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Influence of used alternative fuel on selected parameters of injection processes and energy parameters of diesel engine

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Fig. 1. Tested vehicle on chassis dynamometer

Table 1
Parameter of tested engine

Parameter	Value
Engine capacity	1248 cm ³
Injection system	Common Rail
Fuel supply	Diesel
Compression ratio	16,8:1
Max power	55 kW
Max torque	190 Nm
Idle speed	850 ± 20
Rotational speed at maximum torque	1500 rpm

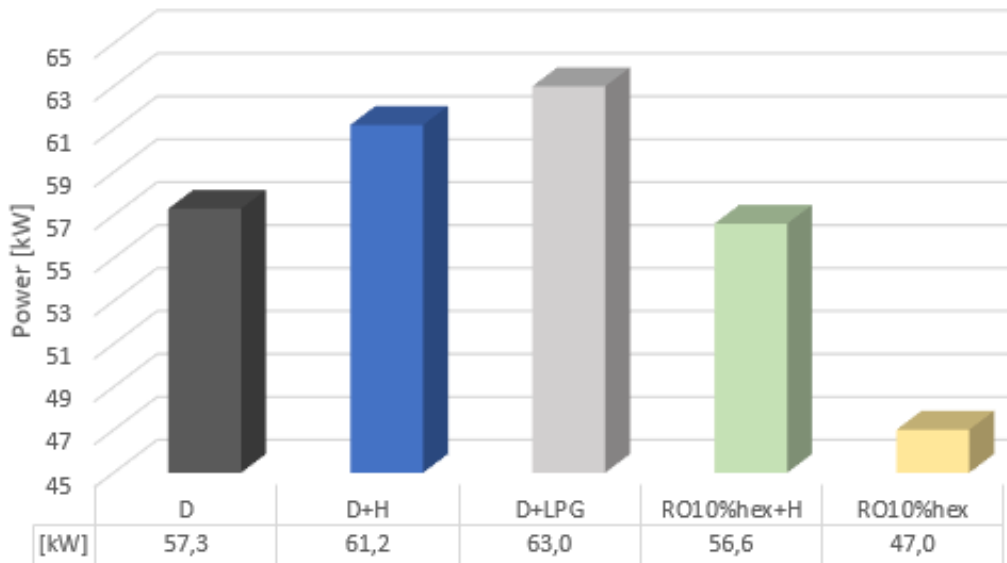


Fig. 2. Maximum power

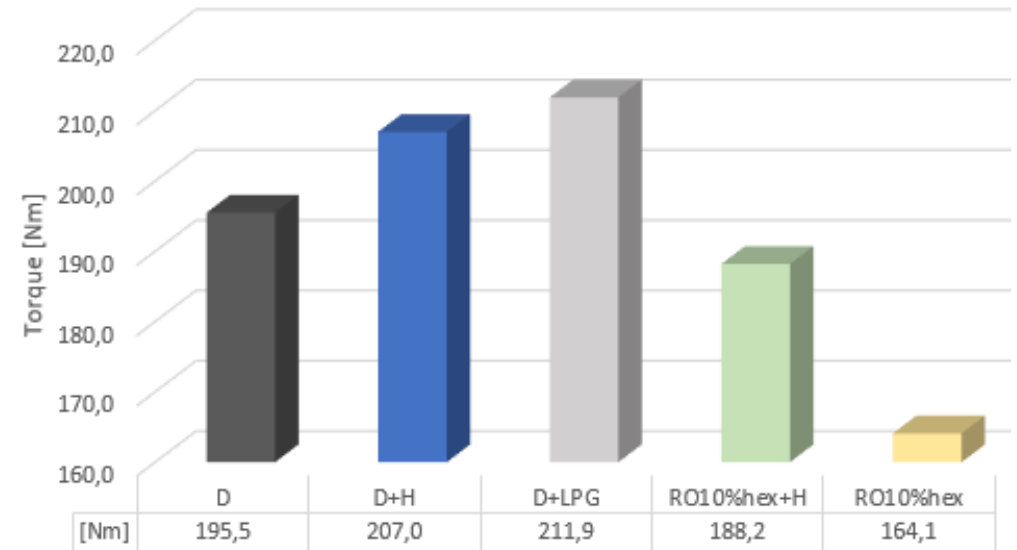


Fig. 3. Maximum torque

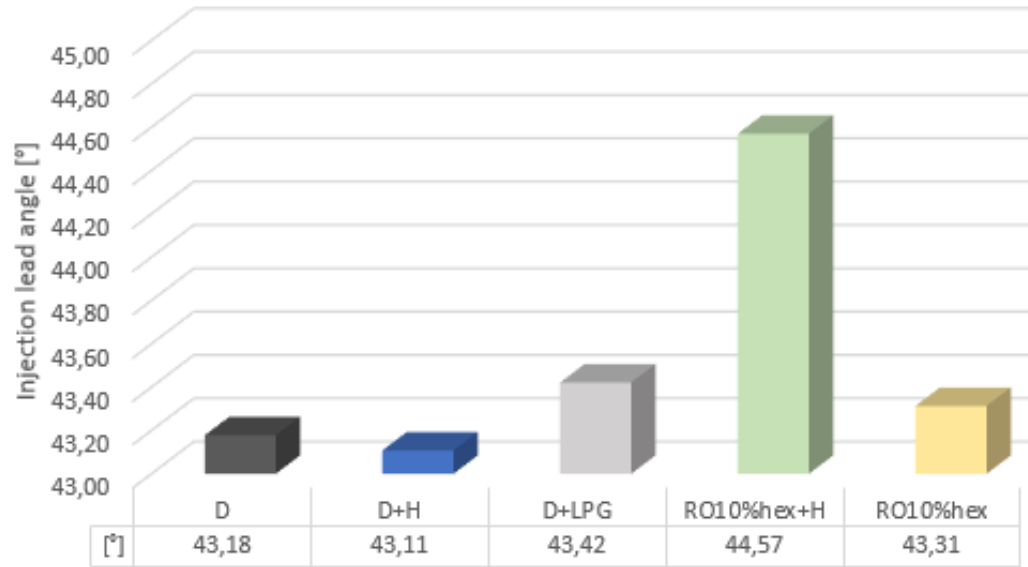


Fig. 4. Injection lead angle

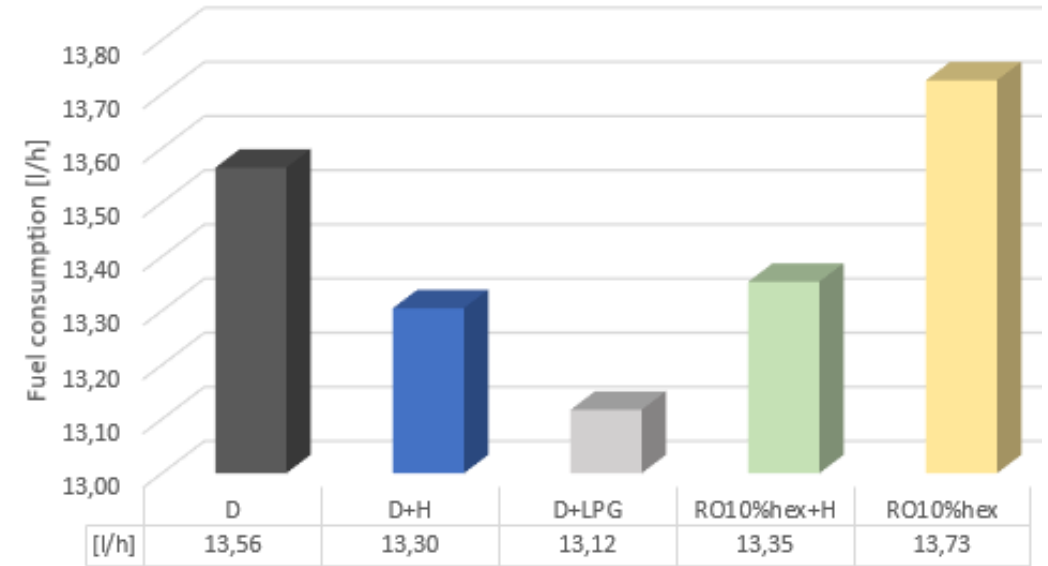


Fig. 5. Fuel consumption

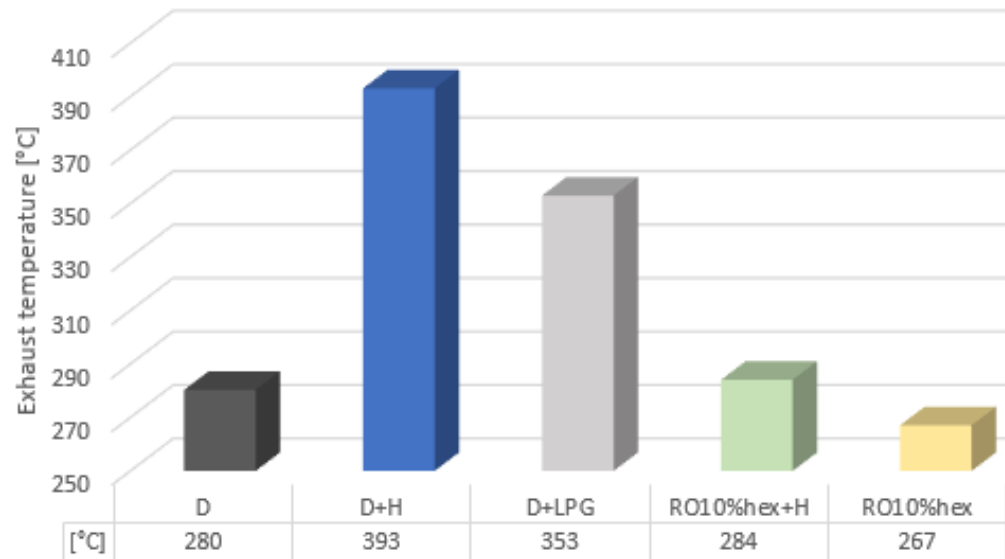


Fig. 6. Exhaust temperature

Conclusion

- The addition of gas fuels does not adversely affect engine performance and significantly improves the performance of alternative fuels in dual-fuel engine.
- The effect of the addition of gas fuels on reducing the pressure and consumption of diesel fuel and RO10%hex was observed. Through their energy values, however, they increase the temperature of exhaust gas.
- A change in the ignition advance angle of more than one degree was observed only for RO10%hex+H.