

# PLANT MODEL DESIGN AND GDI CONTROLLER DEVELOPMENT FOR NVH REDUCTION

## Overview

- Reduction in NVH parameters of GDI Pump
- Tata Elxsi 's scope involved in plant model preparation, golden data set generation for Pump actuation with the support of plant model
- Controller Model preparation and auto code generation
- HW Driver with High Side-Low Side Control for validating the NVH parameters of the pump under test

## Scope

- Root cause analysis at customer premises
- Pump actuation profile benchmarking of customer pump with competitors pump w.r.t NVH
- GDI Pump plant model development considering mechanical and hydraulic
- Generation on actuation timing parameters with the support of plant model
- Controller Logic to control the pump by actuating with the electrical profile defined by the above timing to reduce the NVH
- Self-learning and correction algorithms to take care of deviations in mechanics due to issues in the production line
- Design and development of HW driver for pump actuation
- Validation and verification in Anechoic Chamber for multiple series of pumps
- Validation and verification in the engine test bench

