International Conference on
Futuristic Trends in Engineering, Science, Pharmacy and Management

ISBN: 978-81-933386-0-5

CFD analysis of cavitation in diesel engine fuel injector nozzle

Ronak Gohel[1*], Neel Joshi[2], Hemal Patel [3]

[1]PG student, Department of Mechanical engineering, LDRP-ITR, India

[2 3]Assistant professor, Department of Mechanical engineering, LDRP-ITR, India

A B S T R A C T : The fuel injector is a integral component of diesel engines as it is responsible for the injection of fuel into the combustion chamber and subsequently influences the combustion process. The fuel injector is responsible for the atomization process for the fuel and the presence of cavitation in the injector nozzles will influence the atomization process. Over the last decades there have been a increasing focus on emission from diesel engines and strong regulations have forced the industry to invest in research on how to optimize the fuel consumption and power output. Commercial CFD based software ANSYS-Fluent used to capture cavitation in fuel injector nozzle and parametric study has been perform to investigate effect of cavitation on fuel flow rate from nozzle outlet. It is found that Fluent can predict cavitation and results are in good agreement with experimental data.

Keywords: Cavitation, CFD, fuel injector, nozzle

* Corresponding author e-mail: ronkkgohell@mail.com
Tel.: +91 9998668046

Journal access: www.adpublication.org