# BIOMASS RECYCLING INSPIRED BY NATURE



#### PX1500

PYREG's patented Biochar Carbon Removal (BCR) Technology enables the industrial carbonization of biogenic residues for permanent removal of  $CO_2$  from the atmosphere in the form of high-quality biochar. The modular design allows to set up PYREG systems at the source of the waste stream and therefore easily be integrated into existing material cycles. The excess thermal energy can be used onsite or fed into a local heating grid. PYREG CARBONIZATION TECHNOLOGY

## YOUR BIOMASS RECYCLING SOLUTION

### **ADVANTAGES**

Conversion rate: Up to 40 %

**Energy efficient:** The required energy is generated by the system itself; in addition, up to  $550 \text{ kW}_{\text{th}}$  of maximum thermal capacity can be used for other purposes.

Biomass is **completely converted** to biochar and regenerative heat energy.

**Consequent upcycling of biomass:** Valuable biochar meeting high quality requirements can be commercialized at profitable prices.

Carbonization process is **compliant with all relevant environmental standards**. Systems are deployed successfully in Europe, USA and China.

**CO**<sub>2</sub> sequestration: The process of carbonization binds carbon on a long-term basis. After insertion of biochar in the soil, the carbon contained is removed from natural cycles for centuries.



RECYCLING





## SYSTEMS

	PX500	PX1500	PX6000
	F X300	FX1300	F X0000
Combustible rating	500 kW	1,500 kW	6,000 kW
Annual throughput DS, 20% water content	1,200 t	3,300 t	13,200 t
Annual production DS, 20% water content	380 t	900 t	4,000 t
Annual carbon removal potential	750 t CO <sub>2</sub>	2,000 t CO <sub>2</sub>	8,300 t CO <sub>2</sub>
Maximum thermal capacity	200 kW <sub>th</sub>	550 kW <sub>th</sub>	2,200 kW <sub>th</sub>
Annual excess thermal energy	1,600,000 kWh	4,400,000 kWh	19,200,000 kWh
Annual hours of operation	8,000 h	8,000 h	8,000 h
Daily labour	4 h	4 h	4 h
Power consumption	up to 12 kW <sub>el</sub>	up to 38 kW <sub>el</sub>	up to 120 kW <sub>el</sub>
Size l x w x h	12 m x 6 m x 5 m	13 m x 7 m x 7.8 m	21 m x 14 m x 7,5 m

OS = Original substance | Maximum figures based on 8,000 operating hours | Wood containing 48 % carbon and 6 % ash | Metric tons

## REFERENCES

#### **BIONERO GMBH, GERMANY**

**Location site** Thurnau

#### **PYREG unit in operation since 2018** P500

Bionero is an award winning producer of Terra Preta potting soils, based upon the tradition of the Amazon natives.

By using PYREG technology, Bionero produces high quality biochar from various biomass sources. Using a variety of treatments, the biochar is a key ingredient for a highly effective and ready-for-use growth substratum.

#### **STANDARD BIOCARBON, USA**

#### **Location site** Maine

#### lanne

#### **PYREG unit in operation since 2023** PX1500

Standard Biocarbon's vision is to co-locate biochar production at large sources of biomass feedstock (byproducts from Maine's vast working forests), thereby driving a true circular economy, through the application of innovative NetZero technology. These forestry byproducts will be used to produce an end-product that nourishes soils, cleans water and removes carbon dioxide from the atmosphere, while simultaneously generating renewable energy.

#### **NOVOCARBO GMBH, GERMANY**

#### Location site

Grevesmühlen

## **PYREG units in operation since 2023** 2 x PX1500

The Carbon Removal Park Baltic Sea in Grevesmühlen is a unique example of a holistic approach to  $CO_2$  removal and green heat generation. Innovative pyrolysis technology processes plant residues into high-quality biochar (1,700 t/a), captures and stores the carbon contained in this biomass (3,200 t captured  $CO_2/a$ ) and feeds the generated green exhaust heat into the district heating network, increasing the share of renewable energy from 60 to 75 %.