

Coating Service Solutions Metco BOIL

Coatings for erosion and corrosion protection of waterwalls and boiler tubes in power plants and waste incinerators

Thermal spray has been used successfully for several years to apply protective coatings in coal-fired power plants to fight erosion problems that result from sand in fuels and flue gases.

As the variety of fuels used in power plants increases and the steam temperature in waste incinerators continues to rise to achieve better energy efficiency and profitability, the need for efficient corrosion protection in these facilities has gained in importance.

The materials currently used to construct boiler tubes are not sufficiently resistant to the complex combination of corrosion, erosion and abrasion these components are subjected to. Material losses from these processes of up to 2 millimeters (0.08 in) or more per year is not uncommon.

Metco™ BOIL Coating Systems, from Oerlikon Metco, provide tailor-made protective coatings that can be applied successfully to waterwalls and boiler tubes subject to:

- Chlorine-induced corrosion and particle erosion in waste incinerators, biomass-fired plants and power plants that burn a variety of fuels.
- Erosion in fluidized bed boilers burning fuels such as wood, hard coal, lignite or waste.
- Erosion as a result of sand-containing flue gas in coal dust-fired plants.
- Corrosion in low-oxygen atmospheres.



Superheater tubes from a waste incinerator.

A: Coated with Metco BOIL

B: Uncoated, corroded wall thickness reduced by 2.5 mm (50%)

Systematic Development and Many Years of Experience with Metco BOIL

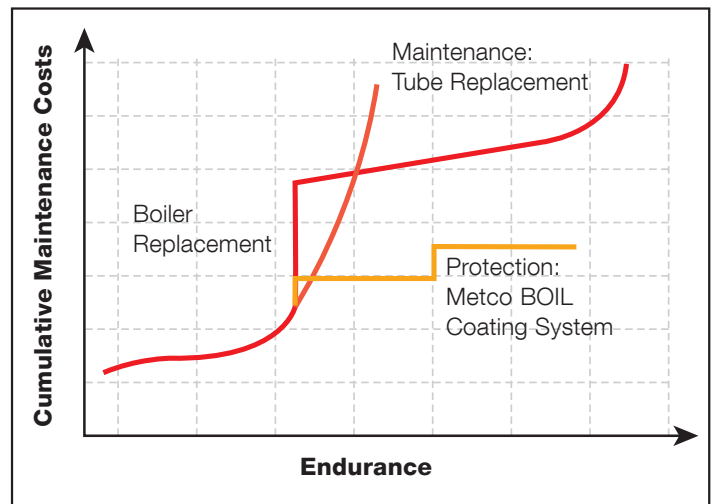
Oerlikon Metco has more than 15 years of practical experience in the application of coating solutions for boilers. Thanks to Oerlikon Metco's close internal cooperation, the latest coating material and process findings are used to continuously improve our Metco BOIL coating systems.

To provide fast and realistic testing of candidate solutions, we have modern, high-temperature corrosion testing equipment available.

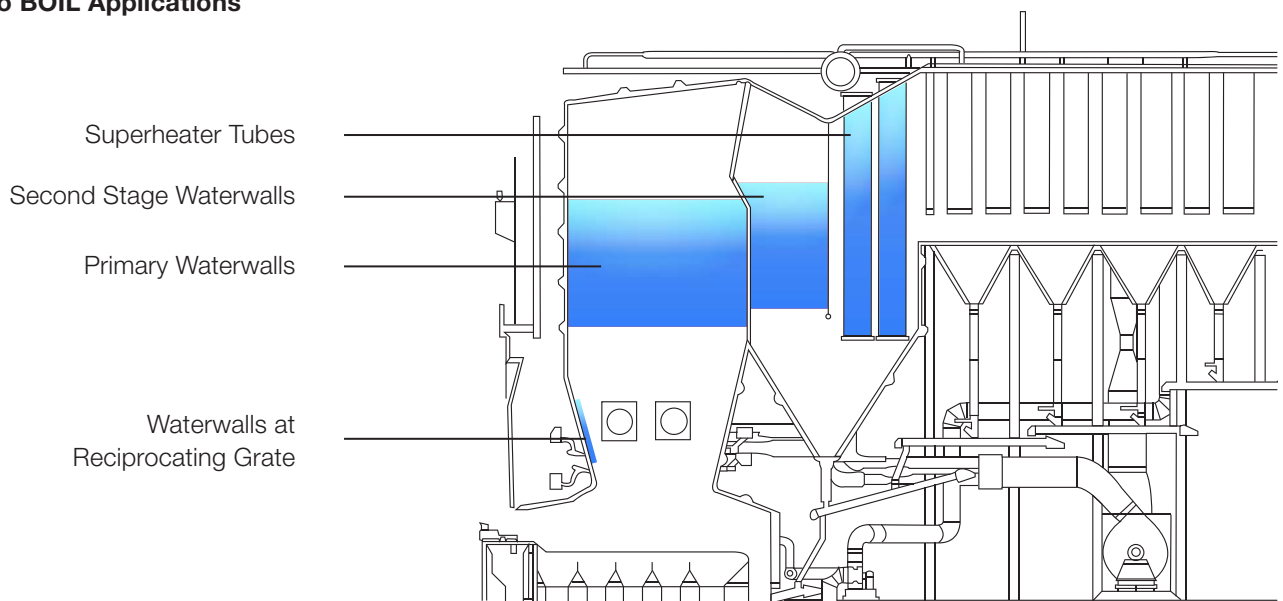


Advantages and Benefits of Metco BOIL Coating Systems

- Preservation of waterwall thickness.
- Recoating is possible once the coating has become depleted in service.
- Worn tubes with a minimum wall thickness can be coated.
- Anti-adhesive coating properties reduce the build-up of deposits on waterwalls and simplify their removal.
- Far less boiler tube cracking or other failures that can cause unplanned downtime.



Typical Metco BOIL Applications



Our Services

Coating Consultancy

Our team of specialists has many years of experience in the evaluation of waterwall surfaces:

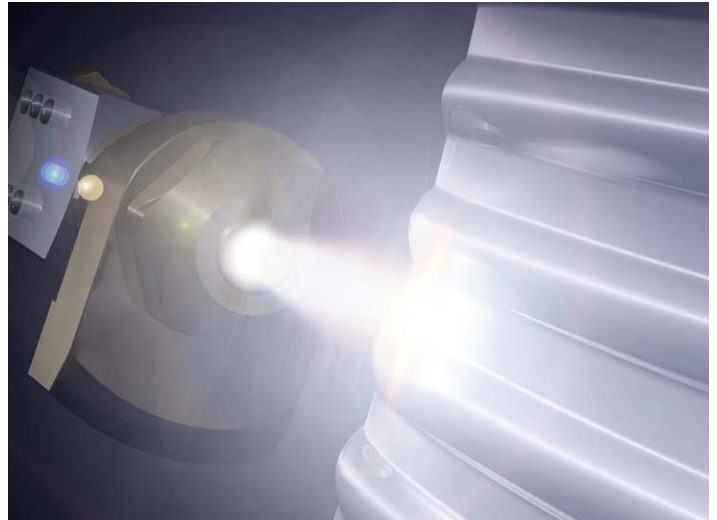
- The coating material and application process are determined by damage analysis and analysis of the specified operating conditions. The cause of the damage has to be determined accurately, especially if there is significant wall thickness reduction, such as that which results from chlorine-induced corrosion or erosion.
- Periodic inspection of the coatings ensure your boiler tubes are optimally protected.



On-site Service

Coating systems for boiler walls and tubes are applied directly to the interior of your boiler:

- Large surfaces can be coated quickly, as a result of fast coating deposition rates.
- Our multiple service teams give us the flexibility to accommodate your scheduling requirements.
- Excellent training of our coating staff ensures high quality coating systems and consistently high standards of workmanship.
- Our high safety standards are your assurance of our professional services.



In-house Service

Our center of competence for the development and application of boiler coating solutions in Weissenborn/Freiberg (Germany) offers:

- Spray booths equipped with the latest technology for the application of coating solutions for super heater tube bundles and waterwalls.
- Robots and modern handling systems ensure the application of high quality coating systems and highly efficient workflow.
- Components up to 8 m (26.25 ft) in length and 10 t (22,000 lb) in weight can easily be coated. For larger dimensions, we can provide specialized solutions.



Overview of Metco BOIL Coating Systems:

Coal-fired Power Plants

Coating	Coating Process and Material	Hardness [HV0.3]	Max. Steam Temperature	Features	Typical Applications
Metco BOIL 14V	Electric Arc Wire High-hardness alloys	> 850	550 °C (1025 °F)	<ul style="list-style-type: none"> ■ Good wear protection at medium loading 	<ul style="list-style-type: none"> ■ Furnace membrane walls ■ Superheater tube bundles
Metco BOIL 40C	HVOF Tungsten carbide	> 850	350 °C (650 °F)	<ul style="list-style-type: none"> ■ Outstanding erosion resistance 	<ul style="list-style-type: none"> ■ Upper furnace membrane walls (above the concrete) ■ Funnel edge
Metco BOIL 60C	HVOF Carbide	650 – 800	600 °C (1100 °F)	<ul style="list-style-type: none"> ■ Wear protection at high temperature and low corrosion conditions 	<ul style="list-style-type: none"> ■ Furnace membrane walls

Waste Incinerators

Coating Hardness	Coating Process and Material	Hardness [HV0.3]	Max. Steam Temperature	Features	Typical Applications
Metco BOIL 55D	Electric Arc Wire, nickel-based alloy	200	350 °C (650 °F)	<ul style="list-style-type: none"> ■ Good corrosion protection 	<ul style="list-style-type: none"> ■ Furnace membrane walls
Metco BOIL 70C	HVOF High-hardness, nickel-based alloys	> 550	550 °C (1025 °F)	<ul style="list-style-type: none"> ■ High corrosion protection ■ Resistant to flue gas erosion ■ Resistant to soot erosion from blower operation 	<ul style="list-style-type: none"> ■ Furnace membrane walls ■ Superheater tube bundles



Information is subject to change without prior notice