

Belt Cleaners for Slag Processing Plant

Project: PH Transportes, Brazil

Formed in 1986, PH Transportes from Minas Gerais specialises in customized handling solutions for the steel, metallurgical and mineral sectors. For over 20 years, PH Transportes operates in slag processing plants and metal recovery in large steel mills.

THE PROBLEM

Their Slag Processing Plant in João Monlevade, faced severe carry back problems in the slag handling conveyors. The transfer chutes were small and there was provision to install only one primary cleaner. As the conveyors were slow and the high abrasive nature of slag, the cleaners were installed such that the cleaning blades were away from material flow, in order to reduce wear of the blades. In order to reduce the heat of the slag, water was sprayed to cool it down resulting in high moisture content slag. As a result, the material was very sticky and carry back was heavy.

On many occasions the slag and foreign material carried along the belt, got trapped between the belt and cleaner blade, thus damaging both belt and the blade. Slag fines used to build up in the gap between blade segments, resulting in un-even cleaning edge.

THEJO'S SOLUTION

When Thejo was given the opportunity to study and submit a proposal to resolve the issue, our Conveyor Expert visited the site and studied the application in detail. All the operating parameters and installation challenges were collected and communicated to the design and engineering team.

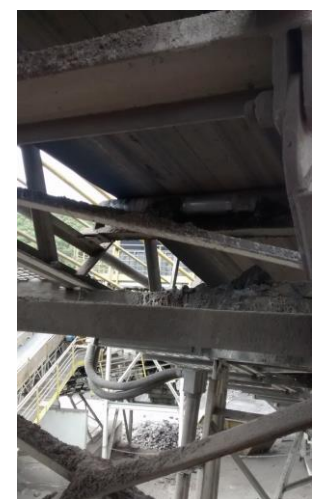
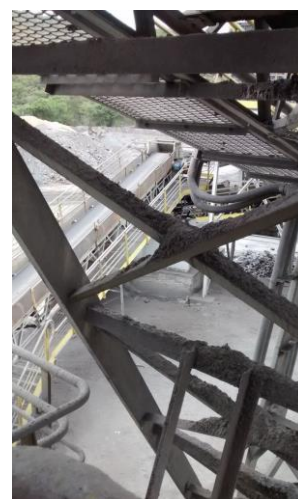
It was decided to install the cleaners on two conveyors, to start with.



PH Slag Processing Plant



Cleaner previously installed on the conveyor



Carry back material deposited on the on the conveyor structure

After reviewing the findings, Thejo proposed to install **RAVEN** Primary Cleaner with a single blade. The blade would be smaller in size so that it could be installed clear off slag lumps.

Considering the amount of moisture, it was also proposed to install a **CONDOR PD** secondary cleaner. Both the cleaners would have compact construction to allow installation in tight space. The posterior wall of the chute would be modified to collect the material cleaned by the secondary cleaner.

<i>Client</i>	<i>PH Transportes</i>
<i>Application</i>	<i>Blast Furnace Slag</i>
<i>Belt Width</i>	<i>36" & 42"</i>
<i>Belt Speed</i>	<i>2.0 m/s</i>
<i>Moisture Content</i>	<i>>10%</i>

CONCLUSION

The cleaners were supplied in time and installation was carried out under the supervision of our experts. Due to the presence of interference in the small chute, one secondary cleaner was modified at site, to maintain the correct position.

The belt cleaners started to show off the results almost immediately on starting the conveyor after the installation. The combination of Primary and secondary cleaners reduced the carry back drastically. A small carry back is still observed due to the presence of fine slag. The conveyor stoppages for cleaning have come down. The plant has decided to adopt the system on their remaining conveyors also.



CONDOR Primary Cleaner installed on the conveyor



CondorPD Secondary Cleaner installed on the conveyor



Condor PD Secondary modified at site