



Case Study:

TWELVE BELT FEEDERS TO CONVEY FILTER CAKE



The Scope:

A major producer of alumina in WA decided to embark upon a programme of reclaiming material from their red mud tailing ponds. The decision to do so was driven by environmental factors plus valuable residual material could be recovered from the previously waste material.

Stage 1 took place at a facility close to Perth and involved the construction of a new filtration facility coupled with a new stockyard for the recovered material prior to it being shipped for further processing.

A filtration hall was built containing 6 large plate type filter presses designed to reduce the moisture in the resultant cake to 30% or less. The material is pumped into the filter presses as a slurry with the moisture then being squeezed out of the slurry in a series of plate membranes. Once the initial process is complete the resulting 'cakes' of solid material are discharged one by one as the system retracts.

Stage 2 took place at a second plant in the south west of WA and essentially repeated the plant initially installed closer to Perth.



The Solution:

For both Stages 1 & 2, cakes each approximately 2m x 2m and weighing 285kg, fall from the filter presses as they open up onto 6 Transmin heavy duty belt feeders each 2.4m wide and approximately 25m long. Each of the belt feeders discharge the material onto a yard conveyor and then to a stacker belt for storage prior to shipment or re processing.

The Transmin belt feeders incorporate a specially designed 'cake breaker' device at the point of discharge to ensure no material exits the belt feeders larger than 75mm. It is important to have a consistent sizing to the recovered material, which is achieved by the cake breakers. When the cakes fall from the filters initially they may not break up sufficiently simply due to gravity, so need assistance from the cake breakers.

The client specified that each feeder should be capable of being reversed under a fully loaded condition to enable off spec material to be discharged at the back end. This was achieved by Transmin's engineers due to extensive experience and knowledge of such systems built up over 30 years.

Transmin has been supplying belt feeders for many applications globally which means its experience can be applied to many applications throughout the mining and minerals processing industries with confidence.

All Transmin feeder designs are heavy duty to operate under heavy workloads and are fitted with the ConveyorPro range of high quality components including pulleys, belts, idlers and rollers, load supports and a range of sensors and material analysis systems.

Key Features:

► Head Enclosures

Fully enclosed for safety and dust control, with access doors and mounting points for belt cleaners.

► Drives

Compact, shaft mounted drives with either planetary helical bevel combinations or hydraulic units.

► Take Up

Manual screw or semi automatic belt tensioning systems as standard.

► Guards

To Australian standards and easily removable in manageable sections.

► Customisable

Various widths to suit most applications, with belt widths up to 3.0m.

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