

## **A NOVEL APPROACH FOR ESTIMATION OF BELT TENSION VARIATION DURING THE PHASE OF TRANSIENT DYNAMICS OF BELT CONVEYOR DURING INITIAL STARTING PHASE**

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### **Abstract**

Several investigators mainly Harrison in the past have done considerable work in the domain of dynamics of belt conveyor considering non-linearity of the dynamic. From a very low range to a very high range of specifications of the system. Here by a low range is meant conveyor handling bulk material in the range of 50 – 100 tons/hr with a belt speed of 0.5 to 1 m/sec. Whereas by high range is meant that haulage capacity is 5 to 10000 t/hr at a speed of 3.0 to 4.0 m.sec. Obviously the non-linear dynamics treatment for analysis of high range capacity conveyor is highly complicated and computer simulation of such a system towards its dynamics is also far too complex, hence it is necessary to evolve an appropriate method of rigid body transient dynamics of medium duty belt conveyor in the initial acceleration period of the system. Such situations arise large number of times in the life of the conveyor on account of frequent failure of utility supply which has fairly low reliability in the countries of the third world. The objective of this paper is to come out with such method of transient dynamics of belt conveyor system pertaining to medium duty range.

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