
A Study for Effect of the Application of the Variable Geometry Turbocharger to the Direct Injected Gasoline Engine.

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Applying turbocharger to engine is a primary downsizing way to improve power and fuel consumption. The wastegate turbo charger has been used on gasoline engine because of higher exhaust gas temperature than diesel engine. Nowadays the variable geometric turbocharger(VGT) can apply to gasoline engine as new material is discovered and endurance has improved. The VGT has a better fast transient response and efficiency than wastegate turbocharger(WGT) so better responsiveness at low engine speed zone and fuel consumption are expected. This article evaluate a transient response on low speed region and fuel consumption at full load conditions of the 1.5 liter direct injected gasoline engine equipped with the VGT. As a result, response time improved by 65% at 1500rpm than using the WGT and fuel consumption is reduced by 4.6% at 5000rpm.