

Product Handling – Twin Transfers

Industry

Coal-Fired Power Plant

Application

This twin CFMTS® (Controlled Flow Material Handling System) maximises operating efficiency by conveying coal smoothly through an important transfer area within the power plant.

Material

90% PRB coal blended with 10% eastern bituminous coal

Objective

- Handle different characteristics
- To smooth the flow of coal through key transfer points
- Reduce dust generation
- Reduce maintenance
- Minimise high operating costs due to handling spillage



Transfer Detail

Each CFMTS consists of a 10.7m controlled-flow delivery positioned at an oblique angle from feed conveyor to load point. The 107cm feed conveyers deliver coal to 115cm belts running at 207 meters per minute. The load point of each CFMTS is positioned in the tail pit of a traveling tripper belt.

The stream is then turned in the direction of the receiving belt and loaded at a low angle of impact at a speed matching the receiving belt, which then feeds pre-blended coal to the bunker floor. Capacity of each transfer chute is 900 tonnes per hour.

Challenge

The old chute system was a traditional “bang and drop style” whereby coal dropped 10.7m directly onto the receiving belt. This resulted in system wear, dust, high clean-up costs, periodic build-up, and overall coal flow inefficiencies. Despite four impact beds per transfer and inner liners with tight skirts, problems included a large amount of coal escaping and airborne fugitive dust. Installation had to be completed in a time-sensitive manner.

Tasman Warajay Solution

Each new CFMTS utilizes a controlled-flow delivery at an oblique angle to the receiving belt – thus eliminating free falling coal and resultant impacts. These systems capture the trajectory of coal from the head pulley at a low angle, then turn and condense it. Fine dust particles remain entrained in the coal stream. The impact beds were removed and the new system efficiently loads on to standard idlers on two foot centres. Belt cleaners and plugged chute detection monitors were designed into the new chute work for easy installation and maintenance.

The twin-CFTMS were installed by local contractors under Tasman Warajay supervision on time and within budget.

Result

The new twin-CFMTS system has been in place and operating trouble free since 2002. The design has eliminated spillage and fugitive dust has been effectively eliminated. The coal stream continuously scours the flow path keeping it from building up or plugging. The ceramic chute tiles are polished, still completely in place, and show no measurable wear or corrosion. Maintenance costs have been reduced as there are no inner liners to maintain and no impact bars to replace. It is a much quieter, cleaner, and safer system that meets or exceeds operator expectations.

Head Office - Gladstone QLD, Australia:

Phone: +61 4070 38372

Email: admin@tasmanwarajay.com.au

<https://www.tasmanwarajay.com.au/>