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DESIGN AND DEVELOPMENT OF HIGH PRESSURE SPRAY CHAMBER IN IC ENGINE USING FLOW VISUALIZATION TECHNIQUES

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ABSTRACT

Diesel engines are one of the most important prime movers for mobility and reorganized power generation and are categorized by heterogeneous combustion. Heterogeneous combustion leads to formation of soot and NOx in the combustion chamber. The gasoline injection system, which is the heart of an engine, plays a pivotal role in the fuel–air mixing processes inside the combustion chamber. Fuel atomization activities are mainly contingent on constraints such as nozzle diameter, injection pressure, ambient conditions, and nozzle geometry. Fuel atomization also depends on fuel properties such as viscosity, density, surface tension, and vapor pressure. The main objective of our research work is to design and development of fuel injector holder in high pressure spray chamber, which is used to develop spray formation and understand the behavior of various fuel spray characteristics like diesel and bio-diesel. An important parameters are used to find in the characteristics are fuel spray, fuel spray length, fuel regions, droplet size. In our research also concentrate to arrest the leak formation in high pressure spray chamber.

KEYWORDS: High Pressure Spray Chamber, Fuel Injector Holder, Flow Visualization Technique, Combustion Process, Emission Formation, Spray Modelling