

Public Abstract
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Analysis of Lubrication Groove Geometry
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Lubrication is process of using lubricants in moving machine components to reduce friction and wear between them and consequently to improve their running life. In this thesis, an analysis into the introduction of a groove in these components has been done and the various groove parameters that could influence better lubrication has been analyzed.

The lubricating system considered in this thesis is a moving flat plate with a rectangular groove in it while its external housing is stationary. Equations that govern the flow rate, force and torque for this groove have been derived and the lubrication analysis has been done on these governing equations. Sensitivity analysis of flow, force and torque has been done taking into consideration two cases of the groove i.e. a short groove with deep depth and a long groove with shallow depth. Results are drawn from the values and plots obtained for the above cases. Based on the results obtained it is possible to determine the importance of each groove parameter in effective lubrication and to eliminate those which do not have any influence.