installation of the system through "Plug & Play" connections

\* Depending on the quality of the wood chips.

\*\* Dimensions without sluice. Technical data: 05/2017.



## YOUR PATH TO HEAT & ENERGY INDEPENDANCE

In the field of bioenergy, Re<sup>2</sup>'s HKA 10 is revolutionary. With 9 kW<sub>el</sub> and 22 kW<sub>th</sub>, it is one of the **smallest Biomass CHP of its kind**.

The wood gasifier and the CHP are housed in one casing. This saves space and makes the system **particularly compact**. Another great advantage is that the HKA 10 offers the **flexibility of using various different types of wood**. It operates with natural wood chips, as well as pellets and briquettes.

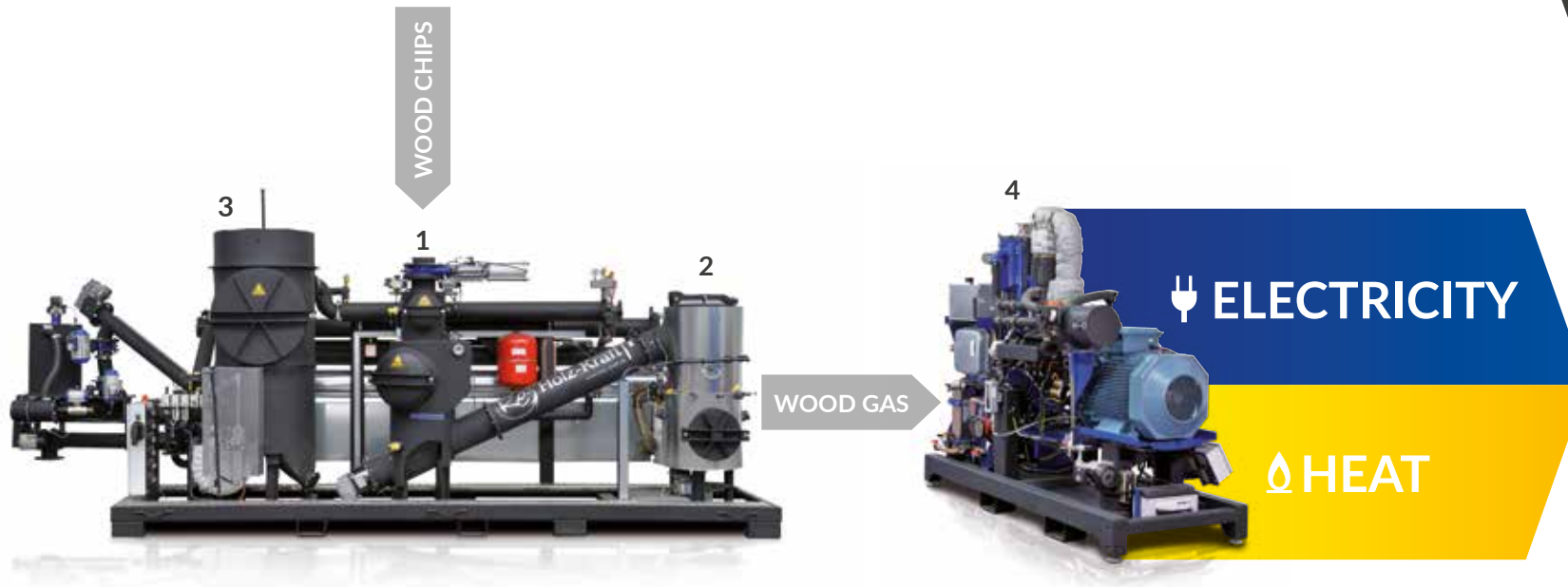
It is developed for **self-supply** and ideal for businesses with high demands of electricity and heat. It operates with **high efficiency, is environmentally friendly and makes you independent of fossil fuels**.



Conventional energy production with the negative consequences, cost dependencies and the central energy policy, have made me consider other options. With the HKA 10 we generate electricity and heat at any time with our own wood. We are independent and that is a good feeling.

**Andreas Huber, Germany**





### 1. FEED OF FUEL

The conveying screw automatically transports the fuel from the fuel bunker to the Biomass CHP. An integrated metal interceptor in the fuel sewer port separates foreign material. A second conveyor screw transports the fuel to the reformer.



### 2. REFORMER

The reformer is the heart of the Biomass CHP. It produces almost tar-less wood gas by our special pyrolysis process. The innovative structure of the reformer offers high fuel flexibility. Using a compact fire bed with temperature monitoring, we guarantee a regulated wood gas production that ensures the efficiency of our Biomass CHP.



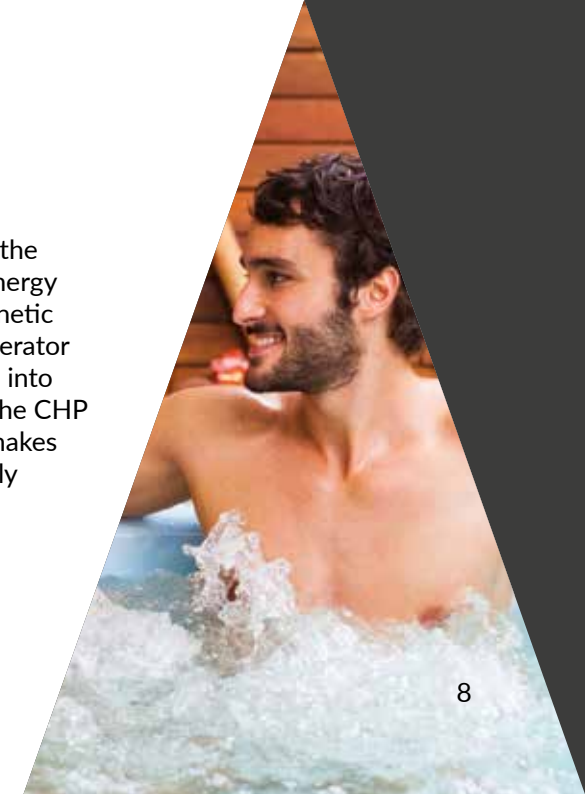
### 3. WOOD GAS FILTER

The produced wood gas is cooled by the heat exchanger and passes through a wood gas filter with integrated self-cleaning.



### 4. CHP

The solid engine burns the gas and converts the energy of the wood gas into kinetic energy. A powerful generator transforms the rotation into electricity. In addition the CHP produces heat, which makes the whole process highly efficient.

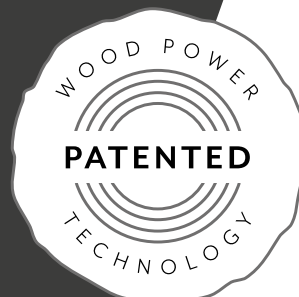




# HKA 35/45/49

## TECHNICAL DATA

	HKA 35	HKA 45	HKA 49
Electrical power	35 kW	45 kW	49 kW
Heat power	79,5 kW	102,2 kW	111,3 kW
Wood chip quality	Natural wood Max. water content <13% Max. fines (<4 mm grain size) 30%		
Wood chip consumption*	0,9 kg/kWh <sub>el</sub>	0,9 kg/kWh <sub>el</sub>	0,9 kg/kWh <sub>el</sub>
Dimensions wood gasifier	5,27 x 1,54 x 2,30 m (LxWxH)		
Dimensions CHP	2,60 x 0,92 x 2,19 m (LxWxH)		
Flow temperature	Max. 85°C		
Return temperature	Max. 65°C		
Control	Intelligent control technology with modern touch display		
Planning	Flexible installation		



We place great importance on sustainability and, of course, also in terms of energy supply. We consistently evolve and improve our Biomass CHP technology and enhance its performance.  
**Organic Farmer Josef Braun, Germany**



The Biomass CHP **HKA 35**, **HKA 45** and **HKA 49** consist of a wood gasifier unit and a combined heat and power plant (CHP). Several hundred of these approved Biomass CHP are in **operation around the world and produce large amounts of electricity and heat** for big companies or wellness resorts. The average running time of the Biomass CHP is around 8,000 operating hours per year. Many of our customers have an annual running time of over 8,500 hours, which results in **plant availability from 98 percent**. This is possible by the patented wood power technology, a precise production and the continuous drive to develop this technology further. The most recent innovation is the new design of the reformer on the **HKA 49**. Together with the highly efficient 8-litre engine, we have launched a superior product with exceptional performance on the market.

\* Depending on the quality of the wood chips. Technical data: 05/2017.

# MAJOR PROJECTS

## WITH WOOD POWER

We not only offer you the technology to produce energy from the wood sourced locally to you, but also the necessary know-how gained from the experience of numerous major projects. The modular design of our Biomass CHP makes it possible to combine several plants up to 3 MW<sub>el</sub> in a cascade. Depending on the heat demand, the systems are operated together or independently, which allows a particularly good partial load ability and maximum flexibility. Major projects with wood power have proven themselves many times and provide the highest levels of sustainability. Compared to energy produced by fossil-fuel, Biomass CHP provides the added value of „wood power“ sourced locally and cost effectively.

### BENEFITS OF OUR BIOMASS CHP CASCADE:

- Highest flexibility
- Maximum failure safety
- Needs-based services
- Sophisticated technology
- Simple logistics
- Fast installation
- Great experience from the world market leader



### FRUIT FARM COUNTS ON BIOMASS CHP CASCADE

Since 2016 three 45 kW Biomass CHP supply a large soft fruit grower in Scotland. The fruit farm requires a considerable amount of heat and electricity, which is reduced by using Biomass CHP.

### MAJOR PROJECT IN LATIVA

Since 2013 20 Biomass CHP (HKA 45) with 900 kW<sub>el</sub> as well as 2 MW<sub>th</sub> are in operation at a local district heating in Jēkabpils.



# ENERGYBLOCK

## THE TURNKEY COMPLETE SOLUTION

The Re<sup>2</sup> EnergyBlock is unique to the bioenergy industry. It is a perfectly coordinated complete system, consisting of a wood gasifier unit, a combined heat and power unit (CHP) and intelligent regulation. Compact in 20- or 40-foot containers, all components are pre-installed and perfectly adapted to your individual requirements. This not only simplifies the installation, but also allows extremely fast start up, so you can benefit straight away. The space-saving design allows variable installation possibilities and can be operated with wood chips, pellets or briquettes.



### WOOD CHIP DRYING SYSTEMS

In addition to the construction of Biomass CHP and biomass boilers, we are specialists in the production of automated wood chip drying systems. System components such as fuel dryers, conveyor systems or our ash removal systems are accurately combined and fitted to guarantee smooth operation.

### OFFGRID & DIESEL GENERATOR REPLACEMENT

The Re<sup>2</sup> EnergyBlock offers an excellent opportunity to replace existing expensive electricity from diesel units. Especially in isolated regions, like the forests of Canada, our EnergyBlock is the ideal solution for generating an environmentally friendly energy supply where its needed the most.





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