

Design, fabrication and tension control of the steel cord reels assembly platform

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ABSTRACT

This study aims to develop the key technologies for the production machine of the steel cord rubber conveyor. The specifications of the product can be established. The key technologies include the two following parts: Construction of the steel cord creel platform A creel with two steel cord reels will be designed and constructed as a test platform. Each steel cord in the platform will be driven by an AC motor. The cord tension can be detected from the sensors installed in the platform. The steel cords from reels will be pulled from a motor to simulate the feeding of the cords in the real production process Development of the steel cords of tension In this platform, the control algorithm for tension and feedrate control for each steel cord will be developed. The cord tensions are measured from the “ Load Cell ” installed. The PLC programs are developed on the basis of the control algorithm to ensure the pre-tension for each steel cord in the rubber conveyor. This can make the conveyor generate better loading properties. By carrying out this study, the above key technologies can be developed. Based on these new technologies, the complete machine for producing the steel cord rubber conveyor then can be evaluated and invested for manufacturing.

Keywords : the steel cord creel platform、 tension control、 mechatronics

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