

Article Abstract

Title:	Thermal analysis of externally pressurised step bearing including centrifugal inertia effect for a bubbly lubricant
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Abstract:	A numerical study has been done for externally pressurized circular step thrust bearing lubricated with incompressible fluid with finely dispersed air bubbles taking into consideration the variation in lubricant physical properties due to temperature and pressure variation in the fluid film. Effect of misalignment / tilt and coning on cavitations region has also been investigated. The air bubbles are seen to improve the pressure distribution. It also reduces cavitations domain that occurs because of the centrifugal inertia force. Load carrying capacity is seen to improve but both mass flow rate and frictional power consumed decrease. Overall, the presence of air bubble improves the performance of the bearing. It is seen that tilt and coning reduces the cavitations region.
Keywords:	thermal analysis, step bearing, bubbly lubricant, misalignment, coning, cavitations