



# PROBLEM SOLVED™ PAPER

**SOLUTION:** Martin® Typhoon Air Cannon

**INDUSTRY:** Cement

**LOCATION:** India

**TITLE:** Martin® Typhoon Air Cannon solved bridging issues in fly ash hoppers



Fly ash hoppers faced frequent blockages. Vibrators and hammering proved to be unsafe and inefficient.



70-liter Martin® Typhoon Air Cannons with fan jet nozzles strategically installed for effective material flow.



Improved flow and reduced manual intervention led to enhanced operational efficiency and workplace safety.

## PROBLEM

A cement plant with a production capacity of 5.4 MTPA in the northern region of India was facing recurring material blockages in two fly ash hoppers. Due to the moisture content in fly ash, frequent bridging occurred, disrupting the flow and impacting operational efficiency. To mitigate the issue, The customer used vibrators and manual hammering, but continuous vibrations caused cracks in weld joints, while hammering damaged the hopper and led to sudden material collapse. This abrupt discharge often resulted in overfilling and spillage on the bottom conveyor. The combined effect of these issues led to equipment damage, reduced productivity, increased downtime and maintenance costs, making the existing solution both unsafe and inefficient.

## SOLUTION

To address the persistent bridging issue in the fly ash hoppers, Martin Engineering conducted a site audit and recommended the installation of four 70-liter Martin® Typhoon Air Cannons equipped with 90-degree fan jet nozzles on each hopper. Unlike vibrators and manual hammering, air cannons can be operated in controlled intervals to ensure consistent material flow without damaging the hopper structure. The strategic positioning of the nozzles enabled a broad and effective blast pattern, breaking up material accumulation proactively. The Typhoon features a centrally-located valve that can be removed in one step and serviced easily from one side - without detaching the tank from the vessel.

## RESULT

Following the installation of the Martin® Typhoon Air Cannons, the bridging issue in the fly ash hoppers was effectively resolved. Material flow improved significantly, eliminating the need for manual hammering or vibrators and preventing structural damage to the hopper. Downtime and maintenance requirements were notably reduced, contributing to improved operational efficiency and workplace safety. The customer is highly satisfied with the solution and, based on the positive results, they placed an additional order for four air cannons on the second fly ash hopper.