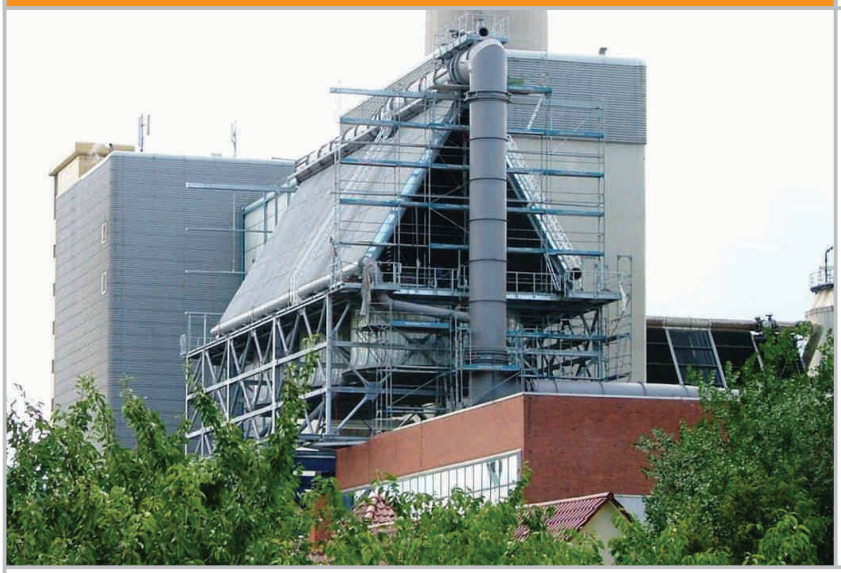
# Biomass-fired Power Plant (13.3 MW) Pforzheim – Germany

METZ Group



## Description of order:

General contractor for the entire plant (EPC contract)

**Client:**
Heizkraftwerk Pforzheim GmbH

**Contract value:**
31.3 million Euro

**Contract period:**
2003 – 2005

## Technical Data:

### Fuel
- Type of fuel: Biomass (waste wood)
- Heating value range: 6.8 - 15.8 MJ/kg
- Design value: 12.4 MJ/kg
- Particle size: Sum of all side length (W+H+L) <180 mm
- Fuel flow rate: 12.9 t/h; 103,000 t/a

### Boiler
- Boiler heat capacity: 45 $MW_{th}$
- Steam parameters: 62 bar(a), 450 °C
- Steam capacity: 52.7 t/h
- 110 °C feedwater temperature
- Type of firing system: Suspension firing with fuel charging by compressed air and air cooled travelling grate and fly ash recirculation
- Type of boiler: Four pass vertical boiler with natural circulation

### Fuel gas cleaning plant
- Design according to the 17$^{th}$ BImSchV
- The plant consists of cyclone separator, reactor with lime hydrate dosing (dry absorption procedure with lime hydrate and hearth furnace coke dosing in case of high concentration of pollution), fabric bag filter and induced draft fan.
- $NO_X$ reduction by urea solution spraying into the furnace chamber (SNCR)
- flue gas flow rate (without recirculation flow): 78,000 $Nm^3/h$

### Steam turbine
- Extraction-condensation turbine
- Electrical power: 13.3 $MW_{el}$
- Live steam parameter: 62 bar(a), 450 °C
- Rotation speed: 9,054 rpm
- Exhaust steam pressure: 0.07 / 0.10 bar(a)
- Extraction steam flow: 39.6 t/h
- Extraction steam parameter: 2.3 bar(a), 125 °C

### Cooling plant
- Water cooled condenser (with water from the river Enz) and air cooled condenser with 3 ventilators
- Cooling medium: Water / air
- Working pressure: 70 kPa (with river water condenser and 12 °C water temperature); 100 kPa (with air cooled condenser and 17 °C ambient temperature)

### Plant availability:
- 8,000 h/a