



Siempelkamp

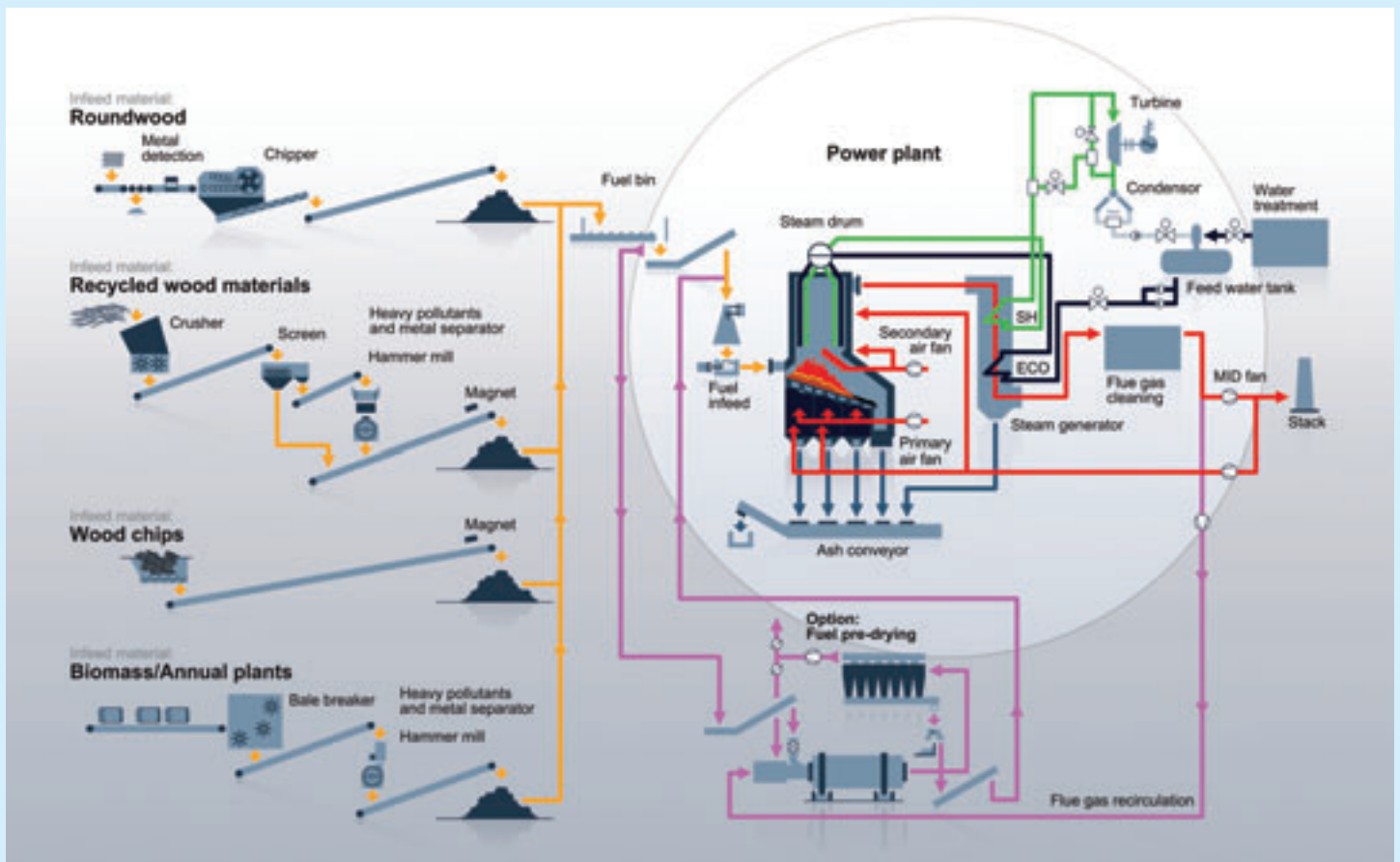
Biomass power plants by Siempelkamp:
our expertise for higher energy efficiency!



Clean and safe energy supply by using wood

Green wood, wood residues, or annual plants instead of fossil fuels:
When it comes to the energy supply of private households or companies, an increasing number of decisions are made in favor of biomass power plants. Rightly, because the benefits are obvious:

- **ecological benefit** due to climate-neutral energy
- **environmental protection** due to CO₂-neutral combustion – no impact on global warming
- **higher security of energy supply** because biomass power plants rely on renewable resources instead of fossil fuels



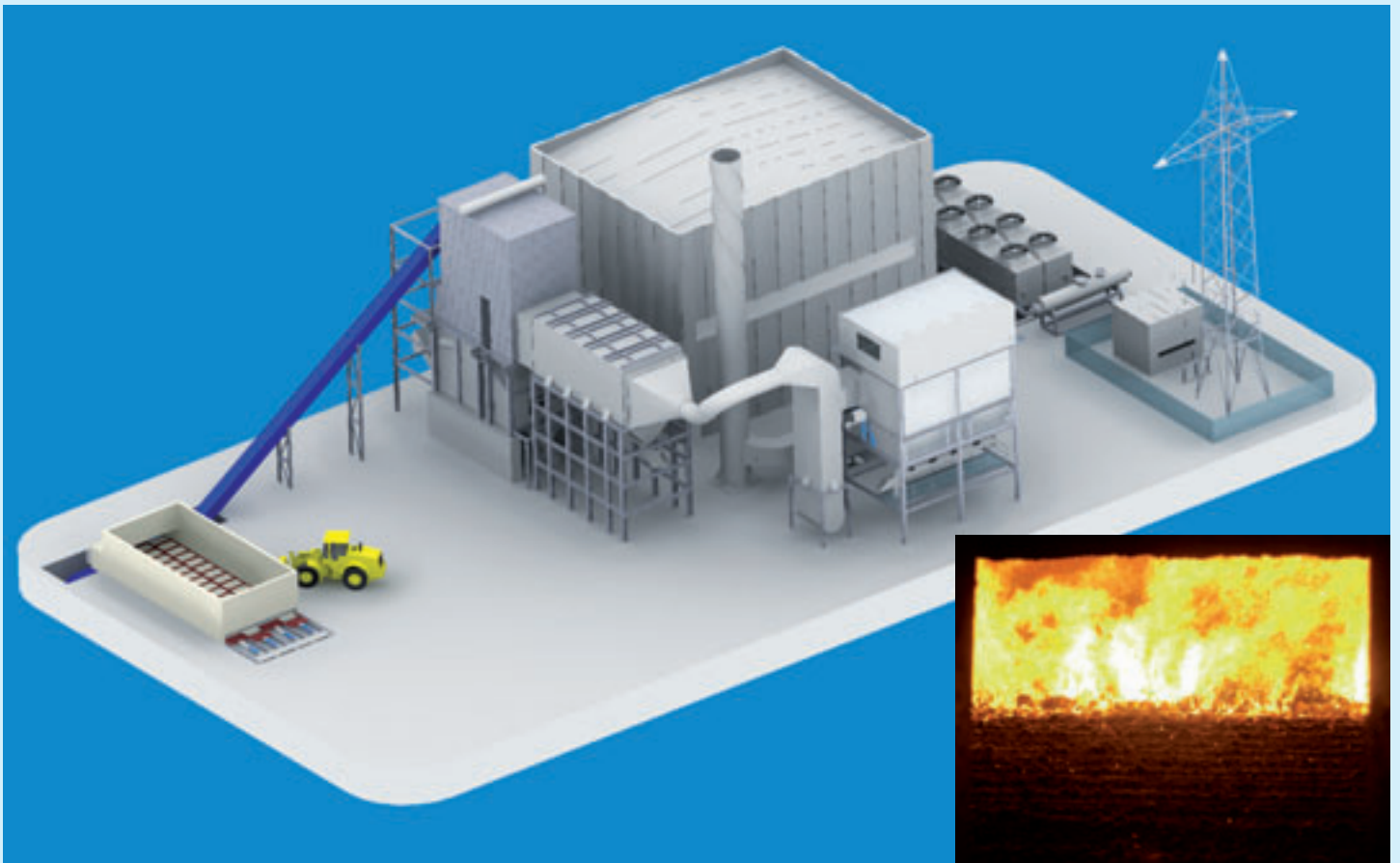
Material flow diagram of a biomass power plant by Siempelkamp

Wood: it's Siempelkamp's turf!

The Siempelkamp Group has been the world market leader in the wood-processing industry for many decades. This position has been a solid foundation for the involvement of the Krefeld-based specialist in the area of biomass power plants. We avail over proven technology and equipment for the optimal preparation of biomass, made of green wood,

wood residues, or annual plants, in many wood-processing production lines worldwide.

Furthermore, with our subsidiary Siempelkamp Energy Systems (SES) we can provide the experience in installing industrial heat plants of various sizes.



Biomass power plant by Siempelkamp

Grate firing system by SES

Professional fuel preparation

At the beginning of all concepts regarding the installation of a biomass power plant is the appropriate fuel preparation technology. The Siempelkamp subsidiaries Hombak and CMC Texpan supply and install chippers,

screens, conveyor and bunker installations as well as wood recycling plants and metal separators. This equipment will prepare every type of biomass for optimal combustion.



Round wood



Wood residues



Wood infeed conveyor



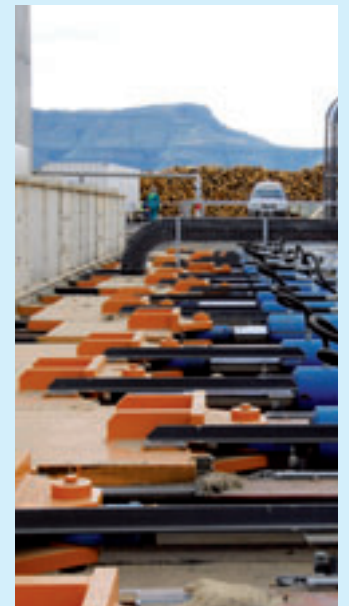
Wood infeed to chipper



Infeed of chipper



Transport of chips



Bunker installations with ladder feeders

Fuel drying technology

Part of our Group is Büttner Gesellschaft für Trocknungs- und Umwelttechnik mbH, the world's largest producer of dryer installations. A 125-year history and 1,800 dryers produced are well-founded references for Büttner customers in the wood-based products and other related

industries. The service range includes the engineering of individual dryer plants, the supply of all core components, the production of drums, ductwork and cyclones close to the customer site, the assembly, the testing of all installations, the start-up, and the service.



Fuel dryer by Büttner

Biomass power plants by Siempelkamp

Last but not least the competence of Siempelkamp Energy Systems GmbH (SES) completes the portfolio. Located in Hannover, Germany, this specialist stands for more than 50 energy systems built and started-up successfully for the generation of process heat (steam, thermal oil or flue gas). The SES portfolio includes:

- combustion capacities ranging from 10 to 100 MW
- extensive experience in the area of flue gas cleaning
- integration of power plants into electricity supply networks
- long standing competence in the production of cooling systems (water/air)
- implementation of steam and ORC turbines from well-known manufacturers



SES energy plant in Chile

Current SES reference plants

Ivatsevichdrev	Belarus	31 MW	PB plant
SPF	Indonesia	41 MW	MDF plant
Metro	Thailand	48 MW	PB plant
ART Progres	Ukraine	72 MW	MDF plant
Egger/St. Johann	Austria	38 MW	PB plant
Laminex	Australia	24 MW	MDF plant
MDF Grajewo	Poland	66 MW	MDF plant
Masisa S.A.	Chile	64 MW	MDF plant
Advance Fiber	Thailand	54 MW	MDF plant

First class for biomass: an overview of Siempelkamp's services

Our service components for design and construction of turnkey biomass power plants include:

- complete plant engineering
- fuel preparation systems and dryers
- fuel storage bunkers and feeding systems
- biomass combustion furnaces and steam generators
- flue gas cleaning and emission measurement technology
- steam turbine with generator and condenser
- water-steam cycle
- ductwork
- automation and electrical control technology
- safety engineering
- building services engineering
- auxiliary equipment engineering
- assembly and start-up
- training and technical documentation



SES energy plant in Chile



Siempelkamp Maschinen- und Anlagenbau GmbH & Co. KG



Siempelkamp (Wuxi) Machinery Manufacturing Co. Ltd., China



ATR Industrie-Elektronik GmbH



Siempelkamp Handling Systeme GmbH



Siempelkamp CZ s. r. o.



W. Strothmann GmbH



Siempelkamp Energy Systems GmbH



Büttner Gesellschaft für Trocknungs- und Umwelttechnik mbH



CMC S.r.l.



Siempelkamp Logistics & Service GmbH



Sicoplan N.V.



Hombak Maschinen- und Anlagenbau GmbH

Sales companies/Representatives

Australia

Siempelkamp Pty Ltd.

Brazil

Siempelkamp do Brasil Ltda.

China

Siempelkamp (Wuxi) Machinery Manufacturing Ltd., Beijing

France

Siempelkamp France Sarl

India

Siempelkamp India Pvt. Ltd.

Russia

Siempelkamp Moscow

Singapore

Siempelkamp Pte Ltd.

Spain

Siempelkamp Barcelona

Turkey

Siempelkamp Istanbul

USA

Siempelkamp L.P.