

**Analysis and replacement of the bearing component of the twin
grip spindle housing assembly of CNC Precision Centerless
Grinding machine**

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ABSTRACT

The bearing is an essential component of centerless grinding machine, the function of which is to support the weight of shaft, while allowing it to freely rotate. It is of prime importance for the bearing to withstand loads and difficult environmental condition, regardless of its use. The bearing used in centerless grinding machine is babbitted shoe bearing, which is customized bearing but expensive. The failure of the bearing will need re-manufacturing which is time consuming and leads to increase in the idle time of machine. Angular contact bearing was chosen as an alternative bearing owing to its availability in many standard sizes at lower cost than shoe bearing. PTC Creo software was used to prepare three-dimensional model of the bearings. The transient and fatigue analysis of both the bearing was performed using Ansys Software. The bearings were compared based on the normal stress, shear stress and total deformation. Based on the analytical results, angular contact bearing was found to be suitable alternative for babbitted shoe bearing for centerless grinding machine.