Abstract

Friction between moving surfaces remains a key challenge in bearing design, especially under mixed lubrication conditions.This work explores the reduction of friction in sliding bearings through the application of mixed lubrication and the influence of surface texturing on lubricant behavior. We begin by introducing the concept of sliding bearings and examine how texturing the contact surfaces alters the flow dynamics and pressure distribution of the lubricant. Particular attention is given to how surface textures enhance the load-carrying capacity of the lubricant film. Finally, we present a case study demonstrating the effect of circular shaped asperities on the pressure distribution within the lubricant layer and how coefficient of friction is reduced.