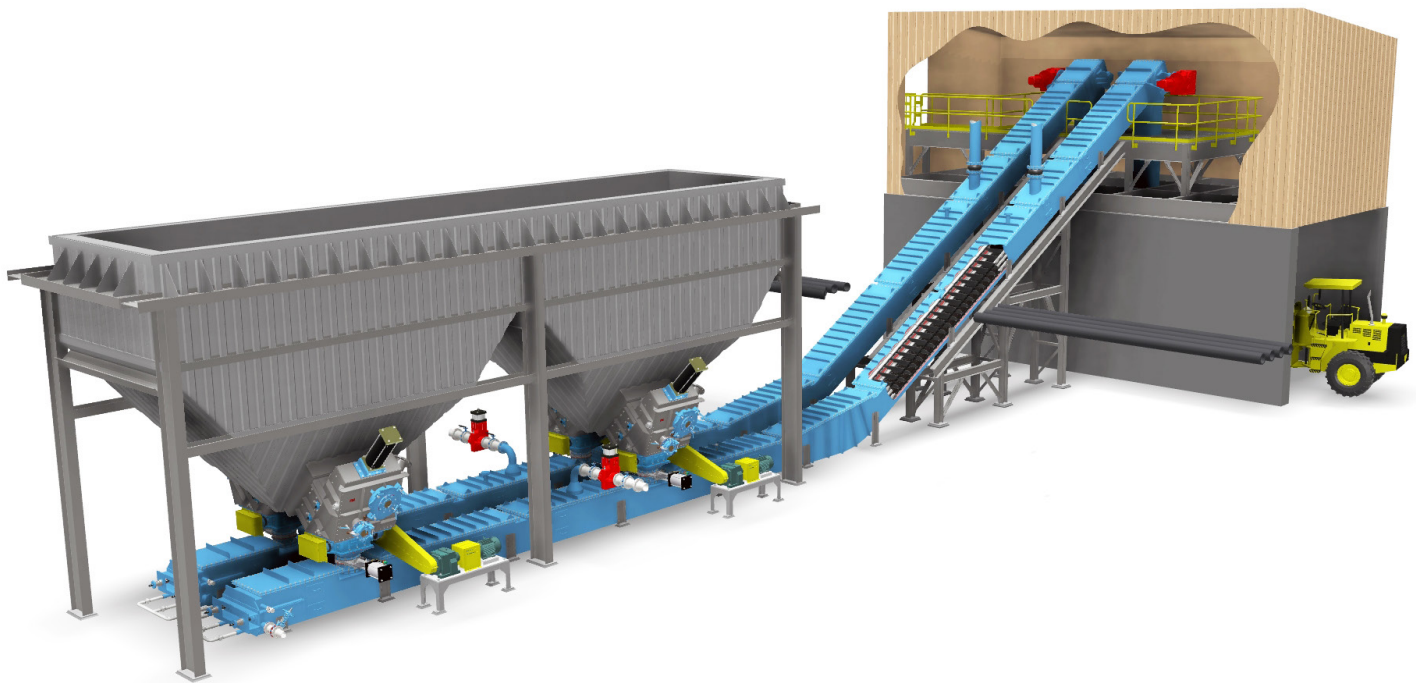


Submerged Grind Conveyor (SGC) System

Simplified, heavy-duty, flexible design for effective bottom ash transport and dewatering



RENEWABLE | ENVIRONMENTAL | THERMAL

Patented, proven technology simplifies installation and operation for superior ash handling

The challenge to effectively and reliably meet regulatory targets for bottom ash handling has often required plant operators to make significant investments in equipment modifications. Babcock & Wilcox (B&W) set out to develop a new conveyance technology that not only met effluent limitation guidelines (ELG) and coal combustion residuals (CCR) requirements, but also considered unique plant layouts in providing a simplified and more cost-effective solution.

The result? B&W has developed, patented and proven its Allen-Sherman-Hoff® Submerged Grind Conveyor (SGC) system, which offers maximized results and minimized modifications to the existing footprint.

■ Features

- Utilizes existing bottom ash hoppers or slag tanks for bottom ash collection
- Isolation from the hoppers for safe online maintenance
- Utilizes existing bottom ash gate, clinker grinders and transfer enclosure (dog house) between gate and grinders
- Conveyors can be oriented at angles to avoid existing structures and equipment, eliminating the requirement for straight pathway to a location outside boiler building as with traditional conveyors
- Smaller and lighter than conventional submerged chain conveyors because it receives bottom ash after crushing by clinker grinders and is not subject to heavy loads from slag falls or weight of bottom ash stored during maintenance
- Smaller, flexible design can be adapted between boiler and outside boiler house en route to storage bunker, avoiding moves and demolition

■ Benefits

- Reuse of existing water-slucice 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

Smaller and lighter; stronger and more durable

In a test comparing chain types, B&W's forked link chain – although lightest in weight – ranked highest for both strength and hard case depth.



Breaking Strength



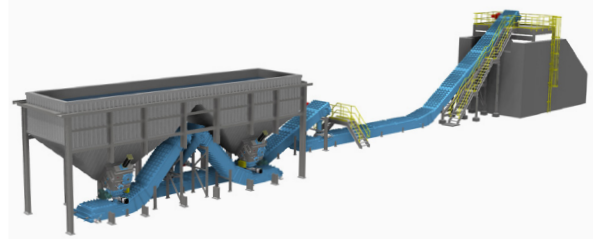
Effective Case Depth



■ Round Link (30x120) ■ Conventional Forked Link ■ B&W Forked Link

Heavy-duty, water-tight construction

Thick plate casing and conveying surfaces for total chain submergence into water means no sloppy wet ash accumulation.



System designed to convey dewatered bottom ash from hopper through a series of compact SGCs for discharge into storage bunker



Going above and beyond by going below and around

Our SGC system offers flexibility in design to avoid disruption to operations and shorten installation time and costs. Conveyors can be oriented at angles and with turns around existing equipment that would otherwise be expensive to relocate. Conventional submerged conveyors require a straight path to a location outside the boiler building. Our SGC does not.

Compact and flexible, our SGC collects the bottom ash from the discharge of each clinker grinder and transports it using a series of bottom-carry, submerged drag chain conveyors.

Both the bottom carry chain and flights and the return chain and flights are contained in a small cross-section, water-tight enclosure. The hopper remains water-impounded to quench the bottom ash and support a water seal at the bottom end of the furnace for optimal fuel efficiency and emissions control.

No ash transport water is used, which meets the ELG requirement for closed loop or zero discharge of water. And it's designed around your equipment, **reducing conversion costs by retaining existing ash hoppers and boiler seal plates.**

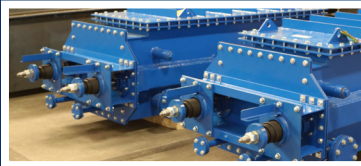
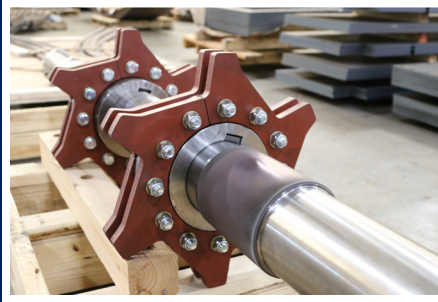
Designed for ease of installation and operation

Every aspect of our SGC's design took into account the impact of a retrofit from its initial installation through its ongoing operation. Because our SGC is small and compact — and doesn't require the removal or displacement of bottom ash hoppers or slag tanks, ash gates, clinker grinders, transfer enclosures and other existing equipment — installation can be accelerated to save time at a lower cost than other bottom ash conveyance systems. The simpler, mechanical transfer conveyor design has low auxiliary power requirements and low maintenance costs.

To ease maintenance over time and use of the conveyor, the existing ash gate was designed to isolate the conveyor from the ash hopper. The boiler can stay online since ash can be stored in the existing ash hopper, and the conveyors are equipped with variable speed drives to make up for any resulting slowdown.

All with the durable construction, high performance, predictable results and trusted reliability you have come to expect from B&W and the Allen-Sherman-Hoff line of material handling solutions.





Manufactured in Lancaster, Ohio, USA,

B&W's submerged grind conveyor offers a

simplified and cost-effective system

made from reinforced,

heavy-duty components

and proven to meet

zero-discharge bottom ash removal requirements

with consideration to each

unique plant layout.

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