



# PROBLEM SOLVED™ PAPER

**SOLUTION:** Martin® Air Cannons

**INDUSTRY:** Cement

**LOCATION:** CEMEX Knoxville  
Knoxville, Tennessee



*The CEMEX plant in Knoxville, Tennessee lists capacity of 2,500 tons per day for an annual output of 800,000 tons per year.*



*The elimination of the blockages required that the Martin® Air Cannons be “densely packed” on the pre-heater tower.*



*To reduce employee exposure to severe temperatures, Martin® Thermo Safety Shields were included in the air cannon installation project.*

## PROBLEM

Buildup on the walls of the pre-heater was a continuing headache for operating personnel and a consistent production bottleneck. To knock down the buildup, the plant resorted to water blasting. But the frequent water blasting proved costly, with high labor expenses, shortened refractory life and reduced kiln efficiency.

## SOLUTION

Martin Engineering recommended Martin® Air Cannons to help solve the problem.

A total of 50 additional Martin® Air Cannons were installed to cover the pre-heater. Martin® Air Cannons utilize the powerful discharge of a reservoir of compressed air to remove material from vessel walls, improve flow and enhance plant efficiency.

Installation of the air cannon system was performed during the plant’s annual maintenance outage. The nozzles were installed through the pre-heater walls by the plant’s maintenance crews and then covered with castable refractory. The air cannon system, including blowpipes, air lines and control systems were installed by a crew from the MartinPLUS® Services group.

## RESULTS

To eliminate the blockages, the air cannons had to be “densely packed” on the pre-heater tower. “Basically, we installed a cannon everywhere where the material would build up, everywhere where we would need to water blast to clean the surface,” explains Joe Roark, production manager.

Since the installation of the air cannons, the plant has virtually eliminated water blasting. In eight months of operation, there have been no pre-heater chokes leading to unscheduled outages. The Martin® Air Cannon is continuously and automatically cleaning the pre-heater to make sure the plant is getting the most out of its system.

*Martin® XHV Air Cannon Valve is protected by U.S. Patent No. 5,853,160.*

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