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Laboratory Measurement of the Indentation Rolling Resistance of Conveyor Belts

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Abstract:

The indentation rolling resistance of conveyor belts is an important design consideration for long belt conveyors and can also be important for heavily loaded belt conveyors. Indentation rolling resistance is dependent on the properties of the conveyor belt, including the carcass and bottom cover as well as properties of the belt conveyor including induced loads, belt speed, ambient temperature and idler roll diameter. A purpose built laboratory test facility is described to measure the indentation rolling resistance of conveyor belts. The test facility is designed to accept both fabric and steel cord belts and test over a range of typical operating parameters and conditions. Results are presented for a range of test parameters, including; load, belt speed, idler roll diameter, ambient temperature and bottom cover compound. Application of the test data to conveyor design is also presented with the aim being to show how the test facility can be used to improve the accuracy of conveyor belt tension calculations by more accurately evaluating the performance of different rubber compounds and belt constructions.

KEY WORDS

Belt Conveyors, Conveyor Belt, Indentation Rolling Resistance

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