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Experimental study on sound power by ring face type of water pump mechanical seal

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The affective quality of the vehicle has increased as the end user is susceptible to noise more highly than the past. The squeak noise of the mechanical seal on the automotive water pump is one of them and it is used to occur under the engine condition of high coolant temperature at idling speed. This noise is a kind of stick-slip noise generated between the fixed ring and the rotational ring, two main functional components of the mechanical seal. There is micro-gap between the fixed ring and rotational ring which are normally lubricated by coolant. But the local dry running, two rings are not lubricated well in some area, can be generated due to excessive friction in abnormal condition and this condition can result in squeak noise. So in this paper, three different types of the mechanical seal to improve lubrication characteristic are introduced and sound power level at the specific frequency range is measured with each seal type to figure out robust design against the squeak noise.