



Drying Systems

SERVING INDUSTRIES IN:
Animal Bedding Manufacturing
Wood Pellet Manufacturing
Grain & Agricultural Products
Food & Chemical Products
Engineered Wood Products





PDI Drying Systems are designed to meet the diverse needs of today's manufacturers.

The result is innovative equipment that provides cost-effective and environmentally compliant performance, responsive to even the most stringent guidelines. Our customized solutions use advanced technology to ensure a consistent, quality finished product, giving our customers a competitive edge.



PDI Drying Systems utilize precise airflow management and retention time controls, ensuring consistent outlet moisture.

Our density classification allows lower fuel consumption than traditional systems and reduces the emissions created by overdrying smaller materials.

Efficiency of design allows a PDI system to generate higher throughput than conventional approaches in smaller drums.

Our unique mechanical design on the dryer outlet of the dryer lowers the horsepower required for the induced draft fan in a typical cyclone-based outlet. This approach reduces the need for secondary cyclones and allows for increased flexibility for materials segregation.

- Capacity Ranges Of 1–20 Tons/Hour
- Low Fuel Consumption
- Low Emissions
- Complete Controls Integration
- Structurally Engineered Drums and Rings
- Low Horsepower Requirements
- Effective Moisture Control
- Custom Flighting Packages



Details Matter

PDI Drying Systems are engineered down to the last detail. From our T-section tracks and machined bearing mounts, to our process design, every item matters. PDI's experience in maintenance and operations is key to how we design our systems and ensure optimum performance for the durability and long life your facility demands.

- Drum tracks are single piece forged rings eliminating seams and minimizing the chance of premature failure
- Drums run on the trunnions at the shop to a machined tolerance
- Rotation of the dryer is designed for 1-2 RPM for long life of the equipment
- Dampers equipped with bearings on every shaft
- Direct drive fans with gear couplings for maximum service life
- Shaft mounted gearboxes with c-face motors to avoid maintenance
- Airlocks rotated at 30 RPM and sized at 15% fill factor



Drying Islands

PDI offers complete drying packages including installation, design, and project management of the drying island. As project managers, engineers, and drying experts we pride ourselves on safe, timely, and efficient drying system projects.

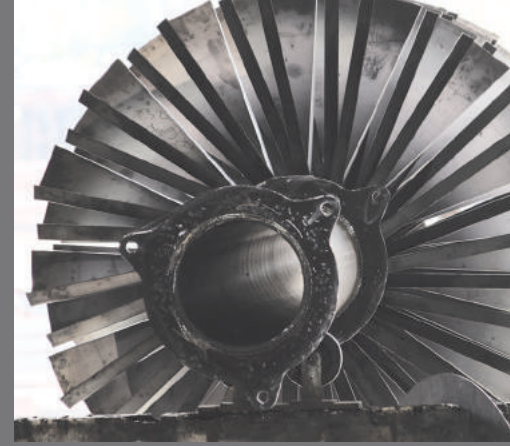


- Highly trained and skilled construction teams
- Crane lifting plans by certified operators and engineers
- Detailed project scheduling
- Construction plans by the people who designed the machinery
- Up to 30% savings realized by clients over outsourced installations
- Complete installations including foundations, electrical, and mechanical construction services
- Single point of contact for all busy project managers



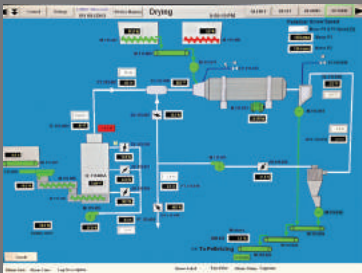
Engineering Services

PDI offers a full range of engineering services, focusing primarily on the support of manufacturing facilities. Our staff is experienced in the wood and food products industries, as well as the chemical manufacturing applications. Our services range from basic feasibility studies to full engineering design and project budgets.



Process Engineering

- Business Plan Cost Models
- Feasibility Studies
- Capital Project Budgets and Management
- Environmental Permitting
- Six Sigma Master Black Belt and Lean Certified



Electrical Engineering

Our experience as operators and maintenance engineers on many equipment models makes us uniquely qualified to assist you in developing a custom control strategy that works for you and your needs.

- PLC Programming
- Motor Control Center Supply and Design
- Machine-Specific Control Panels
- Control Strategy Development
- Network and Business Interface Support

Mechanical and Civil Engineering

PDI offers a full range of mechanical engineering services. Whether you need a complicated 3-D model, or a simple floor plan layout, our engineering staff can assist you throughout the engineering planning process.

- Plant Layouts
- Custom Equipment Design
- Equipment Selection, Sizing, and Bid Comparisons
- Equipment Supports and Catwalks
- Equipment Foundation Design





Past Projects

Product: Animal bedding made from wood shavings

Rate: 28,500 lbs/hr

PDI was contracted to design and construct a complete drying facility for Circle S Ranch, including a dryer, burner, fans and air recycling, material conveyance, and full systems controls. This plant was custom designed by PDI to be efficient and to produce a superior product.

This PDI vertical burner is designed to utilize a wide variety of wood fuel sources, with varying moisture content, and provide a steady, consistent heat flow into the dryer. Specifically crafted to reduce waste and emissions, this PDI burner operates at a high level of efficiency. In particular, this burner is designed to greatly limit nitrous oxide emissions, reducing the environmental footprint of the operation without sacrificing product quality.

This PDI dryer uses an air density classification system to ensure consistent drying for all incoming material, regardless of input moisture content. This design allows for the wood shavings to be dried more gently over a longer period of time, reducing emissions and vastly improving product quality. This dryer uses air recycling technology to make sure no heat goes to waste, simultaneously improving environmental efficiency and production efficiency.



Product: Animal feed made from recycled industrial bakery waste

Rate: Designed at 20,000 lbs/hr; actual rate at 26,000 lbs/hr

PDI was contracted to supply a complete facility, including crushing, conveying, storage, screening, waste removal, and drying equipment. PDI custom designed and supplied this machinery, which separates and dries a wide variety of bakery waste products, then screens them and produces a single finished feed product.

The PDI Rotary Drying System is designed to dry large quantities of material as efficiently as possible. The Baskin Livestock Dryer can evenly dry a mix of many products to produce a quality feed. This mix can include a wide range of products, such as cereals, bread dough, frozen goods, and candies. This mixture typically has a moisture content around 35%, which is lowered to 10% in the final mix, with less than 0.5% throughout a shift.

The PDI Multi-Fuel Burner is capable of using a wide variety of both wet and dry fuels, with optimal fuel moisture content around 40%. The burner at Baskin Livestock, designed to be both energy-efficient and economical, uses landfill wood waste, recycled plastics, and cardboard recovered from the facility to heat the system. It is fully integrated with the PDI Custom PLC System and Logic to provide reliable and easy control over both the burner and the dryer.





Product: Wood Pellets composed of mixed wood species
Rate: 20 tons/hour of dried wood product at 10% moisture content

Corinth Wood Pellets contracted PDI to build a complete wood pellet drying system, including a multi-fuel burner, rotary drum dryer, and a discharge/recycle subsystem. This equipment was coupled to existing pelletizers and baggers to construct a complete pellet mill. For this contract, PDI delivered a wet fuel burner that can burn both white wood and green bark input, at a wide variety of input moisture contents. The dryer, in conjunction with the burner, can produce up to 20 tons/hour of dried material for the pelletizers. PDI also custom designed an air recycling system, that conserves the heat that leaves the dryer, maximizing the energy efficiency of the plant.

This plant's burner system operates primarily on wet fuels — white wood and green bark at about 50% moisture content. As is the case with many PDI burners, this burner's fuel source is almost entirely waste wood, making the system as economical as possible. This particular burner produces 45 million BTU/hour of thermal energy from roughly 5 tons/hour of fuel. In addition, this burner was designed with custom PLC logic, which was integrated with the dryer and existing plant facilities to ensure smooth and automatic operation.

The PDI dryer installed for this plant is a 14X60 rotary drum dryer. It accepts just over 36 tons/hour of undried material at 45% moisture, from which it produces 20 tons/hour of dried wood product at 10% moisture content. This PDI system also incorporates an air-recycling cyclone, which recirculates hot air from the dryer outlet back through the inlet, making the process as energy efficient and economical as possible. For this project, PDI provided engineering services, aiding in plant design and assisting in smooth startup and initial product runs.



PLAYER DESIGN INC.

P.O. Box 712

Presque Isle, ME 04769

Tel: 207.764.6811

info@playerdesign.net

www.playerdesign.net