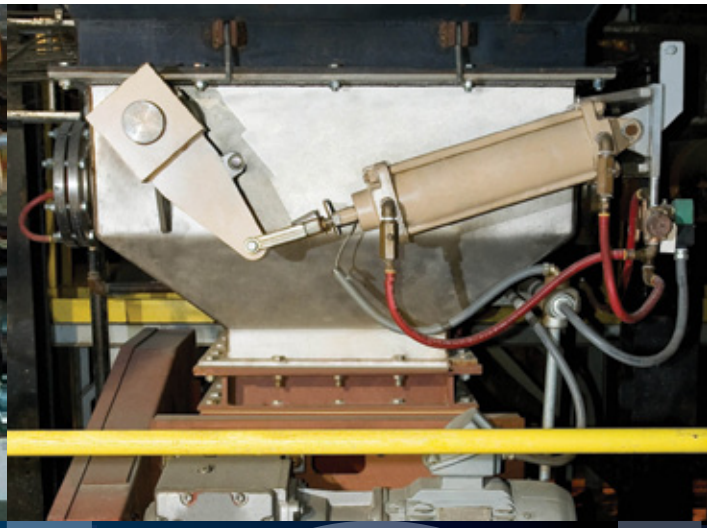


PAX™ Pneumatic Ash Extractor

Dry Bottom Ash Vacuum System

UNITED CONVEYOR CORPORATION

PAX Pneumatic Ash Extractor

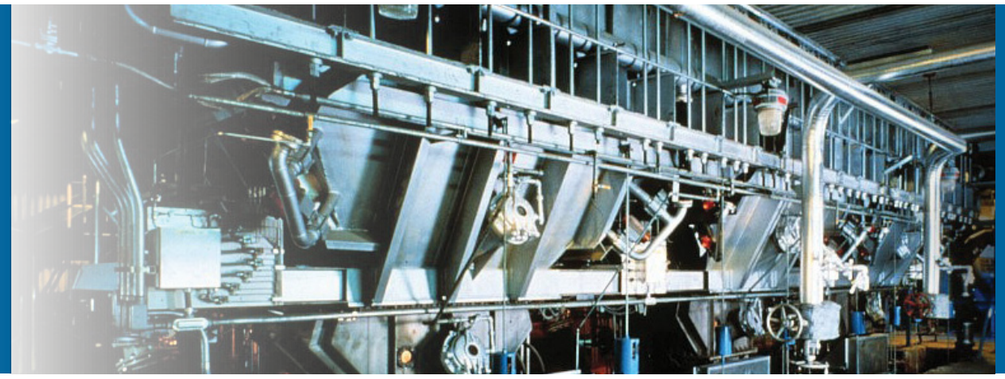
United Conveyor Corporation (UCC) pioneered the first dry bottom ash system using pneumatic technology in 1920. The PAX Pneumatic Ash Extractor added advanced technology to this time-proven design and offers many benefits over alternative dry and wet bottom ash systems. The PAX system eliminates the need for conveying water while increasing combustion of unburned carbon and heat recovery to the boiler. This rugged system is very dependable while reducing power consumption and overall maintenance costs.

Our industry is moving toward technologies that increase plant efficiency while minimizing impact on the environment. The patented PAX Pneumatic Ash Extractor is one of several innovative dry bottom ash solutions from United Conveyor Corporation and is the preferred retrofit system to overcome structural barriers with excellent routing flexibility.

Dependable Operation

The PAX Ash Extractor offers proven, time-tested dependability of a vacuum system with no space required for ramps, pumps or tanks. The PAX system is a 100% dry bottom ash solution and is ideal for both retrofit or new installations.

In operation, ash collects in a dry hopper, then crushed and fed into the vacuum system. The material can be transported to a storage bin, ash transfer truck or filter/separator unloading station.



- NO CONVEYING WATER REQUIRED
- ELIMINATES ASH PONDS
- GREATER HEAT RECOVERY
- EASILY RETROFITTED AROUND BARRIERS

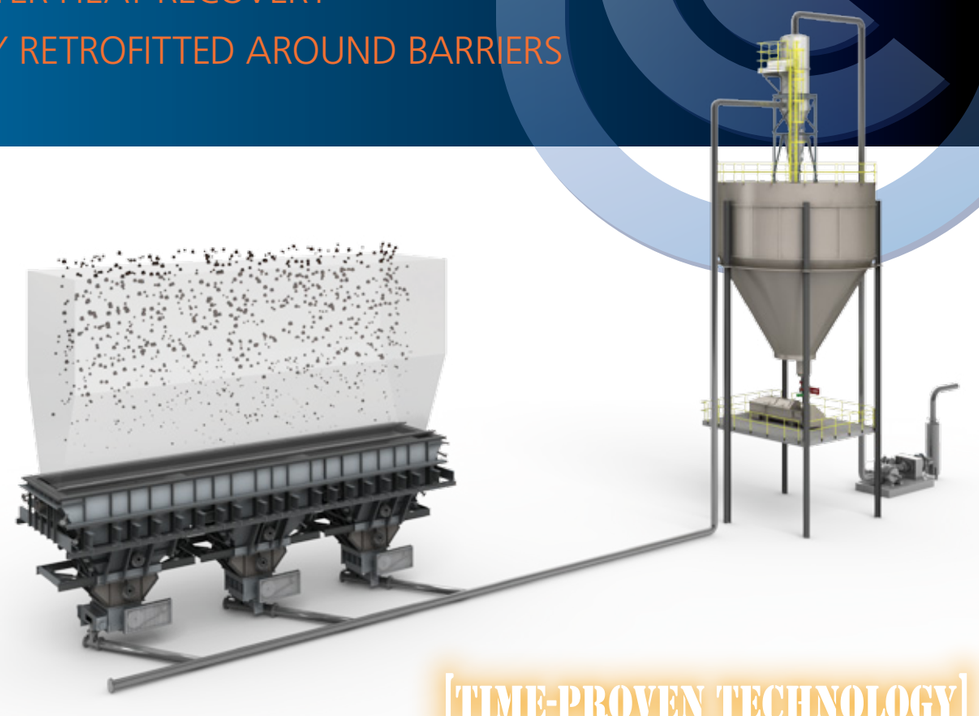
The PAX Advantage

Pneumatic conveying has proven itself in high temperature, abrasive applications for decades. The PAX Pneumatic Ash Extractor utilizes this reliable technology, offering customers optimal solutions specific to their unique needs while improving overall plant performance.

- **Greater Boiler and Plant Efficiency**
  Increased boiler efficiency through a more complete combustion of unburned carbon returning heat to the boiler and reducing thermal energy losses.

- **Dependable Performance**
  Unlike alternative mechanical bottom ash conveyor systems, there are no moving belts exposed to the boiler that can become damaged from large slag falls or soot blower lances.

- **Zero Water Discharge**
  No contaminated water to treat or ash ponds to maintain.



[TIME-PROVEN TECHNOLOGY]
FOR DRY BOTTOM ASH HANDLING

PAX

Proven Pneumatic Technology for Dry Bottom Ash

Bottom Ash Hopper

Steep walls (55° min.) and bottom discharge permit gravity flow of the ash. Walls of the hopper are lined with insulation block and a layer of refractory. The lining protects the hopper walls from damage and prevents the exterior from becoming excessively hot.

Pressurized Poke Holes/View Ports

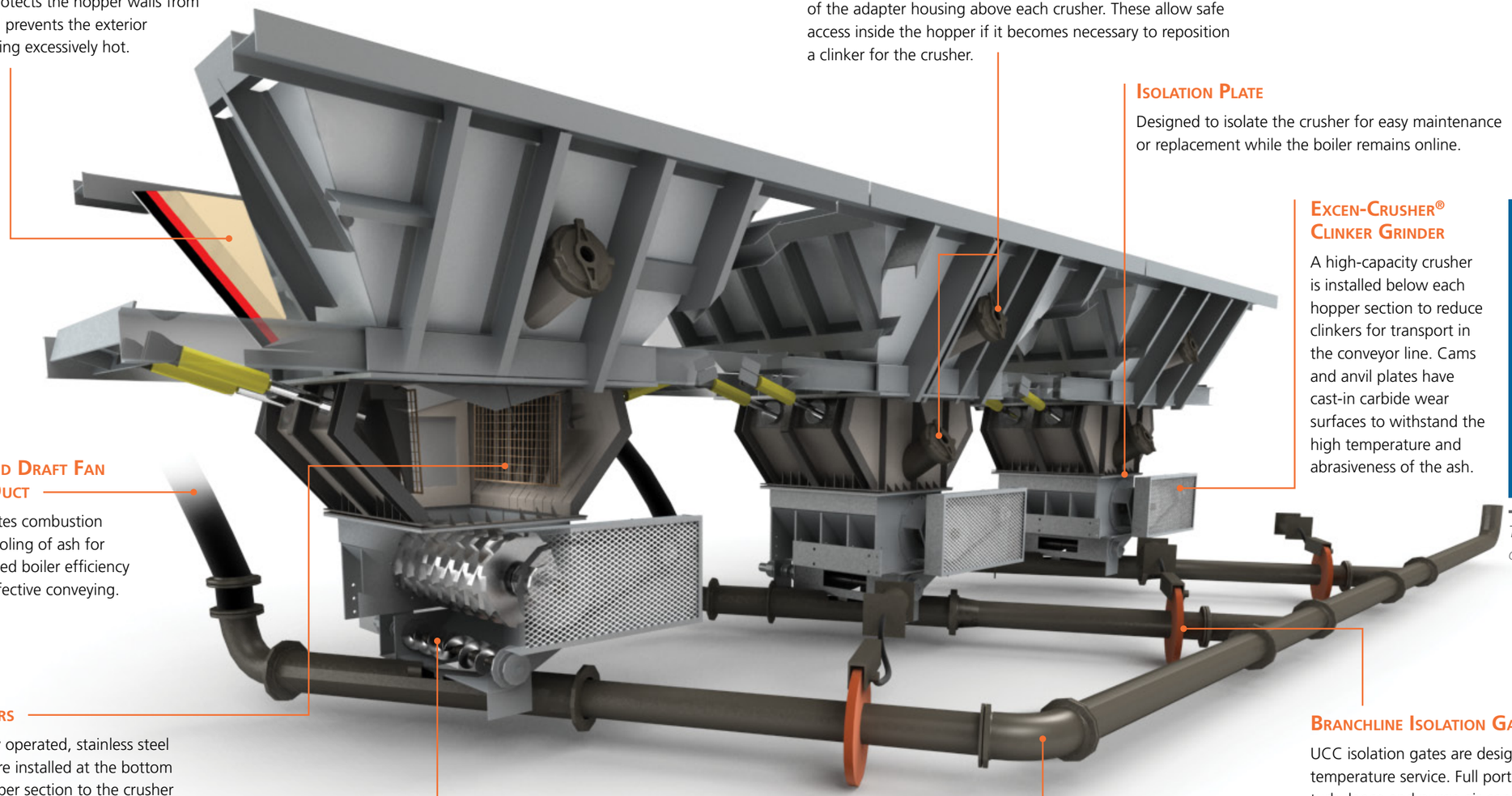
Poke holes with observation windows are located in the front and back of each hopper section, and on the front and back of the adapter housing above each crusher. These allow safe access inside the hopper if it becomes necessary to reposition a clinker for the crusher.

Isolation Plate

Designed to isolate the crusher for easy maintenance or replacement while the boiler remains online.

Excen-Crusher® Clinker Grinder

A high-capacity crusher is installed below each hopper section to reduce clinkers for transport in the conveyor line. Cams and anvil plates have cast-in carbide wear surfaces to withstand the high temperature and abrasiveness of the ash.



Forced Draft Fan Air Duct

Promotes combustion and cooling of ash for increased boiler efficiency and effective conveying.

→ *To Ash Silo, Storage Bin or Transfer Truck*

Grid Doors

Hydraulically operated, stainless steel grid doors are installed at the bottom of each hopper section to the crusher below. When fully opened, doors create a 1.8 sq. meter (16 sq. ft.) discharge opening for unassisted passage of very large clinkers. The grid design allows forced draft fan air to enter the hopper.

Screw Feeder

The screw feeder receives the crushed ash and regulates the ash flow into the conveyor line. The edge of the flights are hardened to withstand the high temperature and abrasiveness of the ash.

Ceramic-Lined or Silicon Carbide Fittings

Fittings are lined for abrasion resistance providing longer life over cast iron fittings.

Branchline Isolation Gates

UCC isolation gates are designed for high temperature service. Full port design minimizes turbulence and purge air connections prevent material accumulation.

PAX

Proven Pneumatic Technology for Dry Bottom Ash

System Operation

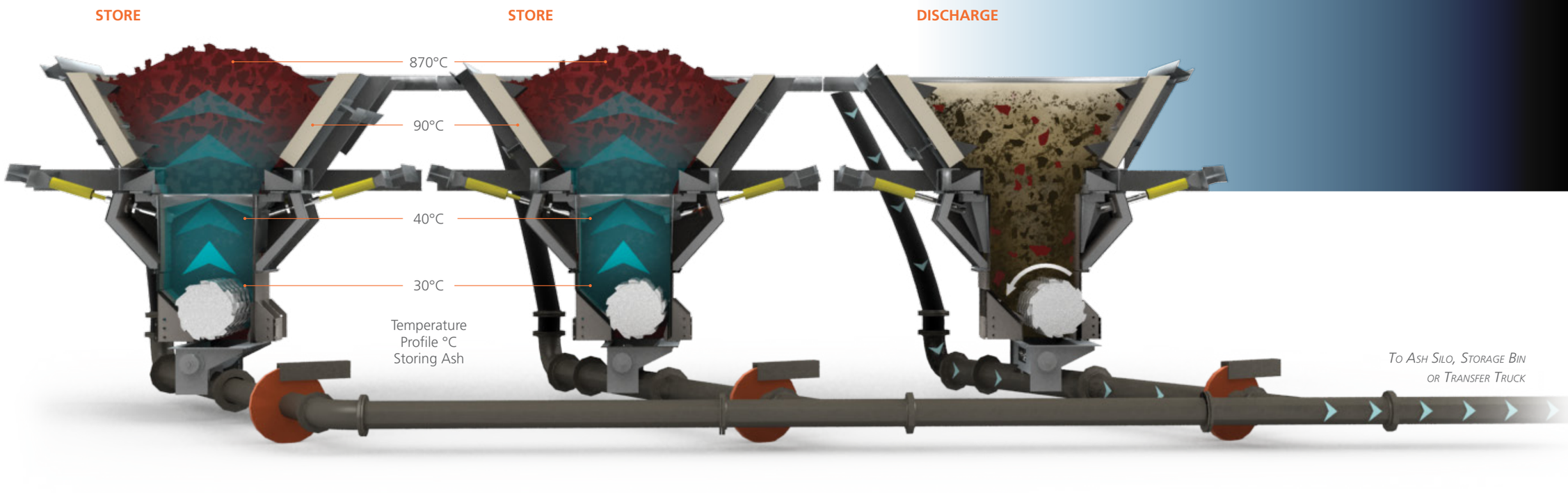
A small portion of the FD fan air (approx. 1%) is directed through the screw feeder and crusher and into each hopper through the grid doors. This air promotes complete combustion of ash particles in the hopper while cooling the system components to a safe temperature.

As ash collects in the hopper, air nozzles at the corners of each hopper section direct additional air into the hopper at preset intervals. Air from the nozzles move the fine ash from the corners to the middle of the hopper so the ash can flow freely into the crusher.

From the crusher, the smaller ash particles flow into the screw feeder. The feeder controls the flow of ash into the vacuum conveying system. FD fan air is redirected from the hopper intake to the conveyor line. If the vacuum line becomes overfilled, a full load control system signals the crusher and feeder to stop temporarily until the correct line vacuum is automatically restored.

The dry bottom ash hopper is normally sized for eight hours of storage and conveying once per shift. One at a time, the grid doors at the hopper bottom open, allowing ash and clinkers to pass into the crusher. When closed, the doors force the air up into the hopper during non-conveying cycles.

The PAX control system is relatively simple and is usually installed adjacent to the hopper. It can be operated manually or automatically as a stand-alone system or integrated into DCS.



The UCC Commitment

As an industry innovator, we have long been at the forefront of ash handling technology. We recognize the importance of providing customers with the best equipment and latest technology that meet their demanding requirements and plant needs.

With our own advanced testing and technology lab, we are able to maintain control over the quality and delivery of our systems and equipment. The result is superior and predictable performance for our customers.

Our dedicated team of engineers, sales, service and in-house designers spans the globe covering six continents, assuring you that we can provide exceptional service whenever needed. This is our commitment to you.

UCC Material Handling Solutions

Fly Ash (Dilute, Medium and Dense Phase)
- Vacuum Systems
- Pressure Systems

Bottom Ash (Wet and Dry)
- Hydraulic Systems
- Pneumatic Systems
- Mechanical Systems
- Vibratory Systems

Mill Rejects
- Hydraulic System
- Pneumatic Systems

Economizer Ash
- Hydraulic Systems
- Mechanical Systems
- Pneumatic Systems

Dry Sorbent Injection
- Predictive (CFD) Modeling
- On-Site Testing and Demonstration
- Pneumatic Systems
- Installation

Lime Handling
- Truck and Rail Unloading
- Pneumatic Systems

System Components
- Crushers
- Mixer/Unloaders
- Gates/Valves
- Pipe/Fittings
- Filter/Separators
- Tanks/Vessels

Global Operations in:
United States • Europe • China • India
Systems in over 60 Countries

UNITED CONVEYOR CORPORATION

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