회귀 분석을 이용한 소형유니버셜 모터의 진동 분석

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Vibration Reduction of a Small Universal Motor using Regression Analysis

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Abstract : The regression analysis in the six sigma process is used to reduce the vibration of a small universal motor. The vibration characteristics and contribution of each part to overall vibration of an electric grinder is investigated through various vibration measurements and frequency analysis for the assembled and disassembled one. Then the application of the regression analysis found that the armature is more severe contributions to the overall vibration than the fan or the gear part, also the technique tells that how much unbalance should be reduced for the predetermined goal of vibration level of the electric grinder. This results show that the regression analysis is a valuable tool in production line for quality control.

피딩데크 운동을 고려한 광픽업 액츄에이터의 동특성 해석

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Dynamic Characteristics of an Optical Pick-up Actuator Considering the Motion of a Feeding Deck

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Key Words : Optical Pickup Actuator(광픽업 구동기), Natural Frequency(고유진동수)

Abstract : There are a lot of roots of errors in the motion of the optical pickup actuator being one of the most significant components in the CD-ROM drive. Most of the studies recently performed have a tendency to seek for the causes from an actuator itself. We found the fact that the range of the natural frequencies of a feeding deck and an actuator is close each other through an experiment. This paper present the dynamic characteristics of an actuator affected by the motion of a feeding deck. The feeding system are modeled a rigid body with eight degree-of-freedom. Using Largrange's equation, we derive the linear equations of motion with respect to the rectangular coordinate. And the time responses are computed by the Newmark method and Runge-Kutta method.