DIEFFENBACHER

Biomass Energy Systems



Direct Fired Furnaces

Dieffenbacher USA has developed direct fired biomass combustion systems for

dryers, lumber dry kilns, steam boilers, and thermal oil heaters. The conservative design of the gasification chamber provides low emissions with high efficiency. Low operating horse-power and excellent fuel combustion efficiency make these systems very user friendly. A state of the art control system minimizes operator requirements.





Direct Fired Furnaces Up to 275 MMBtu/hr Output

- Reciprocating, inclined grates
- Underfeed stoker fired grates
- Stationary sloped grates

- Dry fuel suspension burners
- Gasification process provides very low NOX emissions
- High furnace retention time minimizes organic particulate emissions
- Process re-circulated gases improve efficiency and reduce abatement costs
- Thermal oil heaters can be included up to 160 MMBtu/hr
- Steam boilers can be added to provide process heat or steam for steam turbines and generators to produce electricity
- Complete systems can be provided including auxiliary equipment such as fuel storage and handling

Auxiliary equipment can be provided with your Dieffenbacher USA Direct Fire Furnace system. These can be specifically designed to meet your plant's special requirements. The options can include:

- Fuel storage and fuel conveying
- Combustion controls
- Auxiliary gas and oil fired burners
- Thermal oil heaters and thermal oil circulation equipment
- Steam boilers with feedwater systems
- Piping systems
- Turbine generators
- Wet or Dry Electrostatic Precipitators
- SNCR NOX controls
- Ash conveying and storage installation services

Dryers

Dieffenbacher USA offers a variety of Dryers for fiber, particles, and strands. Dryers are a critical factor in obtaining a high board and pellet quality. Dieffenbacher dryers can be heated with different fuels including oil, gas, dust burners, or bark fuel heating systems both directly and indirectly.



Fiber Dryers for MDF, T-HDF, and HDF board

- Dieffenbacher has developed varying sizes of Dryers with a max throughput of 50,000 kg/h (bd)
 - High performance cyclones seperate the gas from the fibers
 - Flash Tube Dryers can be heated via indirect or direct heating
 - Blending can be achieved by Blow Line or EVOjet resin blending
 - EVOjet resin blending can reduce resin usage significantly

Single Pass Drum Dryers for Pellet, OSB and Particleboard Plants

- Drum Dryers offer a maximum throughput up to 75 tons of water evaporation
 - Dieffenbacher can supply either direct or indirect heated single pass Dryers
 - Low inlet or outlet temperatures assist in lowered energy consumption in the drying process
 - Extensive internals throughout the Dryer provide efficient contact drying
 - High efficiency cyclones are used for optimal dust collection
 - Double duct prohibits blockage from high resin type woods



Biomass and Wood Fired Boilers

High efficiency, low environmental emissions, and generous sizing are trademarks of the Dieffenbacher USA wood fired boilers. These units are designed with multi-stage burners and can be provided in the following sizes:

Field Erected Boilers up to 300,000 PPH Output

- Saturated or superheated steam
- Tangent tube, tube and tile, and membrane wall designs
- Wet and dry fuel systems
- Auxiliary gas or oil burners
- Low NOX Emissions

+

Package Boilers up to 70,000 PPH Steam Output

- Compact, low cost firetube designs
- Water tube designs for high pressure
- Combination watertube and firetube designs
- Complete plants from one source

Auxiliary Equipment

- – Wood Fuel Storage Systems
 - Feedwater systems including deaerators
 - Water treatment equipment
 - Sootblowers
 - Automatic combustion controls
 - Air preheaters and economizers
 - Pollution control including ESP's
 - SNCR NOX reduction systems

Electrical Generation

Dieffenbacher USA supplies complete cogeneration systems that include mechanical and electrical power generation



Electrical Generation Systems

- Steam turbines with process steam heat for use in your drying or other processes can be provided
- Our experienced engineering team will design the system so that it integrates smoothly with your existing heat energy and electrical system
- Smaller open loop ORC Rankin cycle power generators can be supplied up to 2 megawatts
- Feasibility studies provided to give you a realistic payback of your application





Biomass and Wood Fired Thermal Oil Systems Dieffenbacher USA offers a wide variety of custom biomass and wood fired thermal oil heating systems to suit your particular fuel and budget. Complete custom-designed the

Dieffenbacher USA offers a wide variety of custom biomass and wood fired thermal oil heating systems to suit your particular fuel and budget. Complete custom-designed thermal oil systems from one source are our focus. We specialize in thermal oil tanks, pumps, and piping systems.

+ Thermal Oil Heaters Up to 160 MMBtu/hr Output

- Radiant tube heaters in helical coil and rectangular configurations
- Combination radiant and convective heaters for low cost applications
- High efficiency with low stack temperatures
- Energy efficient for low operating costs including fuel and electricity

Auxiliary Equipment

- Complete oil circulation systems can be provided including all pumps and tanks
 - Fuel storage and handling systems
 - Dust free ash handling equipment

Field Installations

 Experienced crew and quality equipment to install thermal oil piping in the field

ASME Coded Tanks

- Our shop is ASME coded with in-house design team and ASME S, U, and R stamps
- From storage tanks and expansion tanks to thermal buffer vessels

🕂 Thermal Oil Pump Skids

- Custom engineered pump skids with pumps, valves, strainers, bellows and piping to headers
- Shop assembled and aligned for high degree of accuracy and easier field installation

🕂 Piping Systems

Experience to provide complex but efficient thermal oil piping designs for all applications

Wet and Dry Fuel Storage Systems

Dieffenbacher USA offers a variety of custom designed wood fuel storage systems. Fuel systems include dry fuel storage, wet fuel storage, screw conveyors, chain conveyors, belt conveyors, by-pass and re-entry systems.





Ash Handling

The Dieffenbacher USA ash collection system consists of wet and dry collection. The wet ash system collects ash from grates, boiler or thermal oil heater drop out chutes, multicone collectors, electrostatic precipitators or other applications you may have.

The dry ash system collects from multiple cyclones and other pollution control equipment.

Wet and Dry Fuel Storage

- This rugged long lasting bin design will perform in all climates to store bark, sawdust, or any other fuel with a high moisture content
- Reciprocating walking floor ladder style bins that feed fuel to a discharge screw
- Sander dust, planer shavings or any other fuel with low moisture content
- Round silo style bin with a rotating screw type feed auger that feeds fuel to the discharge opening

Ash Handling

- + The Dieffenbacher USA wet ash collection systems consist of a drag chain completely submerged in water
 - Each wet ash system comes complete with a water level control system including level sensor and fill solenoid valve
 - Dry ash is collected at various hoppers throughout the gasification, furnace, and pollution control sections of the system

Dieffenbacher in the USA – and worldwide



Please contact us for further information:



DIEFFENBACHER GMBH

Maschinen- und Anlagenbau Heilbronner Straße 20 75031 Eppingen, Germany Phone: +49 7262 65-0 Fax: +49 7262 65-377 e-mail: dse@dieffenbacher.de

DIEFFENBACHER USA, Inc.

2000 McFarland 400 Blvd. Alpharetta, GA 30004 Phone: +1 770 226-6394 Fax: +1 770 226-6394 e-mail: mail@dieffenbacheratl.com www.dieffenbacher.com

DIEFFENBACHER Customer Support, LLC

795 Branch Drive Alpharetta, GA 30004, USA Phone: +1 770 663-4383 Fax: +1 770 663-8411 e-mail: service@dieffenbacher.com www.dieffenbacher.com

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