International J. of Engg. Research & Indu. Appls. (IJERIA).
ISSN 0974-1518, Vol.3, No. IV (November 2010), pp. 147-164

3 D ANALYSIS OF PLASTIC SPUR GEAR FOR LATHE MACHINE USING EFA APPROACH

S. N. WAGHMARE, V. N. BHAISWAR, H. S. BHATKULKAR, V. M. SUPLE, C. N. SAKHALE AND M. S. GIRIPUNJE

Abstract

The importance of plastic gear for modern industries on growing every year. The engineer sizing plastic gear has a very difficult task. There is no international standard available for strength analysis. this paper shall give as overview over the current situation and will provide some guideline how to rate plastic gear, how to handle the lack of material data available and how to conduct measurement of material properties to make them suitable for the available calculation method. The synopsis present experiment study and analysis of plastic gear used in lathe machine.machinised plastic gear are manufactured and installed on machine, by replacing metal gear. After the replacement vibration, noise and surface finish analysis's carried out. In this project, the various plastic materials which may be suitable for gearing are analysed.according to their properties the various performance are weight analysis,fem analysis. Fem analysis was carried out on ansys software and it gives the detail about various stress and strain acting on gear. it tells us that how much stress strain is acting and at which part of gear it gives clear ideas that gear is capable of understanding the load procedure while working or not. These were the design parameters for gear manufacturing. But here question arises that plastic gears are strong enough to withstand in various tough working conditions. For this, fem analysis was done and reliability and durability was checked. Fem analysis was carried out on ansys 9.0 and it gives the details about various stress and strain acting on gears. it tells that how much stress strain is acting and at which part of gears.

Keywords: Spur gears, load distribution, Finite Element Methods, Contact Strain.