pyropower GmbH

[Product Brochure]

Pyro-ClinX 150

Pyrolysis plant with combined heat and power: electricity, heat and biochar from woody residues, right at your site.

[Electricity] [Heat] [Biochar] [CO_2 Certificates]



AI-generated visualization

[At a Glance]

On-site power, process heat and biochar from a single plant

Pyro-ClinX is a pyrolysis plant with combined heat and power. It combines continuous pyrolysis with an externally fired micro gas turbine and produces electricity, heat, biochar and CO_2 certificates simultaneously in a closed system.



AI-generated visualization

150 kW
Electricity, gross
(130 kW net)

max. 450 kW
Heat
(nominal thermal output)

75 kg/h
Biochar
(20 to 25% of input)

1,720 t
CO_2 equivalent per year
(excl. LCA)

Economic viability

Your own stable energy source right at your site: lower energy costs and less dependence on market fluctuations.

CO_2 and regulation

Carbon is stored long-term in the biochar, documented and certifiable as a carbon sink.

Residues

Woody residues become energy and biochar. What you used to pay to dispose of now feeds your energy supply.

Supply security

Baseload-capable 24/7 operation, fully automatic with remote monitoring. Designed for 8,000 operating hours per year.

[Four Products]

One input. Four outputs.

From woody residues, Pyro-ClinX produces four products in one continuous process: electricity, heat, biochar and carbon removal certificates.

[Offtake on Request]

pyropower takes the biochar and CO_2 certificates off your hands and handles certification and marketing. You use the electricity and heat on your site. If you would like to use or market the biochar yourself, that is of course possible as well.

[Woody Residues]
315 kg/h, wood chips G30 to G45



[Pyro-ClinX 150]

AI-generated visualization

[Electricity]

150 kW gross, 130 kW net. The externally fired micro gas turbine generates electricity right on site, for your own use or for feeding into the grid.

[Heat]

Max. 450 kW thermal. Standard 90/70 °C in a water/glycol circuit, process heat up to 360 °C, up to 550 °C in a special design.

[Biochar]

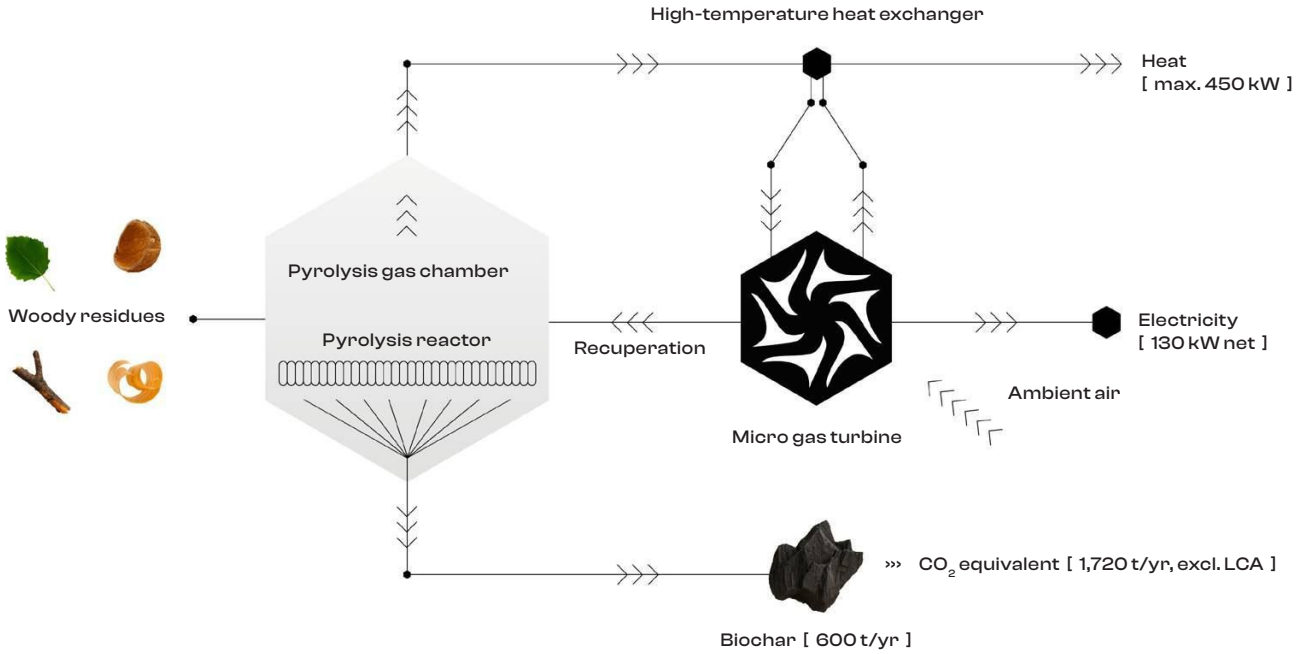
Around 75 kg per hour, produced in accordance with the requirements of the EBC standard. It stores carbon long-term and is a versatile raw material.

[CO_2 Certificates]

The stored carbon can be certified as a carbon sink: by calculation, around 1,720 t of CO_2 equivalent per year (excl. LCA).

How Pyro-ClinX works

Pyro-ClinX combines pyrolysis and combined heat and power in one process. Woody residues are turned into electricity, heat and biochar, without external gas treatment.



01 Residues

Untreated, woody residues from forestry, industry or municipal maintenance. Inhomogeneous biomass as well, without complex pretreatment.

02 Pyrolysis

In the pyrolysis reactor, the biomass is converted at 650 to 800 °C in the absence of oxygen. This produces pyrolysis gas, pyrolysis oil and biochar.

03 FLOX burner

In a separate combustion chamber, gas and oil are oxidized flamelessly and completely at up to 1,200 °C. The result is clean hot gas.

04 Micro gas turbine

A high-temperature heat exchanger transfers the heat to clean, compressed air, which drives the externally fired micro gas turbine.

05 Electricity and heat

The turbine generates electricity right on site. The waste heat is recovered: 90/70 °C as standard, process heat up to 360 °C.

06 Biochar

The biochar is discharged continuously: 20 to 25% of the input. The stored carbon can be certified as a carbon sink.

[Core Technology]

At its core: the externally fired micro gas turbine

Unlike conventional turbines, it is not directly fired: a high-temperature heat exchanger transfers the heat from the FLOX burner to clean, compressed air, which then drives the turbine. This way, the turbine never comes into contact with the pyrolysis gas.

The turbine runs on air bearings without lubricants or oils. This means higher efficiency and less wear, and it makes 24/7 continuous operation possible. pyropower has been developing this technology since 2012.



[Externally Fired] [Oil-free Air Bearings] [24/7 Operation]



[Fuel and Energy]

What goes in, what comes out

Pyro-ClinX processes untreated, woody biomass from forestry, industry or municipal maintenance. Even inhomogeneous residues that are unsuitable for conventional plants can be used without complex pretreatment.

Suitable fuels

- Wood chips of classes G30 to G45
- Sawmill by-products and wood processing residues
- Forest residues
- Green waste and landscape maintenance material

No fossil fuels or chemical additives required.

Fuel data

Fuel thermal input	1,400 kW
Throughput (10% moisture)	315 kg/h
Max. permissible moisture content	25%
Max. particle length	120 mm
Specification	G30 to G45

Electricity

The micro gas turbine delivers 150 kW of gross electrical output. After deducting 20 kW of auxiliary power, 130 kW net remain for your operations or for feeding into the grid.

Heat

Up to 450 kW thermal, supplied as standard via a water/glycol circuit. Process heat is available as hot air, steam or thermal oil.

90/70 °C
Standard (flow/return)

up to 360 °C
Process heat

up to 550 °C
Special design

[Biochar]

Valuable material and carbon store

Around 75 kg of biochar is produced per hour, around 600 metric tons per year at 8,000 operating hours. Each metric ton stores up to around 3 metric tons of CO_2 equivalent over the long term.



EBC standard: all classes possible

The biochar is produced in accordance with the requirements of the European Biochar Certificate (EBC). All EBC classes are possible, up to the highest; which class is reached depends on the residue used.

- **EBC-FeedPlus:** Animal husbandry, bedding and silage
- **EBC-AgroBio:** Organic farms, organic substrates and certified composting facilities
- **EBC-Agro:** Agriculture, substrate producers and professional horticulture
- **EBC-Urban:** Municipalities, green spaces and infrastructure
- **EBC-Material:** Products with consumer contact
- **EBC-Basic:** Raw material for industrial processing

Carbon removal certificates

The carbon stored in the biochar is measurable and can be certified as a carbon sink. For one Pyro-ClinX 150, this amounts to a calculated 1,720 t of CO_2 equivalent per year (excl. LCA).

Marketing your way

You use or market the biochar yourself. Or pyropower takes the biochar and carbon removal certificates off your hands and handles certification and marketing.

75 kg/h
Biochar

20 to 25%
of input (dry matter)

< 4 mg/kg
EPA16-PAH (EBC method)





AI-generated visualization

[Sample Calculation]

What one plant delivers per year

At 8,000 operating hours per year, a Pyro-ClinX 150 generates at your site:

1,040,000 kWh
Electricity per year
(130 kW net)

3,600,000 kWh
Heat per year
(at max. 450 kW)

600 t
Biochar
per year

1,720 t
CO_2 equivalent per year
(excl. LCA), certifiable

Your economics, calculated individually

How a Pyro-ClinX pays off for you depends on your electricity and heat demand, the fuel and the revenue from biochar and CO_2 certificates. We prepare an economic assessment for you based on your site data.

Sample calculation based on 8,000 operating hours per year. Actual values depend on fuel, design and operation. Image: AI-generated visualization.

[Target Groups]

Who benefits from Pyro-ClinX

Pyro-ClinX pays off wherever a baseload of electricity and heat is needed all year round. In 24/7 operation, the plant replaces grid power and fossil-generated heat.

01 Industry with high energy demand

Wood, paper and packaging industry, metalworking and mechanical engineering, food industry and manufacturing with process heat requirements.

02 Companies with woody residues

Wood processing, furniture and packaging production, agriculture and forestry, landscaping, composting and waste management companies.

03 Municipalities and public institutions

Cities and municipalities with green waste, municipal depots and associations; schools, swimming pools and administrative buildings as heat consumers.

04 Heating and energy networks

Municipal utilities and regional energy suppliers, operators of local and district heating networks, site developers and energy contractors.

05 Data centers, logistics and business parks

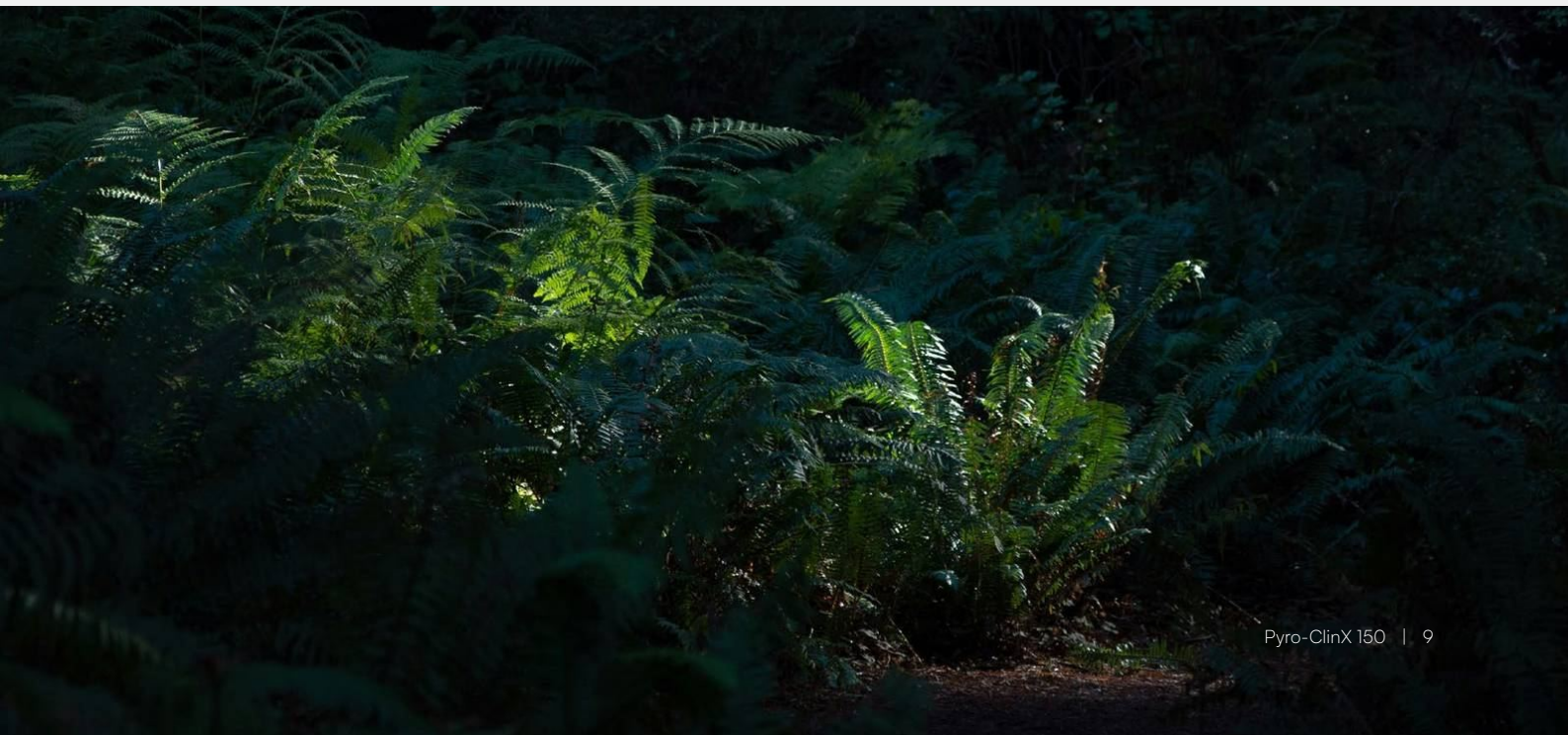
Sites with high continuous power demand and usable heat: data centers, logistics centers, cold storage facilities, large commercial and industrial sites.

06 Companies with climate targets

Companies with CSRD reporting obligations, net-zero or SBTi targets and emissions-intensive industries that need carbon removal certificates.

Your own residues: an advantage, not a requirement

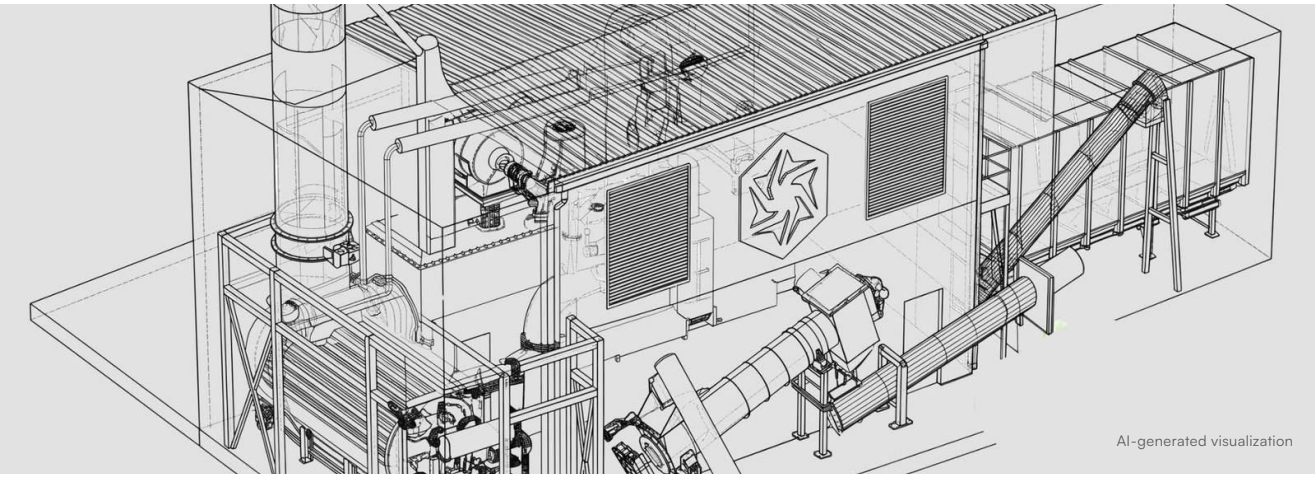
Pyro-ClinX directly processes your own wood residues, sawmill by-products or green waste, which lowers your fuel costs. Without your own residues, the plant runs on purchased wood chips. On request, we handle procurement and logistics.



[Technical Data]

Pyro-ClinX 150

Industrial-grade standard plant for decentralized energy supply: compact, modular and fully automated, designed for continuous industrial operation.



Performance

Fuel thermal input	1,400 kW
Pyrolysis gas output	866 kW
Gross electrical output	150 kW
Net electrical output	130 kW
Auxiliary power consumption	20 kW
Nominal thermal output	max. 450 kW

Fuel

Wood chips	G30 to G45
Max. particle length	120 mm
Throughput (10% moisture)	315 kg/h
Max. permissible moisture content	25%

Process and Operation

Process	Continuous biomass pyrolysis
Gas utilization	Externally fired micro gas turbine
Operating mode	Fully automatic
Operating hours (design)	8,000 h/yr
Control system	PLC, remote monitoring

Heat

Heat transfer medium	Water/glycol
Temperature level (flow/return)	90/70 °C
Process heat	up to 360 °C, special design 550 °C

Biochar

Production (dry matter)	20 to 25% of input
Output	75 kg/h
EPA16-PAH (EBC method)	< 4 mg/kg
CO_2 equivalent (sequestered)	1,720 t/yr (excl. LCA)

Dimensions

Length × width × height	13.40 × 6.40 × 5.90 m
Weight	52.45 t

Emissions

Exhaust gas flow rate (wet)	4,700 Nm³/h
Particulate matter	< 20 mg/Nm³
Carbon monoxide (CO)	< 150 mg/Nm³
Nitrogen oxides (NO_x)	< 370 mg/Nm³

Performance data at standard conditions: 15 °C ambient temperature, 80% relative humidity, sea level. Emission values based on 6% residual oxygen. Site-specific design as part of project engineering. Subject to technical changes. Image: AI-generated visualization.



[Project Support]

From the idea to operation

We support your project from the feasibility assessment through engineering and permitting to construction, operation and service. One team, one dedicated contact.

01 Project development	We assess feedstock, energy demand, site, plant concept and revenue potential. The starting point is the preliminary project phase with feasibility study, forecast and business case. It is offered at a fixed price and credited toward your order of the plant.
02 Engineering	Basic and detailed engineering, electrical planning and automation, integration of electricity, heat and material flows, and support with permitting, funding and financing.
03 Implementation	We manufacture key components in-house, install the plant on site and support commissioning and trial operation. We also train your operating staff.
04 Operation	On request, we take over plant operation or individual tasks, such as feedstock procurement and the marketing of biochar and CO_2 certificates.
05 Service and maintenance	Maintenance and inspection, remote monitoring and remote maintenance, fault diagnostics, spare parts supply, technical hotline and on-site service.

pyropower GmbH

Engineering a Carbon-Balanced Future.

Let’s find out together how a Pyro-ClinX can strengthen the energy supply at your site. We look forward to your inquiry.

[Contact]

pyropower GmbH
Burger Chaussee 25
03044 Cottbus, Germany

Phone +49 355 866 870 82
info@pyro-power.com
pyro-power.com/en

More about Pyro-ClinX:
pyro-power.com/en/pyro-clinx

As of September 2026. Subject to technical changes. Some images are AI-generated visualizations.



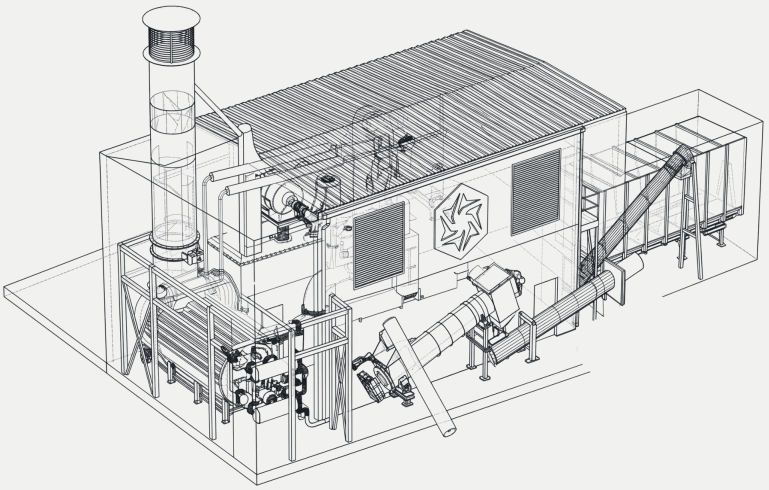
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Technical Data Sheet
As of October 2026

[Pyrolysis with Combined Heat and Power]

Pyro-ClinX 150

Pyro-ClinX is a pyrolysis plant with combined heat and power. It combines continuous pyrolysis with an externally fired micro gas turbine and generates electricity, heat, biochar and CO_2 certificates simultaneously in one closed system.



Schematic illustration

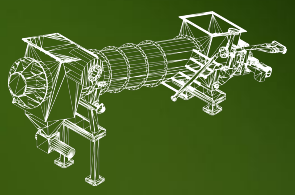
150 kW
Gross electrical power

450 kW
Nominal thermal power, max.

75 kg/h
Biochar

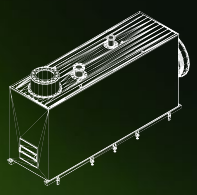
1,720 t/yr
CO_2 equivalent, sequestered (excl. LCA)

[How It Works]



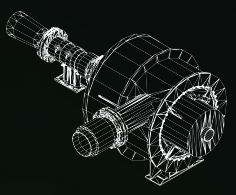
Pyrolysis reactor

Untreated woody residues are heated continuously in the absence of oxygen, producing biochar and pyrolysis gas.



FLOX burner and heat exchanger

The pyrolysis gases are oxidized flamelessly at up to 1,200 °C. The energy is transferred to clean, compressed air.



Externally fired micro gas turbine

The turbine generates electricity without ever touching the pyrolysis gas. Its waste heat is used as process heat.

[Power] [Heat] [Biochar] [CO_2 certificates]

Pyro-ClinX 150

Technical Specifications

Fuel thermal input	1,400 kW
Pyrolysis gas output	866 kW
Gross electrical power	150 kW
Net electrical power	130 kW
Auxiliary power consumption	20 kW
Nominal thermal power	max. 450 kW

Feedstock

Specification	Wood chips G30—G45
Maximum particle length	120 mm
Throughput (10% moisture)	315 kg/h
Max. permissible moisture content	25%

Biochar

Biochar production (dry matter)	20—25% of input
Biochar output	75 kg/h
EPA16-PAH (EBC method)	< 4 mg/kg
CO_2 equivalent (sequestered)	1,720 t/yr (excl. LCA)

Dimensions (excluding attachments)

Length	13.40 m
Width	6.40 m
Height	5.90 m
Mass	52.45 t

Exhaust Emissions

Exhaust gas volume flow (wet)	4,700 Nm^3/h
Particulate matter	< 20 mg/Nm^3
Carbon monoxide (CO)	< 150 mg/Nm^3
Nitrogen oxides (NO_x)	< 370 mg/Nm^3

Heat Transfer Medium

Heat transfer medium	Water/glycol
Temperature level (flow/return)	90/70 °C
Process heat	up to 360 °C, special design up to 550 °C
Heat extraction	Hot air, hot water, steam, thermal oil

Pyrolysis Process

Process	Continuous biomass pyrolysis
Gas utilization	Externally fired micro gas turbine
Operating mode	Fully automatic

Certification and Standards

Biochar	All EBC classes possible, depending on feedstock
CO_2 sink	C-Sink certifiable

Emission values based on 6% residual oxygen content in the exhaust gas. CO_2 equivalent excluding life cycle assessment (excl. LCA). Site-specific design as part of project engineering. Subject to technical changes. As of October 2026.

[Our Plants]

Pyro-ClinX 150
Power, heat and biochar
from woody residues

ClinX Heat 150
Power and heat from
industrial waste heat

Pyro-Hex 315
Heat and biochar,
without power generation

pyropower GmbH

pyropower GmbH
Burger Chaussee 25
03044 Cottbus, Germany

+49 355 866 870 82
info@pyro-power.com
pyro-power.com

More about the plant:
pyro-power.com/en/pyro-clinx