INTRODUCTION

Gear inspection different methods are used for identify good quality gears to be used in any industry that manufacture gear or use gears in their final products.

Methods of Gear Inspection:

a. Double Flank Rolling Tester: The composite test of a gear is a method of inspection in which the work gear is rolled in tight double flank contact with a master gear. The composite action test is made on an inspection instrument that will allow variation in the center distance during rolling. This variation in center distance will yield a tooth-to-tooth (f") and a total composite error (F") indication that can be read on a simple dial indicator or recorded graphically.

Composite inspection is a useful shop-friendly tool to determine the general quality of a gear including size, run out, tooth-to-tooth rolling action, and to detect nicks.

Abstract: This paper presents the review of the current aspects of inspection metrology for checking gear parameter errors by using different methods of inspection Tester/instruments for getting good quality transmission gears.

Keywords: Rolling Tester, Errors, Backlash, Lead, Profile
b. Single flank Rolling Tester: Single-Flank testing simulates the actual operating conditions of a gear pair. The mating gears roll together at their center distance with backlash and with only one flank in contact.

Data from the encoders is processed in an instrument that shows the accuracy or smoothness of rotational motion resulting from the meshing gears. For both the Flanks we will get Tangential Composite Error (Fi'), Tangential tooth to tooth Composite Error (fi'), Cumulative working pitch error (Fp'), Individual working error (fp')

c. Profile, Lead and Pitch Tester

Profile Inspection: Profile is the shape of the gear tooth curve and is measured from the root to the tip of the gear tooth. The functional, or operating, portion of the profile is the area that is in actual contact during tooth mesh.

Helix Inspection: “Helix deviation” is difference between the measured helices to the design helices. In practice an appropriate measuring machine aligns the measuring probe on the test gear at the pitch circle diameter and the “lead” is traced and recorded graphically, with a correct unmodified helix being represented as a straight line on the chart.

Pitch or Index Inspection: Total pitch variation and total index variation are identical values and are generally referred to as “accumulated spacing.”

REFERENCES: - Standards DIN 3960, DIN 3963.