

**FLUID FILM BEARING FOR HEAVY LOADED APPLICATIONS – COMPARISONS
AND OPTIMIZATIONS**

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ABSTRACT

Fluid film journal bearings for heavily loaded running conditions with specific loads to 24 MPa were analyzed and compared. Four sets of bearings were considered to be used in an aerospace planetary transmission. Both plain and wave bearing geometries were considered, compared, and optimized. Minimum fluid film thickness and oil temperature increase due to the friction force in the bearing are the basic criteria for comparison and optimization. Misalignment capability was also considered. Both laminar and turbulent flow, with and without viscosity correction, were considered in analyses. Power loss in friction and oil flow rate are also taken into account as a secondary criteria. It was found that a bearing assembly with two journal bearings that have the wave geometry can perform better than all other bearings in all analyzed cases.