Methanol Fueled Genset

Methanol is a substitute for conventional fuel which is used in Internal Combustion (IC) engine. It is renewable, economically and environmentally interesting. Methanol is an alternate fuel for IC engines in terms of environment and economical aspect. Port fuel injection method was applied for the substitution of diesel fuel with methanol. The methanol injection is nearly double of diesel as the methanol fuel has lower calorific value than diesel fuel (~53 % of diesel). Diesel was replaced up to 86 % with methanol. Methanol was injected in intake port by two injectors at 4 bar fuel pressure. A production-grade single-cylinder, four-stroke, water-cooled, naturally-aspirated, constant speed diesel engine (Kirloskar; DM-10) was modified and used for the experimental test. Technical specifications of the test engine are given in Table 1.

Engine parameters	Specifications
Make/Model	Kirloskar Oil Engines Limited (KOEL), India/ DM-10
Engine type	Vertical, four-stroke, single-cylinder, constant-speed, direct-injection CI engine
Rated power output	7.4 kW (10 hp)
Rated engine speed	1500 rpm
Bore/ Stroke	102 mm/ 116 mm
Displacement volume	948 cc
Compression ratio	17.5
Nozzle opening pressure	200 bar
Cooling type	Water cooling
Governor type	Mechanical, centrifugal (A2 class)