



***ideas full of energy!***

**Standardkessel GmbH**  
**Baumgarte Boiler Systems GmbH**  
Company Presentation

# Organisation

**Standardkessel Power Systems Holding GmbH**

**Standardkessel  
GmbH  
Duisburg**

**Baumgarte Boiler Systems  
GmbH  
Bielefeld**



## Key Figures 2006

Location:	Duisburg, Bielefeld
Employees:	204
Order intake:	135.5 Mill. EUR
Turnover:	146.7 Mill. EUR
Order Backlog:	163.9 Mill. EUR



# Product Lines

Scope:

**Boiler and Power Plants for generating electricity, process heat, hot water or steam**

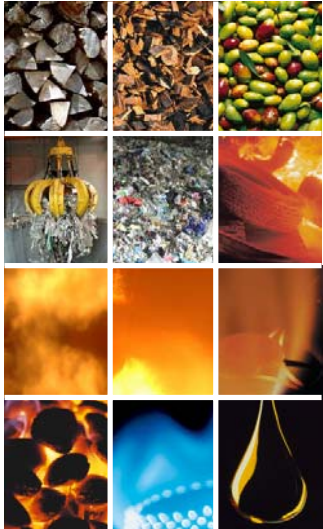
Energy sources:

**Biomass**

**Waste materials**

**Heat recovery**

**Primary fuels**





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**Standardkessel GmbH**  
The Biomass Power Station

## General information

<b>Fuel:</b>	<b>green wood, waste wood</b>
<b>German Biomass Classification:</b>	<b>A1 – A4</b>
<b>Thermal Input:</b>	<b>69 MW</b>
<b>Electrical Power Output:</b>	<b>21 MW</b>
<b>Plant - Efficiency:</b>	<b>&gt; 30 %</b>
<b>Annual Fuel Throughput:</b>	<b>165,000 to/a</b>
<b>Annual Operation Hours:</b>	<b>8,000 h/a</b>
<b>Scope of Standardkessel:</b>	<b>Turn-key Plant</b>



## Technical Design Data

<b>Fuel Throughput:</b>	<b>19.9 to/h</b>
<b>Lower Heating Value:</b>	<b>12.5 MJ/kg</b>
<b>Range:</b>	<b>10.0 – 14.0 MJ/kg</b>
<b>Water Content:</b>	<b>20 %</b>
<b>Range:</b>	<b>10 – 40 %</b>
<b>Size (80 %):</b>	<b>50 – 250 mm</b>
<b>Oversize (max. 17 %):</b>	<b>300 mm</b>
<b>Dust (max. 3 %):</b>	<b>&lt;0.5 mm</b>
<b>Aux. Fuel:</b>	<b>Light Fuel Oil</b>
<b>Low Heating Value:</b>	<b>42.7 MJ/kg</b>



## Technical Design Data

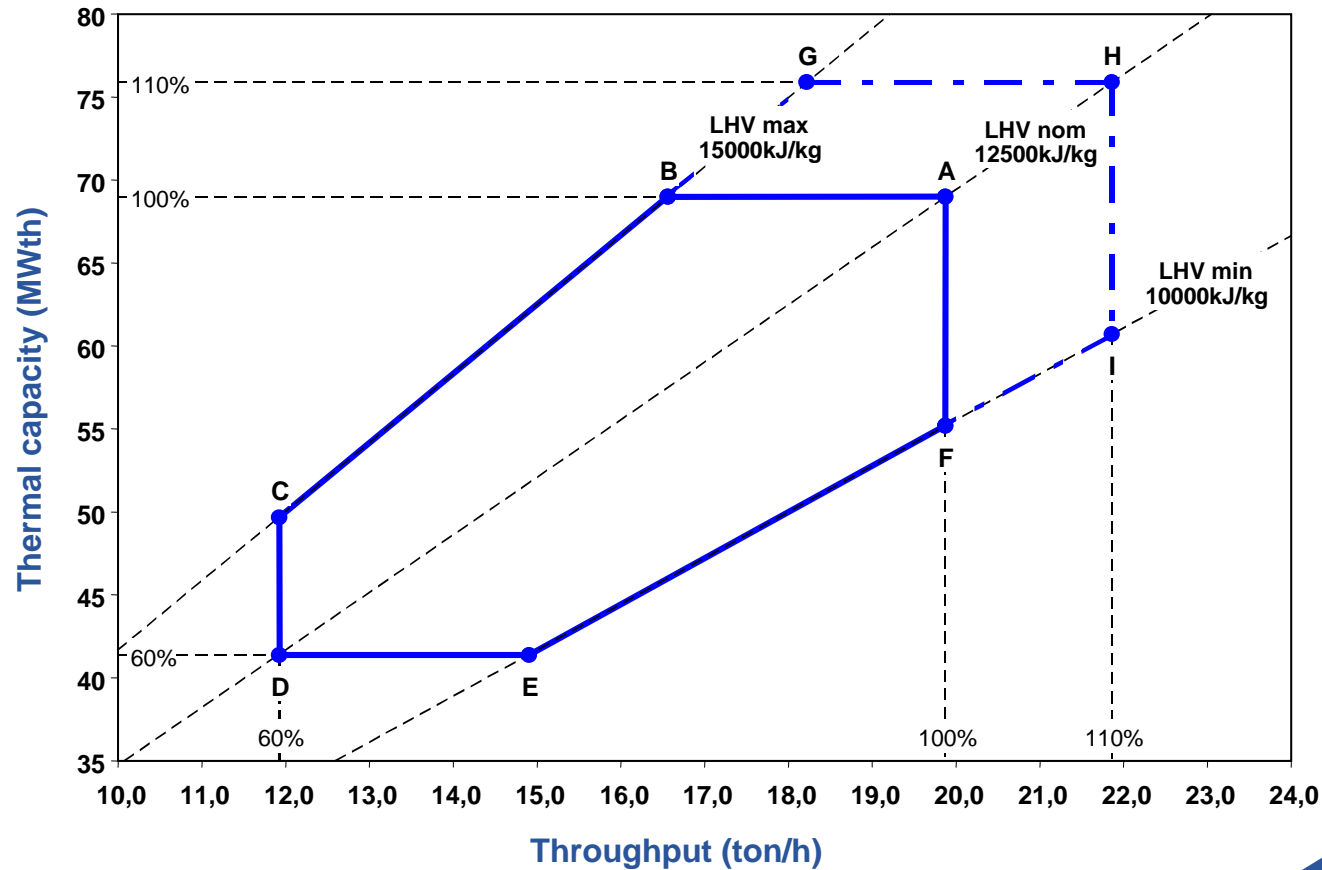
Steam Throughput:	77.5 to/h
Steam Temperature:	450 °C
Steam Pressure:	60 bar
Constant Steam Temperature:	80 – 100 %
Feed Water Temperature:	105 °C
Flue Gas Temperature Boiler Outlet:	180 – 210 °C
Emission Limit Values:	17 BImSchV

EU-Requirements

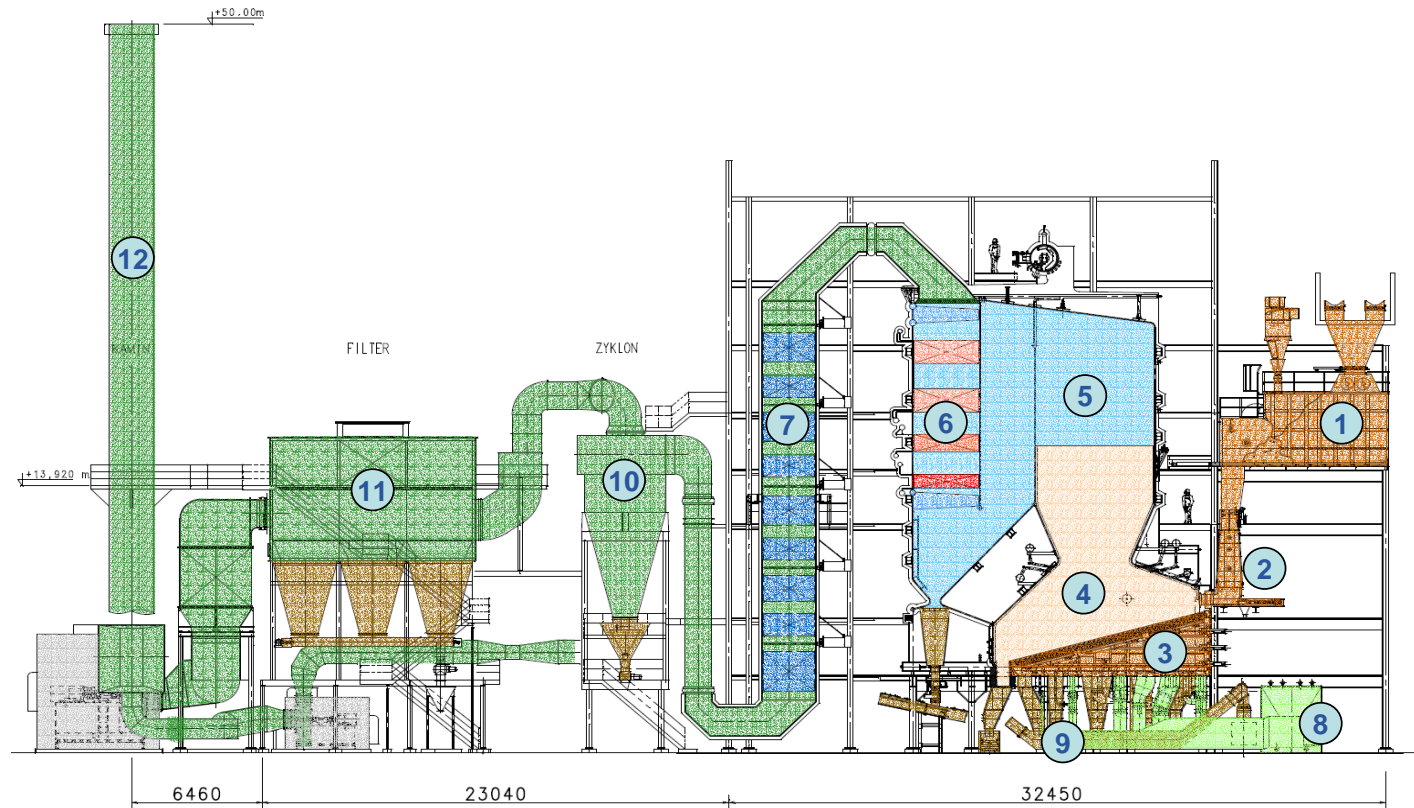




# Combustion diagram

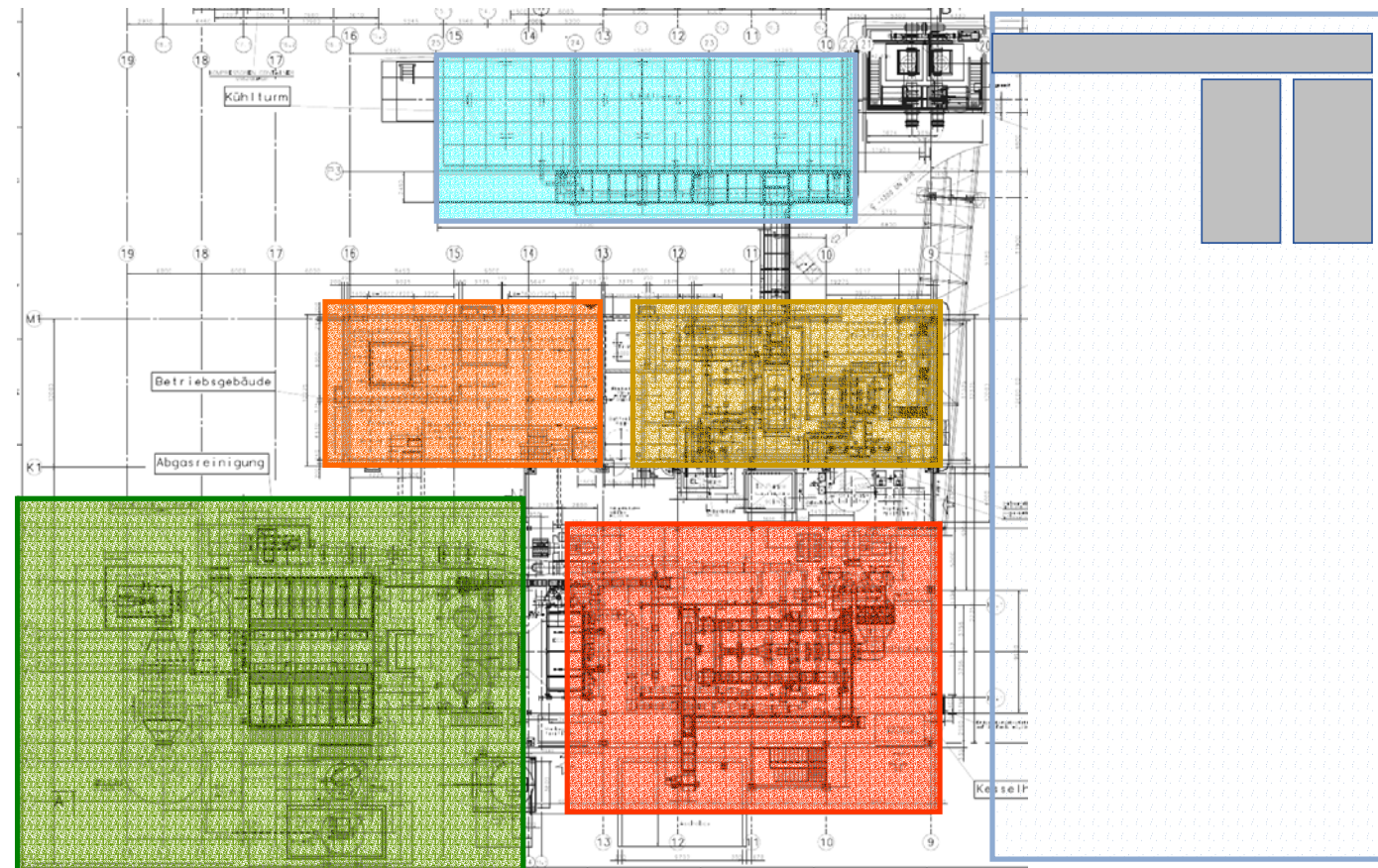


# Cross Section Furnace, Boiler, FGT



- ① Intermediate Fuel Storage
- ② Feeding System
- ③ Grate
- ④ Combustion Chamber
- ⑤ Evaporator
- ⑥ Super Heater
- ⑦ Economiser
- ⑧ Combustion Air
- ⑨ Wet Deslagger
- ⑩ Cyclone
- ⑪ Bag House Filter
- ⑫ Stack

# General Plant Lay Out



**Fuel Reception  
Storage and Transport**

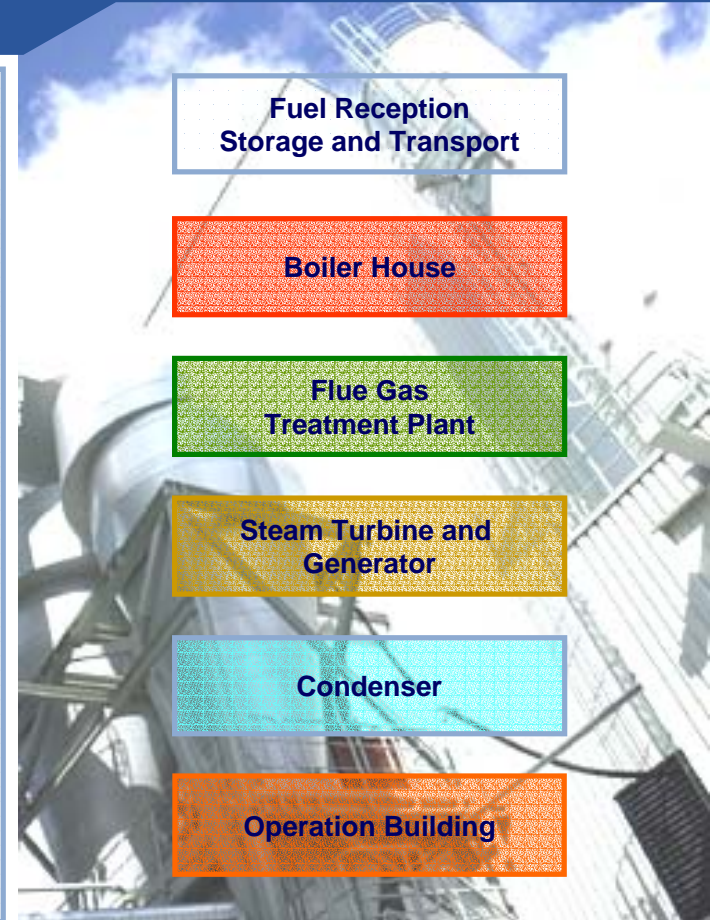
**Boiler House**

**Flue Gas  
Treatment Plant**

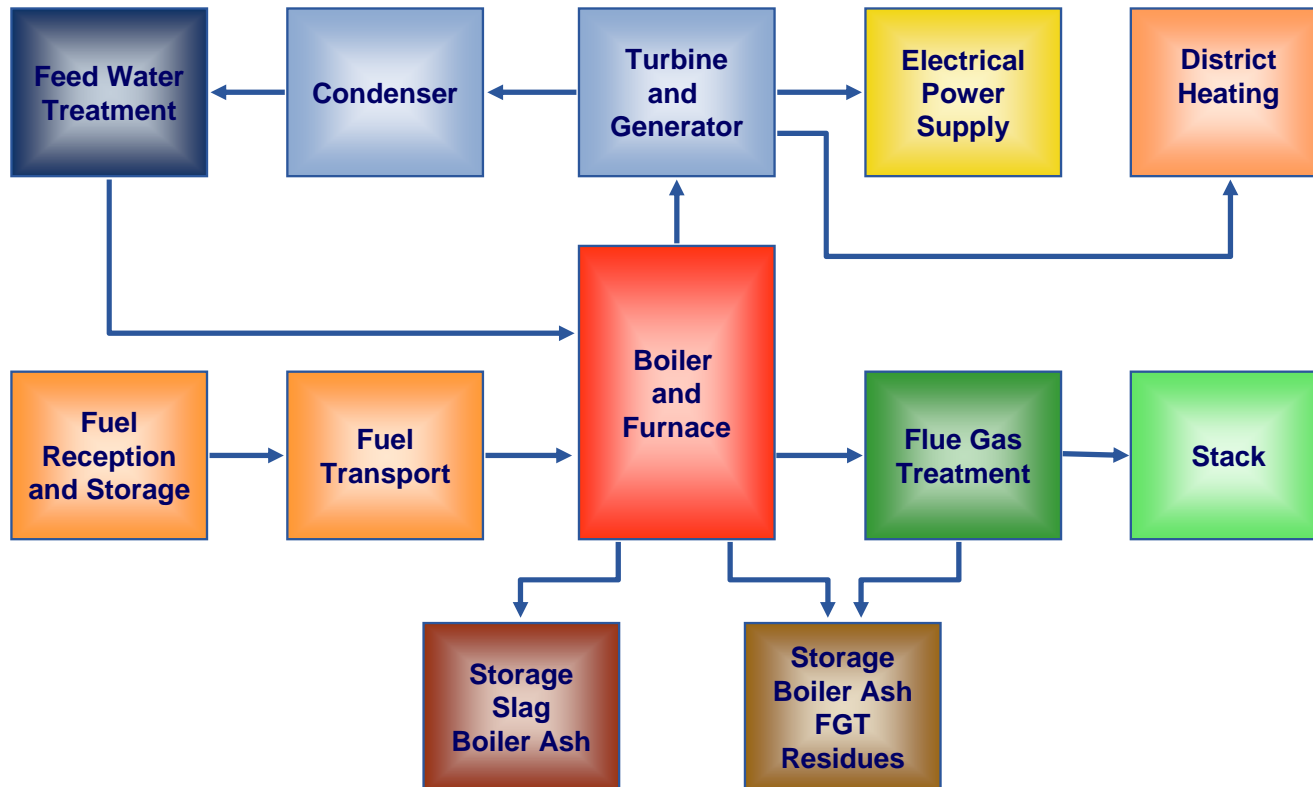
**Steam Turbine and  
Generator**

**Condenser**

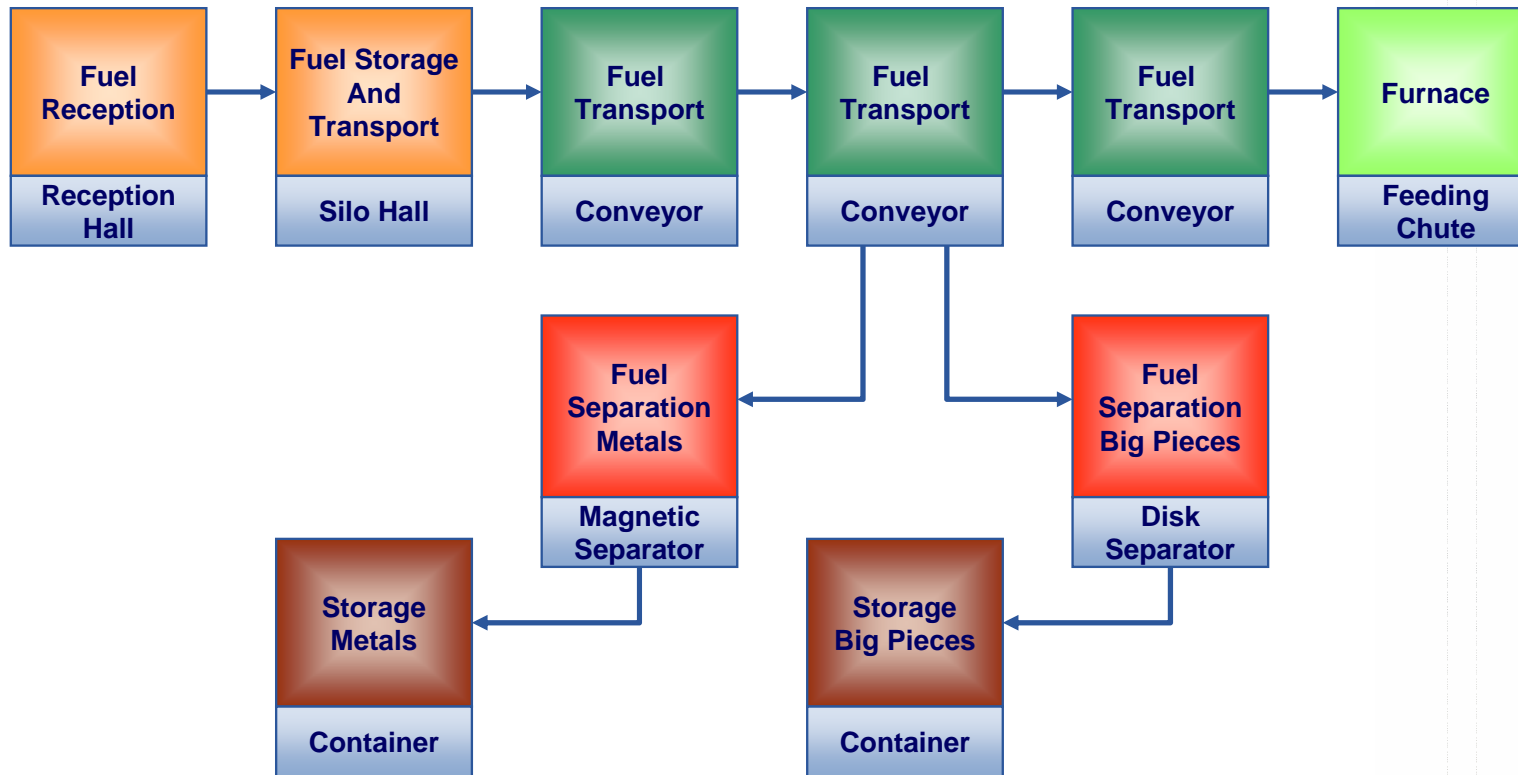
**Operation Building**



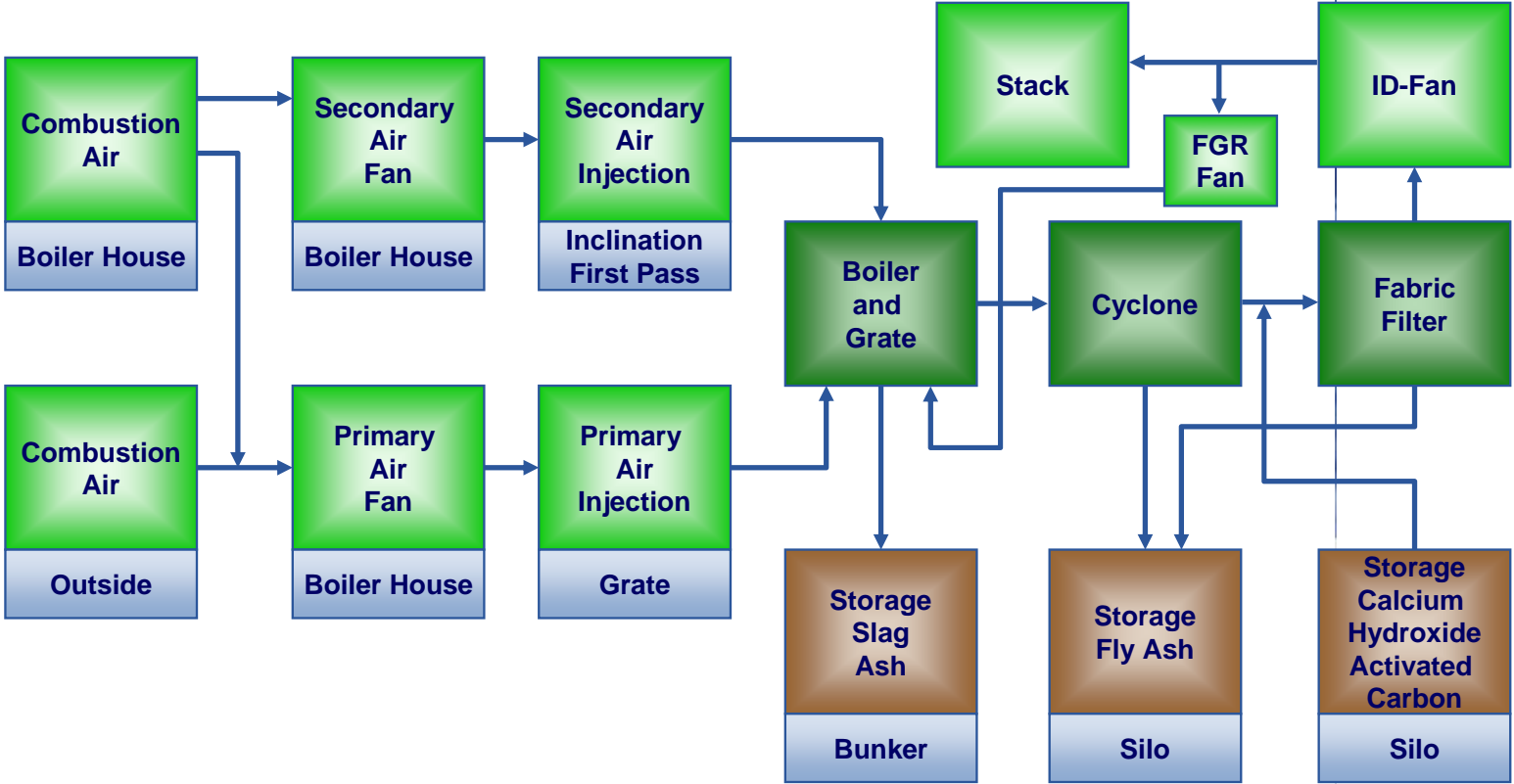
# General Flow Diagram



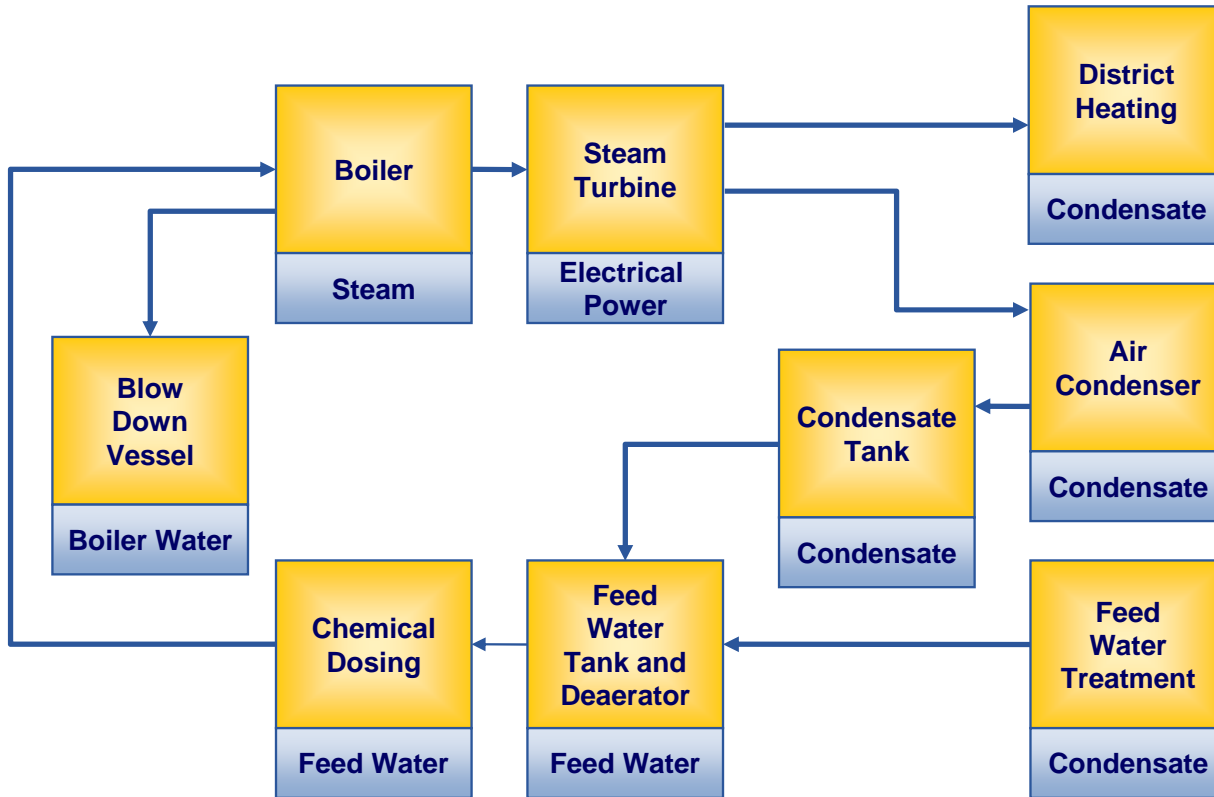
# Flow Diagram Fuel Handling



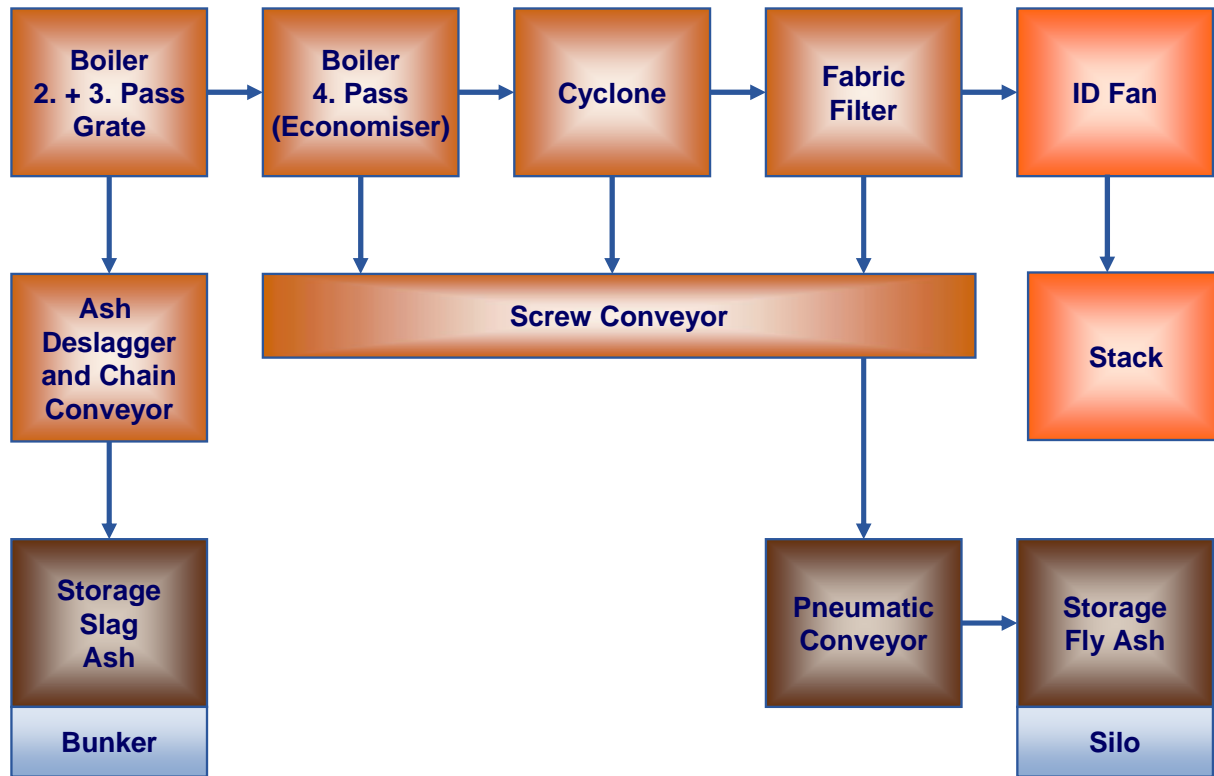
# Flow Diagram Combustion Air / Flue Gas



# Flow Diagram Water / Steam / Condensate

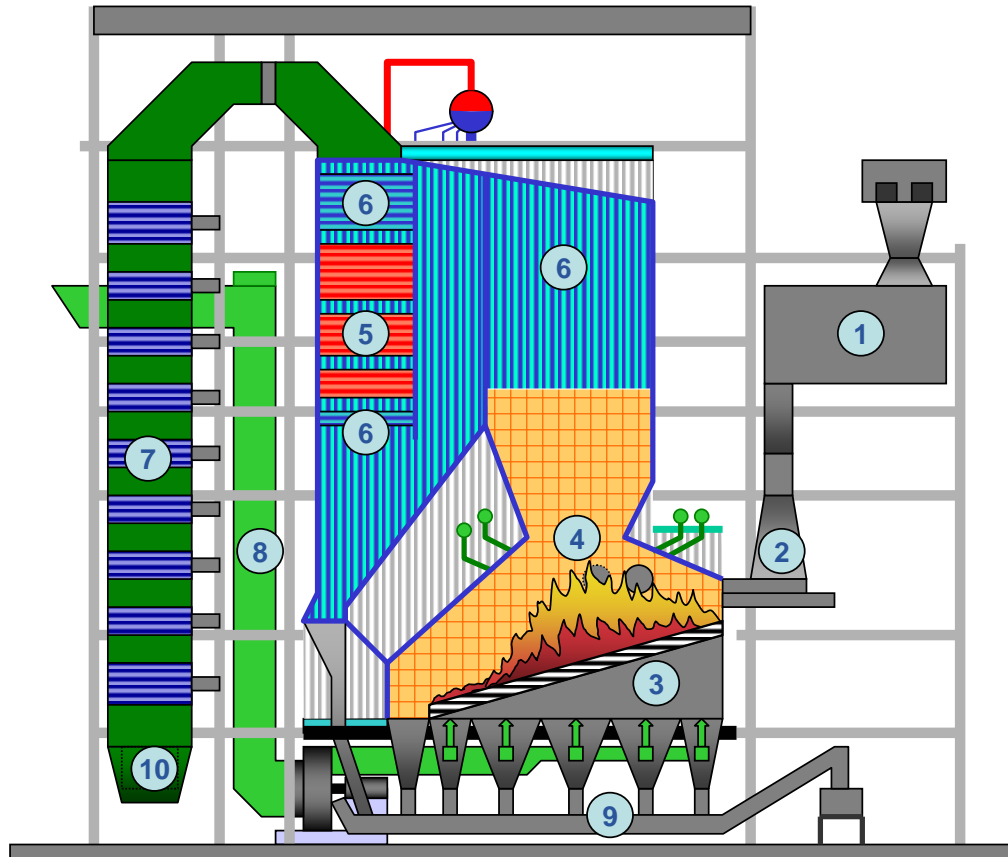


# Flow Diagram Ash and Slag Handling



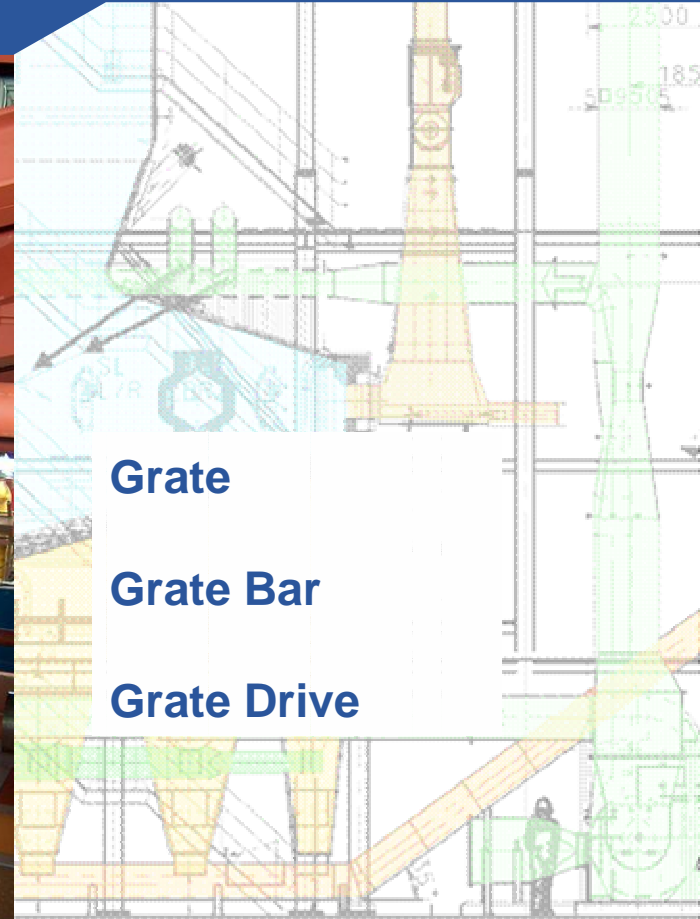


# Biomass Boiler with Pusher Type Grate



- ① Intermediate Fuel Storage
- ② Fuel Feeding System
- ③ Grate System
- ④ Combustion Chamber
- ⑤ Super Heater
- ⑥ Evaporator
- ⑦ Economiser
- ⑧ Combustion Air
- ⑨ Wet Deslagger
- ⑩ Flue Gas to FTP

# Biomass Grate

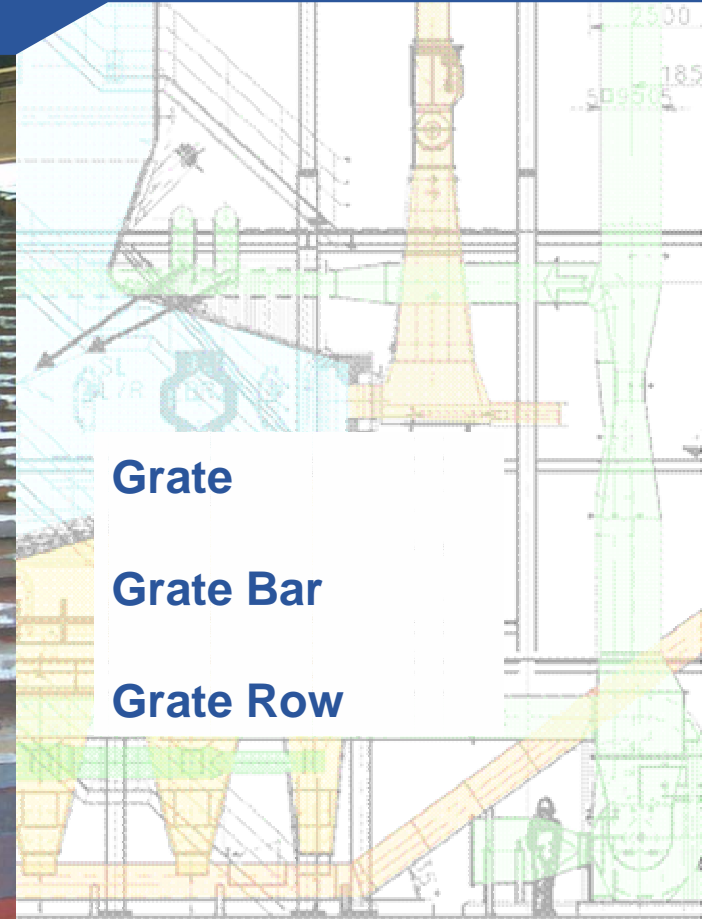


**Grate**

**Grate Bar**

**Grate Drive**

# Biomass Grate



**Grate**

**Grate Bar**

**Grate Row**

## Auxiliary Burner System

Auxiliary burner system for start-up and shut down, located in the right and left boiler side wall.

**Fuel:** Gas / Light Oil

**Burner Capacity:** 2 x 15 MW th



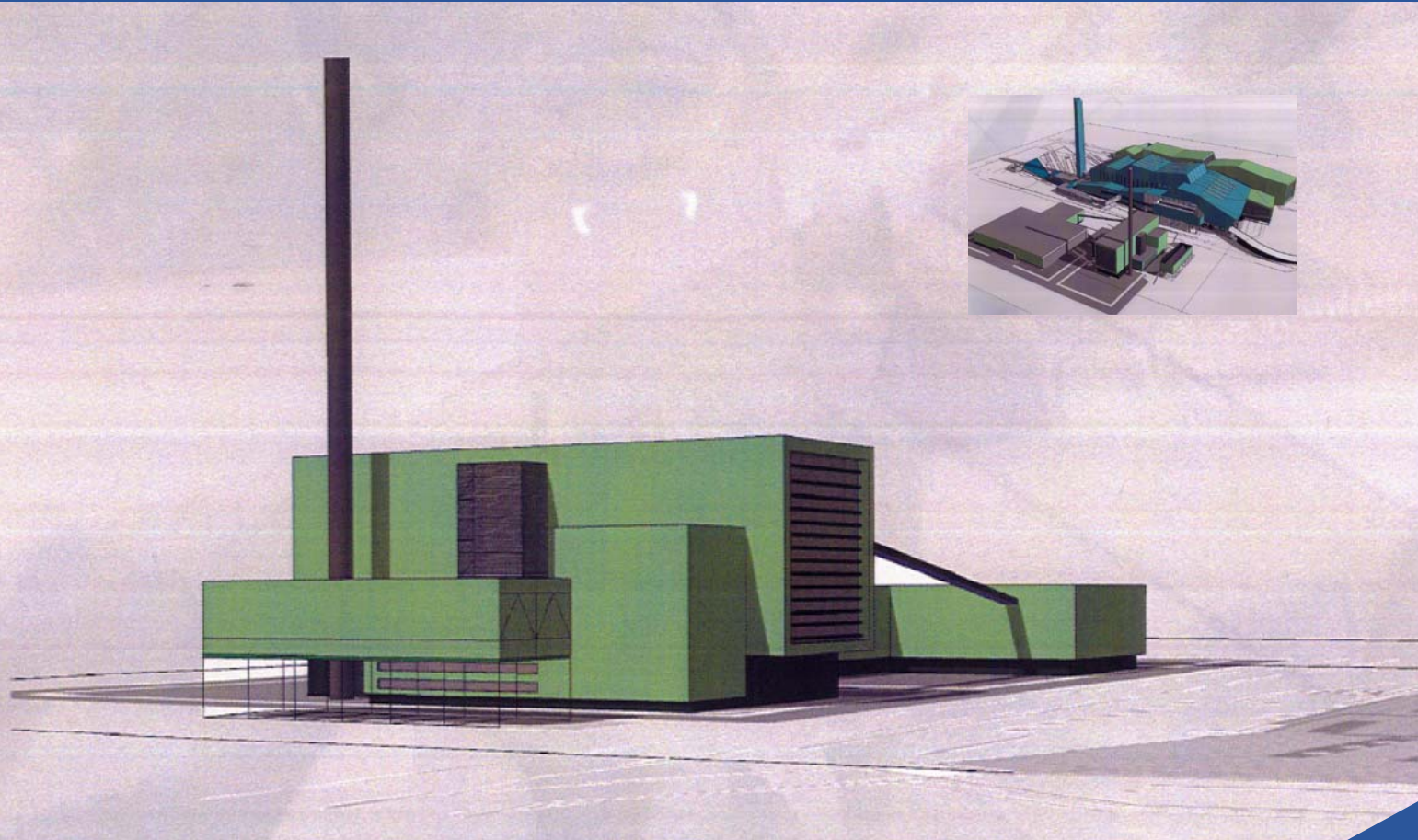
## References

More than 40 reference plants

- **13 biomass plants as turn key plants**  
thermal capacity between 25 MW and 105 MW  
electrical power between 5.6 MW and 25 MW  
steam capacity between 28 t/h and 110 t/h
- **29 biomass plants as boiler island**  
thermal capacity between 10 MW and 70 MW  
electrical power between 4 MW and 20 MW  
steam capacity between 12 t/h and 60 t/h



## BEC Twence B.V., Netherlands



Rated Thermal Input

**73 MW**

Steam Parameter

**80 t/h - 465 °C - 68 bar**

Electrical Power Output

**20 MW**

Fuel

**Waste Wood,  
Residual Wood**

Year of Commissioning

**2008**

Scope

**Turn Key Plant**

# HOKAWE Eberswalde, Germany



Rated Thermal Input

**68,3 MW**

Steam Parameter

**68 t/h - 462 °C - 82 bar**

Electrical Power Output

**20 MW**

Fuel

**Fresh Wood**

Year of Commissioning

**2006**

Scope

**Turn Key Plant**

# Fritz Egger GmbH & Co. Unterradlberg, Austria



Rated Thermal Input

**40 MW**

Steam Parameter

**45 t/h - 452 °C - 76 bar**

Electrical Output

**6,55 MW**

Fuel

**Fresh Wood**

Year of Commissioning

**2006**

Scope

**Turn Key Plant**



# Egger Holzwerkstoffe WISMAR GmbH & Co. KG, Wismar



Rated Thermal Input

**40 MW**

Steam Parameters

**45 t/h - 452 °C - 76 bar**

Electrical Power Output

**6,55 MW**

Fuel

**Fresh Wood**

Year of Commissioning

**2006**

Scope

**Turn Key Plant**

# BMK Biomass Power Plant Lünen GmbH, Lünen



Rated Thermal Input

**73 MW**

Steam Parameter

**80 t/h - 462 °C - 79 bar**

Electrical Power Output

**20 MW**

Fuel

**Fresh Wood,  
Waste Wood**

Year of Commissioning

**2006**

Scope

**Turn Key Plant**

# Biomass Heat and Power Plant Hagen Kabel, Germany



Rated Thermal Input

**2 x 43 MW**

Steam Parameter for each Boiler

**45 t/h - 452 °C - 72 bar**

Electrical Power Output

**20 MW**

Fuel

**Wood A1 – A4**

Year of Commissioning

**2005**

Scope

**Turn Key Plant**

# Biomass Heat and Power Plant Ulm, Germany



Rated Thermal Input

**57,1 MW**

Steam Parameter

**64 t/h - 452 °C - 79 bar**

Electrical Power Output

**8,6 MW**

Fuel

**Wood A1 – A4**

Year of Commissioning

**2004**

Scope

**Turn Key Plant**

# Biomass Power Plant Elsterwerda, Germany



Rated Thermal Input

**44 MW**

Steam Parameter

**50 t/h - 442 °C - 66 bar**

Electrical Power Output

**12 MW**

Fuel

**Wood A1 – A2**

Year of Commissioning

**2004**

Scope

**Turn Key Plant**

# Biomass Power Plant Silbitz, Germany



Rated Thermal Input

**25,8 MW**

Steam Parameter

**28 t/h - 425 °C - 46 bar**

Electrical Power Output

**5,6 MW**

Fuel

**Wood A1 – A2**

Year of Commissioning

**2003**

Scope

**Turn Key Plant**

# Biomass Power Plant Kunz, Baruth, Germany



Rated Thermal Output

**2 x 40 MW + 1 x 30 MW**

Steam Parameter Grate Boiler

**46 t/h - 450 °C - 108 bar**

Steam Parameter Dust Boiler

**39 t/h - 480 °C - 108 bar**

Fuel

**Wood A1 – A4, Dust**

Year of Commissioning

**2002**

Scope

**Turn Key Plant**

# Biomass Power Plant Baena, Spain



Rated Thermal Input

**105 MW**

Steam Parameter

**110 t/h - 455 °C - 78 bar**

Electrical Power Output

**25 MW**

Fuel

**Olive Residues**

Year of Commissioning

**2002**

Scope

**Turn Key Plant**