# PROBLEM SOLVED™ PAPER

**SOLUTION:** Martin® Torsion V-Plow

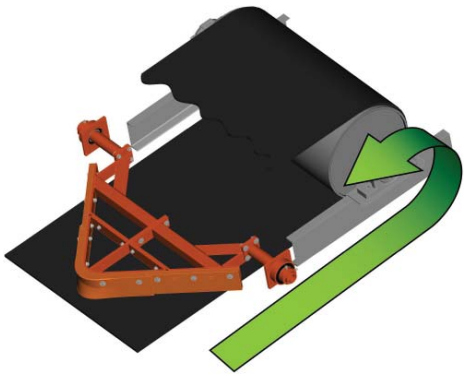
**INDUSTRY:** Cement

**LOCATION:** Cimento Elizabeth in Paraiba, Brazil

*The Cimento Elizabeth plant in Paraiba, Brazil was experiencing fugitive material on a conveyor.*

## PROBLEM

The Cimento Elizabeth plant in Paraiba, Brazil manufactures cement products for a variety of applications, including formulations for harsh service environments, fast-drying concrete and high-strength materials for precast components. The company was experiencing fugitive material on the non-carrying side of the conveyor that carries 1000 TPH of limestone from the mine. The spillage would collect on the underside of the belt during its return run, and the material became trapped between the head pulley and the belt. The problem caused premature wear of the belt, as well as misalignment, and had the potential to damage the tail pulley, as well.



*To fight the damaging effects of fugitive material, a Martin® Torsion V-Plow was installed in front of the tail pulley.*

## SOLUTION

To fight the damaging effects of fugitive material on single-direction belts, a 54-inch Martin® Torsion V-Plow was installed in front of the tail pulley. Engineered with a unique spring-loaded suspension system, the design allows the plow to rise and fall with fluctuations in belt tension and travel. Attached with dual steel crossbars bolted to the conveyor frame a few feet from the tail pulley, the unit is secured by two heavy-duty safety cords. Three torsion arms system adjust independently, maintaining consistent pressure for effective cleaning in all stages of blade wear. The plow is effective on standard tail pulleys or wing pulleys at belts speeds up to 900 fpm (46 m/sec).

*Cimento Elizabeth officials report that they are extremely satisfied with the Martin Engineering solution.*

## RESULTS

The 900 meter (2,953 foot) belt is now running at its designed speed of 1.6 m/s (5'3"/s), with the V-Plow removing fugitive material before it can reach the tail pulley. The company has greatly extended the life of the belt, which cost an estimated R$800 per meter to replace. Cimento Elizabeth officials report that they are extremely satisfied with the Martin Engineering solution, and they feel confident that the belt is being protected and the misalignment problem has been resolved. They no longer need to remove trapped material at the pulley, which delivers further savings from reduced maintenance and downtime.

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