

## Vibration transmissibility of aluminum foam for design as a bearing damper

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**Abstract.** Metal foams materials energy absorption, thermal insulation, and damping resistance will make it a special item for new development in rotor vibration control. The vibration of a shaft supported by ball bearings is analyzed based on metallic foams. Modern gas turbine engines typically utilize squeeze film dampers as flexible damped support to attenuate vibration amplitude and to reduce transmitted forces. The mechanical and damping properties of metal foams will be used as a damper absorber to reduce the vibration of a simple Jeffcott rotor system. This paper's aim is to explore the characterization of metal foam as a source of dampening in a simple Jeffcott rotor system. also, to reduce the detrimental vibration effect on rotor dynamics supported especially by ball bearing with squeeze film metal foam damper. The adapter covering the outer rings of the ball bearings will be modified to obtain a vibratory analysis with or without the use of a porous metal foam damper. The vibration transmissibility through the metallic foam sample will be presented to figure out the damping coefficient and vibration isolation efficiency.

**Keywords:** vibration, metal foam, transmissibility, damping, shaft, SFD

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