

Tough slag? Bring it on.

Targeted Sootblowing Technology

Clyde Bergemann SmartSootblowers provide an intelligent sootblowing solution for power generation, recovery and industrial boilers — remove slag where conventional sootblowers fail while minimizing tube erosion in areas with less fouling. SmartSootblowers are capable of targeting tenacious buildup to deliver unprecedented slag removal.

TARGETED CLEANING

The heart of the targeted sootblowing system is its zone-based cleaning. Depending on the severity of the slag, different locations in the boiler have different cleaning needs. By defining zones along the path of the lance, different modes and parameters can be used to specify where and how intensely the blower cleans.

[Cleaning Modes]

- [Variable Helix]

Unlike standard sootblower operation, the SmartSootblower's traversing speed and rotational speed may be set independently to define a helix that will provide the appropriate degree of cleaning for the fouling conditions in that zone.

- [Intensive Cleaning]

To remove tenacious slag normally left by traditional sootblowers, the SmartSootblower's lance can be virtually held in place while rotation continues. This Intensive Cleaning can inhibit clinker formation, reducing outages, poor heat transfer, and costly boiler damage.

- [Oscillation]

Using the SmartSootblower's Oscillation mode, blowing media is concentrated on the area to be cleaned by restricting its arc from a given starting angle through a specified angle of rotation. Additionally, the control system can vary the lance rotation speed,

based on the nozzle position, to maintain a specified jet progression velocity (constant JPV).

This unique system also allows “repeat” cleaning of a zone without requiring the lance to be returned to its starting position and then re-extended. And after a cleaning program is complete, the lance can be retracted from the boiler at a much faster speed to avoid costly tube erosion.

The cleaning mode and parameters can be set by the operator or, for optimum performance, SmartSootblowers can utilize real-time data from our Super Heater Fouling Monitor SmartGuages to further identify cleaning needs.

COMPONENTS

The SmartSootblower housing is a heavy-duty formed galvanized steel canopy. The blower carriage consists of the spindle housing and the gear box, separated to avoid excessive heat-related damage commonly found on other sootblower designs and to prevent lubricant leakage. A balanced dual rack-and-pinion drive carriage reduces wear and increases the life of the gearing components. All parts that may need maintenance or repair are easily accessible. This robust design reduces overall maintenance costs.

Two electric motors with variable frequency drives supply the independent motions that give the SmartSootblower its unique cleaning capabilities. The main drive motor powers the translation of the carriage, and the motor mounted to the rear of the gearbox provides rotation to the lance via a chain and sprocket drive.

The blowing medium is fed through an externally adjustable poppet valve. The pressure from the supply line can be adjusted independently of the valve opening, offering additional control over the cleaning intensity.

Motor-mounted encoders and a proximity probe track the nozzle position, allowing the control system to target the intended area.

Cables and power cords are guided and protected by the power-chain trailing device. This avoids the costly repairs associated with expandable-style cords.

The SmartSootblower control application is a stand-alone module of SmartControls, an open-architecture system which uses industry-standard PLC and HMI. It integrates into the main control system for basic functionality, with a user-friendly operator interface to facilitate the setup of parameters for zone-based cleaning and zone geometry.

THE SOLUTION

Targeted sootblowing is a more efficient and effective cleaning method, saving time, operational costs and maintenance costs, while increasing boiler availability. On-demand cleaning minimizes media consumption and tube erosion and reduces wear & tear on the equipment. By controlling slagging, the boiler maintains a higher heat transfer rate, and boiler run-time is increased as well.

SmartSootblowers are easily incorporated into existing systems, either as new additions or as replacements for existing blowers. Individual SmartSootblowers can be installed at problematic locations on the boiler with the controls seamlessly integrated into the current control system, which means lower capital outlay and less downtime.

For today's boiler cleaning demands, SmartSootblowers are a key component of Clyde Bergemann's SMART solutions.