



SMART SCS

Increased Availability for Waste,
Biomass and RDF Fired Boilers





Reliable On-Load Boiler Cleaning with Water

New Design Based on the Experience of More Than 200 Installations

The Situation

The use of waste and biomass as fuels is a procedural challenge. The inhomogeneity of those fuels is reflected through a wide range of calorific values and chemical compositions. This can lead to a fouling tendency of the heat exchanger surfaces, the key contributing factors being the quantity and distribution of the ash-forming components of the diverse fuels in combination with operating parameters.

The high alkali content that characterizes those fuels leads to the formation of molten salts. This enhances deposition build-up in open passes which has a special impact on the operational performance and availability of the plant. A reduced heat transfer, resulting in an increase of the flue gas temperature before the superheater and high-temperature corrosion, is a critical consequence.

Our Solution

The SMART SCS uses water as the cleaning medium. Located on the boiler roof, it is suitable to clean the inner side of the boiler roof, the membrane walls and platen heating surfaces of the furnace and open radiation passes at high flue gas temperatures up to 1.000 °C. The SMART SCS is available in different versions for specific requirements with a vertical travel up to 22 m.

🔴 Your Advantages:

- Increased plant availability due to reliable cleaning of the open radiation passes which is important for efficient plant operation condition
- Stable flue gas temperature at exit of open radiation passes
- Lower risk for high-temperature corrosion and reduced corrosion rate
- Shorter revision period as time-consuming manual primary cleaning is almost eliminated
- The construction of SMART SCS allows cleaning of narrow designed open radiation passes

Improved Cleaning Efficiency

The SMART SCS is equipped with an umbrella nozzle to attain an optimum cleaning performance. In case of heavy resistant slagging and the necessity for intensive cleaning, jet nozzles can be used. The use of these optional jet nozzles with integrated multiple blowing pattern allow effective cleaning and minimal erosion impact on the heating surfaces.

Improved Hose Stacking

The umbrella nozzle is mounted on a flexible, temperature-resistant metal hose, which is stacked on to a hose cage with guide rollers. The nozzle enters the boiler through a guiding tube. The simplified motion sequence supports the frictionless drive of the hose and is also a good solution in case of curved guide tubes.

Extended Lifetime of Metal Hose

An air curtain dries and cleans the metal hose after every cleaning cycle. This protects the metal hose from corrosion and extends its life span.

Secure Flue Gas Sealing

The guiding tube houses the air curtain which seals against flue gases from the boiler during the cleaning cycle with a compressed jet of air.

Compact Design for Limited Space

The innovative stacking system and guidance technology of the SMART SCS cleaning hose secured an easy retrofit into existing units which low maintenance requirements.



SMART SCS – Suited for Different Deposit Characteristics

Principle of Cleaning

Water enters the pores of the deposits and evaporates, causing a sudden expansion of volume. This induces axial cracks on the deposit surface, which propagates further to break off the deposits.

The nozzle head forms a water jet with a defined spectrum of water droplets and momentum. To achieve successful cleaning, it is important that the frequency of cleaning, water impact, amount of water, deposits and cleaning velocity are specifically set to match the requirements of each individual plant.

By using different nozzle head designs and cleaning parameters, the cleaning efficiency can be adjusted to specific surface deposit characteristics.

Three different versions are available:

- **Stand-Alone System SMART SCS-SA:** recommended for open passes with small, uniform cross section
- **Single-Row System SMART SCS-SR:** recommended for boilers with rectangular cross-section – two or more flanges are arranged in a single row
- **Multiple-Row System SMART SCS-MR:** by using a crane rail the SMART SCS can be moved over the whole boiler roof. Recommended for boilers with complex geometry and different cleaning zones.



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