

공기포일 및 자기 하이브리드 베어링으로 지지되는 연성축의 휨 모드 진동 제어

Bending Mode Vibration Control of a Flexible Shaft Supported by a Hybrid Air-foil Magnetic Bearing

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ABSTRACT

Hybrid air-foil magnetic bearing combines two oil free bearing technologies to take advantage of the strengths of each bearing with minimizing each other weaknesses. This paper presents bending mode vibration control of a flexible shaft supported by the hybrid air-foil magnetic bearing. An experiment set-up of a flexible shaft supported by the hybrid air-foil magnetic bearing is built. In order to verify the effectiveness of the hybrid bearing, unbalance responses of the flexible shaft supported by three different bearings: air-foil, magnetic and hybrid bearings are compared. Effect of load sharing between air-foil and magnetic bearings are investigated through changing control gain and offset displacements of magnetic bearing.

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