PROBLEM SOLVED™ PAPER

SOLUTION: Martin® Typhoon Air Cannons

INDUSTRY: Mining, Alumina Production

LOCATION: Vedanta Aluminum Ltd; Lanjigarh, Odisha, India

Maintenance personnel were manually hammering to dislodge blockages - causing damage to the silo walls.

PROBLEM

The Vedanta facility in Lanjigarh currently produces approx. 2 million tons of alumina each year. To feed the ball mill, bauxite bulk material is stored in four large bunker silos, which were experiencing accumulation issues and blockages. Maintenance personnel had to try manually hammering on the vessel walls and poking the material in attempt to dislodge it, but their efforts were largely ineffective, while causing damage to the silo walls. The situation was taking valuable manpower away from more productive tasks, slowing down production and introducing potential safety hazards. The company needed to find a solution to prevent future silo damage and improve the material flow.

Strategically positioned at critical points around each silo, the Typhoon Air Cannons prevent accumulation.

SOLUTION

Technicians from Martin Engineering India conducted a thorough review of the process and recommended a series of air cannons to facilitate material flow and minimize accumulation. The team installed ten 150-liter Typhoon Air Cannons in strategic locations on each silo, plus an additional 20 on transfer chutes, for a total of 60 units. The low-maintenance designs feature low compressed air usage and eliminate stress on the silos and support structures caused by manual cleaning. The centrally-located valve can be removed in one easy step and replaced within minutes, eliminating the need to remove the tank from the vessel for service. The design features the simple one-line plumbing of a traditional solenoid operation.

The air cannons can be programmed to fire automatically or manually activated as needed.

RESULT

After 7 months of operation, the air cannons have proven themselves by dramatically reducing material buildup and eliminating blockages. The manpower previously needed to address the accumulation has been reassigned to more productive work, improving overall efficiency. Further damage to the silo structures from hammering on the exteriors is prevented by the powerful blast of air from each cannon, fired in sequence for maximum effect. The low air consumption is a significant benefit in this challenging application, meeting the plant's needs while staying within budget. Operators report that they're very satisfied with the Martin Engineering products and services.

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