

EXPANDING OUR CAPABILITIES

CONTINUING IMPROVEMENT AND EXPANSIONS

The foundation of Dos Santos International was built by scrutinizing conveyor practices and technologies and expanding upon them. This tradition has led to notable developments like DSI's sandwich belt conveyors, Fully Equalized Idlers (FEIs), and ExConTec - our in-house conveyor analysis software. We are always looking to broaden our capabilities by incorporating new technologies or finding innovative ways to apply our unique tools. It is with this goal in mind that we are pleased to announce developments such as the DSI Adder Snake, the expansion of ExConTec to analyze and aid in the design of pipe conveyor systems, and competencies in discrete element modeling of chute flow and advanced structural analysis software. This article will discuss the latter three developments. Please see our Adder Snake article to learn how we can transform a conventional conveyor into a high angle conveyor and back again at any point along its length.

ExConTec for Pipe Conveyors

After the material feed, pipe conveyor belts are formed into a closed belt pipe. Like sandwich belt high angle conveyors, special care is required to maintain an allowable stress state and prevent buckling within the belt, while preserving a specific shape and traveling around curved profiles. Updating ExConTec to aid in the design and analysis of pipe conveyors was a simple and natural expansion for the software. We are excited to offer our services and expertise to this growing market.

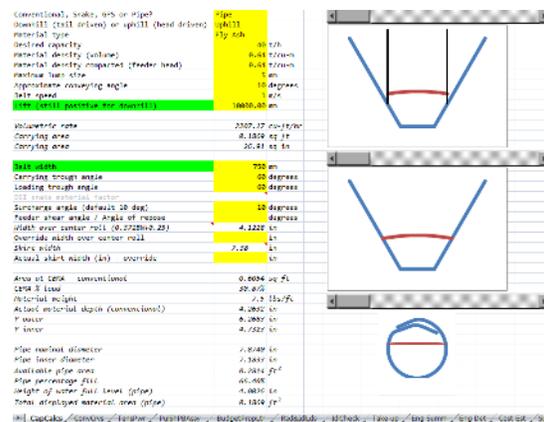


Figure 1: ExConTec used in the design of pipe conveyors

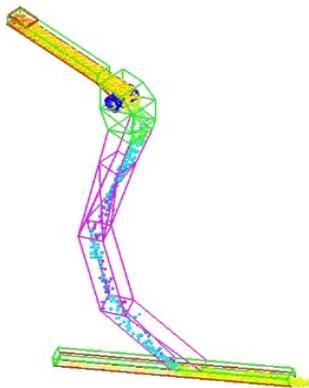


Figure 2: DEM analysis performed by DSI

Discrete Element Modeling for Transfers

Technological improvements are progressively allowing conveyors to run faster and with higher capacities, increasing the importance of proper conveyor design. Discrete element modeling (DEM) is a rapidly expanding transfer analysis method that simulates bulk materials flow by use of particles traveling through designated boundaries with applied contact mechanics. These simulations allow identification of regions within a transfer where the material flow undesirably speeds up or slows down. Through iteration, the geometry can be improved to

promote a steady material flow. DSI has recently adopted Chute Maven and is using the DEM software to analyze important, critical transfers.

Advanced Structural Analysis

To expedite and improve our structural design process, we have expanded our software portfolio to include Robot Structural Analysis. DSI has already incorporated Robot into many projects and has found it to greatly improve the turnover time for structural analyses that involve complex geometries and loading conditions, eccentricities, indeterminacies, and projects requiring iterative design. This reduction in engineering hours directly lowers the cost of complex structural analyses and designs while maintaining the quality expected from DSI.

