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PT Kembla Coal Terminal Case Study

In early 2012 Port Kembla Coal Terminal (PKCT) identified a need to refurbish the drive pulleys on their two Stacker Reclaimer units. Included in this refurbishment was replacement of the lagging.

Bruce Chapple the Plant Mechanical Engineer responsible for pulleys at PKCT had indicated a rationalisation of the lagging types used to ceramic lagging for drive pulleys and Polyurethane lagging for all non-drive pulleys.

Elastotec recommended Hot Vulcanised (HV) Ceramic lagging in this application for the following reasons:

- 100% Rubber Tear bond between the lagging and the pulley shell
- No joins between strips eliminating the chance of water penetration and resulting pulley shell corrosion
- Ceramic tiles bonded into the rubber backing with rubber on the back and side of each tile. This provides much higher adhesion values reducing the chance of tile pull out plus cushioning from impact that can damage tiles.
- Aluminium oxide tiles based on 96% Al2O3 with a Vickers Hardness in excess of 1100 – this increases the wear resistance and toughness of the tiles with the benefit of increased lagging service life.
- Choice of Ceramic Lagging thickness of 12 mm,15 mm and 20 mm. The increased thickness of the rubber backing layer in the Elastotec HV Ceramic Lagging reduces the chance of slippage occurring between the lagging and the belt covers on high tension belts that can result in excessive belt cover wear and reduced belt life.

PKCT made the decision to proceed with the application of the Elastotec Hot Vulcanised Ceramic lagging to the first pulley for the No.2 Stacker Reclaimer in 4th quarter 2012. This was completed with a 3 week turnaround. The second drive pulley for the No. 1 Stacker Reclaimer was lagged during the 1st Quarter of 2013. For both drive pulleys the 20 mm HV Ceramic was selected.

Both Stacker Reclaimer drive pulleys are now back in service and Elastotec the manufacturer of the Hot Vulcanised Ceramic lagging expects a long service life for the Ceramic lagging as the chance of the more common ceramic lagging failure modes (tile pull out , and lagging debonding from the pulley shell) have been eliminated. Additionally the chance of excessive belt wear due to slippage has been greatly reduced.

PROK is responsible for the pulley refurbishment at PKCT with this work being done at their plant in Newcastle. PROK recommends the Hot Vulcanised Ceramic Lagging for all new pulleys and for pulleys removed from service for refurbishment die due to the increased reliability and service life of this system.

For additional information on the application of Hot Vulcanised Ceramic Lagging please contact:

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