Continuous Removal Technology

The Submerged Scraper Conveyor (SSC) has been supplied as an alternate to traditional wet bottom ash hoppers and slurry systems. The SSC can be used in both new applications and as an upgrade on bottom ash hopper retrofit projects.

Clyde Bergemann’s SSC is used for the continuous removal of bottom ash from conventional Pulverized Coal fired boilers and is particularly suited when high ash rates and boiler slag falls are expected. The SSC has also been used on Waste to Energy plants, Biomass and many other combustion technologies.

The SSC is capable of quenching, dewatering and transporting high rates of ash and offers greater energy efficiency than hydraulic systems of comparable capacity. Factory assembly and a trial prior to shipment ensures an accelerated installation and start-up program, avoiding timely delays.

Typical SSC Operation

The SSC is a heavy duty dual drag flight chain conveyor. The conveyor is submerged in a water trough below the furnace which quenches hot bottom ash as it falls from the combustion chamber. The bottom ash is then dewatered as it travels up the inclined section before it discharges. Double roll crushers can be used for final particle reduction at the discharge of the SSC. The discharge of the SSC can be fed into removable containers or onto a transfer conveyor to storage, for by-product reuse or landfill.

The SSC can be driven via single or twin hydraulic or electro-mechanical drives to suit the application or customer requirements. Optional discharge slide gates can be provided depending on the application requirements, and removable or static conveyors can be engineered to suit boiler geometry or operator requirements.
Design Features

**Automatic chain tensioning unit:**
SSC chain tension is automatically adjusted based on an oil/inert gas differential system. This system correctly tensions the chain under all load conditions and is fully automated. It has the ability to send data back to the PLC for visual or audible indication in the control center.

**Hydraulic drive and power pack:**
Utilizing the inherent torque characteristics of this technology, we normally arrange twin motors providing excellent start-up performance and allowing better flexibility during upset conditions.

**Driving chain:**
To meet demanding duties placed on the SSC, we use three types of sprockets and chain wheels with our proprietary heavy duty case hardened round link chain.

Applications

- Boilers typically ranging from 5 -1000 MW
- Pulverized coal-fired units
- Waste-to-energy units
- Retrofit for plant increased life cycle

Benefits

- Reduction in water usage
- Reduction in power consumption
- Lower operational and maintenance costs
- Continuous removal technology superior to hydraulic systems
- Automatic chain tensioning increases chain life
- Reduced complexity compared to using conventional recirculating dewatering bin technology