



Heavy Duty Gas Engines integrated into Vehicles

EUROPEAN COMMISSION

Horizon 2020

H2020-MG-2014

GA No. 653391



Deliverable No.	HDGAS D6.1	
Deliverable Title	Prototype injectors for SCE and ECU	
Dissemination level	Confidential (CO)	
Written By	Benedikt Leibssle (Bosch) Frank Zehnder (Bosch) Marc Röhner (Bosch)	2016-04-29
Checked by	Ingemar Magnusson (Volvo)	2016-05-31
Approved by	Gernot Hasenbichler (AVL) Theodor Sams (AVL) - Coordinator	2016-06-01 2016-06-01
Status	Final	2016-06-01

H2020-GV-2014 – 653391 – Heavy Duty Gas Engines integrated into Vehicles

Acknowledgement:

The author(s) would like to thank the partners in the project for their valuable comments on previous drafts and for performing the review.

Project partners:

- 1 - AVL - AVL List GmbH - AT
- 2 - BWR - Borgwarner Ludwigsburg GmbH - DE
- 3 - BOSCH - Robert Bosch GmbH - DE
- 4 - DAI - Daimler AG - DE
- 5 - DINEX - Dinex Ecocat OY - DK
- 6 - FPT - FPT Industrial S.p.A. - IT
- 7 - IDIADA - Idiada Automotive Technology S.A.- ES
- 8 - IVECO - Iveco Espana SL - ES
- 9 - MAN - MAN Truck & Bus AG - DE
- 10 - POLIMI - Politecnico di Milano - IT
- 11 - RCD - Ricardo UK Limited - UK
- 12 - SAG - SAG Motion GmbH - AT
- 13 - TNO - Nederlands organisatie voor toegepast natuurwetenschappelijk onderzoek - NL
- 14 - TUG - Technische Universiteit Graz - AT
- 15 - UEF - ITA-Suomen Ylipisto (University of Eastern Finland) - FI
- 16 - UASE - Hochschule Esslingen - DE
- 17 - UNR - Uniresearch BV - NL
- 18 - VOLVO - Volvo Technology AB - SE
- 19 - VIF - Virtual Vehicle Research Center – AT

Disclaimer:

This project has received funding from the European Union's Horizon 2020, programme for research, technological development and demonstration under grant agreement no 653391.



Public Summary

The development of a Fuel Injection System for Heavy Duty Long Haul Trucks powered by LNG shows the need of some specific, challenging and new components. One of the main components within such system is the injector. The system design and first investigations show the need for a dual fuel injector, capable of injecting Diesel and Gas at high pressures whereof the Diesel injection is a small pilot injection needed to ignite the Gas main injection.

To fulfill this task a dual fuel injector design is used. The main parts of such component are the injector body, the solenoid valves and the dual fuel nozzle. The injector body represents the basic element that connects all functional injector components in a mechanical and hydraulic way. It is designed to guide the hydraulic-mechanical coupling elements. A steering unit transmits the hydraulic force towards the nozzle module. The dual fuel nozzle is designed and modified to fulfill the specifications of commercial vehicle application. Application parameters e.g. number of spray holes, spray angle and mass flow can be selected in a predefined range. Especially for single cylinder investigations a wide range of parameters can be varied and allow substantial combustion investigations. The injector design has been adapted to the WP6 requirements. The injectors had been tested on a Bosch internal test bench. During the test program, the characteristic of the injector was reported by monitoring the hydraulic flow rates and the needle displacements.

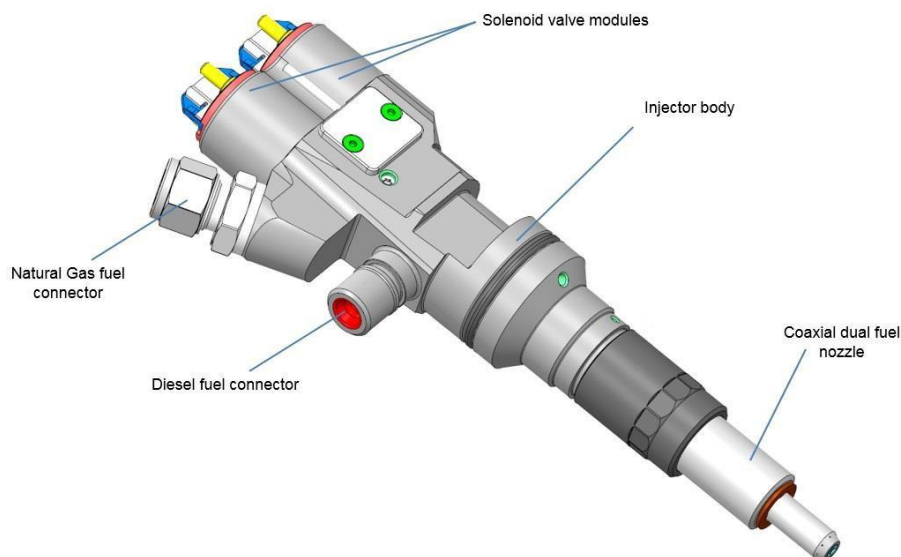


Figure: HDGAS dual fuel injector

Acknowledgment



This project has received funding from the European Horizon 2020 Programme for research, technological development and demonstration under grant agreement no 653391