

드럼형 세탁기의 구조 소음으로 인한 Loudness 해석 Loudness Analysis for Structure-borne Noise of a Drum Type Washer

구건모 · 신민철 · 김대성 · 김정선 · 왕세명(GIST)

Kunmo Koo, Mincheol Shin, Daesung Kim Jungseon Kim and Semyung Wang

Key Words : Drum Type Washer(드럼형 세탁기), Modal Expansion(모드 확장법), Structure-borne Noise(구조 소음), Loudness(라우드니스), Sound Quality(음질)

Abstract : With the improvement of life-quality, the concern of residential noise has been increased. Especially, the noise problem of home appliances becomes more important factor for purchase. This paper investigates on the loudness analysis for structure-borne noise generated through the cabinet of a drum type washer during spin-drying stage. The vibration patterns in steady state of spin-drying stage are measured and the vibration characteristics of cabinet are obtained by experimental modal test. The structure-borne noise is calculated by direct BEM method using modal expansion theory. Furthermore, measured data support the results of this vibro-acoustic analysis. The loudness caused by structure-borne noise is analyzed and compared with the total loudness of drum type washer.