

Effluent and Coal Combustion Residual Solutions

Fly ash and bottom ash material handling systems



While the Effluent Limitation Guidelines and Standards (ELGs) for Steam Electric Power Generating units evolve, plant owners should continue to develop a sound ash and water management strategy. This includes ash transport water discharge, as well as limiting toxic metal levels from the discharge of wet flue gas desulfurization (FGD) systems.

Along with coal combustion residual (CCR) regulations, these additional factors should guide the decisions regarding ways to eliminate ash ponds and to minimize the use of process water in wet FGD systems.

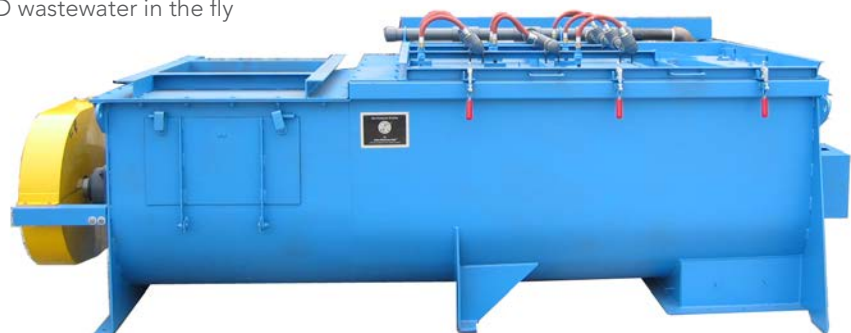
As a market leader in providing material handling solutions, Babcock & Wilcox (B&W) provides Allen-Sherman-Hoff® fly ash and bottom ash conveying systems and solutions which can help power plant owners address a wide range of ash and water management requirements.

Solutions for wet FGD wastewater

B&W provides solutions to mitigate discharge water from wet FGD wastewater applications. Pugmill conditioners in dry fly ash handling applications provide an opportunity to consume some of the FGD wastewater that would otherwise require extensive treatment prior to discharge.

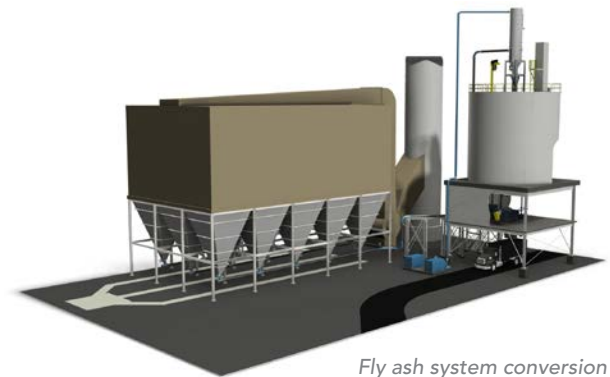
Unlike conventional pugmills that use plant process water for their wetting system, the Allen-Sherman-Hoff pugmill recycler is a robustly designed system that enables FGD wastewater to be blended into the ash for processing. This unique solution not only provides a way to minimize the use of plant process water for ash processing, but more importantly provides an economical way to dispose of FGD wastewater in the fly ash that is sent to the landfill.

Pugmill conditioner



Fly ash system conversions

B&W has experience in converting wet fly ash systems to more environmentally conscious dry technology. This approach temporarily stores ash in a silo where it can then be conditioned for open truck shipment, or even handled dry as a product for resale to the cement industry in some applications.



Fly ash system conversion

Bottom ash solutions to eliminate storage ponds

Several basic designs, which can be customized to site specifications, are available to eliminate ash storage ponds and the risks associated with them.

Submerged grind conveyor

- Reuse of existing water-sludge system's key components reduces installation costs for retrofit
- Reuse of existing bottom hoppers protects conveyor from impact of slag falls
- Capability for redundancy, allowing for uninterrupted power if one chain conveyor string is out of service
- Minimized outage time
- Low profile, small footprint
- Improved fuel efficiency and emissions control from water-filled ash collection hopper and supported water seal, which is designed to optimize O₂ levels and minimize NO_x
- Low-wear, compact mechanical conveyor system reduces material costs
- Low auxiliary power requirements
- Low maintenance costs

Hydrobin® dewatering bin

- Proven, reliable approach for dewatering bottom ash
- Gravity-driven water/solids separation
- Low initial cost, shortest lead time
- No outage required for installation
- Utilizes existing hydraulic transport system (no modifications to boiler)
- Located remote from boiler, small footprint
- Ideal for batch transport of bottom ash
- Up to 72-hour storage capacity



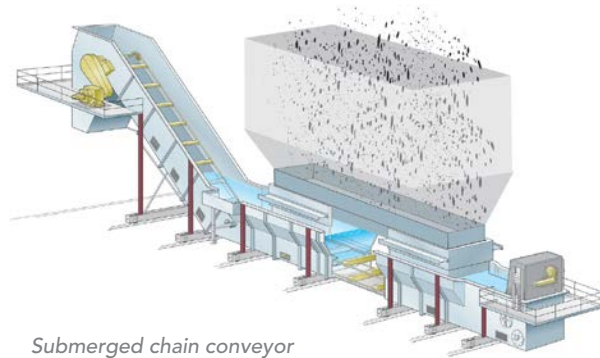
Hydrobin dewatering system



Submerged grind conveyor

Submerged chain conveyor

- Installs under the boiler, eliminates hydraulic transport system (pumps, etc.)
- Lowest power consumption
- Requires major outage for conversion
- Mechanical water/solids separation
- Vulnerability to conveyor chain breaks due to lack of redundancy
- Continuous transport required when chain conveyor is operating
- Up to 8- to 10-hour storage capacity



Submerged chain conveyor

Remote submerged chain conveyor

- Located remote from boiler
- Low profile, small footprint
- Mechanical water/solids separation
- Multiple conveyors interlinked to boilers on-site provide redundancy
- Continuous transport to on-site bunker, batch from bunker to long-term disposal
- 12- to 16-hour storage capacity



Remote submerged chain conveyor



Total-scope capabilities to address effluents and coal combustion residuals

B&W has unmatched experience in the design of all types of bottom and fly ash systems. Our wide range of technologies and transport methods allows us to deliver a customized solution to address your ash and water management requirements.

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