

Design a slot-less linear actuator for food processing application

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Abstract

This paper is about design of slot-less linear oscillatory actuator for food processing application. Linear actuator is a device that produces linear motion without using any mechanical. People are still using traditional or conventional compression method by pressing hand in the moulding device to process the traditional cookies such as samperit and tart. However, this method is no longer practical as it requires a lot of energy and longer time to press the dough which will affect the productivity. The main objective of this research is to design slotless linear actuator for food processing based on desired application. So, a power moulding device embedded with slot-less linear actuator is proposed and simulated using Ansys Maxwell software. In Ansys Maxwell, the analysis of the coil sizing has been carried out in details. The variable parameters that include in this project are number of coil, number of turns, height of coil and gap between coils. As a result, the best model of slot-less linear actuator is chosen based on the required specifications and thrust characteristic. This new device can help to overcome or solve the weaknesses of the conventional compression method. In conclusion, this research provides overview and guidelines of linear actuator for food processing. © 2016, Universiti Teknikal Malaysia Melaka. All rights reserved.

Author keywords

Linear motion Slot-less linear oscillatory actuator