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STUDENT PROJECTS (2017-2018)

STRUCTURAL AND THERMAL ANALYSIS OF A BIMETAL VALVE

ABSTRACT

The valves used in the IC engines are of three types: Poppet or mushroom valve or Sleeve valve or Rotary valve. Of these three types, Poppet valve is most commonly used. Since both the inlet and exhaust valves are subjected to high temperatures of 1930°C to 2200°C during the power stroke, therefore, it is necessary that the materials of the valves should withstand these temperatures. The temperature at the inlet valve is less compared to exhaust valve. Thus the inlet valve is generally made of nickel chromium alloy steel and exhaust valve is made of silchrome steel.

The aim of the project is to design an exhaust valve for a four wheeler diesel engine . 2D drawings are drafted from the calculations and 3D model is done in Pro/Engineer.
The materials used for exhaust valve is EN52 and EN21-4 steel for valve seat Austenitic Stainless Steel for valve tip. Thermal analysis is also done.

Structural and thermal analysis is done on the valve by considering only one material EN52 and EN21-4 steel.

Solid Works is the standard in 3D product design, featuring industry-leading productivity tools that promote best practices in design.

In this project the structural and thermal analysis done on single and bi metal valve

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