

Wood gas power plant without compromise

The fuel makes the difference

The company



Wood gas power plant



Process engineering



Automation

- Supplier of turn-key wood power plants
- Consultants for process engineering
- Company for automation and mechatronics
- Head quarter in Austria / Tyrol (Schwaz and Aschau)
- Foundation 2009

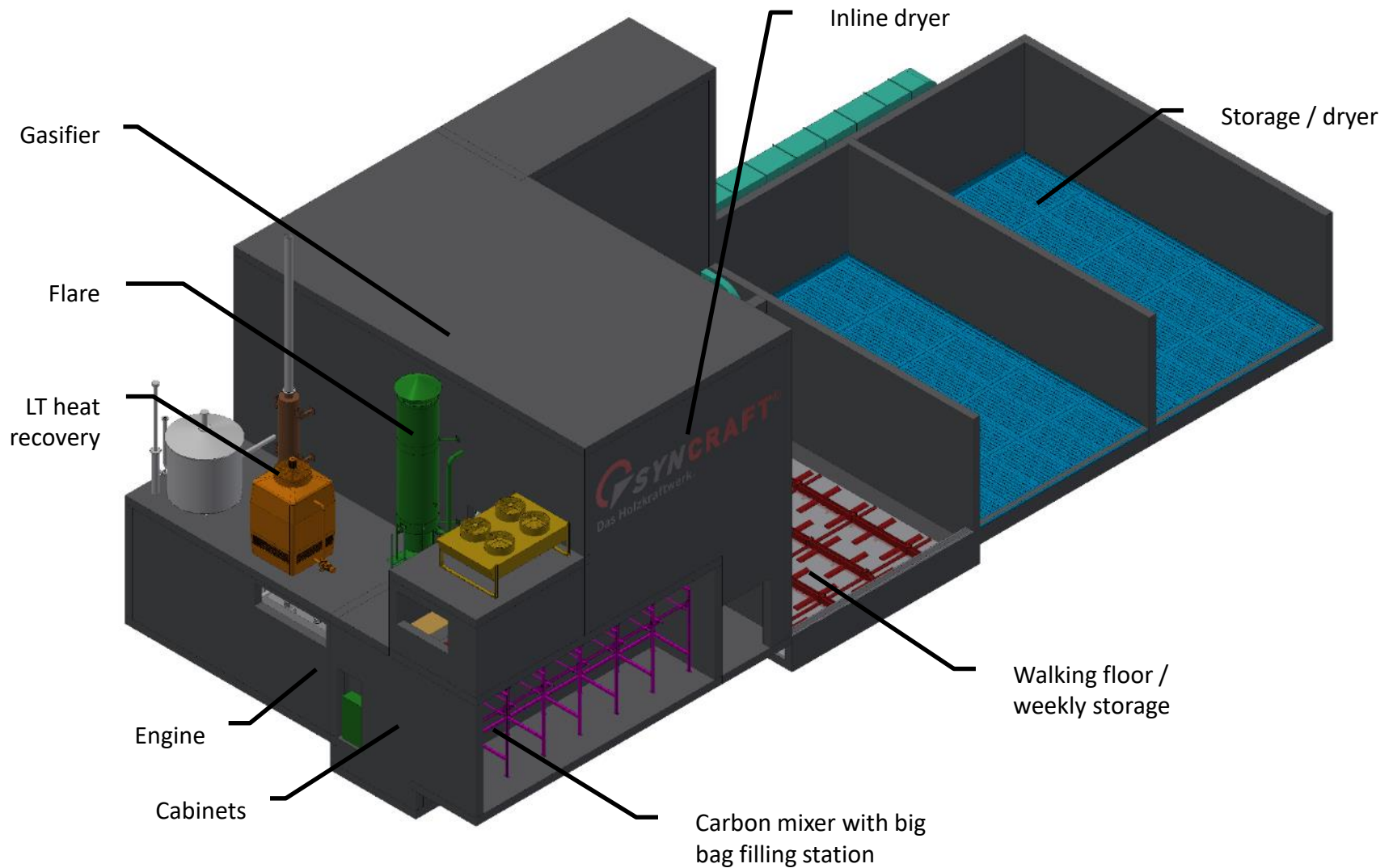
The product

Wood power plants in the power range up to 500kW*

	CW 700-200	CW 1000-300	CW 1200-400	CW 1800-500
Electrical power	200 kW	300 kW	400 kW	500 kW
Thermal power (basic variant)	326 kW	488 kW	615 kW	770 kW
Thermal power up to	481 kW	719 kW	920 kW	1153 kW
Fuel heat capacity	721 kW	1,067 kW	1,368 kW	1,754 kW
Fuel demand	140 kg/h	208 kg/h	267 kg/h	342 kg/h
Specific fuel demand	0.70 kg/kWh _{el}	0.69 kg/kWh _{el}	0.67 kg/kWh _{el}	0.68 kg/kWh _{el}
Charcoal by-product	1.95 m ³ /d	2.9 m ³ /d	3.7 m ³ /d	4.7 m ³ /d

* In combination of multiple plants in parallel higher power levels are achievable

The wood power plant



The wood power plant

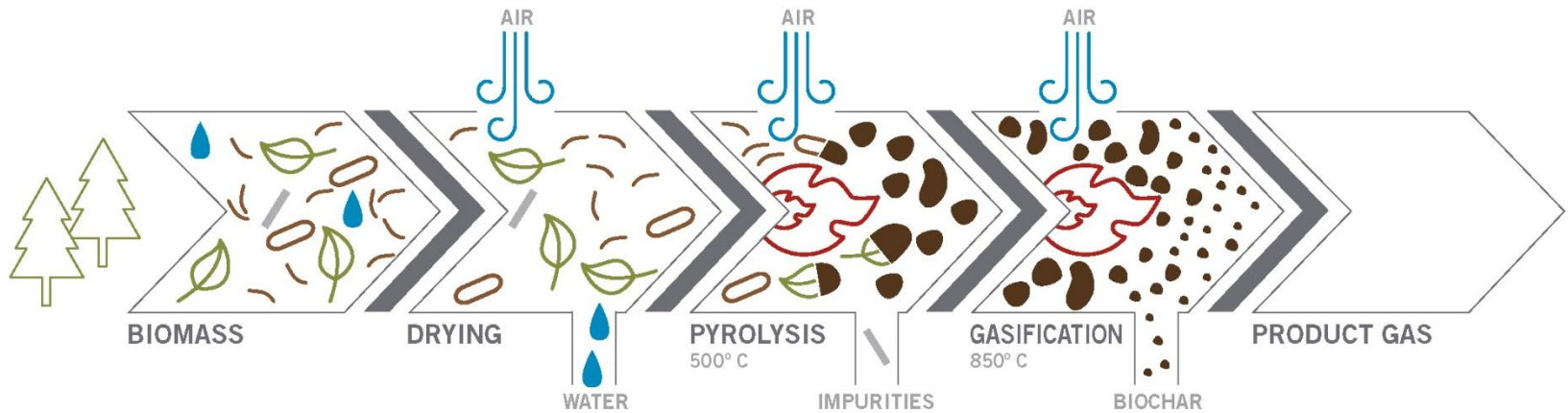
SYNCRAFT[®]
Das Holzkraftwerk.



IKB Eins für alle.

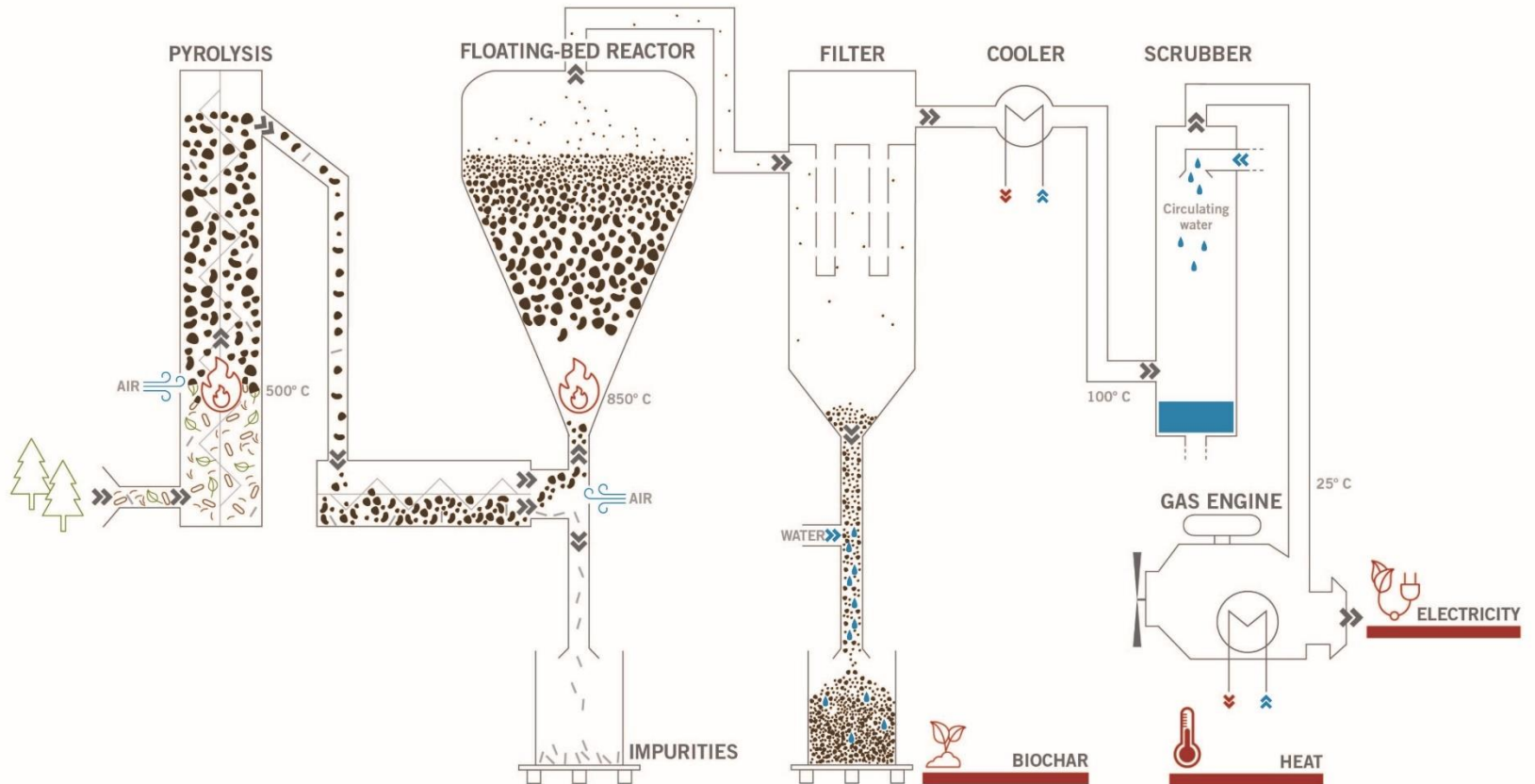
The process

Process flow scheme



Multi-staged conversion process of wet, solid biomass into a clean producer gas.

The technology



Your advantages

- **Forest residues incl. fines and bark**
 - **Reduced operating costs with further potential (waste wood)**
- **Highest efficiency**
 - Further reduced operating costs due to minimised fuel consumption
- **No hidden costs**
 - Low operating costs
- **The charcoal makes the difference**
 - Considerable additional earnings due to valuable by-product biochar (instead of ash)

A close-up photograph of a pile of forest residues. The image shows a dense collection of wood chips, bark, and a pine cone. The wood chips are light brown and vary in size and shape. The bark is darker and more irregular. A single pine cone is visible in the lower-left quadrant. The overall texture is rough and fibrous.

**Forest residues
incl. fines and bark**

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A large, green industrial engine, likely a gas engine, is shown in a close-up view. The engine is mounted on a green base and features a prominent silver motor on the right side. Various pipes, hoses, and electrical wires are connected to the engine. A large, cylindrical component wrapped in silver insulation is visible in the foreground. The engine is surrounded by a complex network of pipes and valves. The overall appearance is that of a well-maintained, industrial-grade power source.

**30% electric
overall efficiency**

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**Clear condensate
without any treatment**


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By-product

charcoal or biochar



A vertical laboratory reactor is shown, consisting of a large, clear, conical upper section and a narrower, cylindrical lower section. The upper section is filled with a dense bed of small, light-brown, granular particles. The reactor is mounted on a metal frame. Several red hoses are connected to the bottom of the reactor. To the right, a network of black and white cables is visible, some of which are bundled together. The background is a plain, light-colored wall.

Advantages only possible due to the unique floating-fixed-bed reactor.

The economics

Electricity costs basic



Investment	+ 5 cent/kWh
Financing	+ 1 cent/kWh
O&M	+ 3 cent/kWh
Fuel	+ 7 cent/kWh
Heat benefit	- 6 cent/kWh
Charcoal benefit	- 1 cent/kWh
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Electricity costs	+ 9 cent/kWh

The economics

Electricity costs with wood pellets



Investment	+ 5 cent/kWh
Financing	+ 1 cent/kWh
O&M	+ 3 cent/kWh
Fuel	+ 14 cent/kWh
Heat benefit	- 6 cent/kWh
Charcoal benefit	- 1 cent/kWh
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Electricity costs	+ 16 cent/kWh

The economics

Electricity costs basic



Investment	+ 5 cent/kWh
Financing	+ 1 cent/kWh
O&M	+ 3 cent/kWh
Fuel	+ 7 cent/kWh
Heat benefit	- 6 cent/kWh
Charcoal benefit	- 1 cent/kWh
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Electricity costs	+ 9 cent/kWh

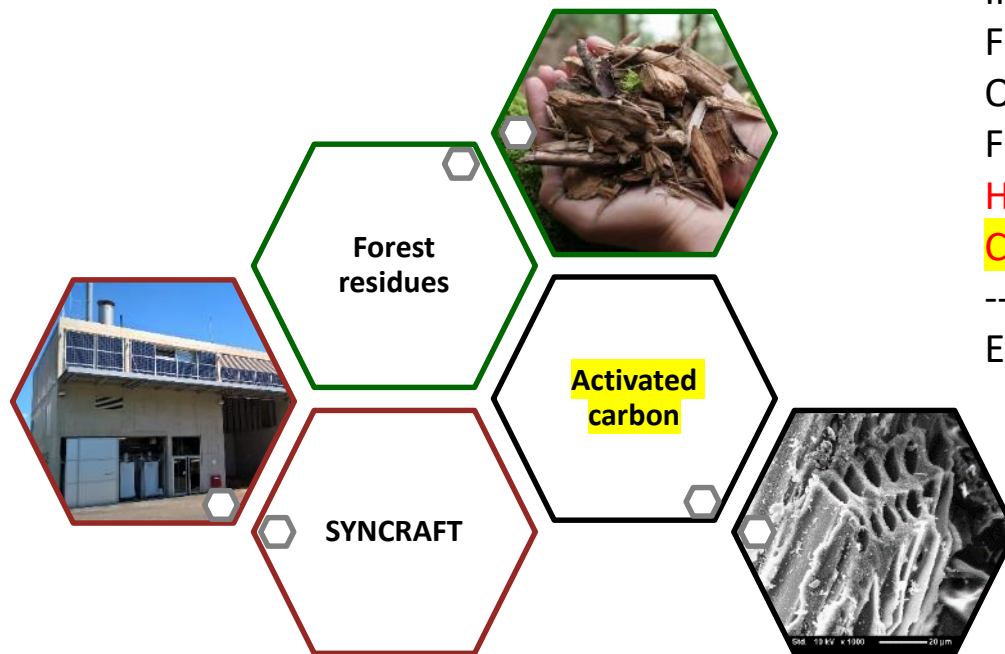
Electricity costs with BBQ charcoal



Investment	+ 5 cent/kWh
Financing	+ 1 cent/kWh
O&M	+ 3 cent/kWh
Fuel	+ 7 cent/kWh
Heat benefit	- 6 cent/kWh
Charcoal benefit	- 2 cent/kWh

Electricity costs	+ 8 cent/kWh

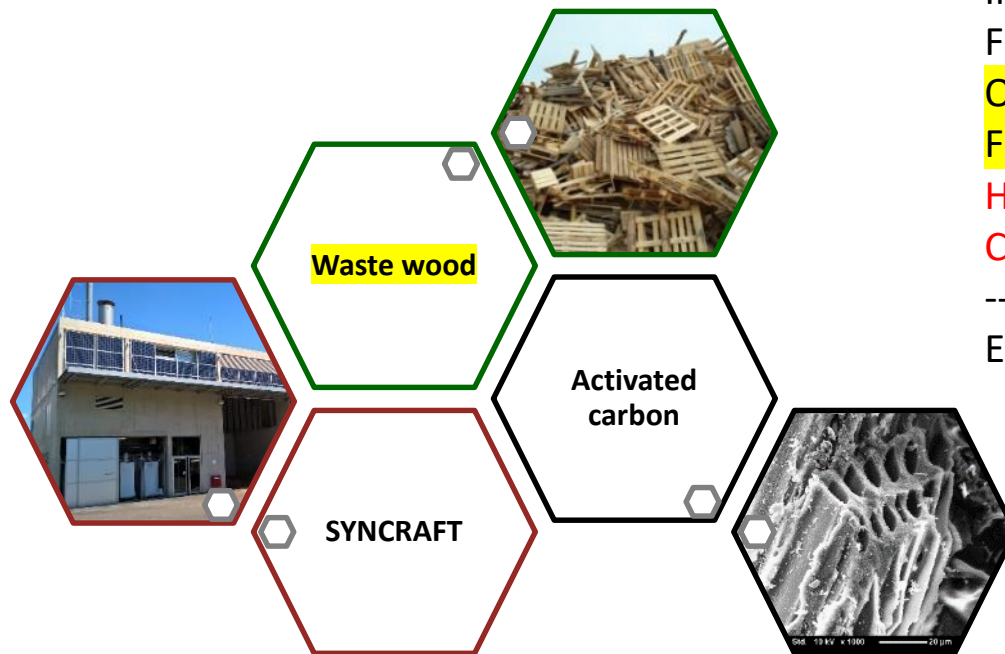
Electricity costs with activated carbon



Investment	+ 5 cent/kWh
Financing	+ 1 cent/kWh
O&M	+ 3 cent/kWh
Fuel	+ 7 cent/kWh
Heat benefit	- 6 cent/kWh
Charcoal benefit	- 4 cent/kWh

Electricity costs	+ 6 cent/kWh

Electricity costs with waste wood and AC



Investment	+ 5 cent/kWh
Financing	+ 1 cent/kWh
O&M	+ 4 cent/kWh
Fuel	+ 2 cent/kWh
Heat benefit	- 6 cent/kWh
Charcoal benefit	- 4 cent/kWh

Electricity costs	+ 2 cent/kWh

The References (selected)



SYNCRAFT[®]Werk CW 1000-300 / Innsbruck / AT
Commissioned early **2017**; produces **261kW** power and **601kW** heat. Delivered including low-temperature heat utilisation and dryer.



SYNCRAFT[®]Werk CW 1200-400 / Stadl / AT
Commissioned end **2016**; produces **324kW** power and **784kW** heat. Delivered including low-temperature heat utilisation and dryer.



SYNCRAFT[®]Werk CW 700-200 / Dornbirn / AT
Commissioned end **2014**; produces **220kW** power and **500kW** heat. Delivered with 185kW power. Low-temperature heat utilisation retrofitted 2016.



SYNCRAFT[®]Werk CW 1000-300 / Vierschach / IT
Commissioned mid **2014**; produces **300kW** power and **488kW** heat. Gas engine, dryer and feeding system supplied by customer.



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difference.

Many thanks for your
attention.

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