



SMART RETRACTABLE SOOTBLOWERS

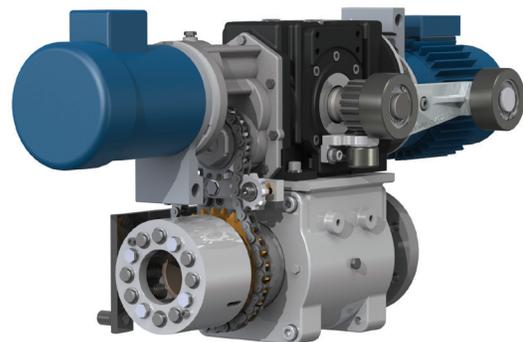
SMART Sootblowing Technology

SMART retractable sootblowers are the most advanced boiler cleaning solution available in the recovery and utility industries, giving users the ultimate advantage over the toughest fouling conditions. Targeted sootblowing offers the most efficient and cost-effective answer to address today's boiler cleaning demands. The result is increased boiler efficiency and reduced cleaning media usage.

Unlike conventional cleaning technology, which is based on static conditions, SMART cleaning is based on dynamic conditions, applying real-time feedback of fouling conditions from our SMART Convection module. It is this real-time feedback that continuously creates and updates the cleaning strategy of the SMART sootblowers, optimizing boiler heat transfer by targeting only the areas with deposit accumulation, and then only with precisely the steam intensity needed to remove it.

Depending on the severity of the slag, different locations in the boiler have different cleaning needs, therefore Clyde Bergemann built our SMART sootblowers to specifically address these highly variable conditions with on-demand, targeted cleaning. The result is increased boiler runtimes and a higher heat transfer rate. Additionally, customized cleaning modes reduce blowing media consumption and minimize tube erosion, extending boiler lifespan. A key feature of the targeted sootblowing system is its zone-based cleaning. By defining zones along the

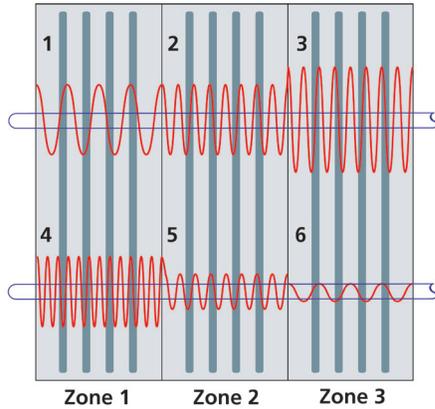
path of a single sootblower lance, different cleaning methods can be used to specify where and how intensely the SMART sootblower cleans, with the ability to change multiple times during the same cleaning event. This is accomplished using our patented dual VFD motor design is the only sootblower which allows for independent and variable traveling and rotational speeds, providing the dynamic ability to clean based on the severity of fouling in a given area.



Dual Motor Carriage



Variable Cleaning Intensities



FOULING CONDITION

1. Typical slag
2. Difficult slag
3. Difficult, widespread slag
4. Extremely difficult slag
5. Slag on one tube bank
6. Light slag

SOLUTION

- Standard helix
Tight helix, standard intensity
Tight helix, high intensity
Stop and go cleaning
Variable oscillation
Reduced pressure, large helix

SMART RETRACTABLE SOOTBLOWERS

The ultimate in SMART cleaning performance

Cleaning Modes

Only Clyde Bergemann can offer variable cleaning intensities which include the following:

Variable Helix

Traveling speed and rotational speed can be customized to define an infinite number of helix sizes that provide targeted cleaning for the fouling conditions in that zone. For zones with heavy slag, a tight helix can be set. For zones with little slag, a large helix can be set.

Variable Oscillation

Blowing media can be concentrated on only the area that needs cleaning by adjusting the rotational arc.

Variable Intensity Cleaning

Variable helix and variable oscillation can be combined with a variable pressure module to create the ultimate SMART Clean system. The SMART sootblower can stop at tube bundles with tenacious slag and clean with a high pressure. For tube bundles with little slag, the SMART sootblower can increase speed and reduce blowing pressure to save cleaning media use and prevent tube erosion.

SMART Controls

SMART retractable sootblowers are paired with a stand alone module- the SMART Controls suite; the industry's only open architecture system that uses industry standard PLC and HMI. The module integrates into the main control system for basic functionality, with a user friendly operator interface. For optimum performance, SMART sootblowers can run in closed-loop control mode. Cleaning occurs when and where needed, using real-time data from Clyde Bergemann's market leading SMART Gauge and SMART Convection System.

Benefits

- Targeted sootblowing
- Increased boiler efficiency
- Cleaning media savings
- Eliminate slag/tube erosion related shutdowns or derates

SMART Retractable Sootblower Models

SMART RS	For Recovery Boilers
SMART US	For Utility Boilers
SMART USX	For Long Travel, Utility Boilers



Clyde Bergemann Power Group Americas Inc.
Boiler Efficiency Product Division

4015 Presidential Parkway
Atlanta, GA 30340

1 800-241-5996
T: 770-557-3600
F: 770-557-3651

COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV GL
= ISO 9001 =

Internet: www.cbpg.com
eMail: info@us.cbpg.com