

**Wear analysis of Spherical balls and Cylindrical rollers  
Type Linear Motion Guideway of CNC Centerless  
Grinding Machine**

**M.Tech Dissertation phase-2**

**MASTERS OF TECHNOLOGY**

In CAD/CAM

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## **ABSTRACT**

Centerless grinding is a metal finishing process that uses abrasive cutting to remove material from cylindrical workpiece. The guideways are one of the important elements of machine tool. Dressing is important for the grinding and regulating wheel for the geometrical accuracy of the workpiece. The Guideways provide a smooth and positional movement to dressing tool, due to which higher accuracy and precision can be obtained. To analyze the guideway we have considered various parameters like static load and dynamic load on linear motion guideway with preloading condition. Design was prepared in 3D modeling software and analysis was carried out. For analytical calculation standard formulas of Hertzian contact stress theory is carried out to calculate the contact stress, contact patch between elements and deformation of the each element and the guideway. These analytical results were compared with the analysis done in Ansys and Hertz stress calculator. The analytical results and simulation results were found well in acceptable limits.