**FATIGUE RESISTANCE ANALYSIS OF FUEL**

**INJECTION COMPONENTS**

**Abstract**

Fuel injection is the most important part of the fuel injection system which is the heart of the diesel engine. The fuel injection works under the very terrible conditions, alternate liquid load, mechanical load and thermal load included, over a long period of time. The fuel injection comes under the function of the high pressure of the fuel when the fuel injector is injecting, while the pressure of the fuel inside the fuel injection is very low when the injection is end. The liquid load the fuel injection receives is alternate. The needle valve strikes upon the valve seat periodicity when the injector is working normally which means the mechanical load the fuel injection endures is variable. Under long term exposure to the high-temperature fuel gas in the cylinder, the temperature of the external surface of the fuel injection always reaches up to 200-300 sometimes even higher. It is obviously significant to analysis the fatigue strength of the fuel injection working under the coupling of a lot of complex and alternating load.

In this project we will create a fuel injector model in solid works premium 2014 with standard dimensions. And we will perform a fatigue analysis on the fuel injector model in solid works software. By this we can know the failure criteria of the model against the high strength loads. Failure criteria are being calculated according to the obtained factor of safety.