



DIEMELSEE-FLECHTDORF BIOMASS CHP PLANT GERMANY

- Application:** Energy recovery by means of air-cooled vacuum condenser
- Customer:** Biomasseverwertungsgesellschaft Waldeck-Frankenberg mbH, Germany
- Operator:** Biomasseverwertungsgesellschaft Waldeck-Frankenberg mbH, Germany
- Units:** Diemelsee-Flechtdorf Biomass CHP plant – 230 kW
- Contract:** 10606-0869
- Delivery:** 2007

Project summary

Clyde Bergemann Termotec supplied a complete air-cooled vacuum condenser to the German-based Diemelsee-Flechtdorf biomass fired CHP plant.

The combined heat and power station produces process steam to dry the wood products of the production location Flechtdorf and electricity as a by-product.

The condenser is used to condense the turbine exhausts.

Diemelsee-Flechtdorf Biomass CHP plant – 230 kW

- 3 x Primary bundle
- 1 x Secondary bundle
- 1 x Steel structure
- 1 x Axial fan Ø 20 ft
- 1 x Steam duct and steam manifold
- 1 x Condensate system (tank, pumps, piping)
- 1 x Evacuation system (liquid ring pump, ejector etc.)
- 1 x Control and electric equipment

Technical data – Plant	
Fuel type	Biomass
Electrical power	230 kW
Turbine back pressure	10 kPa
Steam quantity (condensation)	4 t/h
Technical data – Clyde Bergemann Termotec equipment	
Heat recovery	3 MW
Air temperature	20 °C
Sound power level	≤ 89 dB(A)
Tube system	Multi tube

☐ Scope of supply

- Engineering
- Delivery
- Erection
- Commissioning cold/hot
- Documentation



FRIESAU BIOMASS CHP PLANT GERMANY

- Application:** Energy recovery by means of air-cooled vacuum condenser
- Customer:** Klausner Holz Thüringen Hobelwerk GmbH, Germany
- Operator:** Klausner Holz Thüringen Hobelwerk GmbH, Germany
- Units:** Friesau Biomass CHP plant – 13 MW
- Contract:** 10708-0937
- Delivery:** 2008

Project summary

Clyde Bergemann Termotec supplied a complete air-cooled vacuum condenser to the German-based Friesau CHP plant.

The combined heat and power station produces process steam to dry lumber of the on-site saw mill. Excess electricity is fed into the national grid.

The condenser is used to condense the turbine exhausts.

Friesau Biomass CHP plant – 13 MW

- 12 x Primary bundle
- 4 x Secondary bundle
- 1 x Steel structure
- 2 x Axial fan Ø 24 ft
- 1 x Steam duct and steam manifold
- 1 x Condensate system (tank, pumps, piping)
- 1 x Evacuation system (liquid ring pump, ejector etc.)
- 1 x Control and electric equipment

Technical data – Plant	
Fuel type	Biomass
Electrical power	13 MW
Turbine back pressure	10 kPa
Steam quantity (condensation)	20 t/h
Technical data – Clyde Bergemann Termotec equipment	
Heat recovery	13 MW
Air temperature	22 °C
Sound power level	≤ 102 dB(A)
Tube system	Multi tube

☐ Scope of supply

- Engineering
- Delivery
- Erection
- Commissioning cold/hot
- Documentation



HEILIGENKREUZ BIOMASS CHP PLANT AUSTRIA

- Application:** Energy recovery by means of air-cooled vacuum condenser
Customer: Imtech Deutschland GmbH & Co. KG, Germany
Operator: Begas AG, Germany
Units: Heiligenkreuz Biomass CHP plant – 10 MW
Contract: 10503-0759
Delivery: 2005

Project summary

Clyde Bergemann Termotec supplied a complete air-cooled vacuum condenser to the Austria-based Heiligenkreuz biomass fired CHP plant.

The combined heat and power station is located nearby a production plant for lyocell fibers which is owned by the Lenzing AG. The CHP plant is responsible for generating and providing steam and energy, as well as accessory energy and media for the whole site.

The condenser is used to condense the turbine exhausts.

Heiligenkreuz Biomass CHP plant – 10 MW

- 20 x Primary bundle
- 4 x Secondary bundle
- 3 x Axial fan Ø 28 ft
- 1 x Steam duct and steam manifold
- 1 x Condensate system (tank, pumps, piping)
- 1 x Evacuation system (liquid ring pump, ejector etc.)
- 1 x Control and electric equipment

Technical data – Plant

Fuel type	Biomass
Electrical power	10 MW
Turbine back pressure	13 kPa
Steam quantity (condensation)	41 t/h
Technical data – Clyde Bergemann Termotec equipment	
Heat recovery	26 MW
Air temperature	20 °C
Sound power level	≤ 89 dB(A)
Tube system	Multi tube

☐ Scope of supply

- Engineering
- Delivery
- Erection
- Commissioning cold/hot
- Documentation



SAALFELDEN BIOMASS CHP PLANT AUSTRIA

- Application:** Energy recovery by means of air-cooled vacuum condenser
Customer: Schöbwendter Holz GesmbH, Austria
Operator: Schöbwendter Holz GesmbH, Austria
Units: Saalfelden Biomass CHP plant – 5 MW
Contract: 10503-0760
Delivery: 2006

Project summary

Clyde Bergemann Termotec supplied a complete air-cooled vacuum condenser to the Austria-based Saalfelden biomass fired CHP plant.

The combined heat and power station produces process steam to dry the wood products and electricity as a by-product.

The condenser is used to condense the turbine exhausts.

Saalfelden Biomass CHP plant – 5 MW

- 12 x Primary bundle
- 4 x Secondary bundle
- 1 x Steel structure
- 2 x Axial fan Ø 24 ft
- 1 x Steam duct and steam manifold
- 1 x Condensate system (tank, pumps, piping)
- 1 x Evacuation system (liquid ring pump, ejector etc.)
- 1 x Control and electric equipment

Technical data – Plant

Fuel type	Biomass
Electrical power	5 MW
Turbine back pressure	10 kPa
Steam quantity (condensation)	19 t/h

Technical data – Clyde Bergemann Termotec equipment

Heat recovery	13 MW
Air temperature	20 °C
Sound power level	≤ 89 dB(A)
Tube system	Multi tube

☐ Scope of supply

- Engineering
- Delivery
- Erection
- Commissioning cold/hot
- Documentation



STAVENHAGEN CHP PLANT GERMANY

- Application:** Energy recovery by means of air-cooled vacuum condenser
- Customer:** Nehlsen GmbH, Germany
- Operator:** Nehlsen GmbH, Germany
- Units:** Stavenhagen CHP plant – 10 MW
- Contract:** 10602-0844
- Delivery:** 2007

Project summary

Clyde Bergemann Termotec supplied a complete air-cooled vacuum condenser to the German-based Stavenhagen CHP plant.

The combined heat and power station produces process steam and electricity for the nearby food factory Pfanni AG. All of the factory's electricity demand is met and excess electricity is fed into the national grid.

The supplied condenser is used to condense the turbine exhausts.

Stavenhagen CHP plant – 10 MW

- 20 x Primary bundle
- 8 x Secondary bundle
- 1 x Steel structure
- 2 x Axial fan Ø 28 ft
- 1 x Steam duct and steam manifold
- 1 x Condensate system (tank, pumps, piping)
- 1 x Evacuation system (liquid ring pump, ejector etc.)
- 1 x Control and electric equipment

Technical data – Plant	
Fuel type	Refuse derived fuel
Electrical power	10 MW
Turbine back pressure	30 kPa
Steam quantity (condensation)	41 t/h
Technical data – Clyde Bergemann Termotec equipment	
Heat recovery	29.8 MW
Air temperature	20 °C
Sound power level	≤ 95 dB(A)
Tube system	Multi tube

☐ Scope of supply

- Engineering
- Delivery
- Erection
- Commissioning cold/hot
- Documentation



ZÜLPICH CHP PLANT GERMANY

- Application:** Energy recovery by means of air-cooled pressurized condenser
Customer: Smurfit Kappa Zülpich Papier GmbH, Germany
Operator: Smurfit Kappa Zülpich Papier GmbH, Germany
Units: Zülpich CHP plant, boiler 6
Contract: 10907-102
Delivery: 2010

Project summary

Clyde Bergemann Termotec supplied a complete air-cooled pressurized condenser to the German-based Zülpich CHP plant.

The CHP plant produces process steam to dry paper products.

The condenser is used to condense the steam in case of a tear in the paper production.

Zülpich CHP plant, boiler 6

- 4 x Bundle
- 1 x Steel structure
- 4 x Axial fan Ø 16 ft
- 2 x Steam manifold
- 2 x Condensate pipe

Technical data – Plant

Fuel type	Wood, paper
Steam pressure	700 kPa
Steam quantity (condensation)	49 t/h

Technical data – Clyde Bergemann Termotec equipment

Heat recovery	27.5 MW
Air temperature	30 °C
Sound power level	≤ 85 dB(A)
Tube system	Multi tube

☐ Scope of supply

- Engineering
- Delivery
- Erection
- Commissioning cold/hot
- Documentation