

“DESIGN AND ANALYSIS OF CONNECTING ROD OF DIFFERENT MATERIAL USING ANSYS SOFTWARE16.2”

Under the Guidance of **Er. AbhineshBhaskar**

ABSTRACT

Connecting rods are generally used in all varieties of automobile engines. Connecting rod acting as an intermediate link between the piston and the crankshaft of the engine, by converting the reciprocating motion of the piston to the rotary motion of crankshaft. Thus, this study aims to carry out for the load strain, stress, total deformation and analysis of factor of safety of pin end of the connecting rod of different materials. Generally connecting rods are manufactured using carbon steel and in recent days Aluminum alloys are used for manufactured the connecting rods. In this work existing connecting rod material are replaced by Beryllium alloy and Magnesium alloy. FEA analysis was carried out by considering five material Aluminum 360, Forged Steel, Titanium alloy(Ti-13v-11Cr-3Al), Magnesium alloy, Beryllium (alloy 25). In this study a solid 3D model of connecting rod was developed using SOLID WORKS-2016 Software and analysis was carried out by ANSYS 16.2 Software and useful factors like stress, strain etc. were obtained.

The Connecting rod is a major link inside a combustion engine. It connects the piston to the crankshaft and is responsible for transferring power from the piston to the crankshaft and sending it to the transmission.

There are different type of materials and production methods used in the creation of connecting rods. The most common type of connecting rods are steel and aluminum. The most common types of manufacturing processes are casting forging and powdered metallurgy.

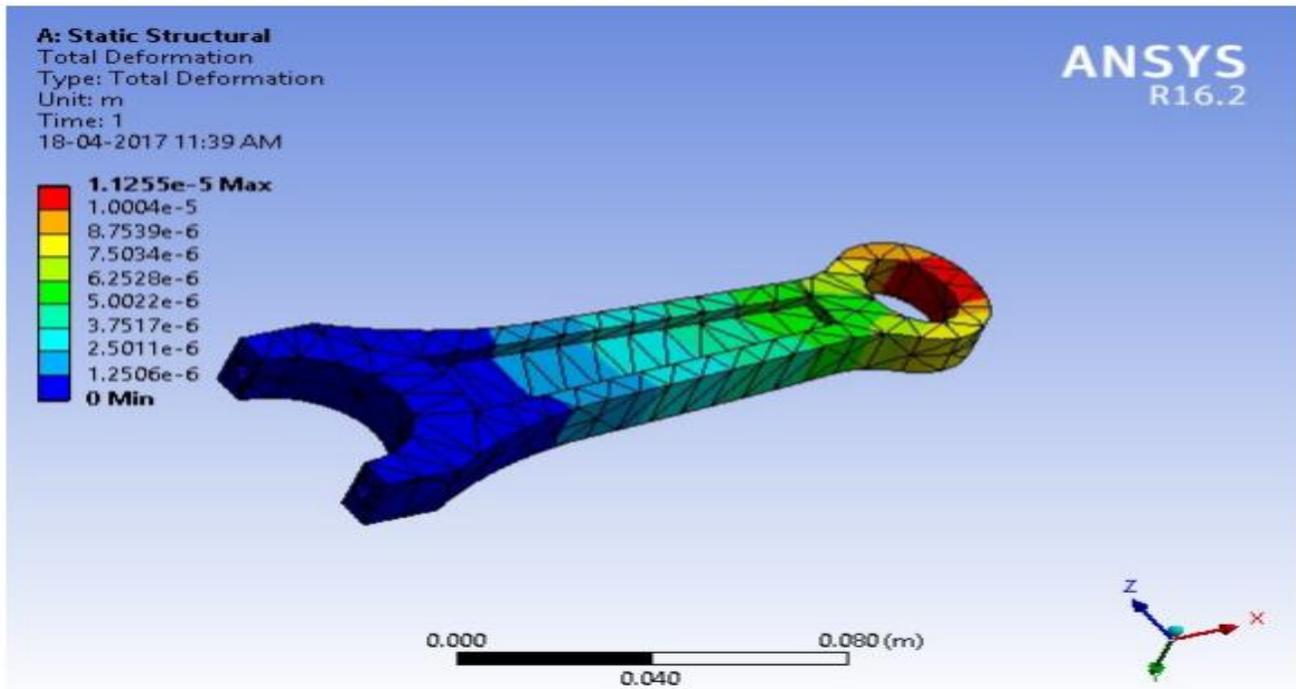
Connecting rods are widely used in variety of engines such as, line engines, V engine, opposed cylinder engines, radial engines and opposed piston engines. Its work is to transmit the thrust of piston to the transmission.

Connecting rods, automotive should be lighter and lighter, should consume less fuel and at the same time they should provide comfort and safety to passengers. In ancient time connecting rods are made by high density materials so that weight of the connecting rod increases so that large inertia force acting. Due to this reason engine speed slows down and other factors stress, strain, factor of safety may also affect the design of connecting rods.

This tendency in vehicle construction led to the invention and implementation of quite new materials which are light meet design requirements. Lighter connecting rods help to decrease load caused by force of inertia in engine as it does not require big balancing weight on crankshaft. So a connecting rod should be designed in such a way that it can withstand high stresses that are imposed on it. So its analysis is necessary.

IMAGE OF THE PROJECT





PROJECT GROUP MEMBERS

			
VIKAS SINGH	SUMIT KUMAR VERMA	HARISHCHANDRA RAI	VISHAL KUMAR BHARTI

FINAL YEAR ,REC BANDA