Rotational Test of a Flexible Rotor Supported by Active Magnetic Bearings

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ABSTRACT

In recent years, AMBs (active magnetic bearings) characterized by contactless support have been applied in rotors for industrial use, and research to achieve higher performance is currently under way. The purpose of this research is to pass the 3rd bending critical speed in the flexible rotor supported by AMBs. This paper deals with the results of passing the 2nd bending critical speed during a rotational test with balancing by the modal balancing method. In addition, solutions to unstable vibration that occurred after passing the 2nd bending critical speed are discussed. Finally, a method to reduce the Q-factor applying N-cross control in order to pass the 3rd bending critical speed is described, and its effectiveness is shown by simulation.