

Cement plant turns to ProSpare to improve belt conveyor performance

The challenge

A major UK dry process cement plant, operating since the 50's, extracts over 1m tonnes of carboniferous limestone annually. A network of +40 belt conveyors operate across the quarry and cement plant that are critical to the success of the entire facility.

Belts 3A and 3B, transporting 100mm limestone from quarry to cement plant, were a constant source of maintenance. Collectively, the belts are approximately 175m long drum-to-drum and handle 700-800 tonnes per hour, 40 hours per week.

POOR BELT CLEANING CAUSED STOPPAGES

The conveyors had to be stopped prematurely on a weekly basis to allow cleaning and maintenance to be carried out. Although each belt featured both primary and secondary belt cleaners, significant carryback was experienced each week that the quarry team were required to clean. Furthermore, one of the conveyors is located above a road, so extra safety measures were required when cleaning in this area.

INEFFECTIVE LOADING POINT SEALING

The quarry team were also required to clean around six wheelbarrows of spillage at the loading point, as part of the weekly clean. The rudimentary rubber skirt seal installed was not only ineffective, but also required replacing every two months due to excessive wear. This task was undertaken by the maintenance team and took around four hours to complete.

MISTRACKING LED TO OPERATOR INTERVENTION

Largely due to the effect of off-centre loading, the belt would mistrack by up to 100mm, exacerbating the poor performance of the sealing system. A 'homemade' solid steel roller was installed to try to mitigate the mistracking. Despite this, the maintenance team still spent two hours per month maintaining the steel roller to realign the belt, often disrupting production.

75% reduction
in carryback levels

~70 hours saved
in maintenance requirements



Conveyor transporting 100mm limestone at 700-800 T/P/H

The solution and improvement

The Maintenance Manager contacted our Bulk Materials Handling Division, looking for a continuous improvement plan for their belt conveyors. A service engineer visited site, and after scoping the belts, it was agreed that 3B would be upgraded with STARCLEAN® belt cleaners, a CenTrax tracking roller and SealTek sealing system, with 3A requiring STARCLEAN® belt cleaners.

STARCLEAN® ELIMINATES PREMATURE SHUT DOWN

Primary and secondary position STARCLEAN® units with tungsten carbide blades were installed on both belts. Two years on, carryback has reduced by 75%, eliminating the need for the premature shut down. Instead, the quarry team can now carry out cleaning as part of regular housekeeping when required.

SEALTEK REDUCES SPILLAGE BY ~275 WHEELBARROWS

To help minimise spillage at the loading point, 2 x 5m runs of SealTek were installed. SealTek provides a far superior seal to the belt than traditional skirting rubber, so the six wheelbarrows of spillage previously reported each week has reduced to just one wheelbarrow every two weeks - eliminating around 275 wheelbarrows of waste since installation over two years ago.

Also, with SealTek, the quarry team simply adjust each sealing block individually to maintain this effective seal over the long term. Furthermore, none of the blocks have required replacement, saving the maintenance team around 48 hours so far.

CENTRAX ELIMINATES OPERATOR INTERVENTION

To rectify the mistracking problem, a CenTrax SKO 900 was installed on the return strand of the belt. Thanks to a unique



ProSpare Service Engineer during a site visit

swivel bearing, CenTrax is able to quickly and automatically correct belt misalignment. Since installation, over 10 months ago, the operator is no longer required to manually realign the belt. Consequently, the two hours of monthly maintenance to realign the belt has been eliminated, saving the team a further 20 hours.

SERVICE SCHEME REMOVES MAINTENANCE HEADACHES

ProSpare have helped improve the performance of 18 other belts around both the quarry and cement plant so far. A bi-monthly service of the belts and equipment is carried out by a service engineer, so the customer can protect their investment and focus on maintaining other areas around the plant.

The Maintenance Manager told us: “The service engineer really knows their stuff, it’s great that we no longer have to worry about maintenance on these belts and trust that we can just leave it all to ProSpare.”



STARCLEAN® BELT CLEANER



SEALTEK SEALING SYSTEM



CENTRAX BELT TRACKER