

HW#9 Internal Combustion Engines

1) A 4-cylinder car gets 14.5 km/l of gasoline from a gasoline port-type EFI system, and operates at 3000 rpm (on average) at an average vehicle speed of 100kph. If the injector's gasoline flow rate (open) is 5g/sec, what is the typical injection duration [ms]? Assume one injection per cylinder per cycle.

2) If the above engine operates on CNG, what is the minimum injector flow rate [cc/sec of CNG] to insure no more than a 25% duty cycle (on the injector) if the engine produces 60kW at 6000 rpm with a BSFC of 320 gm/kWh?