

EXPERIMENTAL STUDY OF THE EFFECT OF AIR SWIRL IN INTAKE MANIFOLD ON DIESEL ENGINE PERFORMANCE

**S. L. V. PRASAD, V. PANDURANGADU, V. V. PRATHIBHA BHARATHI AND
V. V. NAGA DEEPTHI**

Abstract

It is quite well known that a properly designed intake manifold is vital for the optimal performance of an I.C.Engine. This a method of increasing the performance of a Diesel engine without any major modification. This paper aims at studying the effect of air swirl generated by directing the air flow in intake manifold on engine performance. The turbulence was achieved in the inlet manifold by grooving the inlet manifold with a helical groove of size of 1mm width and 2mm depth of different pitches to direct the air flow. The tests are carried with different configurations by varying the pitch of the helical groove from 2 mm to 10 mm in steps of 2 mm inside the intake manifold. The measurements was done at constant speed of 1500 rpm . The results are compared with normal engine (without helical groove). The results of test show an increase in air flow, increases the brake thermal efficiency, mechanical efficiency and decrease in HC and Co emissions. On the other hand the volumetric efficiency is dropped by about 5%

Keywords : Diesel engine, air swirl, intake manifold, efficiency, emissions