Carbo-FORCE

EN

ONE WORLD, ONE GOAL: OUR FUTURE

Dear readers,

The climate is changing. Sooner rather than later, we will have to react to the situation. As an innovative company, we are already hard at work to advance the fight against climate change. With a dedicated team, a unique method and a practical plant solution.

How? By converting residues into valuable resources. In this way, we can solve the world's waste problems, while also producing biochar that protects the climate. In turn, this helps to reduce the own carbon footprint or generate valuable carbon removal credits. At the same time, we are contributing to the energy revolution because our plants generate green energy. We create real added value for our customers worldwide.

But we don’t just rest on our laurels. By 2030, we aim to bind around 1 million tons of CO_2 together with our customers. That's why we are tackling the problem together and making the world a bit better every day. For a climate-positive future.

We hope you enjoy reading!

Peter Althaus and Kai Alberding
Managing Directors of Carbo-FORCE GmbH

FIGURES THAT CALL FOR ACTION

The sea level is rising, the ice in Antarctica is melting and the weather is getting hotter and hotter. And this has been going on for decades now. It's plain to see: The effects of climate change are more noticeable than ever before – all around the world. CO_2 plays a key role here, and humans are responsible. This makes it all the more important for us to take decisive action together.

1 °C

Global warming has increased by more than **1 °C** since the year 1850.

1,000 years

Methane is broken down in 9-12 years, but CO_2 can remain in the atmosphere for up to **1,000 years**.

20%

A report from the British government states that uncontrolled climate change could lead to costs amounting to more than **20%** of the global GDP.

20 cm

The sea level has risen by about **20 cm** since the start of the 20th century.

800,000 years

In 2024, the highest CO_2 concentration of the last **800,000 years** was measured.

40%

Since the 1970s, **40%** of the ice in the Arctic has melted.

READY FOR CHANGE

DRIVING THE FUTURE

We are changing today's world for the sake of tomorrow. Because this world is the only one we have. And it’s high time to find answers for climate change. That's exactly what our groundbreaking pyrolysis plants do: They convert organic residues into CO_2-negative energy. The secret to our success? A patented method and scalable plant solution that perform impressively in practice. But that's far from all. We provide holistic advice to our customers: from design to production all the way to commissioning. A personal contact is always there to provide assistance. Not just in Germany, but also internationally. Are you ready for change? We know we are!

Authentic
We give you personal advice. Our customers are not just numbers to us – they are real partners.

Ground breaking
We know what will be matter tomorrow, so we are implementing it today. To fight climate change. For a better world.

Experienced
We have more than 15 years of experience in pyrolysis technology, so we know exactly what it takes.

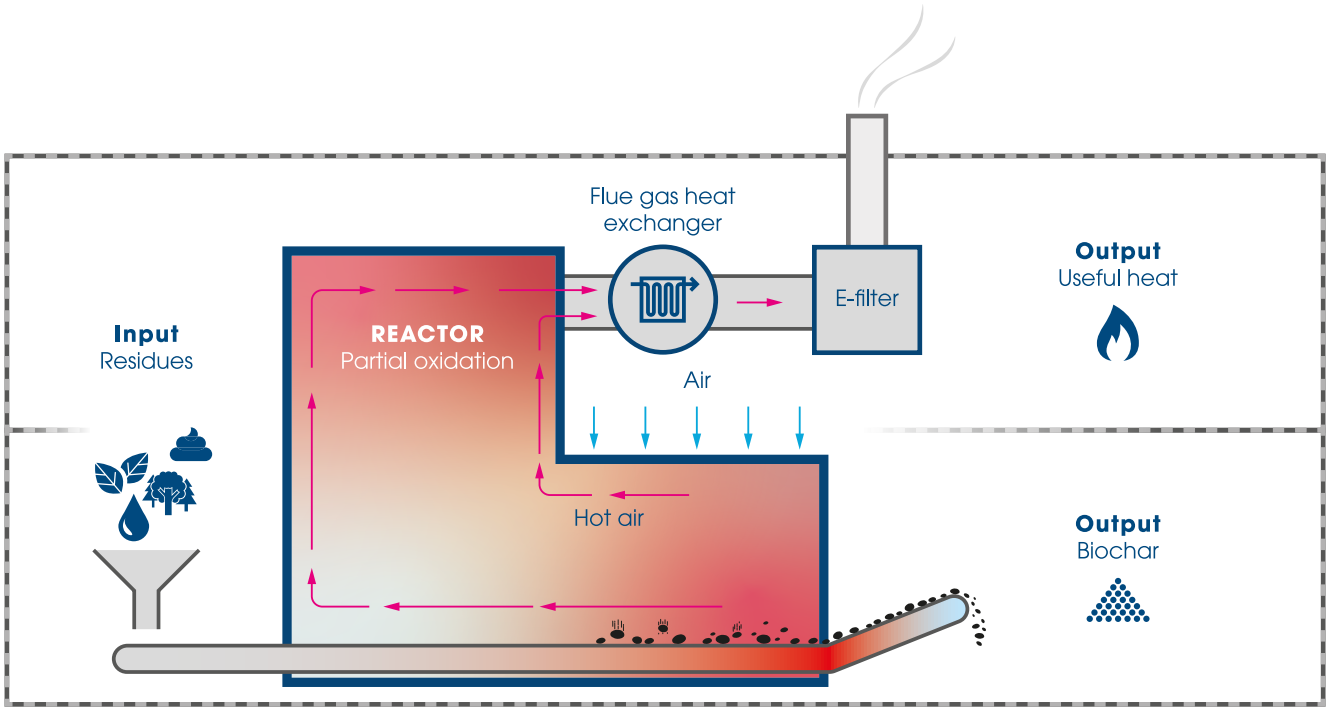
STRONG TECHNOLOGY, IMPRESSIVE ADVANTAGES

Actively storing CO_2? Our Carbo-CAP-TEC technology makes this easier than ever before. And even better than conventional pyrolysis methods. Why? Because our innovative method redefines the limits of what is possible using partial oxidation. Using targeted air injection, we fuel the process from the inside, not from the outside. That means: We heat biomass to very high temperatures in an oxygen-free environment – up to 900 °C in some cases. This allows us to bind the majority of the carbon instead of simply releasing it as with conventional combustion. The end product of this process is premium-quality biochar from a variety of different input materials. These small but critical details make all the difference and set our technology apart.

Sustainable
Energy is only required at the start of the carbonization process and for external equipment. During operation, the Carbo-CAP-TEC method runs nearly autonomously and generates renewable energy.

Efficient
Partial oxidation causes the biomass to become carbonized, and minimizes the formation of contaminants such as polycyclic aromatic hydrocarbons (PAHs). This results in valuable biochar with hardly any residues.

Flexible
Thanks to the adjustable temperature range in the Carbo-CAP-TEC reactor, a variety of organic and even complex input materials can be processed. These range from waste wood all the way to sewage sludge. In addition, the generated heat can be converted to various types of energy.



Partial oxidation explained
Partial oxidation means that at high temperatures and with little oxygen, not all the fuel is incinerated. Instead, a mixture of carbon monoxide and hydrogen known as synthesis gas is produced instead of the typical combustion products like CO_2.

HIGHLY PRACTICAL

Our Carbo-FORCE plants are far more than just steel containers. They can be individually scaled for all requirements and are conceived entirely for practical handling. This starts with their design, proceeds with installation and continues in daily operation. 100% practical, 0% complicated. So why hesitate? The future won't wait for us – but we're waiting for you!

Modular design

- Secure and light transport thanks to compact design in container format
- Integrated residue input and reusable material output
- No additional assembly structures or roofing required thanks to intelligent container design

Decentralized installation

- Plant can be installed at any location
- Easy integration into existing infrastructure thanks to low space requirement
- Fast installation and commissioning in a matter of days

User-friendly operation

- Remote maintenance and technical assistance with data-based support
- Low maintenance required thanks to long run-times and minimal downtimes
- Can be easily expanded with additional components like Big Bag packing station

Theory can only get you so far – what matters is the practical application! Our plants focus on easy and practical handling.“

Kai Alberding
Managing Director

CARBO-FORCE CF-250 **AT A GLANCE**

Fuel output	1,300 kW
Throughput rate	up to 280 kg/h
Nominal thermal output	600 kW
Biochar production from dry input mass	25%
CO_2 sequestration	up to 1,720 t CO_2 / year
Power consumption of plant	10 kW
Size	13.4 x 3.2 x 5.9 m
Operating hours	up to 8,000 h/year

LIMITS? NO WAY!

Our plants are versatile – the sky's the limit. That's because we dare to use unconventional input materials exactly where others hesitate. Without compromise, our plants convert a wide variety of residues into first-class biochar. An impressive feat? Absolutely. And the results are equally impressive. Along with biochar, our plants also generate renewable energy and CO_2 certificates. It's that easy, it's that sustainable.

Versatile inputs
Our plants are true all-round talents, performing their job reliably for a wide range of different materials:

- All wooden biomass up to A4 waste wood
- Peels, seeds and other crop residues
- Animal manure on wood chips
- Sewage sludge and fermentation residues
- Sieve residues and lots more

Green energy
Even better than autonomous: Not only are our plants capable of supplying their own energy, they also produce up to 4,500 MWh of additional useful heat per year. For on-site consumption or feeding into the grid. And thanks to strong partners, we can also convert the generated heat into electricity.

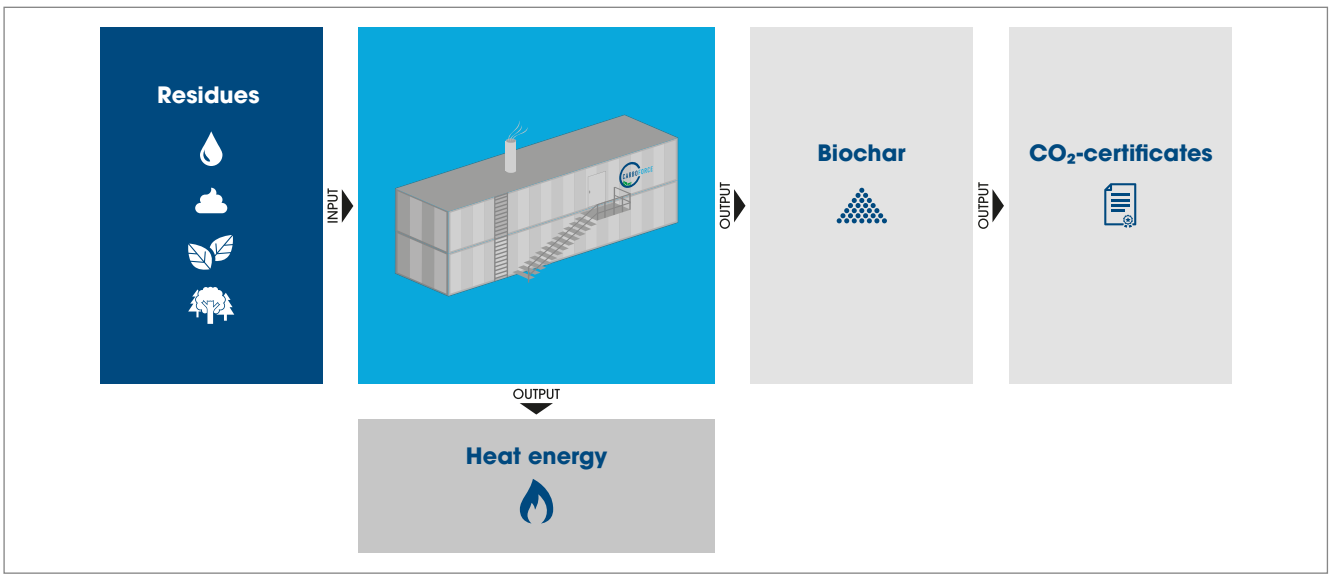
Valuable biochar
Thanks to its positive characteristics, biochar is incredibly versatile: it can be used as feed charcoal and soil conditioner in agriculture as well as construction material or activated carbon filter in the construction industry.

Carbon removal credits
Our plants don't just reduce CO_2 - they also actively store carbon by binding it in biochar for up to 1,000 years. The quantity bound by this process can be converted into carbon removal certificates, which are highly in demand.

What are carbon removal credits exactly?

While conventional CO_2 certificates are often awarded for CO_2 neutrality, Carbo-FORCE plants generate carbon removal certificates. These are distinguished by the fact that they actively bind CO_2 instead of just avoiding it. This means that the carbon footprint can actually be well below zero, in comparison with carbon-neutral alternatives like solar power plants or wind turbines.

To put it simply: With us, you can help fight combat change.



CREATING ADDED VALUE

Reducing waste, generating renewable energy, improving carbon footprints: Our plants can be used for a wide range of applications. In this way, we create real added value for agriculture, communities, energy producers or industrial companies. But that's not all: The climate and environment also benefit. A success story? There's no doubt about it. From Germany across all borders, all the way to the United Arab Emirates.

Camel farm
United Arab Emirates

In the middle of the Arabian desert, a camel farm operates our CF-250 plant. This plant is not only the first of its kind for commercial biochar production in the United Arab Emirates, but also processes a highly complex input material: camel manure. In the future, this will accomplish the following every year...

13,800 t **CO_2 savings generated**

30,600 t **camel dung recycled**

Farm
Germany

In a secluded area of northern Germany, a farmer relies on our revolutionary CF-250 plant. Every year, this accomplishes the following...

2,000 t	**wood chips recycled**
500 t	**Biochar produced as feed additive**
1,500 t	**CO_2 savings achieved**
4,500 MWh	**energy generated**

The materials and specifications may be changed without prior announcement. The figures may contain optional equipment and do not show all possible configurations. These specifications and technical data are intended for information purposes. Errors and misprints are excepted.

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