

## DESIGNING OF CONNECTING ROD OF DIFFERENT ALUMINIUM ALLOYS MATERIAL AND ITS STRESS ANALYSIS

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### ABSTRACT

A connecting rod, is the part of a cylinder motor which interfaces the driving rod crankshaft to the piston. Alongside the crank, the connecting rod changes over the reciprocating movement of the piston into the turn of the driving crankshaft. The connecting rod is required to transmit the tensile and compressive forces from the piston, and turn at the two closures. An connecting rod can turn at the two closures, with the goal that the edge between the connecting rod and the piston can change as the bar goes all over and pivots around the crankshaft. During every pivot of the crankshaft, a connecting rod is regularly dependent upon enormous and dull forces: shear forces because of the edge between the piston and the crankpin, compression forces as the piston moves downwards, and tensile forces as the piston moves upwards. These powers are relative to the engine speed (RPM) squared. Failure of a connecting rod, regularly called "throwing a rod", is one of the most well-known reasons for catastrophic engine Failure in vehicles, every now and again driving the messed-up rod through the side of the crankcase and in this way rendering the engine irreparable. Common reasons for connecting rod Failure are tensile failure from high engine speeds, the effect power when the piston hits a valve (because of a valvetrain issue), rod bearing failure (for the most part because of an oil issue, or wrong establishment of the connecting rod. There have been various revealed instances of connecting rod failure dependent on the basic structure, stacking type and the kind of materials utilized in its creation. To protect security and fulfils clients request in car ventures a hearty and improved connecting rod is required. In this work we design a connecting rod by taking distinct aluminium alloys materials (AA2014, AA6061 and AA7075) because of its lightness and the ability to absorb high impact at the expense of durability. in this work we design a structure of connecting rod and then analyses theoretical simulation of connecting rod under various stress via varying materials. The parameters like Deformation, Von misses Stress and strain, weight reduction and Factor of safety are calculated using SOLIDWORKS and COMSOL.

