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# EFFECT OF SURFACE POCKETS ON THE PERFORMANCE OF JOURNAL BEARINGS

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## ABSTRACT

In heavy rotating machines journal bearings are used to support the weight of the rotor. Conventional oil is used to lubricate the bearings and reduce frictional resistance between the interacting surfaces. However, energy dissipation occurs due to viscous shearing of the oil. To minimize the power consumption a modification in the bearing bore surface is proposed in this paper. Surface modification is done by cutting a rectangular pocket at the inner surface of the bearing. This modification alters the pressure distribution leading to increase in load carrying capacity and reduction in power consumption. A numerical study is carried out to demonstrate the improvement in the performance parameters of pocketed bearing in comparison with conventional bearings. It is found that pocketed bearing significantly influences the load carrying capacity and power consumption. An increase in load carrying capacity and a decrease in power consumption is observed if the location of pocket is selected in the declining portion of the pressure profile.

**Keywords:** Journal bearing · Surface texture · Hydrodynamic lubrication · Energy efficiency.

